

**AN EMPIRICAL STUDY OF THE FIDELITY OF ORGANIZATIONAL
ACCOUNTING COMMUNICATION AND THE IMPACT OF
ORGANIZATIONAL CULTURE**

by

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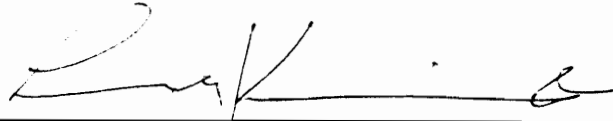
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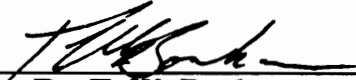
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(ABSTRACT)

Communication and culture both play essential roles in organizations. The effective communication of accounting information is required to coordinate business operations and move the organization toward the accomplishment strategic goals. Without effective communication, the most sophisticated analyses and crucial reports will fail to generate appropriate decisions and actions. Culture is a symbolic system of values that helps the members of an organization explain, coordinate, and evaluate behavior and to ascribe common meanings to events and symbols encountered in the organization. Organizations confine the experience and interaction of its members into structured and recurring patterns. As organization members interact, shared meaning for issues of common interest evolve. A technical organizational language develops whose symbols have definite and common meaning. If the culture of organizations or subcultures within an organization are different, dissimilar meanings could be ascribed to the

management accounting terms (symbols) used to communicate accounting information. Dissimilar meanings could inhibit the fidelity of accounting communication within and between organizations and organization subunits.

Following the methodology used by Haried (1972), a semantic differential was constructed to measure connotative meaning of nine important and commonly used management accounting terms. Culture was measured using the Organizational Culture Inventory (OCI), a questionnaire designed by Cooke and Lafferty (1984, 1987). Utilizing the OCI allowed the researcher to measure the extent to which members of a unit agree with predefined cultural norms and to measure the intensity, or strength of the culture. It also facilitated intra-and inter-unit comparisons.

Data were collected from management accountants and managers in ten different organizations representing different industries and analyzed using MANOVA. Comparisons of the meaning of accounting terms between organizations and between accountants and managers within organizations were examined. The relationship between the strength of organizational culture and the variance of shared meaning was also examined.

The data supported the theory that differences in meaning exist across both organizational and professional cultural boundaries. There are significant

differences in meaning between organizations, but more shared meaning within organizations. The data did not support a relationship between strength of organizational culture and the variance of shared meaning.

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The seeds of this research project were planted over three years ago. During the last three years, many people have sacrificed selflessly of their time and resources. It has been that sacrifice that has enabled the successful completion of this project.

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Chapter 1

Introduction

1.1 Background

The National Association of Accountants (NAA, 1982) identifies "effective communication of information" as part of the definition and one of the objectives of management accounting. The NAA recognizes that some of the accounting terms used in communicating information have multiple meanings, and consequently has published a glossary of management accounting terminology (NAA, 1983) to be used as a guide for understanding the terms used in the practice of management accounting. This study will examine the fidelity of accounting communication within organizations by comparing the meaning attributed to commonly used management accounting terms by accountants and users of accounting information.

This chapter contains three sections. First, the importance of the communication function in organizations is reviewed. This section also contains a discussion of how the development of organizational languages aids the effectiveness of communication. Second, the accountant's role in organizational communication is examined, followed by a discussion of the potential barriers to effective accounting communication. Third, the objectives of this study are identified.

1.2 The Importance of Communication in Organizations

Many researchers of organizations recognize the essential role that communication plays in organizations. Barnard (1938) saw communication as essential to organizations.

"An organization comes into being when (1) there are persons able to communicate with each other (2) who are willing to contribute action (3) to accomplish a common purpose."

Barnard not only made communication the first among three prerequisites for organizations, but his analysis of the second element, willingness to serve, clearly shows that activation of an organization is not possible without communication. Barnard's third element, the accomplishment of a common purpose, also requires effective communication.

Euske and Roberts (1987) define communication as:

"the social glue that ties members, subunits, and organizations together. . . communication underlies most organizational processes. . . without communication, organizing could not occur."

Katz and Kahn (1966) define communication as the exchange of information and the transmission of meaning, and as the very essence of a social system or an organization. The accomplishment of work depends upon communication between people in each organizational subsystem and between subsystems.

Weick (1987) states:

". . . communication is the essence of organization because it creates structures that then affect what else gets said and done and by whom. Structures form when communication uncovers shared occupational specialties, shared social characteristics, or shared values that people want to preserve and expand. The structures themselves create additional resources for communication such as hierarchical levels, common tasks, exchangeable commodities, and negotiable dependencies."

A review (Goldhaber, 1990) of the theoretical and empirical research in organizational communication reveals that communication must perform three major functions for an organization to grow and prosper. The first is the adaptive function--organizations must communicate with their environment so they can adapt to a changing world. The second is the operational function. This function is necessary to coordinate behavior for the accomplishment of organizational

goals. The first and second functions are reflected in modern organization theory that characterizes organizations as open systems that are dependent upon other social systems and a dynamic environment as sources of input and output.

Achieving organizational goals in the face of this complexity requires that the enterprise rely heavily on the mechanism of specialization and differentiation.

Lawrence and Lorsch (1967) recognized that communication must perform an integrative function as organizations differentiate to meet the challenges and demands of their environments.

The interdependent functions that arise from differentiation require information and the establishment of channels of communication to coordinate their efforts (Emmanuel & Otley, 1985).

The third is the maintenance function--to train and indoctrinate employees into the organizational culture. The third function is reflected by an ongoing socialization process in organizations.

1.2.1 The Organization's Language of Business

March & Simon (1958) recognized that the capacity of an organization to maintain a complex, highly interdependent pattern of activity is limited in part by its capacity to handle the communication required for coordination. They state that the organization's tolerance for interdependence could be achieved by increasing the efficiency of communication. This is accomplished by making it

possible to communicate large amounts of information with relatively few symbols--a carefully defined and highly developed organization language. An organization language is a technical language whose symbols have definite and common meanings to the members of an organization. It provides cognitive categories for classifying the situations and events of the organization. March and Simon (1958) identified the accounting language as an example of a technical, organization language.

Accounting has been recognized as a language in many of the popular accounting textbooks. Horngren (1974) states that accounting is a language with a special vocabulary designed to relate the financial story of organizations. Anthony and Reese (1975) assert that accounting has many dialects and differences in terminology among industries and among companies within the same industry.

Accounting can be said to exhibit two of the essential attributes of a natural language: symbols and grammatical rules. Jain (1973) points out that symbols are represented in accounting by a specialized terminology, and the grammatical rules of the accounting language are represented by the complex set of rules (principles, procedures, etc) which regulates the manipulation of that terminology.

According to Hayes (1983), management accounting facilitates the process of

organizing by providing a language by which the negotiation of meaning can take place. He states:

"Accounting as a communication device creates meaning by providing rich descriptions of states of the organizational world. A production process is described by unit cost elements, standard costs, variances from standard, total costs. Patterns are provided via relationships between inputs and outputs in cost data; predictability by the use of standards, information by the detailed picture of a process provided by the accounts, and restraint on random behavior by analysis of deviations. Accounting data captures and fulfills the essence of interpersonal communication."

1.3 The Accountant's Role in the Organization

The essence of the accounting process is the communication of information with financial or management implications. The American Accounting Association (1966) noted that:

"Communication is the vital link in the accounting activity. It is of no less importance than that of developing the information itself."

In an organizational context, the use of accounting information is necessary in the planning, control, and decision making functions of management. Maciariello (1984) identifies the following activities as comprising the functions of management:

- (1) Planning what the organization and its subunits are to accomplish during a specified period of time.

- (2) Coordinating the plans and activities of all parts of the organization to ensure that they are all working toward the same purposes.
- (3) Processing information within each subunit and between subunits for purposes of decision making.
- (4) Evaluating information and deciding what action should be taken to bring correction to a situation.
- (5) Influencing the behavior of people to bring about desired results.

An implicit process in each activity is the communication of accounting information. The use of accounting-based control systems has commonly been advocated as an effective control technique (Demski and Feltham, 1978; Merchant, 1981; Kaplan, 1982), but this technique is effective only if information is properly communicated.

In our information society, communication is occupying an increasingly large part of the activities engaged in by members of organizations. More and more of the resources and energies of an organization are being devoted to communication activities (Farace, et al. 1977). As the pivotal processor, interpreter and controller of financial information, the accountant has come to occupy a more powerful role in the management decision making process.

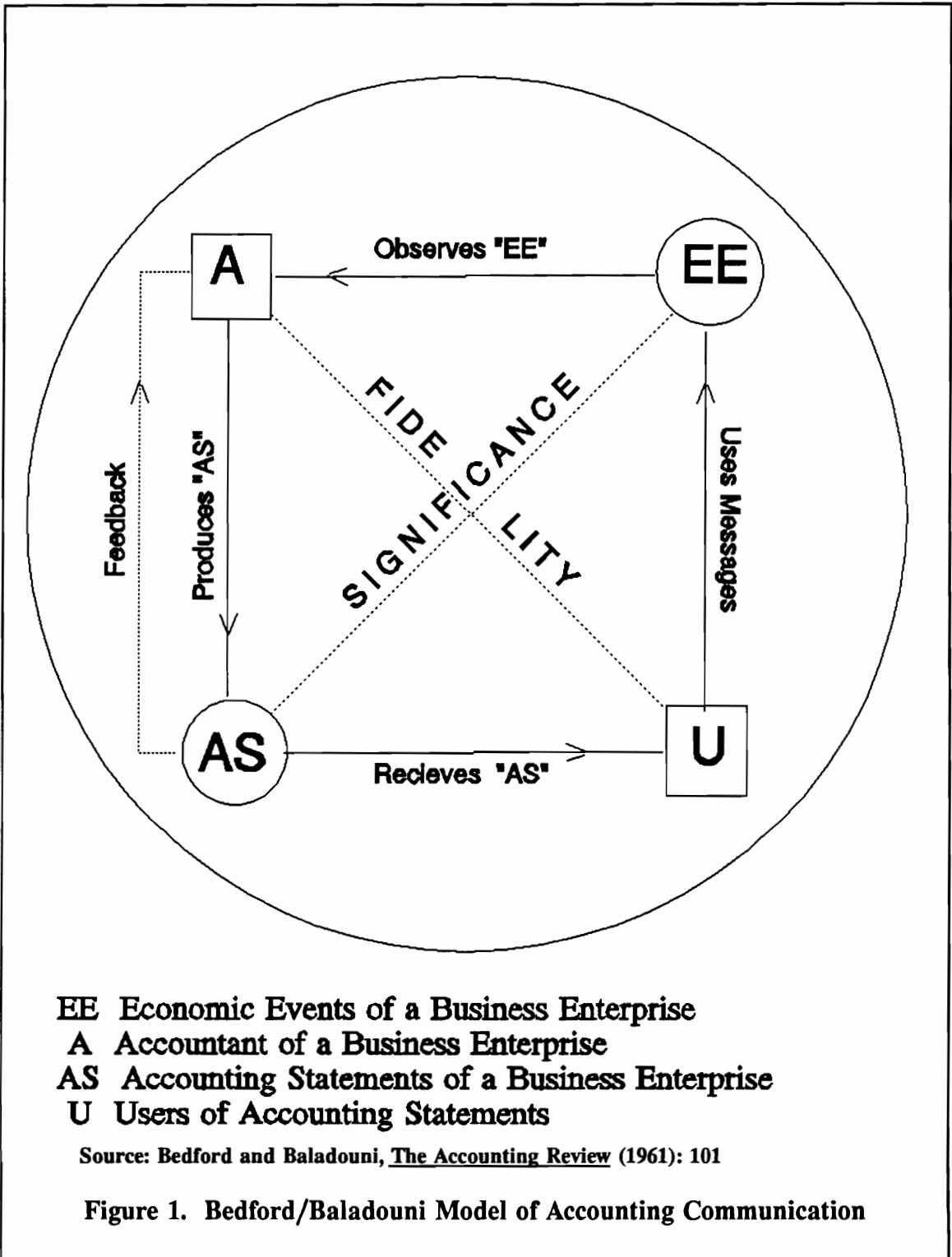
Recent research points to the increasing importance of the accountant's inputs to management decision making. In their survey of company presidents and executive vice presidents, Tipgos et al. (1983) found strong evidence of the

increasing importance of the accountant in an organization. Sixty-eight percent of the respondents placed heavy reliance upon management accountants' advice in making strategic decision. Seventy-three percent indicated that management accountants were directly involved in certain line decisions. Forty-four percent felt that line management depended heavily on management accountants for innovative ideas for improving operations. Finally, ninety-three percent of the respondents argued that the complexity of the business environment and of economic conditions contributed significantly to the importance of management accountants in decision making.

To successfully meet the increasing expectations of management, an effective management accountant must communicate effectively (Siegel & Ramanauskas-Marconi, 1989). The necessity of effective communication is often overlooked. Yet without effective communication, the most sophisticated analyses, crucial reports and worthy proposals will flounder and fail to generate appropriate decisions and action (Parker et al., 1989).

1.4 Statement of the Problem

Bedford and Baladouni (1963) modeled the communication process in accounting and emphasized the importance of fidelity in communication between the



accountant and the users of accounting information (Figure 2). This four-element model is situated within a larger circle which represents the environment in which the business organization operates. The model's components include: economic events (EE), the accountant (A), the accounting statements (AS), and the user (U). The model also includes the concept of fidelity to describe the desired communication between the accountant and the user, and the concept of significance to relate the accounting statements to the economic events. In providing the relevant information to decision makers, the accountant (A) encodes a message (AS) to the user of the statements concerning the observed events. The accountant's thoughts and meanings are represented by the symbols contained in the message. Before the message can be utilized, the user (U) must decode the statements to reconstruct the thoughts the accountant encoded. Fidelity of communication exists when there is correspondence between what is understood by the user (U) of the accounting information (AS) and the intended message communicated by the accountant (A).

Accountants have not always been successful in sending the intended message or having the message understood exactly as intended. Goldberg (1965) asserts:

"it is scarcely an exaggeration to say that the problem of communication is the axial problem in accounting ... very few expressions of general application can be used unequivocally without some risk of their being misinterpreted.

Devine (1985) argues:

"The accounting profession is overrun with cliches, stereotypes, meaningless phrases, wrong-meaning labels, unspecified antecedents, vague referents, confusion of abstraction levels and general tyranny of words to block effective communication."

As the accounting profession has expanded, so has the terminology. Concepts and terminology in management accounting have evolved without any clear consistent basis, and the diversity of terminology in the field has come from a mixture of sources including economics, engineering, financial accounting, and academics. Colthurst and Piper (1986) compared the definitions of five common (and sometimes interchangeable) "cost" terms in six different textbooks and two professional organizations. They found a significant lack of conformity in the definitions of terms that are used in everyday practice. Some professional organizations (AICPA, NAA) have recognized the problem of divergent terminology and have published handbooks of "approved" definitions for accounting terminology.

A more serious problem than a divergent terminology is the critical role of code in the communication process. Semantic code is an implicit part in the message model of the communication process (Akmajian et al., 1984). The basic communication model consists of three elements, the transmitter or sender of the message, the communication channel, and the receiver of the message. The

transmitter encodes a message into signs (words) appropriate for the communication channel (written or spoken). These signs are then transmitted through the channel to the receiver who decodes them for meaning.

This abstract model does not address the process by which messages are developed and interpreted. The meaning attached to the signs used in communication by sender and receiver is created as a result of learning through experience. Thus, it is not possible to maintain that a specific sign or word means the same specific thing to both the sender and receiver, or that transmission of the sign automatically results in reception of the intended message. The varied experiences of different people are likely to develop varied meanings for the same sign. The meaning of signs is not found in the objective world of things and objects and facts, but is more subjective and found in the minds of senders and receivers. In order for transmitter and receiver to communicate at all, they must share a common semantic code. Stated another way, effective communication occurs more easily when sender and receiver are cognitively similar. If there is no agreement on the meaning of words, communication is logically impossible.

A body of academic literature argues that effective communication and coordination of activity in organizations is a function of the degree to which shared meanings are developed among organizational members (Pfeffer, 1981).

Through the development of shared meanings, organization members achieve a sense of commonality of experience that facilitates their coordinated action.

Culture promotes cognitive similarity and shared meaning and helps the members of a group make sense out of the events and symbols in their environment (Jennings, 1986).

While organizational cultures facilitate effective communication within organizations, March and Simon (1958) recognized that there are various degrees and determinants of the ease and accuracy of organizational communication. They noted that communication is easy within a profession or functional group, but may be difficult across professional or functional lines. The existence of subcultures within an organization might inhibit effective communication. They felt that the ease and accuracy of communication may depend upon motivational and cognitive factors. Effective communication occurs more easily when sender and receiver are similar. The degree of similarity or difference is determined by demographic similarity and cognitive similarity. Individuals who share common experiences, language, culture and expertise tend to communicate with each other effectively.

1.5 Statement of Purpose

This chapter contained a review of the critical function that communication plays in organizations, and the pivotal role that management accountants play in communicating essential information to decision makers. The purpose of this study is to examine the effectiveness of organizational communication between two functional groups, accountants and managers, by comparing the meaning attributed to commonly used accounting terms by both groups. Euske and Roberts (1987) identify this as a ripe area for research. They note that although this area has a growing body of theoretical work, the related empirical research has not kept pace. Porter and Roberts (1976) state that group-to-group communication has not been studied to any great extent. This study also examines the impact of organizational culture on the content of meaning attributed to accounting terminology by different organizations and different functional groups, and the degree to which meaning is shared between organization members.

Chapter 2

Literature Review

2.1 Introduction

The fidelity of communication is a vital accounting responsibility, yet it has not been heavily researched. Haried (1972) states that at the time he undertook his study into the semantic problems of external accounting communication, he was not aware of any empirical research by other accountants addressing this issue. Since Haried's study, the fidelity of accounting communication and the measurement of meaning have been addressed at least thirteen times in accounting research. All thirteen studies have addressed the fidelity of financial accounting communication with external users of accounting information. The fidelity of accounting communication within organizations has been largely ignored.

The literature review is divided into five sections. The "measurement of meaning" concept and the instrument developed to measure meaning is presented in the first section. Four non-accounting studies that predate Haried's first accounting study in the measurement of meaning are reviewed in the second section. All of these studies measure differences in meaning between various groups in different settings. The measurement of meaning studies in accounting in which the semantic differential was used are reviewed in the third section. Each study presents either a slightly different research question and/or different methodology. Other measurement of meaning studies in which other techniques were used to measure meaning, especially multidimensional scaling, are presented in the fourth section. The relevant points from previous measurement-of-meaning studies that are significant to this study are presented in the fifth section.

2.2 Semantic Differentiation and the Measurement of Meaning

"Of all the imps that inhabit the nervous system--that 'little black box' in psychological theorizing--the one we call 'meaning' is held by common consent to be the most elusive." (Osgood et al., 1957)

Responding to the challenge of measuring this elusive construct, Osgood et al. (1957) developed a research tool called the semantic differential that is capable of quantitatively measuring connotative meaning. Connotative meaning refers to an accumulation of emotional association a particular referent has acquired arising

from personal experience. Osgood acknowledged that it was connotative meaning that influenced human reactions.

"Most social scientists would agree--talking freely on common sense grounds--that how a person or organization **behaves** in a situation depends upon what the situation means or signifies to him. And most would also agree that one of the most important factors in social activity is meaning and change in meaning . . ." (emphasis added)

Osgood drew upon psychology and learning theory to define meaning as a representational mediation process. It is representational in that the sign elicits some portion of the total behavior elicited by the referent. This definition of meaning provides a direct link to behavior.

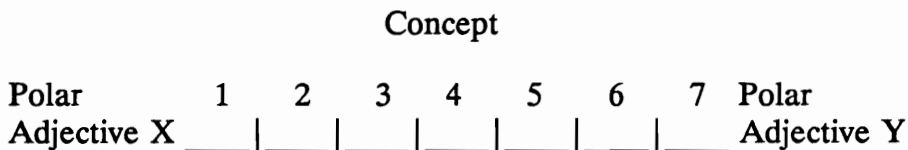
The world of experience of individuals is composed of a tremendous array of discriminably different objects, events, people, and impressions. If we were to make a full discrimination of each one of these entities we would be "the slaves of the particular" (Triandis, 1958). We are able to deal with this variety of stimulations because of our ability to cognitively categorize them. Categorization depends on the use of attributes, and cognitive categories are formed through experience and reinforcement. A category prototype will take on the attributes of category objects with which they are most familiar and have the most experience.¹ The cognitive categories that constitute connotative meaning for various domains

¹A more thorough discussion of cognitive categories is presented in Section 3.4 of this dissertation.

are identified by the semantic differential. The semantic differential as a tool for the measurement of meaning was founded in Osgood's conception of semantic space. He defined semantic space as:

"a region of some unknown dimensionality and Euclidian in character. Each semantic scale defined by a pair of polar (opposite in meaning) adjectives is assumed to represent a straight line function that passes through the origin of this space, and a sample of such scales then represents a multi-dimensional space." (Osgood et. al., 1957)

The semantic differential is a method of controlled association and scaling. It consists of message stimuli or concepts to be evaluated, and a set of bipolar adjectives on a numeric scale. When a subject judges a concept against a series of scales, each judgment serves to allocate the concept to a point in semantic space. For each concept-scale pairing the following situation is presented.



The respondent is asked to judge whether the "concept" is more closely associated with adjective "X" or "Y." Semantic scales are designed to measure the two properties essential to the specification of a point in semantic space--direction from the origin and distance from the origin. The direction from the origin depends on the alternative polar term selected and is associated with the quality

or substance of meaning. The distance from the origin depends on the extremeness of the scale position checked and is associated with the intensity of meaning.

Osgood theorized that semantic space represented the universe of behavioral responses to a symbol, and that an individual's behavior response to a symbol corresponded with the selection of a particular adjective scale and the intensity of agreement with that adjective scale. The intensity of association of each number on the scale corresponds as follows:

- | | | |
|----------------|-----------------------------------|----------------|
| 1. Extremely X | 4. Neutral | 5. Slightly Y |
| 2. Quite X | (Neither or
equally X
or Y) | 6. Quite Y |
| 3. Slightly X | | 7. Extremely Y |

Responses to the semantic differential can be considered as measures of the latency of a response. Latency is a measure of habit strength (Triandis, 1958).

The selection of alternative descriptive adjectives permits the researcher to isolate in "semantic space" the meaning of a particular concept to a respondent or group of respondents. The responses on a series of relevant bi-polar adjective scales are subjected to a factor analysis which identifies the dimensions of meaning of the respondents and the bi-polar adjective scales that best describe each dimension. Each dimension in "semantic space" is represented by a vector passing through the

origin of "semantic space" which is orthogonal to all other dimensions. In the factor analysis conducted by Osgood, the scales tested and the concepts judged were selected so as to sample the "complete domain of meaning" (Osgood et al, 1957). In Osgood's studies, three major dimensions repeatedly emerged-- evaluative represented by scales such as "good-bad," "important-unimportant;" potency, by scales such as "hard-soft," "strong-weak;" and activity, by scales such as "active-passive," "fast-slow."

2.3 Non-Accounting Measurement of Meaning Studies

Communication studies involving the measurement of meaning did not originate with accounting. Four early non-accounting studies provide insight and support for the hypotheses of this study. All four studies utilized the semantic differential to measure meaning.

2.3.1 Runkel (1956)

Runkel tested the general hypothesis that cognitive similarity increased the efficacy of communication. He theorized that there are a number of attributes of a stimulus or symbol. The collection of relevant attributes serves as reference vectors and defines a multidimensional space within which an individual's

potential responses to the stimulus are determined. Runkel believed that an individual could simplify the interrelations of judgments by weighting and ordering the relevant attributes into a simple linear order. When two communicating individuals utilize the same underlying attribute in forming their judgments, their orientations are co-linear and they are considered to be cognitively similar and the quality of their communication will be better.

Runkel hypothesized that students who maintain attribute rank order co-linear with that of the instructor would receive higher grades. He selected students in five different introductory courses in psychology at the University of Michigan. Five statements relevant to the course that were capable of being perceived in a multidimensional manner were to be rank ordered. The five statements were presented in triads and the students and teachers were to select the statement they most agreed with and the statement they least agreed with. The responses of students and teachers were compared by means of a co-linearity table. The hypothesis was supported.

"Further examination of the data provided evidence that the higher grades on the part of co-linear students could not be accounted for by differences in scholastic ability, nor by conformity to a common attitude norm, nor by a preference for the same attitude position as that held by the teacher . . . the results imply that differences in abilities between communicators and differences in agreement concerning the content of communication must fail to account for certain effects of communication which can be accounted for by similarity of cognitive structure between the communicators."

2.3.2 Weaver (1958)

Weaver stated that one of the barriers to communication between groups is the effect that frame of reference has upon the concepts used in communication.

Frame of reference refers to the previous experience that an individual has with a particular concept or symbol. A symbol may by explicit or written agreement stand for anything which may be agreed upon. But this is not the case for most of the symbols used in communication. When a communicator uses a symbol to convey to a communicatee a meaning which exists in the communicator's mind, he or she can only evoke in the mind of the listener the symbol which has been developed there through the listener's past experience with the concept.

Weaver hypothesized that one of the determinants of concept meaning in groups was group norms. Group members who have internalized well the norms of a reference group are likely to hold similar frames of reference toward the concepts related to the norms of that group. Weaver believed that labor and management groups had different norms and different frames of reference related to concepts important to labor-management relations.

Frames of reference were established by measuring the connotative meaning of selected symbols in the area of labor-management relations using Osgood's

semantic differential. Weaver selected ten concepts from the labor-management relations literature that labor and management could be expected to have different norms towards. He also selected thirty bi-polar adjective scales from Osgood's work which were part of the evaluative dimension of meaning. The resulting 300 item questionnaire was administered to twenty-five Ohio State University students who strongly favored labor unions and twenty-five students who strongly favored management. The results identified 107 of the 300 items that were significantly different on eight of the ten concepts.

A new questionnaire with eight concepts and twelve bi-polar adjective scales was developed and administered to two labor unions groups and two management groups. An additional scale, good-bad, was added to four of the concepts to make a 100 item questionnaire. The significance of the differences between labor and management was computed by means of the t test. Ninety-seven of the 100 items gave values for t which were statistically significant at the .1% level. The results suggest a semantic barrier to communication between labor and management that can be attributed to different frames of reference. Weaver noted that labor was more extreme and united than management in the meaning attributed to the eight concepts.

2.3.3 Triandis (1959)

Triandis tested the hypothesis that cognitive similarity affects the process of interpersonal communication. His hypothesis rested on the assumption that if two people categorize events, objects, and concepts in similar ways, they should be able to communicate more effectively. People categorize their experiences in different ways. Consequently, some people will be more similar to each other than to other people. The more similar the communicative orientations of two communicants, the less it is necessary for either of them to translate the message in terms of the other's orientations. Greater cognitive similarity is achieved through interaction.

Triandis found that repeated patterns of interaction are likely to occur within organizations. More specifically, if two individuals (A and B) are cognitively similar and there is opportunity for communication, the communication will be more effective, the relationship between A and B will be more rewarding, and A and B will like each other more. Increased liking leads to higher rates of interaction between A and B and this permits greater cognitive similarity thus starting the cycle all over again.

Triandis' attempt to use Osgood's general semantic differential with workers in an

organization revealed that those subjects found it difficult to respond to unusual combinations of concepts and scales. In order to get a more discriminating set of scales concerned with the particular domain of meaning, he used a triad procedure. This procedure captures the attributes of the dimensions of meaning being measured. The triad procedure will be discussed in connection with Haried's study.

Triandis used the semantic differential to measure syndetic similarity for jobs and people, and the triad procedure to measure categoric similarity for jobs and people. Both syndetic and categoric similarity represent different measures of cognitive similarity. His measured dependent variables were communication effectiveness and liking for supervisor. To analyze the communication effectiveness and liking between supervisor and subordinate, Triandis employed correlation analysis, regression analysis, and analysis of variance to test his hypothesis. Each statistical methodology disclosed that syndetic similarity for jobs as measured by the semantic differential was the most effective indicator of both communication effectiveness and liking for supervisor. Triandis demonstrated that those who categorize in similar ways will communicate more effectively. When communication category similarity scores were plotted against communication effectiveness scores, the relationship was linear as confirmed by the Pearson r of .83 ($p < .0001$).

2.3.4 Wolters (1982)

Wolters replicated the Weaver (1958) study. He hypothesized that ideological differences² may be an underlying cause of industrial conflict that impair union-management interaction.

Wolters perceived the labor relations process as an ongoing series of communication between unions and management. Each group tries to alter the perception of the other side in a manner favorable to the attainment of each group's preferred outcomes. The ability of each party in this interaction to accurately perceive and interpret relevant informational cues is critical to the subsequent behavior leading to the attainment of preferred outcomes. Individual members of each group adopt the ideological frame of reference of their respective reference group as a result of their exposure to relevant socializing experiences.

The sample was drawn from union and management respondents from sixteen different states representing manufacturing firms. A semantic differential

²The Wolters (1982) study examined ideological differences while Weaver (1958) examined differences in frames of reference. The two are essentially the same. Wolters defined ideology as a "multidimensional concept reflecting components of beliefs, values, and attitudes toward ideas, objects, or persons within an individual's world of experience. Weaver defined frame of reference as the "apperceptive mass" that accumulates with experience. He pointed out that group norms are one determinant of an individual's frame of reference. Both concepts describe elements of culture.

measured the meaning of ten different labor-management relation concepts using eight bi-polar adjective scales. The adjective pairs were drawn from the factor analytic results of Osgood et al (1957). Wolters found significant ($p < .01$) differences between the responses of union and management representatives on each concept.

2.4 The Measurement of Meaning in Accounting

2.4.1 Haried (1972, 1973)

The first published work in the measurement of meaning in accounting was provided by Haried. The underlying argument of Haried's work was that meaning was central to any discussion of accounting communication. Semantic problems in communication are concerned with the proximity in meaning between that intended by the sender of the communication and that interpreted by the receiver.

Haried (1972) was faced with the task of adapting the semantic differential for use in accounting. The scales and factors identified by Osgood pertain to a large domain of meaning, but may not apply to specific domains of meaning. Osgood explained:

"It is also true, of course, that the three dominant factors that we have isolated do not exhaust semantic space, and therefore dimensions highly significant for differentiating the concepts in a particular study might be lost entirely if one stuck to only evaluative, potency, and activity scales." (Osgood et al, 1957)

The two major problems faced by Haried in adapting the semantic differential to accounting were first, to identify pairs of bipolar adjectives relevant to financial report terminology, and second, to identify the independent dimensions of semantic space to which these scales relate.

Triandis (1958) showed that the triad procedure is a useful technique for generating pairs of bipolar characteristics relevant to a particular domain of meaning.³ Twelve triads were administered to sixty-five subjects which generated seventy-six pairs of bi-polar adjectives to be used in the construction of the semantic differential. From the seventy-six bi-polar adjectives, the thirty bi-polar adjectives which generated the most responses were selected for use in the subsequent factor analysis. Three additional bi-polar adjectives were added representing each of Osgood's three dimensions of general meaning making a

³Triads, which consist of sets of three stimulus terms, are presented to subjects who are asked to perform the following tasks:

1. Decide which of the three concepts is more different than the other two.
2. Decide what the characteristic(s) is of the one concept that makes it different.
3. Complete the following sentence bearing in mind one or more of the characteristics identified in step (2): "The different word is more (less) _____ than the other two words.
4. Write down the logical opposite to the word used to complete the sentence in step (3).

total of thirty-three bi-polar adjective scales.

Factor analysis provided the means for determining the independent dimensions of semantic space and the relationship of the scales to the independent dimensions. The factor analysis undertaken in Haried's study was based upon observations obtained on thirty-three scales using eighteen stimuli concepts and ninety-two subjects. The eighteen stimulus concepts represented various sections of the primary financial statements. Haried used Common Factor Analysis and a Varimax rotation of the preliminary solution to obtain the final solution or simple structure. In his preliminary solution, 16.5 percent of the total variance was accounted for as common variance, and 99.6 percent of this common variance could be explained in terms of seven factors. Haried identified his factors as Objectivity, Evaluation, Control, Activity, Time, Stability, and Necessity. Two bi-polar adjective scales were selected to represent each factor with the exception of the Objectivity factor, which was represented by three scales. The scales selected were those that loaded most heavily on the designated factor without loading heavily on any other factor.

Haried (1973) tested two general hypotheses. The essence of the first hypothesis was that certain terms used in financial statements fail to convey the meaning intended. The second related hypothesis was that certain terms used

interchangeably and expected to convey identical meaning are not understood by users as being synonymous.

To test the hypotheses, the refined test instrument was mailed to a random sample of Illinois CPAs. Their responses were used to establish the meaning intended to be conveyed by the selected terms. Four user groups were also employed. Financial analysts and attorneys represented sophisticated users and investment clubs and college students with no previous experience with financial reports represented unsophisticated users.

Sixteen accounting terms were selected by Haried for evaluation by CPAs and financial statement users. Six of the terms were applicable to the first hypothesis. Ten terms, five sets of alternative terms presumably having identical meaning, were selected for testing the second hypothesis.

Individual factor scores were calculated by averaging respondent scores for each scale associated with a particular factor. The set of seven factor scores were used to represent the meaning of a term to an individual respondent. Group factor scores were obtained by averaging individual factor scores for all respondents within a group. Differences in distance between sets of factor scores were

measured by means of the D statistic.⁴ However, the D statistic is an absolute quantity with no distribution. To adapt the D measure to parametric statistical tests, Haried introduced the concept of relative distance. Using the set of factor scores for CPA respondents as a referent, the distance between each individual in a particular user group and the referent was calculated. The set of distance measures for each user group and each term provided a known distribution to which classical statistical tests were applied.

For the first hypothesis Haried found no significant differences in overall meaning between preparers and users. However, important differences on specific dimensions of meaning were found for four of the five terms. For the second hypothesis, significant differences in meaning appeared on two of the five sets of terms which were intended to convey the same meaning between accountants and various user groups.

Haried (1973) stated that the major purpose of his study was:

"to provide a basis for supporting or rejecting the hypothesis that the semantic differential . . . [is] adaptable to the systematic gathering and analyzing of evidence relevant to semantic problems in external accounting communication."

⁴For a more thorough discussion of the D statistic, see Haried (1973), pp. 120-122 and Osgood, et al. (1957), pp. 90-92.

Haried evaluated the semantic differential in terms of its sensitivity, reliability, validity, and practicality in drawing conclusions regarding research hypotheses addressing the measurement of differences in meaning. He concluded that the refined semantic differential is "reliable, sensitive, practical and is effective in measuring small differences in the affective component of meaning attributed to terms used in financial reports."

The most significant contribution of Haried's research was the development of relevant bi-polar scales to measure meaning in accounting, and identifying seven dimensions of meaning relevant to accounting. Haried stated:

"It seems reasonable to conclude . . . that a semantic differential . . . based on the seven factors identified . . . would be more sensitive in differentiating meanings associated . . . with terms and in financial reports than the three-factor procedure designed by Osgood for the general domain of meaning.

Of Osgood's three factors, only the evaluative and activity dimensions were reproduced from Haried's factor analysis. Haried's efforts led to the discovery of five dimensions of meaning uniquely applicable to accounting communications research.

Two weaknesses in research methodology provide a basis for questioning Haried's conclusions. First, by Haried's admission, there were inadequate response rates from the groups sampled. Second, "classical parametric statistical techniques"

were used when it is likely that the data were not normally distributed. Osgood states that the distribution of the D statistic is not known, but it is probably not normal in shape.

In the same study, Haried (1973) also discussed the adaptation of another instrument used to measure denotative meaning in financial accounting, the antecedent-consequent method. Although this method was considered by Haried to be a reliable, sensitive, practical and effective tool for measurement of meaning, it faced severe limitations. The technique requires that antecedents and consequents be developed for each term and each population to be sampled each time the instrument is applied. Also, the technique is not adaptable to interpretation of communications of more than three to four words in length.

2.4.2 Oliver (1974)

Oliver published research which used the semantic differential to measure the meaning of eight selected accounting concepts among seven professional groups involved in the production and use of accounting data. Oliver felt that the greater the fidelity of communication between interested parties, the more effective should be any decision making based upon that information.

Oliver's study was distinguished from Haried's in both the nature of stimuli used to elicit the subject's responses, and the nature of the semantic differential used to measure meaning. The Haried study concentrated on the meaning of accounting terms employed directly in the message of the financial statements. Oliver focused on the underlying accounting concepts utilized in formulating that message. In identifying accounting's key concepts, Oliver distributed an open-ended questionnaire to fifteen full-time Accounting Department faculty at the Wharton School. They were to list the concepts which they considered central to an understanding of accounting. The twenty most frequently mentioned concepts were selected and sent to a sample of approximately 300 CPAs and 150 accounting educators for rank ordering. The eight most important concepts were selected for testing.

Rather than create a new semantic differential uniquely applicable to accounting, Oliver accepted Osgood's basic three dimension semantic differential. He used the ten scales that loaded most heavily on the three dimensions in Osgood's study to test the meaning of the eight accounting concepts. A factor analysis of accounting responses revealed some similarities between Osgood's and Oliver's dimensions and scale loadings. However, Oliver concluded that Osgood's general semantic scales were less than ideal, and future researchers were cautioned to recognize the difference in accounting's domain of meaning. The shifting of

several scales to different dimensions in the factor analysis was an indication of an imperfection in Osgood's basic three dimension as applied to accounting. Oliver felt that better scale selection would result in a more sensitive and precise measurement of meaning, increase the variance of responses, and reduce the random error of measurement.

Oliver's sample involved seven professional groups involved in the production or the utilization of accounting data--CPAs, accounting professors, financial analysts, securities dealers, financial executives, investment bankers, and bankers. He hypothesized that there would be no differences in meaning among the seven professional groups for the eight concepts tested. The F-test was used and the level of significance was set at five percent for rejecting the two-tailed null hypothesis. He found a nonconformance of accounting educators' perceptions of meaning compared to the other six professional groups, and only minor differences within the six professional groups.

Oliver recognized an important limitation to measurement of meaning studies. Outside of statistical tests of significance, there is no criteria for determination of important differences in meaning, or at what point communication is ineffective. The existence of a lack of communication depends upon more than just the degree of similarity of connotative meaning. Osgood warns against attempting to

explain meaning only in terms of semantic space. To safely assert a lack of communication, the total message in which the concept is embedded and the source of the message must be considered, as well as syntactics (language structure and ordering) and lexicology (word meanings and applications).

2.4.3 Flamholtz and Cook (1978)

Flamholtz and Cook utilized the semantic differential to investigate "how the nature of connotative meaning might influence the readiness of accountants and managers to accept proposed changes in accounting." They recognized from previous research that virtually all accounting constructs have connotative meaning in various degrees. Connotations, in turn, have attitudinal and behavioral effects. The American Accounting Association's 1973-74 Committee on Human Resource Accounting (1974) stated that the label "Human Resource Accounting" had an exploitative connotation to some people which constituted one of the obstacles to its acceptance.

Flamholtz and Cook empirically tested the meaning of various Human Resource Accounting (HRA) concepts, how the meaning of these concepts differ from other more accepted but related accounting concepts, whether the dimensions of meaning for HRA concepts were the same for accountants and managers, and

how the dimensions of meaning for these constructs related to the dimensions found by Haried (1972) and Oliver (1974). Seven scales were selected from a list Osgood et al (1957) developed that seemed relevant to the concepts being tested. Five additional scales were added based on the researchers' assessment of their relevance for HRA. Managers were represented by forty four participants in the UCLA Graduate School of Management Executive Program. Accountants were represented by fifty-six alumni of the UCLA Graduate School of Management who were employed as public accountants.

Principal Components Analysis was used to identify the dimensions of meaning. The unrotated factor loadings disclosed four factors. However, a rotation could not produce a "simple structure." A simple structure exists if each scale loads only on a single factor. Flamholtz and Cook's data saw several scales loading heavily on more than one factor. Therefore, the unrotated factors were interpreted for meaning. The factors were assigned the labels of evaluative/utility, evaluative/operationalization, potency/benign, and potency/strong. The potency/strong dimension was dropped from the study since it had an eigenvalue of less than one, and was represented by only one scale.

In comparing the HRA concepts with the other accounting concepts, a graphical analysis showed that the concepts fell into two groups. Each group was

distinguished on only the evaluative/operationalization factor. One group represented the traditional accounting concepts which were seen as more easily operationalized than the group of new and relatively undefined concepts.

The researchers used separate factor analyses of the manager and accountant group data, graphical analysis, and the Wilcoxon's matched-pairs signed-rank test to determine if there was a difference in meaning between managers and accountants. All three methods showed no significant differences. Flamholtz and Cook felt that one of the most significant findings of their study is that "there appears to be a semantic halo effect that differentiates between the connotative meaning of traditional and nontraditional accounting constructs."

2.4.4 Karvel (1979)

Karvel viewed the auditor in the dual capacity of receiver and sender of messages. The auditor receives messages in the form of evidence of the economic events and actions relating to an entity, and the assertions of management. It is the auditor's responsibility to express an opinion on the fair presentation of the financial statements by selection of the unqualified, qualified, adverse, or disclaimer opinion paragraph for inclusion in the audit report. In other words, an unqualified opinion should produce a different understanding of a set of financial

statements than a qualified, adverse, or disclaimer opinion. The value of these graded audit opinions in aiding evaluation of financial statements is dependent upon auditors and users having a common understanding of the opinion expressed. The auditor communicates a message to the users of the financial statements through the audit report. The meaning of the message is to be found in the intentions of the auditor and the interpretations of the users. The effectiveness of the message is determined by the congruity of intended and interpreted meanings.

Karvel cited evidence and opinions in the literature that indicated that the opinion paragraphs of the audit report are not understandable. He concluded that a lack of common experience between auditor and users made the congruity of meaning unlikely. Motivated by the lack of empirical evidence to permit an evaluation of the audit report or any auditor communication problems, Karvel utilized the semantic differential to provide data relevant to evaluation of the auditor communication problem. A more specific objective was to determine the consistency with which CPAs and users understand the audit report. Users of the audit report in this study were identified as attorneys, bankers, financial executives, financial analysts, and credit managers.

Since no study using the semantic differential had been directed to the analysis of

the audit report's opinion paragraph, Karvel developed one. He selected forty-eight bi-polar adjective scales from Osgood's general domain of meaning, from the scales generated by Haried, and from adjectives contained in Statement on Auditing Standards No. 5, "The Meaning of 'Presents Fairly in Conformity with Generally Accepted Accounting Principles' in the Independent Auditor's Report."

A principal components analysis with varimax rotation of the initial responses extracted 58.7 percent of the total variance associated with nine factors. These nine factors, including one unspecified factor, accounted for 99.3 percent of the common variance. Two bi-polar adjective scales were selected to represent each of the eight specified factors. Various tests of the final semantic differential showed it to be a reliable and valid measurement instrument.⁵

Hypotheses were formulated to reflect comparisons of the message intended by CPAs with the message interpretation by the user groups represented in the study. The data was quantified into factor scores and Osgood's D-scores. These measures were assumed to have non-normal distributions; therefore, nonparametric measures of correlation were used to measure within and between

⁵**Reliability** tests included reversing the adjective scales for one of the two scales selected to represent each factor--accurate responses would result in negative factor loadings when compared with the other scale for the same factor. In addition, the random and systematic variance was compared with similar results obtained by Osgood and Haried. Finally, Karvel used the Spearman Rank Correlation for test-retest results.

Validity tests included analyzing the representativeness of sampling adequacy of the scales and concepts employed in the test instrument for content validity. A test for construct validity found that over ninety percent of the common variance extracted in factor analysis could be accounted for by the underlying dimensions of meaning identified.

group similarities and their degree of relationship. Karvel found that there were no significant differences between the understanding of CPAs and each user group's evaluation of the unqualified opinion paragraph. However, significant differences were found between CPAs and various users for the qualified, adverse, and disclaimer opinion paragraphs.

2.4.5 McNamara and Moores (1982)

McNamara and Moores addressed the issue of cognitive structures in accounting. In attempting to identify the qualitative characteristics of accounting information, McNamara and Moores worked back from users through identifying the cognitive evaluative dimension they employ to derive meaning rather than relying on normative judgments and implicit assumptions concerning users' judgmental processes. They stated:

"To the extent that an individual's meaning system influences their judgment then the 'meaning' accounting concepts have for individuals can be important in evaluating the appropriateness of competing accounting approaches."

They recognized that during the perceptual process, individuals simplify complex situations by selecting and abstracting only a few meanings that appear salient. This filtering result from their frames of reference, i.e. experience, background, customs, etc. Channels in the filter allow the salient data to be perceived. The

perceived, salient data not filtered out by the perceptual process can be categorized and represent cognitive structure.

McNamara and Moores recognized the value of Haried's development of an instrument that would provide a valuable insight into the cognitive processes involved in accounting related judgments. Using the semantic differential and factor analysis would reveal the multi-dimensional cognitive structure relevant to accounting information. McNamara and Moores expected that the cognitive structure in accounting would be simplified into relatively few channels or dimensions.

The researchers selected Haried's thirty-three bi-polar adjective scales and thirteen of the terms used by Haried. This questionnaire was administered to 206 first and final year students attending three different universities in Australia. Common Factor Analysis was used to analyze the data. The factor analysis resulted in eight factors being extracted whose eigenvalues were greater than one. The eight extracted factors were found to be very similar to Haried's results. In determining how many factors to rotate, McNamara and Moores experimented with rotating between five and eight factors. They found that the primary difference between a five and eight factor structure was a coalesce of several "evaluative" related factors into one factor. After applying the Scree Test, the

researchers decided to use a varimax rotation to rotate five factors. This resulted in four interpretable factors labeled relevance, reliability, potency/significance, and continuance, with the fifth factor representing residual scale loadings between .004 to .35. These five factors accounted for 43.5 percent of the total variance.

McNamara and Moores felt that the results of their study added validity to both the semantic differential as an instrument capable of measuring cognitive dimensions of meaning, and to Haried's study since the results of their factor analyses were similar.

2.4.6 Burke and Chlala (1983)

Burke and Chlala examined the potential impact of culture on the connotative meaning of selected accounting concepts. The purpose was to determine whether semantic barriers with respect to concept meaning arise in accounting communication between two distinctly different culture groups. The study was motivated by Hofstede's claim that culture variables play a significant role in business management and communication.

The researchers examined three related issues:

First, are the dimensions of connotative meaning identified by accounting researchers in the U.S. generally applicable to the Canadian context?

Second, are the dimensions of connotative meaning for accounting concepts similar among Quebec (French-speaking) and Saskatchewan (English-speaking) students and practitioners?

Third, if the dimensions among Canadian students and practitioners are similar, does the actual meaning measured on these dimensions vary among the four groups?

To facilitate comparisons with the previously reviewed U.S. research, similar semantic differential scales and data analysis methods were used. Two sets of concepts were chosen for investigation. The first consisted of six financial statement terms along the lines of the Haried study. The second focused on six traditional-nontraditional concepts along the lines of the Flamholtz and Cook study.

A factor analysis of the financial statement terminology produced a four factor structure as opposed to Haried's seven factors. Burke and Chlala labeled the four factors Evaluation-Audit (reflecting an evaluation with respect to auditing implications), Evaluation-Connotative (reflecting a person's feeling and attitude), Potency (reflecting the capacity of management to control the concept being rated), and Activity.

A factor analysis of the traditional/nontraditional accounting concepts revealed a factor structure similar to that obtained by Flamholtz and Cook. For the second

issue, separate factor analysis for each of the four Canadian groups on both the financial statement terminology and the traditional/ nontraditional accounting concepts produced no important differences between the groups.

The third issue was analyzed using both graphical analysis and statistical analysis. Like Flamholtz and Cook, the researchers used the Wilcoxon's matched pairs signed-rank test. There were only minor differences noted between the four groups on both sets of accounting terms and concepts. It was determined by the researchers not to be significant.

Burke and Chlala recommended that future researchers may find it desirable to develop scales utilizing adjectives that are more appropriate in an accounting context rather than deriving scales judgmentally or borrowing from other researchers. They suggested that the literature in the domain of interest be "combed" for descriptive words and phrases that may be pertinent.

2.4.7 Houghton (1987a, 1987b, 1988)

Houghton (1987a) employed the semantic differential to measure the meaning of "true and fair" for both accountants and private shareholders. This concept is used to describe the auditor's opinion of financial statements issued in many of

the Commonwealth countries. The motivation for this study came from the fact that this critical concept had not been defined in the relevant legislation or in the professional pronouncements.

Houghton's study examined differences between twenty-two chartered accountants and twenty-eight private shareholders in the meaning of "true and fair". He also examined differences between private shareholders' meaning and the meaning that accountants perceive that shareholders hold for "true and fair." Houghton felt that experts in particular fields have more complex and differentiated cognitive structure within their field of expertise than "lay" people. Thus, his final hypothesis addressed a difference in cognitive structure between accountants and private shareholders. Houghton used twenty-two of Haried's thirty-three scales which loaded heavily (greater than 0.5) on Haried's multidimensional structure to measure the meaning of "true and fair." A principal components analysis and a within group factor comparability test of the data revealed a three factor structure for accountants, and a one factor structure for private shareholders. The three factors for accountants were labeled potency, evaluative, and activity, which is consistent with Houghton (1988) and Osgood et al (1957). The shareholder's single factor partially reflected all three factors that make up the accountants' meaning.

Since a direct comparison of meaning between the incompatible structures of accountants and private shareholders is inappropriate, the only meaningful comparison was between accountants' meaning and the meaning that accountants perceive for private shareholders. An analysis of variance disclosed a significant difference on the activity dimension. Therefore, because of either factor incomparability or significant ANOVA results, Houghton was able to reject all hypotheses of no difference in meaning or no differences in cognitive structure between accountants and private shareholders.

Houghton (1987b) performed an intertemporal study that examined the acquisition and development of meaning associated with the process of education. Within the accounting literature, only Haried (1973) and Houghton (1988) noted the possible effects of differential levels of relevant education on the development of the meanings of various accounting concepts. Both studies presented evidence that differential levels of accounting education can affect the development of meaning in accounting. The literature suggests that subjects without relevant experience have a simple, unidimensional structure while subjects with relevant experience have a multidimensional structure and are able to distinguish more finely among concepts.

The subjects for this study were selected from among first-year MBA students.

This sample ensured that all subjects were relatively equal in their undergraduate education performance and all had at least two years of work experience. It also provided detailed data about their backgrounds to isolate and remove all those who had previously received any systematic training in accounting. All subjects attended the same class and were exposed to the same material and course instructor. Forty-two students were measured at the beginning and near the end of the class.

The concepts selected for measurement comprised two groups--six fundamental accounting terms representing classifications of the income statement and balance sheet, and seven significant accounting principles. The scales were selected from Haried's (1972) work and included those scales which loaded heavily (greater than 0.5) on the first three factors, together with one heavily loading scale representing each of the next three factors. In all, seventeen of Haried's thirty-three scales were adopted.

The results were reported in three stages. First, a MANOVA of the raw responses to the semantic differential found significant differences between the two measurement points, indicating significant changes had taken place during the accounting course. However, measurements of raw responses is not conclusive evidence of the existence of differences in meaning within the framework of

Osgood et al (1957).

Second, the data taken at the commencement and conclusion of the course were factor analyzed both individually and together. In addition, a test of the robustness of the factor structure was examined using a test of factor comparability. Both analyses revealed very similar four factor structures. The factors were labeled activity, evaluative, potency, and manageability. Factor comparability was high within the commencement factor structure and between the first and second measurement points. But some slight instability was present in the factor structure at the conclusion of the course.

Third, the measurement of changes in meaning within the factor structure was examined. Despite the slight internal instability, a four factor solution was adopted for comparison because it was shared between the two measurement points. A MANOVA found significant changes in meaning in all of the six terms and three of the concepts on at least one of the factors.

Houghton concluded that the accounting course did give rise to significant changes in meaning. He also concluded that the semantic differential technique as applied to accounting is a valid and sensitive tool.

Houghton (1988) reexamined Haried's original data using a different technique and assumptions associated with the factor analysis. With a new semantic differential created from Haried's data, Houghton was able to find significant differences in connotative meaning in terms from Haried's sample. Houghton recognized the significant contribution that Haried made to the literature. However, based on the re-analysis of Haried's data, Houghton concluded that Osgood's three dimension rather than the seven dimension cognitive structure proposed by Haried was applicable to accounting. However, it should be noted that Houghton was unable to replicate Haried's factor analysis. A possible cause is that in the re-analysis of Haried's data, Houghton mistakenly assumed that Haried had performed Principal Components Analysis rather than Common Factor Analysis. This would account for the inability to reproduce Haried's factor analysis and would prevent a direct comparison between the two studies.

Houghton's criticism was directed at two decisions made by Haried in the factor analysis of the data. First, Haried's analysis is lacking of any testing for stability of the factors selected for rotation. Had Haried employed a scree test⁶ to his results, the outcome would be that possibly only three factors rather than seven would have been suitable for rotation. Second, "Haried assigned a scale to a

⁶A scree test looks at the rate of change in the decline of the eigenvalues. The cut-off point is said to occur where the rate of change in the eigenvalues decreases sharply. (See Kim & Mueller, 1978 or Hair et al., 1987)

factor where the loading was highest and where it was markedly higher than any other factor loading. Thus, a scale which loads only 0.25 could be assigned if all the other loadings are, say, 0.05 or less and a scale which loads 0.48 could go unassigned if the next lowest loading is, say 0.38."

Houghton states that a commonly accepted technique for the assignment of scales is the selection of those which load most heavily with a commonly used 0.5 cut-off point. Together, these two corrections would produce a factor structure that is different from the one Haried used to test his hypotheses.

Houghton used factor comparability,⁷ a more rigorous method to test factor stability. His re-analysis showed a lack of a consistent factor/cognitive structure across the five groups in Haried's sample, and the presence of only three stable factors for three of those groups. A factor comparability test between the total population factor solution and those of the individual groups revealed a lack of comparability between the population and Haried's investment group. This lack of comparability is a sign that this cognitive structure was not applicable for that particular group.

Internal factor analyses were performed for each of the four remaining groups.

⁷See Nunnally, (1978), p. 433 and Everett & Entrekin, (1980)

This within group comparability test is based on random splitting of the groups into halves. Comparability is present when there is a shared variance between the two halves of eighty percent or greater. Only three of the four groups had factor structures that were internally stable. The factor structure of the student group was not internally stable. Where there exists a shared structure, between-group comparisons present no major problems. However, lack of a shared structure prohibits a direct comparison of the incompatible groups. Because of either incomparability with the population factor structure or internal factor structure instability, the investment club and student groups were deleted from further analysis.

Houghton used a two-way MANOVA (terms x groups) as an omnibus test for differences in meaning between terms and between groups. He found significant differences for both. In order to examine more specifically the nature and extent of the between-group differences, a series of two-way MANOVAs were run for each of the three factors and for each term. There were significant differences across all six terms relating to Haried's first hypothesis on the evaluative and/or potency factors. No differences were observed on the activity factor. In relation to Haried's second hypothesis, few between-concept differences were observed for the accountants and financial analysts, but several differences were found for the lawyer group.

Houghton concluded that:

"when measurements are taken on the basis of an applicable cognitive structure, without the clouding caused by the inclusion of unstable or non-compatible group responses, significant between-group differences in meaning can be measured by the semantic differential."

Houghton claimed that his re-analysis of Haried's data overcame the criticism which had been leveled at the relevance and applicability of connotative meaning and the semantic differential to accounting research, and called for others to pursue research into the measurement of meaning in accounting.

2.5 The Measurement of Meaning and Multidimensional Scaling

2.5.1 Introduction

While the semantic differential and "factor analysis" have been the most commonly used methodology in accounting measurement of meaning studies, one other methodology has also been employed. Multidimensional scaling was used to measure meaning in accounting by Libby (1979), Belkaoui (1980), Monti-Belkaoui and Belkaoui (1983) and Ramaglia (1988).

Multidimensional scaling is a procedure for drawing pictures of data so that the researcher can visualize relationships described by the data more clearly, and give clear explanations of these relationships (Hair et al. 1987). It enables the

researcher to represent respondents' perceptions spatially and to identify the dimensions perceived by the respondents when evaluating stimuli. The data are gathered by having respondents give unidimensional preference or similarity responses for a series of two items. From these responses a picture, or perceptual map may be drawn that reveals a pattern of ordered relationships among the data and the relative distances between each data item for an individual or group.

The objective of the researcher is to obtain the best fit of the data with the smallest number of dimensions. However, since measures of fit improve with increased dimensions, a trade-off must be made. The output of multidimensional scaling is generally limited to three dimensions or less as interpreting the perceptual map is difficult with more than three dimensions. Hair et al. (1987) point out that the perceptual maps have not been directly proven to represent perception, but have provided insight into the perception process.

2.5.2 Libby (1979)

Libby viewed the auditor's report as "a major vehicle of communication between the auditor and those who use his work." In the audit report, the auditor indicates the scope of the examination and the conclusions reached about the appropriateness of the financial statements. The impact of the audit report on

user decisions was modeled and split into three components: 1) the accuracy of the user's perception of the auditor's intended message, 2) the impact of the perceived message on the user's decision, and 3) the impact of the decision outcome. Libby saw that the first step in investigating this potential problem was to examine the fidelity of communication between auditor and user.

The emphasis on the communication process between auditor and user in this study emphasized reporting circumstances which departed from the standard auditor report. The study was limited to variations of scope limitation and uncertainty reports. Ten variations of audit reports were presented in the context of a fictitious firm described as a large, independent, closely-held company which had been audited by a "Big 8" CPA firm in accordance with the requirements of a three-year, \$500,000 loan application.

The subjects included thirty audit partners from the Chicago offices of five "Big 8" CPA firms and twenty-eight commercial loan officers from five large banks in Chicago representing auditor and user groups respectively. "Big 8" CPA firms were selected to control for differences in the bankers' perception of audit quality. Commercial bankers from large banks were selected because they see a variety of audit reports, and their customers usually include closely-held as well as publicly-owned companies.

The subjects were asked to rate directly the similarity of the messages intended by the ten different auditor reports for each possible pair of reports on a ten-point equal-interval scale. Subjects were also asked to rate each of the ten reports on each of thirteen adjective rating scales. This would help identify the perceptual dimensions used by the subjects in determining the direct similarity judgments. The INDSCAL method of multidimensional scaling was used to create two-dimensional perceptual maps for auditors and bankers. The two-dimensional models of the auditors and bankers accounted for sixty-two and sixty-one percent of the variance respectively [Hair et al. (1987) state that anything greater than sixty percent is considered acceptable]. The overall similarity of the models was quite high. The correlation between the dimensions of the two models was .989 for dimension 1 and .955 for dimension 2. Three tests of differences between the auditors' and bankers' perceptions suggested no large differences.

2.5.3 Belkaoui (1980)

Belkaoui applied sociolinguistics⁸ to accounting to test the hypothesis that "various professional affiliations in accounting create different linguistic repertoires or codes for intragroup and/or intergroup communications." This

⁸"Sociolinguistics assumes that the socialization of individual consciousness and the social molding of personality are largely determined by language ... Within each language there are linguistic codes which play an important role as a mediator of the perceptual cognitive process employed in defining the social environment." (Belkaoui, 1980)

leads to a differential understanding of accounting concepts.

Multidimensional scaling was used to evaluate differences in accounting concept perceptions between Canadian accounting professors, Canadian Chartered Accountants, and undergraduate accounting students enrolled in an accounting theory course at the University of Quebec. The accounting concepts tested were related to accounting theory and were chosen to represent both underlying assumptions and generally accepted accounting principles.

Multidimensional scaling produced a three-dimension perceptual map. The dimensions were labeled conjunctive, relational, and disjunctive. A one-way analysis of variance on the saliences assigned by each group to the three dimensions showed intergroup perceptual differences on both the conjunctive and disjunctive dimensions, but not the relational dimension. This implies that simple relational concepts embracing similar concrete objects are more easily recognized.

Regression analysis was used to assess the relationship between each subject's saliences from multidimensional scaling and four background variables--the subjects age, number of accounting courses taken, familiarity with financial statements, and familiarity with accounting concepts. All four variables were found to be independent of the three dimensions' saliences. Belkaoui found that

academicians used a formal language, the professional accountants a public language, and the students a mix of both. He concluded that:

"the meaning of accounting concepts do vary in the manner with which they can be recognized, grasped, or understood" by different groups . . . One may argue that each of the professional groups included in this study belong to accounting institutions whose communicative networks are determined, among other factors, by the functional requirements of the institution. Given the basic differences in their 'motives,' each of these institutions develops its own institutional language."

2.5.4 Monti-Belkaoui and Belkaoui (1983)

Monti-Belkaoui and Belkaoui tested the principle of linguistic relativism which holds that language plays a role in the development of cognition and perception. The principle holds that language is an active determinant of thought. Language restricts our perception and cognitive abilities to the limits of the language. This suggests that speakers of different languages acquire and maintain different world views. Support for this premise is seen in the increasing attention paid to culture, language and linguistic differences by multinational organizations.

This study reports on the perception of professional concepts by unilingual and bilingual speakers. The hypotheses tested for differences in perception of professional concepts between unilingual speakers from two different languages, and between unilingual and bilingual speakers. A third hypothesis tested whether

bilinguals switching from one language to another leads to better perception.

Subjects were selected from two sections of a senior level accounting theory class given at the University of Ottawa, Ontario, Canada. One section was taught in English and the other in French by the same bilingual instructor. Testing performed at the beginning of the semester revealed that students in both sections were equally unfamiliar with the accounting concepts to be tested. The bilingual students were enrolled in the English section and performed the experimental task in both English and French. The subjects were required to assign similarity judgments to paired sets of twelve accounting concepts.

Two separate multidimensional scaling techniques, the TORSCA and INDSCAL models, were applied to the similarity judgments. Each model disclosed a three-dimensional perceptual map. A one-way ANOVA was used to test for differences in perception between the four groups and significant differences were found for two of the three dimensions. A t-test matrix for group means was employed to further identify the differences. Significant differences between the two unilingual groups provided support for the principle of linguistic relativism. Significant differences were also found between both unilingual and both bilingual groups across the two dimensions. This suggests that bilingual speakers who have access to two separate language systems perceive concepts differently than unilinguals.

Finally, significant differences between the two bilingual groups provide evidence that the habit of switching from one language to another may result in differential perception of concepts. The researchers concluded that:

"language differences result not only in general communication problems across national boundaries, but also in specific perceptual differences in understanding the same concept used within disciplines, industries, and professions."

2.5.5 Ramaglia (1988)

Ramaglia examined the relationship between culture and accounting communication. She identified language symbols as one of the levels at which culture manifests itself and pointed out that particular cultures attribute particular meanings to the language symbols in their culture. In order for people to communicate, they must share a common symbol code.

The increase in international accounting activities has directed attention to the diversity of accounting practices around the world. Concern with the communication complexities caused by the existence of a multitude of "accounting languages" resulted in the creation of the International Accounting Standards Committee (IASC). The purpose of the IASC is to harmonize the various national accounting standards into a set of "International Accounting Standards". In the efforts to harmonize the standards of accounting, little attention has been

paid to cultural differences in the meaning of the accounting grammar or symbols used to communicate accounting information.

Ramaglia saw "meaning" as both the attributes common to all exemplars of a symbol, and the symbol's network of relationships with other symbols. The focus of attention in Ramaglia's research was directed toward the networks of relationships which characterize the set of accounting terms. The review of literature examining semantic domains in accounting analyzed two different networks of relationships--networks of similarities structures (measured by multidimensional scaling) and connotative networks (measured by semantic differentiation). Ramaglia's general hypotheses encompassed both networks of relationships. Her general hypotheses examined differences in the perceptions of networks of similarities structures and connotative networks characterizing sets of terms in accounting lexicons.

The nations included in the study were determined on the basis of accounting language characteristics, natural language and broad cultural groups. France, the Netherlands, and the United States were selected on the basis of differences in accounting languages. Canada was selected on the basis of differences in natural language (French and English) to determine if there is a difference in the way members of two different natural language groups perceive meaning within the

same accounting language. Finally, Japan was selected to broaden the cultural groups and include a non-Western nation in the sample. Altogether, the sample included six groups from five different nations. The subjects from each nation were all selected from large national and international accounting firms to ensure adequate fluency in accounting and in the accounting language of each nation.

Ramaglia choose two sets of terms. The first set labeled "basic terms" expressed the fundamental equations of accounting as found in the balance sheet and income statement.⁹ The second set of terms included examples of assets, i.e. cash, accounts receivable, etc.

The network of similarities structures was analyzed using multidimensional scaling. In analyzing the set of basic terms, the INDSCAL model of multidimensional scaling was used. Perceptual maps were created for each group and for the collective response of all of the groups. The INDSCAL analysis on the entire sample produced a two-dimensional configuration characterized by a relational dimension reflecting the relationships underlying the two basic accounting equations, and a conjunctive dimension along which terms were clustered in groups which shared specified qualities. The weights produced in the INDSCAL analysis were subjected to Mann-Whitney U tests for each possible

⁹The terms included current assets, noncurrent assets, current liabilities, noncurrent liabilities, owners equity, revenues, expenses, and earnings.

pair of accounting language group. On the relational dimension, significant differences between the groups were found in two of the pairs. On the conjunctive dimension, there were significant differences between the groups in six of the pairs. When perceptual maps were created for each language group, the dimensions common to the combined groups were found only in the Canada (English) and the United States groups. The general conclusion was that there existed significant differences in the perceptions of similarities structures characterizing the set of basic terms in the accounting lexicon.

The similarities structures of the asset set of terms was examined only for Canada (English), the Netherlands, and the United States. Using INDSCAL, a perceptual map revealed a two dimensional structure characterized by a tangibility dimension on which the terms "patents" and "goodwill" were separated from the other terms, and a temporal dimension along which terms were classified as current or noncurrent. A similar method of analysis as was performed on the basic set of terms found no significant differences in the perceptions of similarities structures characterizing the set of asset terms in the accounting lexicon.

To analyze the differences in connotative networks, eighteen scales for the semantic differential were selected from scales used in previous accounting research. They represented Osgood's (1957) three basis dimensions, Haried's

(1972) seven dimensions, scales from Flamholtz and Cook (1978), and scales from Burke and Chlala (1983).

The hypothesis addressing connotative networks was tested by comparing the connotative dimensions obtained in principal components analysis and varimax rotation across each accounting language. In addition a comparison of the difference in ordering or mapping of the two sets of terms across those connotative dimensions for each accounting language was made. This general hypothesis was not evaluated statistically, but rather on the basis of descriptive analysis.

Using eigenvalues, relative percentage of variance explained, and the scree test, a three factor solution was selected for the aggregate data as well as each individual accounting language. The factors were labeled dynamism, objectivity, and evaluation. There was cross-group agreement on the association of at least fourteen of the eighteen scales with specific factors for both sets of terms tested. For the mapping of individual terms on each dimension, only the scales for which there was cross-group agreement for both sets of terms were retained. The terms were mapped on the basis of their mean factor scores and evaluated in terms of their relative rankings within the individual groups. While there was minor disagreement across accounting languages in the ordering of the terms on each

dimension, especially the evaluation dimension, none of the differences were considered significant.

Ramaglia concluded that taken as a whole, there were no significant differences in either the perception of similarities structures or connotative networks. Where significant differences were found on the similarities structures for the basic set of terms, only three alternative dimensions for the six individual groups were found while twelve alternative dimensions were logically possible. She also concluded that there was greater agreement on terms that have a narrow field of reference. Thus, it should be easier to communicate about narrow, concrete concepts (cash, inventories) than about broader, "fuzzier" concepts (earnings, owners equity).

2.5.6 Adelberg and Farrelly (1989)

Adelberg and Farrelly, driven by concerns of inadequate communication between accountants and users of financial statements, tested hypotheses similar to those tested by the previously cited researchers. They used two psycholinguistic measurement techniques, classification analysis and association analysis, to test for differences in denotative meaning and connotative meaning respectively both among and between producers and users of financial statements. Adelberg and Farrelly stated that the importance of denotative meaning in communication is

quite evident. Connotative meaning is especially important in the present and future environment of accounting which increasingly emphasizes the communication of "soft," subjective, future-oriented information as well as the results of completed financial transactions.

Twelve hundred subjects were selected from public accountants, academic accountants, and private accountants to represent three different groups of producers of the financial statement message. Subjects were selected from chartered financial analysts, commercial bank loan officers, and shareholders to represent users of financial statements. One hundred from each of the six groups received the classification analysis questionnaire and another 100 received the association analysis questionnaire. Response rate was 38.2 percent and 28.5 percent respectively. Using between seven and eleven terms from each of the three basic financial statements, they tested four hypotheses: that there would be no statistically significant difference in denotative or connotative meaning both between and among producers and users of financial statements.

Adelberg and Farrelly were only able to reject one of the four hypotheses. They found significant differences in connotative meaning in terminology between the producers and users of three basic financial statements. They attributed the difference in connotative meaning to differences in professional affiliations.

2.6 Chapter Summary

Generally, the review of the literature has provided somewhat mixed results from a variety of hypotheses and methodologies. Some studies found significant differences in meaning while others did not. For example, Karvel (1979) found significant differences in meaning between auditors and financial statement users while Libby (1979), using multidimensional scaling, did not. One constancy amid the mixed results was the differences in meaning for various terms and concepts between professionals/practitioners and educators (Oliver, 1974 and Belkaoui,1980).

There were also some consistencies on other issues that are relevant to this research. When factor analysis or principal components analysis was applied to the data in a consistent manner, it produced fairly consistent factor structures. Most studies found factor structures that reflected Osgood's three general factors when three factors were rotated. However, these similar factors did not always appear in the same order or account for similar portions of the variance. Also, as the domain of meaning changed, some scales would rotate from one factor to another to better represent the domain of meaning being measured. When many more than three factors were rotated, a factor structure similar to Haried's (1972) was produced. These studies provided empirical evidence to Osgood's warning

that restricted or specialized domains of meaning could produce factor structures that are different from Osgood's three factor structure that measures general domains of meaning.

Four researchers (Triandis, 1958, Haried, 1972, Oliver, 1974, and Burke & Chlala 1983) specifically mentioned the need to generate scales that are relevant to the domain of meaning being measured. Oliver stated that using relevant scales would enable the semantic differential to be more sensitive and precise in measurement, as well as increasing the variance of response and reducing the random error.

Many researchers related the factor structure produced by factor analysis or principal components analysis to cognitive structure (especially McNamara and Moores, 1982). Several researchers addressed the issue of how meaning is developed. There was general agreement that meaning develops from the experience that an individual has with the referent. In the only intertemporal study, Houghton (1987b) showed how the cognitive structure of individuals changed through an education experience. He also showed that the cognitive structure of experts are richer and more differentiated than the cognitive structure of novices. Each individual's collected experiences provides a frame of reference that gives meanings to the symbols encountered by the individual.

Different experiences by different individuals can lead to different meanings for the same symbol. Weaver (1958) demonstrated that common meanings can also develop for groups. He pointed out that group norms (an element of organizational culture) are strong determinants of meaning for the group. As for individuals, different groups with different experiences and norms are likely to hold different meanings for common symbols. Belkaoui (1980) stated that different motives and communication networks can lead to different accounting languages. This can lead to differential understanding within disciplines, industries and professions.

The underlying hypothesis of almost every researcher reviewed in this study is that cognitive similarity enhances communication. Many of these researchers alluded to the behavioral implication of communication, especially that users of accounting information would make decisions different than would have been made had the information been properly communicated. While none of the researchers empirically demonstrated this behavioral link, one researcher (Runkel, 1956) demonstrated that enhanced communication derived from cognitive similarity leads to a higher level of desired performance.

Finally, Houghton (1988) made a significant contribution by disclosing a more

rigorous and appropriate methodology regarding principle components analysis. His suggestions provide a more suitable and intuitively appealing method of comparing differences in meaning between groups that will be utilized in this study.

Chapter 3

Theory Development

3.1 Introduction

Chapter one established that communication of information is a significant accounting activity in organizations and that cognitive similarity between communicators enhances effective communication. The relevant literature in cognitive and social psychology, organizational communication, and organizational culture which describes how cognitive similarity is achieved is reviewed in this chapter. From the collective theory, a model of organization communication is presented in which shared meaning is the focal point. From this model, the hypotheses of this study are developed.

This chapter consists of eight sections. A definition of meaning that delimits the

boundaries of meaning addressed in this study is provided in the first section. In the second section the organizational culture literature is used to describe how cognitive similarity and shared meaning is achieved in organizations. The relevant literature from cognitive psychology, social psychology, and communications that support the concept of cognitive similarity and shared meaning is reviewed in the next three sections. A model of organizational communication that permits the development of testable hypotheses and identifies the constructs of this study is presented in the sixth section. The hypotheses of this study are identified in the seventh section. The relevant points from this theory chapter are reviewed in the final section.

3.2 Meaning Defined

Many have attempted to answer the question, "What is meaning?" The concept of meaning has been explored by several different disciplines including linguistics, philosophy, and psychology. John Locke answered,

"meanings are the **mental ideas** for which words stand as external signs . . . the things in the world to which words refer." (emphasis added)

In a definition that served as a basis for the development of their semantic differential instrument, Osgood et al. (1957) embraced the psychological view and defined meaning as a cognitive state in the behavior of a sign-using organism with

a representational mediation process. "Something which is not the significate becomes a sign of that significate if it gives rise to the idea or thought of that significate." Meaning is a mental depiction of an object or event of the physical world represented by a sign.

An illustration of the mentalistic view of meaning that interrelates between both the physical (significate) and mental (sign) levels is found in Ogden and Richards, The Meaning of Meaning (1946). Figure 2 illustrates this facet of meaning in the communication process. As indicated by the broken base line of the triangle, sign and significate are connected only indirectly around the sides of the triangle. The connection between the linguistic sign and external reality is created by the user as a result of learning through experience with the significate. The meaning which different individuals have for the same sign will vary to the extent that their experience toward the significate have varied. Through the use of signs, the thoughts of the sender are organized, and the sender is able to create a message concerning the significate. To communicate the thought to another person, the sender selectively orders and transmits various signs to the receiver in the form of a message. Upon receipt of the message, the receiver decodes it by interpreting the various signs in relation to the receiver's personal experiences in developing associations between signs and their significates. The receiver uses these associative experiences to assign meaning to signs, thereby creating thoughts and



Source: Ogden and Richards, The Meaning of Meaning, (New York, Harcourt, Brace and Company, 1946)

Figure 2. The Mentalistic View of Meaning

responses to the message. It is not possible to maintain that a specific sign or word means a specific thing ("X") and that transmission of the sign automatically results in reception of the "X" message. "We do not transmit meanings; we transmit [signs] that serve as stimuli to elicit meanings in the person receiving the stimuli" (Sarbaugh and Asuncion-Lande, 1983). The primary reality of signs and language rests not in the physical world of things and objects and facts, but in the minds of senders and receivers. For two people to communicate, they must share a semantic code. If there is no agreement on the semantic¹⁰ meaning of words, communication is logically impossible. Given that the human societies and physical laws are relatively stable, and that most learning takes place within a particular culture, the meaning of most common signs will be highly similar within cultures and groups. However, the meaning of many signs will also reflect the idiosyncrasies of individual experience.

Lewis (1980) noted that differences in how we perceive a sign can be attributed to differences in the conception of what is real. There are two basic conceptions of reality--physical and interpretive. When two people speaking the same language talk about physical reality, the meaning is clear and there is seldom disagreement. Both perceive the same physical attributes and can relate to the significate, i.e. both know what is meant by a desk or a computer. However, when two people

¹⁰Semantic meaning is concerned with the relations of signs (words) to their significates.

talk about interpretive reality, there is an opportunity for disagreement to occur. People interpret the meaning of the significate on the basis of their own cultural values and experience with the significate. They perceive as they have been taught to perceive. It is interpretive reality that permit signs to govern our behavior. Signs derive their interpretive meaning from their repeated use in various cultures.

Osgood differentiated between denotative and connotative meaning. Denotative meaning is referred to as definitional meaning and includes a list of the attributes associated with the term being defined. It reflects the relationship between the word and the objects or events referred to by the word. Denotative meaning essentially represents the physical reality of objects and events. Connotative or affective meaning refers to an accumulation of emotional associations a particular object or event has acquired, and represents interpretive reality.

Osgood acknowledged that it was connotative or affective meaning that mediates and influences human reactions. Returning to Osgood's definition of meaning as a representational mediation process, he relied on the principles of learning theory and Pavlovian conditional principles and established the connection between connotative meaning and behavior. Over time as an individual "experiences" the significate, it produces in the individual a fairly reliable and

predictable pattern of behavior. Signs, which represent the significate, can produce in the individual some replica of the actual behavior towards the significate. In other words, through a mediation process, the sign can elicit the same behavior as the significate.

Hayakawa (1954) emphasized the importance of connotative meaning when he indicated that a language is:

"not merely the system of signs but also the whole repertory of semantic reaction which the signs produce in those who speak and understand the language. The structural assumptions implicit in a language are of necessity reflected in behavioral reactions."

To summarize, a sign is something that stands for something else. A word is a sign when it refers to an object or event in the physical world. To communicate, a person must be able to evolve a mental picture or concept of something, give it a name (denotative meaning), and develop a feeling (connotative meaning) about it. Goldhaber (1990) states that effective communication implies that the concept, the name, and the feeling are similar for the individuals communicating--a complete shared meaning and understanding must develop.

3.3 Culture--The Source of Shared Meaning

The concept of culture has been mentioned several times throughout this study in

connection with the development of meaning. Researchers have recently applied the culture concept to organizations in addition to groups and societies. Culture consists of the shared learning of a group or organization. "Culture helps the members of a group make sense out of the events and symbols in their environment. It gives meaning and understanding" (Jennings, 1986).

Schall (1983) defined culture as:

"a relatively enduring, interdependent symbolic system of values . . . evolving from and imperfectly shared by interacting organizational members that allows them to explain, coordinate, and evaluate behavior and to ascribe common meanings to stimuli encountered in the organizational context."

Hofstede (1984) defined culture as:

"the collective programming of the mind, obtained in the course of life, which is common to the members of one human group as opposed to another."

In "Accounting and Culture" Hofstede (1986) identified four operational levels at which culture reveals itself: symbols (signs), heros, rituals, and values. He defines symbols as:

"words, gestures, and objects to which the particular culture attributes particular meanings. A symbol has no intrinsic meaning; we have learned its meaning as part of our culture. At the level of symbols we find the entire field of language, including professional jargon. If we say that 'accounting is the language of business,' we state in fact that accounting is largely the manipulating of symbols which have meaning to the initiated in business only."

Our cognitions and values develop primarily through our experiences and communication with those most significant to us (Mead, 1934). For most individuals in today's society, those "most significant" would likely include family members, coworkers, and members of social groups within an individual's culture. We develop language for the communication of our cognitions and feelings. Hofstede went on to say that language and culture are inseparable--"language is the vehicle of culture."

Languages are social artifacts created by cultural groups to communicate about "reality". A large share of a cultural group's reality is socially constructed.¹¹ The socially constructed reality reflects the values of the culture, and is reflected in the meaning of the terminology that constitutes the language of the cultural group. For example,¹² within the United States the accounting notion of property rights and legal obligations lie behind the concepts of "asset" and "liability". These concepts are social constructs which reflect our society's values and which have been codified in our legal system. Social groups for which such notions are irrelevant would have no need to communicate about them, and thus have no need even to create signs for them in their language code. Although different

¹¹This position holds that meaning and reality are socially determined through the process of people interacting with each other, reaching mutual definitions of social situations, and collectively agreeing on "what is". The universe is assumed to be meaningless until people create a shared meaning (Berger & Luckmann, 1967).

¹²This example is credited to Ramaglia (1988).

cultural groups may have created signs of "asset" and "liability" and coded these signs as part of their language, it does not necessarily follow that the concepts are perceived identically by different cultural groups. The terminology of a culture's language often has special meaning and significance to the members of that culture. This unique sign system allows members of the cultural group to communicate with a high level of precision and understanding.

Any society, group, or organization that receives and uses information has a characteristic coding process, a limited set of cognitive categories to which it assimilates the information received. Organizations develop their own coding systems that determine the amount and type of information they receive, and how that information is perceived. This coding system imposes "omission, selection, refinement, elaboration, distortion and transformation on the incoming communication" (Katz & Kahn, 1978).

As interacting participants organize by communicating, they evolve shared understandings around issues of common interest (Louis, 1983). After repeated use, meanings that were initially negotiated become accepted, even assumed. The behavior that reflects the meanings becomes patterned in cognitive scripts. The patterns of behavior reflect and reinforce the values and beliefs of the culture.

Culture is transferred through socialization processes in organizations. By passing the boundary and becoming a functioning member of an organization, the person takes on the coding system of the organization. They accept some of its values and behavioral norms, absorb some of its culture, and develop shared expectations and values with other organization members (Katz & Kahn, 1966). An organization's system of values, beliefs, and assumptions are reinforced through the socialization process as the new members interact with fellow employees (Donnellon, 1986). These values take on meaning as the new member complies with them as a guide to appropriate behavior. The new member becomes committed to the organization's values and norms when they are internalized and become intrinsically rewarding (Gray et al., 1985). As a member of the organization's culture, the new member develops the cognitive categories and sign system that permits precise and understandable communication. Shared meaning for the terminology that comprise the organization's language develops.

The importance of the relationship between shared meaning and organizational culture is enhanced by a strand of organizational culture literature that states that organizational leaders can "manage" culture much as they do other aspects of the organization (Kilmann et al., 1985). Pfeffer (1981) proposes a cognitive approach to the study of organizations and suggests that there are two distinct levels of analysis of organizations. One level involves the prediction of actions taken

within the organization. This level includes decisions that have observable, substantive outcomes with observable, objective referents. The second level involves predicting and understanding how such organizational activities are perceived, interpreted and legitimated. He defines organizations as systems of patterned or structured activity (scripted behavior) in which the participants attempt to develop causal explanations and rationalizations for these patterns of activity. One of the critical tasks of leaders in management involves the construction and maintenance of systems of shared meanings, shared paradigms, and shared language.

Smircich and Morgan (1982) define leadership as a process of negotiation through which certain individuals surrender their power to define the nature of their experience to others. The behavior and communications of leaders frame and shape the context of action in such a way that organizational members are able to use the meaning thus created as a point of reference for their own behavior and communications. Effective leadership rests heavily on the framing of the experience of others and the management of meaning so that action can be guided by common conceptions as to what should occur to achieve desirable ends. Communication can be used to change the perception and meaning of things without the expense and inconvenience of changing the things themselves. In this endeavor the use of language plays an important role (Pondy, et al., 1983).

Language and communication do not directly mediate overt behavior, but affect the way a receiver cognitively organizes his or her image of the environment. It is this cognitive organization that influences the way one behaves (Roberts, 1971).

Morris (in Pondy, 1978) states:

"Sharing a language with other persons provides the subtlest and most powerful of all tools for controlling the behavior of these other persons to one's advantage."

In discussing what it means to "share a language," Pondy (1978) illustrated two sources of not-sharing. One source is having a different lexicon as in two different languages. The second, and more serious type of language-mismatch exists when the lexicons are identical but the meanings attached to the same words are different.

3.4 The Cognitive Structure of Meaning

The previous section has advanced the theory that an organization's culture develops cognitive similarity and shared meaning for its members. The theory of another discipline, cognitive psychology, serves to triangulate and validate the concepts proposed by the organizational culture literature.

Osgood (in Snider and Osgood, 1969) explained:

"that human semantic processes are very complex, and that problems of meaning are inextricably confounded with more general problems of human thinking or cognition."

Having adopted a psychological view of meaning, it seems natural to draw upon the cognitive psychology literature for an understanding of how meaning is cognitively represented. First, the cognitive structure and its content will be reviewed. This essentially represents the physical or denotative dimension of meaning. Second, the influence of affect, which represents the interpretive or connotative dimension of meaning will be assessed. Finally, the influence of psychological or cognitive meaning on the behavior of individuals in organizations will be examined.

3.4.1 Cognitive Structure: The Physical Dimension of Meaning

The basic unit of organized cognitive knowledge is called a schema. There are schemata for any object of cognition, including physical objects, interpersonal traits, regular sequences of actions, patterns of interpersonal relations, and abstract concepts.

Hastie (1981) defined schema as an "abstract, general structure that establishes relations between specific events or entities." Fiske and Linville (1980) described

schemata as "cognitive structures of organized prior knowledge, abstracted from experience with specific instances." Finally, Taylor and Crocker (1981) defined schema as:

"a cognitive structure that consists in part of the representation of some defined stimulus domain. The schema contains general knowledge about that domain, including a specification of the relationships among its attributes, as well as specific examples or instances of the stimulus domain."

These units of organized prior knowledge enable us to function in a social world that would otherwise be of "paralyzing complexity" (Fiske and Taylor, 1984). For example, an individual will organize all information thematically related to an object such as "budget." This budget schema allows the individual to interpret and make sense of specific new encounters in light of the general case.

To simplify the complexities of the physical, biological and social environments of the world, people sort schema from these environments according to similarities in their essential features, forming natural categories. Categorization schemes allow us to discriminate between the similarities and differences of objects. They also provide structure and give coherence to our general knowledge about objects and processes in the natural and social worlds. Finally, they provide us with expectations about object attributes and behavior, and the probable range of variation in typical patterns of behavior (Cantor et al., 1982).

Rosch (1978) provided a summary of the general principles of cognitive categorization. She describes categorization in the context of the categories found in a culture and coded by the language of that culture at a particular point in time. The basic principles that underlie the formation of categories are:

- (1) Cognitive economy--the task of the category system is to provide maximum information with the least cognitive effort.
- (2) Perceived world structure--the material objects of the world are perceived to possess high correlational structure, i.e. there is a natural relation between certain objects in the natural world.¹³ Maximum information with the least cognitive effort is achieved if categories map the perceived world structure as closely as possible.

Categories are organized hierarchically in a top-down, conceptually based structure, giving the structure both vertical and horizontal dimensions. Some schemata are commonly embedded in other schemata. For example, the schemata for roots, trunk, limbs, leaves, and so on are embedded in the schema for tree which, in turn, is embedded in the schema for forest. In addition to vertical relations among schemata, there are also horizontal relations among them. The schema tree carries implications about birds, nests, hammocks, picnics, rakes, kites, and autumn. An individual's cognitive system is composed of an immense number of ordered schemata connected by a specific pattern of

¹³ Rosch uses the following example: ". . . given a knower who perceives the complex attributes of feathers, fur, and wings, it is an empirical fact provided by the perceived world that wings co-occur with feathers more than with fur . . . combinations of what we perceive as the attributes of real objects do not occur uniformly."

relations. Some schemata are shared by people of similar backgrounds and cultures while others are unique to each individual.

The prototype of a category is defined by people's judgment of goodness of fit for membership in the category. Although most people within a culture strongly agree in their judgments of the most prototypical member of a category, each individual's category prototype is a function of individual experience and interaction with a structured world, and may vary among individuals (Rosch, 1975). For example, a worker whose experience and frequent exposure to raw material has been in an automobile factory would have a different raw material prototype than a worker whose experience has been in a chemical processing plant. The prototype represents the "core meaning" of the category. What attributes will be perceived and how they will be categorized is influenced by the category system already existent in the individual's social or work culture--culture defines the salient "best examples" for a given group of people (Rosch and Mervis, 1975).

Schemata develop over time by conforming with regularities in a person's experience (Crockett, 1988). The schema concept follows from the previously mentioned assumption that individuals actively construct reality. Alba and Hasher (1983) reviewed the central assumptions of schema theory pertaining to the

development of schema through the assimilation and encoding of new information. Those central assumptions are:

- (1) Selection of information--only information that is relevant to the currently activated schema will be encoded;
- (2) Abstraction of the information selected--the semantic content, or meaning of the message will be abstracted and the surface form will be lost;
- (3) Interpretation--the semantic content will then be interpreted in such a way as to be consistent with the schema;
- (4) Integration--the information that remains will then be integrated with previously acquired, related information that was activated during the current encoding episode.

Existing knowledge provides a base with which new knowledge may link and improves the acquisition of new, domain-related information. A change in meaning implicitly assumes a growth and change in one's cognitive structure.

A schema begins as a collection of individual components, progresses with experience, and ends as a single, tightly integrated unit with strong associations among the components (Fiske and Dyer, 1985). As individuals encounter a wider range of experience, schemata respond to the new information by creating a more differentiated structure. Existing schemata specify the relevant attributes of the stimulus object. When an individual is exposed to a new set of instances that consistently have some new feature or fails to include some old expected feature of the schema, the new features can be added or old features dropped from the schema. The existing schema also specifies how attributes are related to each

other. These relationship among schemata may change in response to new information. New schemata are added to the horizontal structure, new vertical levels of abstraction are created by adding more subcategories, and each category grows by accepting a wider range of values around the prototype (Crocker et al., 1984). Well-developed or expert knowledge structures are more complex and more organized, containing more information with more and stronger links among the components.

3.4.2 Affect--the Interpretive Dimension of Meaning

Schemata may elicit affect. Affect is a generic term for a whole range of feelings and emotions that typically arise from an evaluative or interpretive process. Not all schemata require an affective component, yet many schemata must link with affect (Fiske and Linville, 1980).

Affect has several underlying dimensions. The first dimension is intensity. Affective experiences can range from weak to strong. The second dimension is valence. The valence of affect can vary ranging from negative through neutral to positive. The third dimension is duration. The duration of affect can range from a temporary experience to a relatively enduring state.

It has been shown that schemata are representations of experience that guide action, perception and thought. Schemata are developed as a function of the frequency of experiences with relevant objects and events in the environment. New encounters are evaluated against existing schemata and the interaction between the object or event and the schema determines the individual's perception, understanding, and organization of the environment. Mandler (1982) suggests that the congruity between an object or event of the physical world and the relevant schema provides the basis for some judgments of value. Mandler asks:

"What is it about taste that is indisputable? What is in the 'eye' of the beholder that confers beauty? How is a judgment about goodness or beauty derived from the representation of an event? How can such a representation, which is traditionally considered to be a bundle of attributes or features, give rise to an evaluation that seems to have no identifiable source?"

In responding to these questions, Mandler first makes a distinction between descriptive and evaluative, or between denotative and connotative meaning. Descriptive judgments depend primarily on the information and attributes that are "out there" for everyone to see. There is general agreement among individuals in making descriptive judgments. Value judgments seem to require something about "beautiful" or "good" that belongs to the individual. "Yet nothing is good or beautiful that does not have some 'out there' characteristic on which we base such a judgment (Mandler, 1982)." Within a cultural group with common experiences

there is often agreement on what is good and beautiful.

Mandler proposed that evaluations of objects or events are not made on the presence or absence of their constituent features, but on the basis of an analysis of the structure of the object or event. For example, a tree may be called green (descriptive) because of the salience of its green leaves, but it is considered beautiful (evaluative) based on an appreciation of the relations among its features. Both descriptive and evaluative judgments rely on the internal structure of the object or event, or in other words, on the cognitive schema. A plant is called a tree not just because it has a trunk, branches, and leaves, but because these elements occur in a particular configuration. Descriptive judgment applies to a wide range of possible values or configurations of the variables (trunk, branches, and leaves) contained in the tree schema, but the evaluative judgment depends upon a much smaller range of values. The same set of features will give rise to two individuals calling the object a tree, but could result in two different evaluations of the object, i.e. ugly or beautiful.

To summarize, both descriptive and evaluative judgments depend on both the structure of the world as it is seen by the individual, and the structure of prior experience and current expectations that reside in the mind of the individual. Evaluative judgments are influenced more by prior experiences and the

expectation they provide for future encounters with objects and events than are descriptive judgments. The mix of external evidence provided by the environment and internal expectations provided by schema in the perception of objects and events can vary widely among individuals, giving rise to different evaluative judgments. The schema structure that determines values will show greater differences among people than will the descriptive schema structure.

What determines the schema structure for values and evaluative judgments? The narrow and specific range of features and relations among features are those most frequently encountered for a particular class of events or objects. This is similar to Rosch's prototype approach to cognitive categorization. The frequency of exposure to relevant objects and events is confined by the structured cultural environment in which an individual resides. The schemata that determine whether an object or event is positively valued are a function of individual histories, or past experience. Individual histories are a product of the social environment that structures our experiences and develops the expectations that we learn to impose on the objects and events of the physical world. In other words, culture provides the set of values and expectations against which objects and events in each individual's environment are evaluated.

How does affect arise out of the interaction of object or event and schema?

When an object or event in the environment produces data for analysis, the activation process proceeds to the highest and most abstract relevant schema in the cognitive hierarchy and proceeds through various levels of schematic representation of the data presented. The evidence provided by the environment and the activated schema produce some degree of congruity. Mandler argues that whenever the evaluative analysis (schema interpretation process) of the object or event fits the expectations provided by the narrow range of features in the existing schema, positive evaluation results. The evaluation of the object or event produced a conformity to cultural values and expectations.

When no correspondence between object or event and schema is achieved, further mental activity will determine whether a positive or negative evaluation will follow. Schema incongruity is a case of interruption of expectations and predictions and leads to an autonomic nervous system (ANS) activity, which produces the true affect. The intensity and duration of the affect is determined by how much incongruity exists between what is encountered what was expected. Slight incongruity will lead to assimilation of the environmental data into an existing schema with little structural change in the schema. Severe incongruity will lead to a search for an alternate schema, or accommodation (schema integration process) of the environmental data into the existing schema requiring deep structural changes in the schema.

The valance of affect depends on how the incongruity is resolved in relation to existing schema values. The meaning analysis that occurs during accommodation could lead to a positive evaluation if resolving the incongruity leads to a valued concept of mastery or meeting a goal. On the other hand, it could lead to a negative evaluation if resolving the incongruity results in conflict or perceived failure. Once the evaluation process is complete, the affect arising from that process is embedded as part of the schema.

Congruity implies that our expectations about objects and events have been fulfilled. For example, we expect accountants to behave ethically. Having forming schemata about these "regularities" we expect their function to be fulfilled. When they are, the world is acceptable and as it should be. Any deviation from these schemata will produce arousal and accommodative pressures. When we learn that an accountant behaved in a fraudulent manner, we face incongruity and arousal. However, in the case where expectations are already embedded with negative evaluations, congruity of our expectations to the object or event will not result in a positive value because they conflict with our cultural values. For example, meeting the hostile boss everyday will not produce positive value even when our expectations are met. These negative value we place on hostility dominates positive value of having our expectations met.

3.4.3 Cognitive Meaning and Organizational Behavior

It has been shown that a schema, like meaning, has both a descriptive (denotative) and evaluative (connotative) element. This section applies the schema concept to cognition and behavior within organizations. It examines the impact that goals and goal-directed behavior have on the cognitive structure, and introduces cognitive scripts, a special type of schema that directs behavior within organizations.

3.4.3.1 The Impact of Goals on Schema

Human behavior is purposive, intentional, and goal directed, especially in an organization. The values and goals that govern behavior have an influence on the cognitive system that mediates the generation of this behavior. When two individuals observe the same stream of events or behavior for different purposes, their cognitive processing of the information may differ. Each individual may perceive different information or may interpret the same piece of information differently. One's observational goal defines what is salient and why it is important. Immediate concerns of achieving a goal can guide thought to perceive everything in terms of that goal (Srull and Wyer, 1986). For example, a professor on a job visit to a university campus tends to perceive everything in terms of

providing a satisfactory work environment. On the other hand, if the same university professor were examining the same university campus as a place for his children to attend school, he would perceive everything in terms of the type of educational experience his children are likely to have.

In the formation of schema, goals, like values, impact what information is perceived and encoded and how the schema is organized and categorized. In other words, goals determine to a large extent the content of schema. In an organization, the organization's goals determine the content of organization-relevant schema. Once goal-related schema have been established, the goal will cue and specify the selection of schema to be used as a framework for comprehending or integrating incoming information. The activated schema should determine the information to which the individual will attend in order to achieve the goal (Cohen and Ebbesen, 1979). The repeated activation of goal related schema further establishes that schema as a category prototype and reinforces the meaning of the schema to reflect the goals and values of the organization.

Dearborn and Simon (1958) tested the proposition in organization theory that asserts that each executive will perceive those aspects of the situation that relate specifically to the activities and goals of his or her department. They presented a case to a group of 23 executives from the sales, production, and accounting

departments, all employed by a single large manufacturing company. The executives were asked to assume the role of the top executive of the company and write a brief statement of what they considered to be the most important problem facing the company in the case. The results revealed that each class of executives perceived those aspects of the case that related specifically to the activities and goals of their respective departments.

3.4.3.2 Cognitive Scripts--A Guide for Organization Behavior

Schema has been described as a metaconstruct that subsumes several other hypothetical cognitive units. One of these is an event schema, or a script.

Scripts are the cognitive structures that describe sequences of temporally ordered, interdependent events in well-known situations. For example, the psychology literature uses the common event of eating at a restaurant to illustrate the script concept. Although the specific events may vary from one situation to another, they probably follow a fairly common sequence--enter the restaurant; seated by waiter; given glass of water and a menu; select menu item and order; receive food; eat; receive check; leave tip; pay bill; leave restaurant. Scripts develop through the repeated performance of the common events of everyday life. Behavioral scripts exist for many of the events that occur in organizations.

Common experiences and interactions within a culture, organization, or group would tend to create similar script schemata for its members.

Scripts provide a dual benefit to people. They enable understanding of situations, and they provide a guide to behavior appropriate to those situations.

Understanding a situation involves a search of one's memory to draw on previous situational experiences similar to the present one. The behavior in these previous situations specifies the behaviors likely to fit the present situation.

Like other schemata, scripts are held in memory in prototypical fashion. A prototype script is a generic script appropriate to a class of situations. Exposure to a new situation that shares some common elements with previous experiences cues a protoscript to use as a basis for behavior in the current situation.

Variations on a protoscript are known as different tracks of a script. Gioia and Poole (1984) provided an example of tracks. A manager could hold a generalized "business meeting" protoscript and retain specific knowledge about events and behaviors appropriate to different types of meetings in different tracks of this protoscript. This allows a repertoire of related functional scripts to be retained--one for a planning meeting, one for an evaluation meeting, one for a brainstorming meeting, and so on.

In addition to providing a series of expectations connected with the sequence of events, scripts provide contextual meaning to the elements that comprise the script. The meaning of a sign is conditioned by the context in which it occurs. The habits of usage and association with a given context serve to refine the meaning of signs. Repeated experience with a significate in the same context can develop the form or structure characteristic of scripts. All of the elements of the script provide the context in which each separate element occurs. The meaning developed by each separate element is influenced by the context of the other elements in the script. The terms and concepts of management accounting are just a few of the elements of business organization scripts.

Cognitive scripts have been identified as a framework for understanding the cognitive dynamics underlying many organizational behaviors and actions (Gioia and Poole, 1984). Many of the events that occur in organizations are candidates for scripted behavior. Some organizational events could even be classified as rituals. Hofstede (1987) defined rituals as "activities in which members of a cultural group engage, which carry their purpose in themselves." They have a function for the maintenance of the culture--establishing who belongs and who does not and instilling a feeling of commitment to group values. The annual summer picnic or awards banquet are good examples. Hofstede maintains that accounting systems in organizations are best understood as uncertainty-reducing

rituals, and many of the activities related to the accounting system are scripted.

Ashforth and Fried (1988) propose that scripts serve several major functions in organizations. By structuring the process and content of an event, scripts facilitate control. Structuring makes uncertain and ambiguous events more manageable. Scripts may legitimate organizational action by embodying practices consistent with normative expectations. Scripts also facilitate organized behavior. Much of organizational behavior is characterized as "interlocked actions," and to promote efficiency these actions need to be agreed upon and normatively prescribed. Scripts facilitate that agreement. Scripts contain a fixed sequence of events that provide a guide to behavior and enable one to predict behavior. Finally, scripts provide a link between cognition and behavior in organizations.

How do cognitive scripts develop for members of an organization? The organizational socialization process provides new members with a series of structured experiences. These experiences focus on imparting behaviors appropriate to task performance and role-based interactions, and inculcating organizational values and beliefs. Socialization processes can be viewed as the learning of organizationally and culturally appropriate scripts (Gioia and Poole, 1984). New organization members are actively engaged in a sense-making process.

A script develops as the individual gains experience with both repetitive tasks and role-based behaviors. The greater the experience with repetitive tasks, the more elaborate, organized, and generalized the script. Martin (1982) suggested that scripts progress through varying levels of abstraction as the script is better learned. An individual first experiences or learns vicariously about a situation. That situation is then remembered at a detailed episodic level of abstraction. This script describes a single incident and is fairly detailed. After the incident is repeated, the several incidents are combined into a single categorical script. This script contains an intermediate level of detail. A well learned script is a hypothetical script and is the most abstract. As the individual learns event sequences, the chunks become ambiguous. In effect, "expertise is attained by successively ignoring more and more of the particulars of the task." The more often we engage in the task, the more likely it is that we will rely on scripts for the completion of the task. The repeated tasks eventually form expert schema that are rich in both contextual and relational meaning. At this level, individuals engage in "mindless" behavior. Scripts reduce the information processing requirements made of peoples' limited-capacity minds. Martin stated that:

"activating a script is somewhat like a pilot putting a plane on automatic control. There is no need to monitor every incoming piece of information and no need to employ full intellectual powers in trying to understand what is happening. People know what to expect and unless something unexpected occurs, it is safe to place much of their intellectual attention elsewhere, to use their limited resources to understand what is novel rather than what they already know."

The implication that scripted behavior involves only automatic processing is unduly restrictive. It is clear that people do think about what they are doing. However, people do not devote equally intensive thought to all actions. Confronting novel situations during the socialization process requires intensive conscious processing and involves little or no script processing. On the other hand, familiar situations can be handled with little or no conscious processing. Between these two extremes are behaviors and actions requiring progressively less active processing as situations become increasingly conventional and repetitive (Gioia and Poole, 1984).

Recent companion studies examined the role of scripts in developing similar cognitive structures for a recurring behavioral task in organizations. One study was based on a "positivist" paradigm (Gioia and Sims, 1986) and the other study was based on an "interpretive" research paradigm (Gioia and Donnellon, forthcoming). Both studies found that individuals shared well developed cognitive script for the performance appraisal activity in organizations.

3.5 Social Psychology Support for Shared Meaning

Symbolic interaction theory from the field of social psychology also provides support for the development of shared meaning. Organization behavior includes

formal and informal interactions with superiors, subordinates, and co-workers various meetings, presentations, performance appraisals, business luncheons, work group interactions, hallway meetings, office parties, and so forth. The literature on symbolic interactionism suggest that interacting individuals tend to develop shared perceptions of the work environment and a common frame of reference. Symbolic interactionism holds that meaning evolves from the regular and patterned interactions of people. Thus, meaning is shaped through interaction and subsequently shapes the course of interaction.

A necessary condition for interaction and communication is the attainment of a sufficient consensus of meaning with respect to objects relevant to the interaction process. For example, for accountants to successfully communicate with managers in an organization, both accountant and manager must attain a sufficient consensus of meaning of objects relevant to accounting communication such as budget, variance, and fixed cost. When objects and events come to mean the same thing for a large number of individuals in a given society or group, they become significant symbols. The organization language represents the system of significant symbols for the organization. The meaning of significant symbols are defined by the organization culture. The culture provides definitions and relative stability of meaning for the salient objects within the organization. As with many organization events, both the content and process of interactions often become

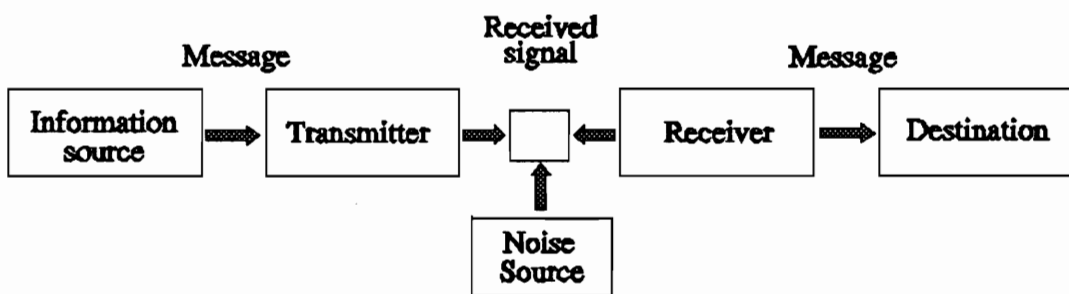
regulated by scripts. This allows individuals to act without having to continually re-assess meanings or roles. The schemata and scripts used by members of an organization to evaluate environmental information and guide their behavior within the organization converge, or become similar.

3.6 Communication Theory Support for Shared Meaning

The Shannon-Weaver model of communication (Shannon & Weaver, 1949) shown in Figure 3, has been the most commonly used communication model in accounting research. This model recognizes that noise in the communication process can distort the information being transferred from the transmitter to the receiver. Noise can arise as a result of encoding or decoding errors. In advancing the convergence model of communication, Rogers and Kincaid (1981) pointed out the weaknesses of the Shannon-Weaver model. Among those weaknesses are the following:

- (1) It views communication as a linear, one-way act rather than a cyclical two-way process in which information is exchanged over time. It ignores the process of communication.
- (2) It ignores the process of feedback in communication. Feedback is required to ensure effective communication and for the understanding of transmitted information. Through feedback, receivers may secure clarification or additional information.

The two-way process of communication and the process of feedback is consistent with symbolic interactionism and typical of the communication process in



Source: C. Shannon and W. Weaver, *The Mathematical Theory of Communication* (Urbana, Ill.: University of Illinois Press, 1949).

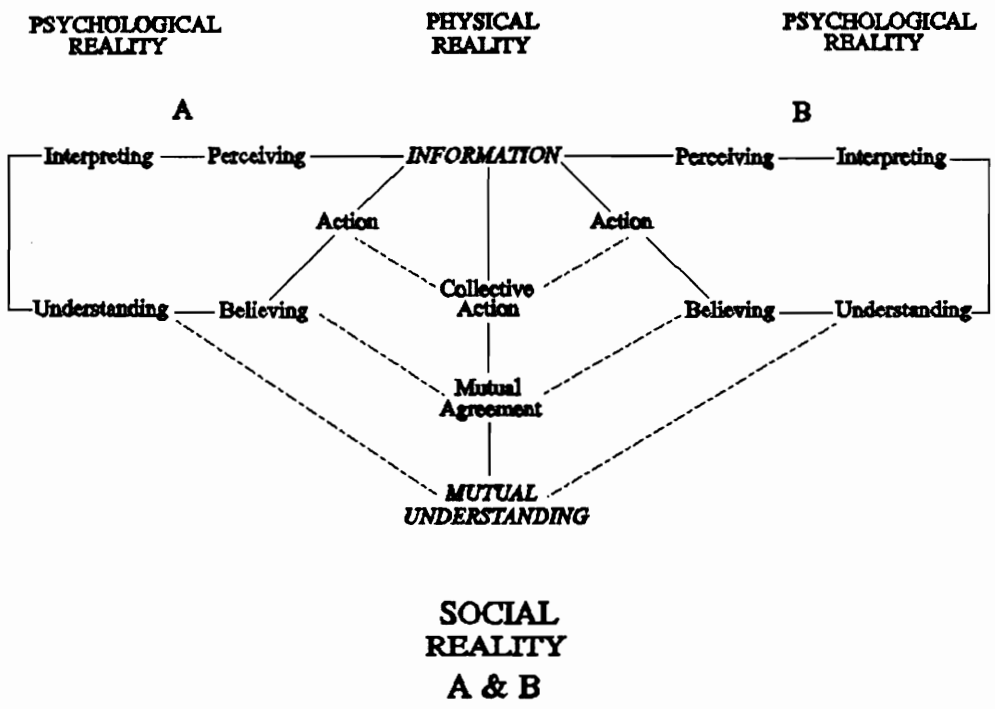
Figure 3. Shannon-Weaver Model of Communication

organizations.

Figure 4 (from Rogers and Kincaid, 1981) shows the relationship among the basic components of the communication process. The communication process has no beginning and no end, only the mutually defining relationship among the parts which give meaning to the whole.

Information and mutual understanding are the dominant components of the convergence model. Information-processing at the individual level (A or B) develops individual psychological reality and involves perceiving, interpreting, understanding, believing, and action. This creates new information for further processing. When information is shared by two or more participants (A and B), information processing will lead to mutual understanding, mutual agreement, and collective action. Collectively, the individuals create a shared social reality. This model better describes the process of communication likely to occur within an organization.

The components of the convergence model are organized at three levels of reality: (1) the physical level, (2) the psychological level, and (3) the social level. At the psychological level of reality, culture impacts what is perceived and how it is interpreted, understood, and believed by the individual. At the social level,



Source: Rogers and Kincaid, Communication Networks: Toward a New Paradigm for Research, (New York: The Free Press, 1981).

Figure 4. Convergence Model of Communication

culture impacts what is perceived and how it is interpreted, understood, and believed collectively by the group. Therefore, communicants within the same culture communicate with greater frequency and will come to mutual understanding, mutual agreement, and collective action.

3.7 A Model of Organizational Communication

Pfeffer (1981) and Smircich (1983) argue that effective coordination of activity in organizations is a function of the degree to which shared meanings develop among organizational members. They espouse a cultural view of organizations in which a dominant culture shapes the system of values, beliefs and assumptions of its members.

Organizations and organizational cultures, however, are not monolithic. Organizations of any size have subcultures. Subcultures can "interlock, overlap, partially coincide, and sometimes conflict" with the organization's dominant culture (Ott, 1989). As the size of organizations increase, more differentiation and specialization are necessary. Increases in organization size can be attained through adding units and reallocating functions among the organization's units (Katz & Kahn, 1978).

Subcultures evolve through the process of differentiation. Specialization and the existence of departmental and hierarchal boundaries are associated with the evolution of local norms, values and languages tailored to the requirements of the unit's work (Tushman & Scanlan, 1981). The members become part of different networks of interpersonal communication. This can lead to differences in cognitive and emotional orientation among members in different functional departments as each separate unit may take a different orientation toward organizational goals (Lawrence & Lorsch, 1967).

Geutskow (1965) showed that devices for verifying the content of messages in feedback processes increases the accuracy of communication. Face to face communication has enormous advantages over impersonal organizational-wide communication in achieving accuracy of communication. Communication in smaller functional or hierarchal groups provide more opportunity for feedback, which enhances the development of shared meaning at the subunit organization level. March and Simon (1958) noted that communication is easy within a professional group, but is often difficult across professional and hierarchal lines. One of the marks of any subculture is the existence of nuances of language only intelligible to insiders. Katz & Kahn (1966, 1978) suggest that within an organization there are problems of clear communication across subsystems. The messages emanating in one part of the organization may need translation if they

are to be fully effective in other parts. Translation problems can occur between any pair of substructures having their own functions and their own coding system.

Figure 5 presents an organization communication model developed from the collective theory of this study that illustrates how shared meaning develops in the organizational communication process and its hypothesized behavioral outcomes. As individuals become new members of an organization, they enter an environment where they will assume specific roles with established patterns of social interaction with superiors and co-workers. They are introduced to the organization's values and norms through a socialization process. These cultural values and norms are reinforced through patterned social interaction and repeated common experience with their superiors and coworkers in the organization. As conformity to the organization's values and norms become rewarding for new members, the organizational culture is internalized.

The patterned social interaction and experience also cause the members' cognitive structures to converge for those objects and activities that are important to the objectives of the organization. In other words, their schema for these relevant objects and activities of the organization become similar.

The new members learn the organization language and the meaning of its

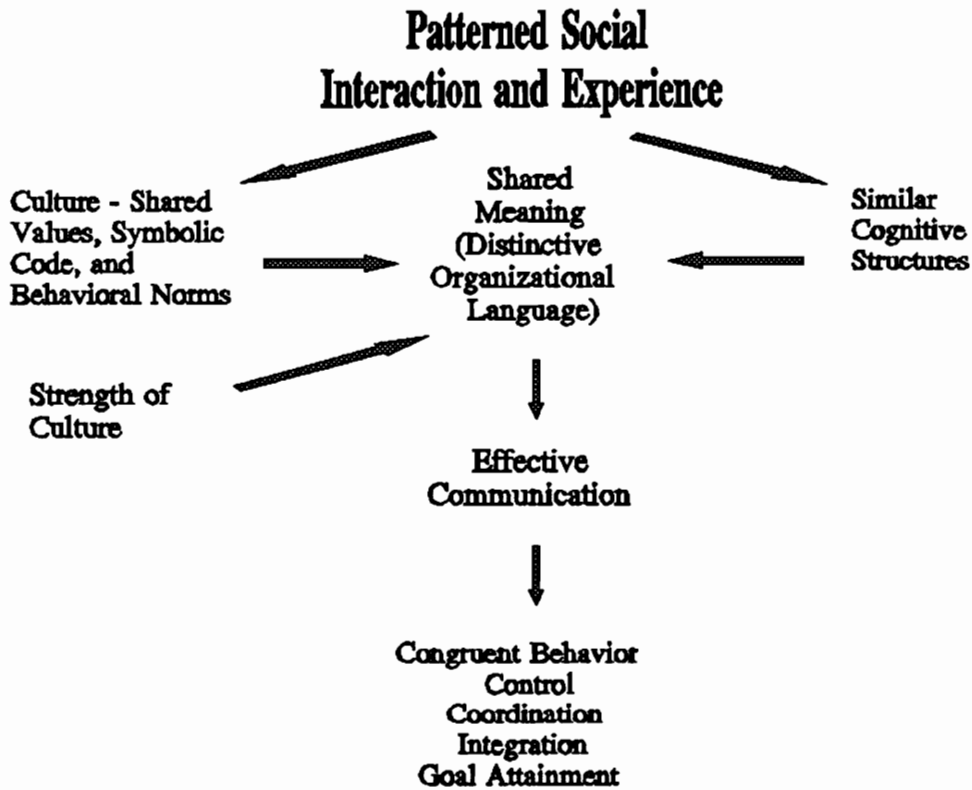


Figure 5. Shared Meaning Model of Organizational Communication

terminology that reflect the values and behavioral norms of the organizational culture. Internalizing the organization's values and norms and developing a cognitive structure similar to that of other organization members creates shared meaning. A distinctive organization language code embodying shared meaning enhances effective communication, which leads to congruent member behavior, more management control, greater coordination and integration, and goal attainment.

The degree to which an organization's culture is internalized by its members is moderated by the strength of the culture. In strong cultures, the values and norms are deeply internalized. The impact would be a higher degree of shared meaning, more effective communication, and greater control and coordination. Conversely, a weak culture would result in less effective communication quality and less control and coordination.

It is hypothesized that this model can be applied at the organization level for those organizations where one dominant culture influences cognition, communication and behavior. It can also be applied to sub-units within the organization where subcultures may be present. A question to be answered by this research is whether the communication of accounting information between accountants and managers is inhibited due to the existence of different functional

subcultures, and whether the fidelity of organizational communication is moderated by the strength of the organizational culture.

3.8 Hypotheses

Meaning is created through experience and interaction. The structure of society creates circumstances that confine the experience and interaction of individuals in structured and recurring patterns. Thus, individuals who share common experiences, language, and culture tend to become cognitively similar and communicate more effectively (Siegel & Ramanauskas-Marconi, 1989). The business organization, like society, confines the experience and interaction of its members into structured and recurring patterns.

Organizations are viewed as cultural phenomena. Through the socialization process, members of an organization adopt its norms, values, meanings and coding system and learn to communicate through the organization's technical language. Similar meanings for commonly used accounting terms develop for a particular organization. However, in other organizations with different cultures, the meaning for those same terms may be different. In other words, culture has a meaningful impact on the **content** of meaning. Therefore, the first hypothesis of this study is:

H1: There is no difference in the meaning attributed to commonly used management accounting terminology between organizations.¹⁴

It is possible for culture to develop within professions as well as in organizations. A professional culture could facilitate consistency of meaning within professions. In order to test for the existence of professional cultures, and to identify the source of the hypothesized difference in meaning between organizations, two sub-hypotheses that follow from H1 are:

H1(a): There is no difference in the meaning attributed to commonly used management accounting terminology by managers between organizations.

H1(b): There is no difference in the meaning attributed to commonly used management accounting terminology by accountants between organizations.

This study is primarily interested in the communication that occurs between accountants and production managers. Within an organization, specialization and differentiation further confine the experience and interaction of members to professional or functional groups. Within these groups or subcultures, local

¹⁴All hypotheses in this study are stated in the null form.

norms, values and languages evolve to meet the requirements of the unit's work. While striving for the same common organizational goals and objectives, the goals and objectives of the functional units of accountants and production managers are not always the same. This can lead to different cognitive structures between these functional groups, making communication between them less effective.

H2: There is no difference in meaning attributed to commonly used management accounting terminology between accountants and production managers within an organization.

Schall's (1983) definition of culture states that common meanings are "imperfectly shared". The amount of shared meaning held by members of a cultural group falls along a continuum. At one end of the continuum, meanings are peculiar to individual members. At the other end, meanings are internalized and widely shared by most members of the cultural group. This implies that culture impacts the **intensity** of meaning, or the degree to which meaning is widely shared. The amount of shared meaning within an organization depends upon the strength of the culture, or rather the potency and pervasiveness of the culture. Potency determines how much each member internalizes the norms, values and language of the organization. Pervasiveness determines the impact of culture as a guide to understanding and behavior on the entire organization membership. An

organization with a strong culture influences employees to internalize the organization's beliefs and values. A weak culture will not have that same impact.

H3: There is no relationship between the strength of the organizational culture and the variance of shared meaning within an organization.

3.9 Chapter Summary

A model of shared meaning development in organizational communication has been developed from the organizational culture, cognitive psychology, social psychology, and communication theory literature. From the model it is hypothesized that the quality of organization communication is affected by the organization's culture. Specifically, culture impacts both the substance or content of meaning for an organization's language and the degree to which the meaning is shared among the organization's members. Three general research hypotheses have been proposed to test the validity of the model. The specific research methods used to empirically examine this model are presented in the next chapter.

Chapter 4

Research Methods

4.1 Introduction

A model of organization communication that illustrates how shared meaning is developed from the structured patterns of social interaction in organizations was described in the previous chapter. The research methods which were used to empirically test a portion of the model are described in this chapter. The scope of this study prevents testing the relationship between effective communication and the outcome of effective communication, i.e. congruent behavior, control, coordination, integration, and goal attainment.

This chapter is comprised of five sections. The measurement of connotative meaning and the development of the semantic differential created to measure the

connotative meaning of management accounting terminology are reviewed in the first section. A discussion of the validity and reliability of the semantic differential developed for this study is also presented. The measurement of organizational culture is addressed in the second section. It identifies the instrument selected to measure culture and examines the issues involved in measuring this construct. The sample of organizations used in this study, the process of selecting that sample, and the data collection process is presented in the third section. The statistical data analysis methods which are employed to examine the model are identified in the fourth section. A summary of the research methods presented in this chapter are briefly reviewed in the final section.

4.2 The Measurement of Connotative Meaning

The semantic differential, which was developed to measure connotative meaning, was introduced in section 2.2. In developing the semantic differential, Osgood defined the meaning of a sign in a particular context to a particular person as the representational mediation process which it elicits. Osgood assumed that there is some finite number of representational mediation reactions, or behavioral reactions to a sign available to an individual. The number of alternative reactions corresponds to the number of dimensions in the semantic space as identified by a

principle components analysis and represented by a set of bipolar adjective scales. Direction of a point in the semantic space will correspond to what reactions are elicited by the sign, and distance from the origin corresponds to the intensity of the reaction.

Osgood identified two separate dimensions of meaning--denotative and connotative. As previously stated, denotative meaning is often referred to as descriptive or definitional meaning. It includes a list of the attributes associated with the term being defined. Connotative meaning refers to the interpretive meaning or emotional association that the term has acquired through experience. Connotative meaning is the relevant dimension of meaning in this study for two reasons. First, differences in denotative meaning are generally obvious and readily recognized by the communicants.¹⁵ It is assumed in this study that the denotative meaning of management accounting terminology commonly used in the organization will be understood by both accountants and managers because of the opportunity to negotiate meaning through the regular communication that occurs between these two groups in organizations. To help insure that this assumption is valid, a sample of accountants and managers were surveyed to identify the

¹⁵An extreme example of differences in denotative meaning is the attempt of two individuals who speak and understand only their own language to try to communicate in different languages. A less extreme example might be the communication between an accounting "expert" and an accounting "novice." In the communication between expert and novice, the unfamiliarity by the novice with terms from the technical accounting language would be readily apparent.

management accounting terms that were most important and most commonly used in their organizations. The discussion and results of this survey are presented in section 4.2.1.

The second reason for selecting connotative meaning as the relevant dimension of meaning for this study is the link between connotative meaning and behavior.

The aftermath of communication between accountants and managers is the behavioral reactions to the message. The Bedford/Baladouni model of accounting communication (Figure 1) shows that users react to the messages communicated from accountants to affect the course of economic events. It is desirable in an organization that the behavior of accountants and managers be mutually congruent and compatible with the objectives of the organization. This makes connotative meaning the element of meaning that top management may attempt to control in order to exercise some control over behavior.

As stated in section 2.2, the semantic differential is a method of controlled association and scaling. The semantic scales form the basis for the measurement of meaning. In differentiating the meaning of a term, a subject is presented with a term to be judged and a set of semantic scales on which to judge it. Osgood summarizes the process of "differentiating" the meaning of a term as follows:

"When a subject judges a concept against a series of scales, each judgment represents a selection among a set of given alternatives and serves to localize the concept as a point in the semantic space. The larger the number of scales and the more representative the selection of these scales, the more validity does this point in the space represent the operational meaning of the concept... By semantic differentiation, then, we mean the successive allocation of a concept to a point in the multidimensional semantic space by selection from among a set of given scaled semantic alternatives. Differences in meaning between two concepts is then merely a function of the differences in their respective allocations within the same space."

To illustrate the dimensionality of semantic space, consider the term BUDGET as hypothetically evaluated using three semantic scales.

BUDGET

Adverse ___|___|___|___|X|___|___ Beneficial
 Fixed ___|___|___|___|___|X|___ Variable
 Strategic ___|___|___|___|___|___|X Operational

Given the above evaluation, the operational definition of BUDGET for a single subject may be thought of as slightly beneficial, quite variable, and extremely operational. The subject's selection on each scale determines both the substance of meaning and the intensity of meaning for the term BUDGET. In three dimensional terms, the definition of BUDGET may be thought of as its point in semantic space, i.e. the intersection of each axis of each adjective scale as selected by the subject. Figure 6 is a three dimensional example of the

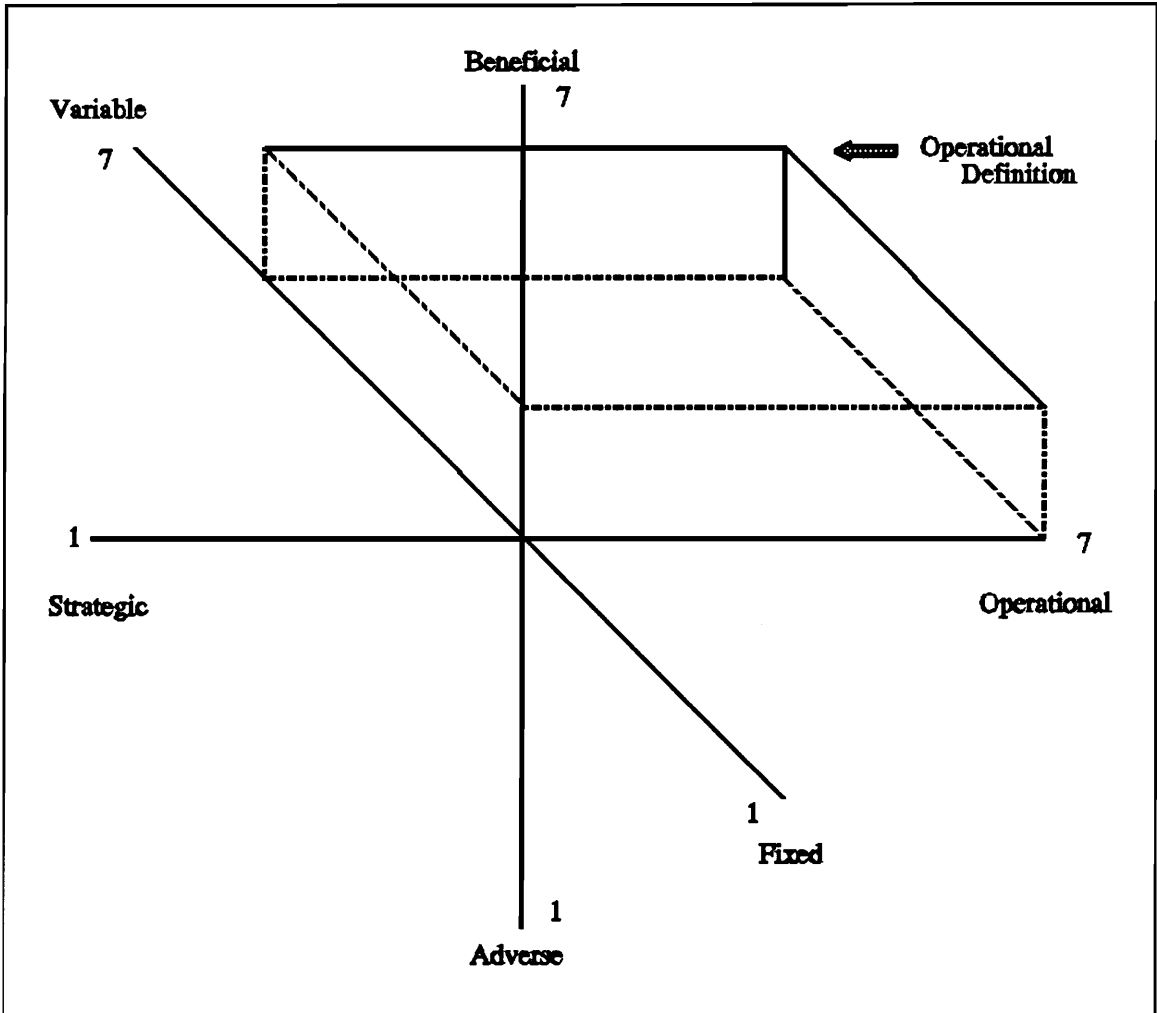


Figure 6. The Operational Meaning of "Budget" in Semantic Space

connotative meaning of the term BUDGET based on the hypothetical response of the single subject.¹⁶ With additional scales, an individual subject's connotative meaning for a concept becomes more precise and its point in space more accurately identified. With additional subjects a more universal meaning of a term may be established.

Osgood stated that the semantic differential is "a highly generalizable technique of measurement which must be adapted to the requirement of each research problem to which it is applied." Therefore, when a researcher desires to utilize a semantic differential to measure a previously untested domain of meaning, a new semantic differential must be created that contains scales that are common and typical of the domain of meaning being measured. Principal components analysis is used to identify the relevant dimensions of meaning for the new domain.

Although there have been several studies using a semantic differential in accounting communication, none were directed to analysis of management accounting terminology or the communication of accounting information within organizations. Therefore, a semantic differential was developed that pertains to the domain of management accounting by following a process similar to that used

¹⁶In practice, the dimensionality of semantic space is unknown. The tool used by Osgood and others to uncover these dimensions is principal components analysis. A thorough discussion of the various principal components/factor analysis methods used by previous researchers is presented in the Chapter 2 Literature Review.

by Haried.

The remainder of this section contains the approach utilized to develop a new semantic differential for management accounting terminology. First, the sample and processes of selecting the terms to be tested, and selecting the bipolar adjective scales to be used in an intermediate test instrument are identified.¹⁷ Next, the results of the principal components analysis of data from the intermediate test instrument provided by accountants and managers will be presented. The results of a factor comparability test as recommended by Houghton (1988) and Everett and Entrekin (1980) is presented. From these results, the test instrument is developed. Finally, the reliability of the completed management accounting semantic differential is examined.

4.2.1 Selection of Management Accounting Terms

The first procedure in developing a semantic differential for management accounting was the selection of the terms to be used. It was determined that the selected terms must meet two criteria. First, the terms must be commonly used and familiar to accountants and managers in general to test across different

¹⁷The intermediate test instrument contains a large sample of bipolar adjective scales. The responses from a sample of accountants and managers to selected management accounting terms using this large sample of scales will be subjected to a principal components analysis to identify the relevant bipolar adjective scales used in the final test instrument.

organizations in different industries. It would be useless to test for differences in meaning of terms that are unique to a particular organization or industry.

Management accounting terms that are familiar to both accountants and managers and are regularly used in organizational communication are likely to have more connotative substance and intensity, which will reduce the frequency of neutral responses on the semantic differential. Testing on familiar and commonly used terms will also permit the hypothesized effects of culture (shared meaning within cultures and differences in meaning across cultures) to be revealed. Second, the terms should be objectively determined. With the exception of Oliver (1974), the terms in previous accounting studies were judgmentally selected by the researcher.

The first criteria of selecting terms that are both common and familiar was satisfied through a survey of accountants and managers in two different manufacturing industries. A list of common management accounting terms was identified by reviewing the glossary/appendix of terms in three different cost accounting textbooks.¹⁸ A list of management accounting terms common to at least two of the three textbooks was compiled. An alphabetical list of those terms is provided in Appendix A.

Next the terms were categorized into groups by subject area. This process

¹⁸The three cost accounting textbooks used for this procedure were Garrison (1988), Horngren and Foster (1988), and Killough and Leininger (1987).

produced seventeen groups of terms representing such subject areas as budgeting, cost accounting, performance evaluation, costs for decision making, capital budgeting, variances, decision tools, and a group of miscellaneous terms. The two federal income tax terms, accelerated cost recovery and investment tax credit, were eliminated. Thirty four terms were selected representing each subject group for a survey instrument to represent a broad range of management accounting terminology. Two additional terms, just-in-time and flexible manufacturing system, were added to represent new concepts in manufacturing technology. The survey questionnaire of thirty-six terms was sent to a sample of one accountant and one manager in 200 large, publicly held firms in the electronics and textile industries.¹⁹ They were asked to identify those management accounting terms that are important and regularly used in organization communication as evaluated on a five point scale. The questionnaire was limited to thirty-six terms to reduce the amount of time required to respond. A copy of the term survey questionnaire and the accompanying letter is provided in Appendix A.

Each questionnaire was addressed to individuals at the controller and vice president levels in each organization. Each subject was encouraged to complete the questionnaire or to pass the questionnaire on to an employee under their

¹⁹The firms selected to receive the survey questionnaire were selected from Dun's Marketing Services 1989 Edition of Million Dollar Directory: America's Leading Public and Private Companies, and Standard and Poor's 1989 Register of Corporations, Directors and Executives, Volume 1.

supervision who could better respond. All questionnaires returned by the postal service as undeliverable were examined to obtain a correct mailing address and sent again to the appropriate individual. A total of 108 responses were received for a response rate of twenty-seven percent. The number of responses and corresponding response rates by profession, industry, and SIC code is provided in Table 1. It was important to obtain a representative response from each group to give greater assurance that the terms used on the final test instrument were universally used by both accountants and managers within organizations across industries. Mean responses to the five point scales were calculated across the 108 questionnaires to determine which management accounting terms are the most important and most commonly used in organizational communication. The results, showing overall means and means by profession and industry, are given in Table 2. The ranking of the sixteen most commonly used terms by profession and industry is shown in Table 3. The mean responses (Table 2) and rankings (Table 3) show a great measure of consistency among accountants and managers, and the electronic and textile industries.²⁰ These results provide some assurance that the most commonly used management accounting terms in these two industries are likely to extend to other industries as well. The results also provide some

²⁰The rankings from Table 3 were subjected to a Spearman Rank Order Correlation with each profession and industry correlated with every other profession and industry. This produced six correlation coefficients ranging from a low of .729 between accountants and managers to a high of .940 between the textile industry and accountants. The other four possible correlation coefficients were .836, .842, .853, and .876.

Table 1. Response Rates to Term Survey Questionnaire

	MANAGERS	ACCOUNTANTS	RATE
ELECTRONICS	20 of 100	35 of 100	28%
TEXTILES	22 of 100	31 of 100	27%
RATE	21%	33%	

SIC	MANAGERS	ACCOUNTANTS	RATE
361	2 of 9 22%	2 of 9 22%	22%
362	4 of 15 27%	7 of 15 47%	37%
363	1 of 5 20%	4 of 5 80%	50%
364	1 of 13 8%	3 of 13 23%	15%
365	1 of 4 25%	0 of 4 0%	13%
366	4 of 18 22%	5 of 18 28%	25%
367	5 of 28 14%	10 of 28 36%	27%
369	2 of 8 25%	4 of 8 50%	38%
221	3 of 11 27%	6 of 11 55%	41%
222	1 of 8 13%	4 of 8 50%	31%
223	1 of 3 33%	2 of 3 67%	50%
224	0 of 4 0%	2 of 4 50%	25%
225	5 of 20 25%	4 of 20 20%	23%
226	2 of 10 20%	2 of 10 20%	20%
227	2 of 10 20%	2 of 10 20%	20%
228	4 of 19 21%	5 of 19 26%	24%
229	4 of 15 27%	5 of 15 33%	30%

Table 2. Mean Responses to Term Survey Questionnaire

TERMS	TOTAL MEANS	MGRS MEANS	ACCTS MEANS	ELEC MEANS	TEXT MEANS
Budget	1.36	1.33	1.38	1.54	1.19
Product Cost	1.47	1.33	1.55	1.62	1.31
Fixed Cost	1.56	1.44	1.64	1.85	1.26
Variable Cost	1.56	1.59	1.55	1.82	1.30
Direct Cost	1.64	1.43	1.78	1.71	1.57
Return On Investment	1.71	1.62	1.76	1.89	1.52
Indirect Cost	1.72	1.43	1.90	1.78	1.65
Variance	1.72	1.60	1.81	1.87	1.57
Contribution Margin	1.74	1.98	1.58	1.85	1.62
Sales Mix	1.85	1.86	1.85	2.00	1.70
Direct (Variable) Costing	1.95	1.81	2.04	2.16	1.74
Controllable Cost	1.99	1.81	2.11	2.18	1.79
Over/Under Absorbed O/H	2.00	2.12	1.93	1.96	2.04
Cost Of Capital	2.20	1.90	2.39	2.36	2.04
Transfer Price	2.45	2.33	2.53	2.49	2.42
Just-in-time	2.45	2.29	2.55	2.22	2.69
Discounted Cash Flow	2.63	2.67	2.61	2.71	2.56
Absorption Costing	2.69	2.88	2.57	2.70	2.69
Responsibility Accounting	2.69	2.88	2.57	2.70	2.69
Predetermined O/H Rate	2.90	2.86	2.93	2.91	2.89
Opportunity Cost	2.92	2.95	2.90	2.91	2.93
Flexible Manuf. System	2.93	2.71	3.06	2.89	2.96
Semivariable Cost	3.06	3.18	2.99	3.09	3.02
Economic Order Quantity	3.07	2.98	3.13	3.16	2.98
Discretionary Cost	3.17	2.95	3.30	3.07	3.26
Probability	3.21	3.05	3.13	3.27	3.15
Sensitivity Analysis	3.37	3.34	3.39	3.34	3.41
Relevant Cost	3.39	3.27	3.46	3.31	3.46
Sunk Cost	3.52	3.44	3.57	3.42	3.62
Differential Cost	3.55	3.29	3.70	3.59	3.50
Regression Analysis	3.73	3.55	3.85	3.78	3.69
Residual Income	3.75	3.55	3.87	3.74	3.75
Common Joint Cost	3.79	3.76	3.81	3.67	3.91
Byproduct	3.84	3.71	3.93	3.98	3.70
Relevant Range	3.85	3.86	3.85	3.93	3.78
Separable Cost	4.01	3.83	4.12	4.08	3.94

Table 3. Ranking of Management Accounting Terms by Profession and Industry

TERM	MGRS	ACCT	ELEC	TEXT
Budget *	1	1	1	1
Product Cost *	2	2	2	4
Fixed Cost *	5	5	7	2
Variable Cost *	6	3	5	3
Direct Cost *	3	7	3	6
Return on Investment *	8	6	9	5
Indirect Cost	4	10	4	9
Variance *	7	8	8	7
Contribution Margin *	13	4	6	8
Sales Mix	11	9	11	10
Direct (Variable) Costing *	9	12	12	11
Controllable Cost *	10	13	13	12
Over/Under Absorbed O/H	14	11	10	13
Cost of Capital *	12	14	15	14
Transfer Price	16	15	16	15
Just-In-Time *	15	16	14	18

* Terms selected for final instrument

assurance that both accountants and managers generally agree on which terms are most important and most commonly used.

To reduce the time demand upon respondents and to obtain a reasonable response rate, only twelve terms were selected for the intermediate survey instrument used to develop the semantic differential. The twelve selected terms are highlighted in Table 3. Indirect cost, sales mix, over/under absorbed overhead, and transfer price were judgmentally eliminated from the top sixteen to arrive at the twelve selected terms.

4.2.2 Selection of Adjective Scales

Concurrent with identifying a set of commonly used management accounting terms, bipolar adjective scales that are relevant to that management accounting terminology were developed. Bipolar adjective scales are necessary not only to identify the attributes of the object of measurement, but to measure the strength of the association of a term to each bipolar adjective scale. Osgood et al. (1957) state that a reasonable procedure to identify bipolar scales is to select a sample of adjective scales that are relatively usual and familiar for the particular domain being measured. To get a more discriminating set of scales concerned with the particular domain of meaning, the triad procedure can be used to obtain a

number of additional scales.

Triandis (1959) showed that the triad procedure is a potentially useful methodology for generating pairs of bipolar adjectives relevant to particular domains of meaning. The basic procedure presents triads (sets of three terms or concepts) to subjects who are asked to perform the following three steps:

- (1) Identify which of the three concepts is more different in meaning from the other two.
- (2) Write down the characteristic that makes this concept different.
- (3) Write down the logical opposite of this characteristic.

The set of characteristics and their opposites obtained in this procedure provide potentially relevant bipolar characteristics for differentiating meaning using semantic scales.

Triandis was able to obtain a satisfactory number of different responses using twelve triads of concepts for a particular domain of meaning. Haried (1970) found that subjects required approximately one hour to complete responses to between ten and fifteen triads, and used fourteen triads for his study. Fifteen triads were selected for this study.

The fifteen triads were generated using the thirty-six terms in Table 2. Each of the thirty-six terms was written on a separate piece of paper, placed in a bowl,

and drawn randomly in sets of three terms with replacement after selecting each set or triad. A total of 150 triads were drawn which represents 2.1 percent of the 7,140 possible combinations of thirty six terms, taken three at a time. Haried's random selection of possible triads represented two percent of the possible combinations of terms used in his study.

The 150 triads were evaluated, based on personal judgment, as to those combinations which were both reasonable and likely to generate a variety of different adjective scales. Fifteen of the 150 triad combinations were selected on this basis. The instructions and questionnaire for the triad procedure and the fifteen triads selected in this study are presented in Appendix A.

For the purpose of generating potentially relevant semantic scales, two groups of student subjects were used to represent accountants and managers. The accountant group consisted of fifteen accounting graduate students enrolled in studies at Virginia Tech. The manager group consisted of twenty-three management graduate students and seven industrial engineering graduate students also enrolled at Virginia Tech.

One hundred and nine pairs of adjectives and their opposites were generated in the application of the triad procedure. Although the sample size of the

accounting group was half the size of the manager group, seventy-nine adjective pairs were generated by the accounting group compared to sixty-seven adjective pairs generated by the manager group.

A number of these adjective pairs appeared to be synonymous with one another. Osgood (1957) and Haried (1970) encountered a similar problem of objectively identifying those adjective pairs which could reasonably be considered synonymous. To solve this problem, a procedure used by Haried was employed. Each of the 109 adjective scale was written on a separate card, and five different individuals with different demographic backgrounds²¹ were asked to sort the scales into twenty common, homogeneous piles in terms of similarity of meaning. If a set of adjective scales kept appearing together in the same piles across various sorters, these scales would presumably be highly correlated in a subsequent principal components analysis and would not contribute to examining the meaning of accounting terms. The co-occurrence of adjective scales in the same categories by three or more of the five subjects was deemed to provide objective evidence of a redundant similarity of the adjective scales. Where this occurred, the adjective scale in each group that appears most often in the triad procedure was retained and the other adjective scales were eliminated. The sets of redundant adjectives scales identified in the sorting procedure are presented in Appendix A, and the

²¹The five individuals selected to perform the sorting exercise were a business manager, an educator, a housewife, a graduate student in English, and a graduate student in accounting.

adjective scale retained is underlined.

After discarding the twenty-nine pair of bipolar adjectives determined to be similar in meaning, eighty adjective scales that could potentially be used in the construction of semantic scales for the subsequent principal components analysis remained. Of these, twenty-seven adjective scales were cited four or more times in the triad procedure, and were selected for use on the intermediate test instrument. Osgood et al. (1957) stated that the triad procedure is used to generate bipolar scales in addition to those scales considered relevant by the researcher. Thus, nine bipolar adjective scales that are considered relevant to the management accounting domain of meaning by the researcher were added making a total of thirty-six scales. The selected scales and the number of times they appear the triad procedure are shown in Appendix A (p. 243). The last nine scales were the scales that were added by the researcher. Haried (1970) used thirty-three bipolar adjective scales for his intermediate test instrument to test the financial accounting domain of meaning. Twenty of the thirty-six adjective scales selected for this study correspond with Haried's scales. The corresponding scales are highlighted in the table .

The thirty-six selected scales were matched with each selected term on the intermediate test instrument. The bipolar adjective scales in the intermediate test

instrument were presented in constant order on each page so that the maximum number of items (35) would intervene between successive judgment on the same scale. It was felt that this would help insure the independence of subject judgment in their responses. However, the ordering of the scales was random with respect to semantic content. The survey was sent to the same sample of accountants and managers in the electronics and textile industries used to select the terms. As indicated by the accompanying letter, subjects were reminded that they had participated in an earlier phase of this research project and were requested to respond to this final phase. A sample of the intermediate test instrument and accompanying letter is presented in Appendix A.

4.2.3 Principal Components Analysis of Intermediate Test Instrument

Four hundred intermediate test questionnaires were sent and seventeen were returned as undeliverable. Of the 383 remaining questionnaires, seventy-nine were completed by respondents for a response rate of twenty-one percent. While the response rate is not high, the researcher was satisfied with the response for three reasons. First, the number of responses was sufficient to perform a reasonably robust principal components analysis (Hair et al. 1987). Second, as shown by Table 4, the response rates by industry, profession and SIC codes indicated that a representative response was obtained. Finally, in an effort to

develop a semantic differential with a high degree of content validity, the researcher determined to obtain the response on the intermediate test instrument entirely from working professionals. It was determined that this questionnaire would require approximately forty minutes of time from a working professional on a redundant survey that had little meaning or significance to the respondent. Under these circumstances, the researcher considered a twenty-one percent response rate to be very satisfactory.²²

The analysis of the data consists of quantifying the subjects responses to the twelve accounting terms across thirty-six bipolar adjective scales and subjecting the quantified data to a principal components analysis. The general purpose of this factor analytic technique is to condense and summarize the information to define the fundamental dimensions of meaning, and to identify which adjective scales are correlated with each dimension of meaning. Specifically, the objective is to reduce the great number of potentially usable bipolar adjective pairs to a limited, representative number for each dimension of meaning. Osgood et al. (1957) stated:

²²Prior to this research, Haried (1970, 1972) and Karvel (1979) are the only accounting researchers to create a unique semantic differential to measure meaning within the accounting domain. Other accounting researchers have "borrowed" from Osgood's and Haried's work. More than sixty percent of the response to Haried's intermediate test instrument came from students who represented working professionals. Subsequent research (Belkaoui, 1980) revealed significant semantic differences between students and working professionals. Karvel obtained a response rate of 28 percent using working professionals for his intermediate survey instrument. However, his questionnaire was much more limited in scope and required only ten minutes to complete.

Table 4. Response Rates to Intermediate Test Instrument

	MANAGERS	ACCOUNTANTS	RATE
ELECTRONICS	17 of 100	18 of 100	18%
TEXTILES	19 of 100	20 of 100	20%
RATE	18%	19%	

SIC	MANAGERS	ACCOUNTANTS	RATE
361	1 of 9 11%	1 of 9 11%	11%
362	3 of 15 20%	5 of 15 33%	27%
363	0 of 5 0%	1 of 5 20%	10%
364	2 of 13 15%	1 of 13 8%	12%
365	1 of 4 25%	0 of 4 0%	13%
366	1 of 18 6%	1 of 18 6%	6%
367	5 of 28 18%	6 of 28 21%	20%
369	4 of 8 50%	3 of 8 38%	44%
221	2 of 11 18%	1 of 11 9%	14%
222	3 of 8 38%	3 of 8 38%	38%
223	1 of 3 33%	1 of 3 33%	33%
224	0 of 4 0%	1 of 4 25%	13%
225	1 of 20 5%	2 of 20 10%	8%
226	1 of 10 10%	2 of 10 20%	15%
227	1 of 10 10%	2 of 10 20%	15%
228	6 of 19 32%	6 of 19 32%	32%
229	4 of 15 27%	2 of 15 13%	20%

- * Five respondents removed the cover page with the identifying number, thus, they were unable to be classified in the table.

" Ideally, we should like to use one specific scale to represent each of the factors or dimensions of the semantic space . . . In practice, however, we use a small sample of closely related scales to represent each factor deriving a score from their average which is assumed to be more representative and more reliable than scores on individual scales."

Dimensions of meaning are derived from an analysis of the correlations among the thirty six bipolar adjective scales. Accordingly, principal components analysis reduced the data to a 36 X 36 matrix of the inter-correlations of every scale with every other scale. Hair et al (1987) describes the purpose of this unrotated factor matrix:

". . . the analyst is simply interested in the best linear combination of variables--best in the sense that the particular combination of original variables would account for more of the variance in the data as a whole than any other linear combination of variables. Therefore, the first factor may be viewed as the single best summary of linear relationships exhibited in the data. The second factor is defined as the second best linear combination of the variables subject to the constraint that it is orthogonal to the first factor. To be orthogonal to the first factor, the second one must be derived from the proportion of the variance remaining after the first factor has been extracted. Subsequent factors are defined similarly until all the variance in the data is exhausted."

The initial unrotated factor matrix is computed to assist in obtaining a preliminary indication of the number of factors to extract. While the unrotated factor solution achieves the objective of data reduction, the unrotated factor solution generally does not provide the information that offers the most satisfactory interpretation of the variables. Rotation of the factors simplifies the factor structure and provides

a more meaningful factor pattern. The VARIMAX method of rotation has proved very successful as an analytic approach to obtaining an orthogonal rotation of factors and is the method used by previous accounting researchers. An orthogonal rotation corresponds with Osgood's conception of semantic space with orthogonal vectors.

There is no exact quantitative criteria for selecting the number of factors to be extracted. When creating their distinctive semantic differentials, Haried (1972) and Karvel (1979) used the latent root criterion. Only factors having latent roots, or eigenvalues greater than one are considered significant. However, this method has been found to be less rigorous than the scree test criterion. In the reanalysis of Haried's data, Houghton (1988) applied the scree test and found three dimensions of meaning that corresponded to Osgood's Evaluative-Potency-Activity dimensions of meaning. Hair et al. (1987) state that with principal component analysis, the later factors extracted contain both common and unique variance. While all factors contain at least some unique variance, the proportion of unique variance in later factors is substantially higher than in earlier factors. The scree test identifies the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance. The scree plot of eigenvalues for the data in this study is shown in Figure 7. The point where the curve first begins to straighten out indicates the maximum number of

factors to extract. According to the scree test criterion, three or four factors appear appropriate for rotation.

Houghton (1988) also criticized Haried's (1972) analysis for the lack of testing for stability of the factors. To make a valid comparison of meaning between accountants and managers, it is necessary that the factor structures of the two groups be comparable. Different factor structures would indicate a difference in cognitive structures between the two groups. Houghton (1988) cited factor comparability as a rigorous method to test factor stability and comparability. In describing the procedure, Everett and Entrekin (1980) stress the importance of factor comparability when judging the usefulness of a factor as a summary measure when identical test items are administered to different sets of respondents (i.e. accountants and managers).

A factor comparability test on both a three factor structure and a four factor structure was utilized to identify the appropriate factor structure for the management accounting domain of meaning, and to insure that factor structures for accountants and managers were comparable. The data from accountants and managers were each subjected to identical principal components analyses using a three factor rotation. This produced two sets of factor scores. The accountant factor score coefficients were used to calculate a duplicate set of factor scores for

SCREE PLOT OF EIGENVALUES

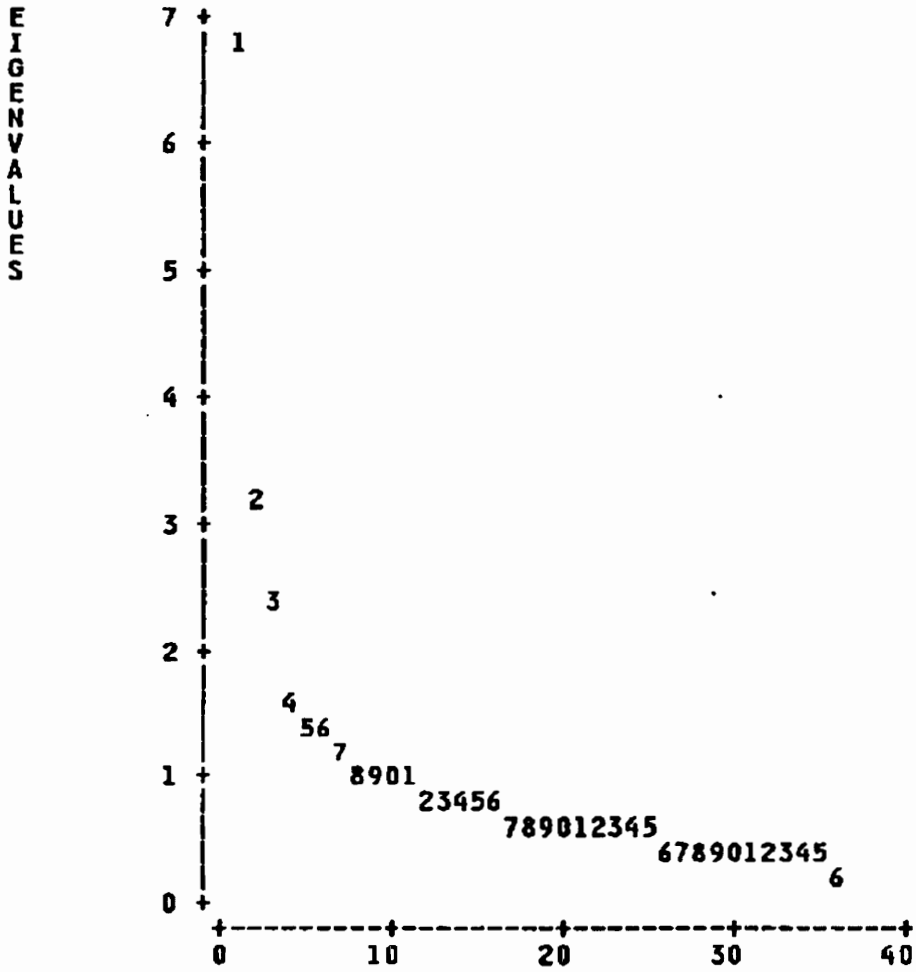


Figure 7. Scree Plot of Eigenvalues

each manager respondent. The duplicate set of factor scores was correlated with the original set of manager factor scores for each factor. This procedure produced an $n \times n$ correlation matrix with n representing the number of factors. This cross-correlation of the duplicate factor scores provides a measure of factor comparability. The manager factor score coefficients were likewise used to calculate a duplicate set of factor scores for each accountant respondent, and a second cross-correlation of the duplicate factor scores was computed, producing a second correlation matrix. This procedure was repeated using a four factor rotation on the principal components analyses. Table 5 shows the cross-correlation tables for both the three factor and four factor structure.²³ Both sets of correlations are shown in each cell of the correlation matrices provided in Table 5.

Everett and Entekin (1980) noted that if two factors have approximately equal eigenvalues, it is a matter of chance which factor is extracted first. Therefore, it is possible that the strong correlation could exist between the second and third factors and vice versa. Table 5 shows that this is the case for the three factor correlations. Factor one for both accountants and managers correlated strongly. However, factor two correlated strongly with factor three between accountants and managers. Although there are some fairly strong cross-correlation coefficients

²³A common cut-off level for factor comparability is a correlation approaching 0.9, which is where the shared variance is approximately 80 percent or more.

Table 5. Correlations for Factor Comparability Test

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.5308/.4919	.8026/.3688	.0568/.7222	.0794/.1555
FACTOR 2	.1344/.8390	.1978/.1131	.3524/.2965	.8027/.1313
FACTOR 3	.7443/.1692	.2681/.3489	.0311/.1337	.5516/.8378
FACTOR 4	.2492/.1502	.1040/.8026	.8852/.4210	.2719/.3122

CORRELATIONS FOR FOUR FACTOR ROTATION

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.9729/.9773	.1208/.1196	.1442/.0719
FACTOR 2	.1011/.1774	.2720/.2681	.9368/.8771
FACTOR 3	.1433/.0177	.9276/.9422	.2079/.2658

CORRELATIONS FOR THREE FACTOR ROTATION

in the four factor structure, it appears that the relevant cognitive structure within management accounting has three dimensions. This complements Houghton's (1988) reanalysis of Haried's data for financial accounting and Osgood's (1957) results for the general domain of meaning.

Interpreting the factors requires identifying which scales load on which factors. Hair et al. (1987) state that factor loadings greater than .30 are considered significant, loadings of .40 are considered more important, and loadings of .50 or greater are considered very significant. Thus, the larger the absolute size of the factor loading, the more significant the scale is in interpreting the factor matrix. The three factor matrix is provided in Table 6. The factor loadings that are considered significant (greater than .30) are shown in bold print. Interpreting and labeling a factor involves attempting to assign some meaning to the pattern of factor loadings. The label assigned to each factor is intuitively derived based upon how the significantly loaded scales describe and define the factor. The first factor was labeled evaluative and is described by scales such as important-unimportant, necessary-unnecessary, informative-uninformative, and measurable-unmeasurable. The evaluative factor accounts for 54.4 percent of the total variance in the three factor matrix. The second factor was labeled activity and is described by scales such as fixed-variable, static-dynamic, and permanent-temporary. The activity factor accounts for 26.2 percent of the total variance.

Table 6. Factor Loadings for Three Factor Solution

BIPOLAR ADJECTIVE SCALE	EVAL.	ACTIV.	CNTRL.
Controllable-Noncontrollable *	0.3034	0.1647	0.3923
Variable-Fixed *	0.0715	0.6574	0.2336
Financial-Operational	0.0433	-0.1198	-0.5513
Cost Oriented-Revenue Oriented *	0.0391	-0.0514	0.5264
Specific-General	0.4426	-0.0697	0.4937
Measurable-Unmeasurable *	0.5711	-0.1069	0.3108
Subjective-Objective	-0.3954	0.1268	-0.2229
Discretionary-Required	-0.5661	0.2042	0.0036
Exact-Estimated	0.3991	-0.3213	0.3221
Relevant-Irrelevant *	0.7128	0.0569	0.0742
Flexible-Inflexible	0.0814	0.6297	0.2055
Internal-External	0.1742	0.1662	0.4174
Unplanned-Planned	-0.5366	0.1903	-0.0239
Concrete-Abstract	0.4967	-0.2939	0.3632
Nonanalytical-Analytical	-0.4396	-0.0909	0.0634
Past-Current	-0.3490	-0.1125	-0.1843
Input Oriented-Output Oriented	-0.0048	-0.1531	0.2860
Dependent-Independent	0.2012	0.4225	-0.1183
Direct-Indirect	0.3066	0.2572	0.4037
Temporary-Permanent *	-0.2525	0.5409	0.0988
Qualitative-Quantitative	-0.2778	0.0557	-0.2633
Simple-Complex	0.0164	-0.2698	0.3826
Dynamic-Static *	0.1627	0.6546	-0.0191
Unstructured-Structured	-0.5555	0.2400	-0.0568
Certain-Uncertain	0.3990	-0.4461	0.2684
Imaginary-Real	-0.6227	0.1505	-0.2290
Stable-Unstable	0.3125	-0.6023	0.1524
Strategic-Operational *	-0.0162	-0.1230	-0.6185
Allocated-Nonallocated	0.1065	-0.1614	-0.3242
Cause-Effect	0.0455	-0.1686	0.2494
Important-Unimportant *	0.7376	0.0567	-0.0239
Uninformative-Informative *	-0.6369	-0.0907	-0.0488
Beneficial-Adverse *	0.6363	0.1659	-0.1472
Long Term-Short Term	0.1354	-0.4047	-0.3941
Unnecessary-Necessary *	-0.7305	-0.0065	0.0824
Productive-Unproductive	0.5961	0.2149	0.0345

* Selected for final Semantic Differential Survey Instrument

The final factor was labeled influence/control and is described by scales such as strategic-operational, and controllable-noncontrollable. The final factor accounts for the remaining 19.4 percent of the total variance. The labels of the three factors corresponds with the labels given by Houghton (1988) to Haried's data and by Osgood et al. (1957) to the three dimensions of general meaning. This adds an element of validity to this management accounting semantic differential instrument.

4.2.4 The Completed Semantic Differential Survey Instrument

The next step in creating the completed semantic differential is selecting the adjective scales to represent each of the three dimensions of meaning. To be consistent with Haried's (1972) seminal study,²⁴ the researcher determined that approximately twelve bipolar adjectives scales should be selected to represent the three dimensions of meaning for the completed instrument. It is clear that the evaluative factor of meaning dominates the activity and control factors of meaning in importance by virtue of the fact that it accounts for more than half of the total variance. The evaluative factor is described by a fairly large variety of bipolar adjective scales. Each scale represent a slightly different element of the

²⁴Haried's instrument has been cited by Grove and Savich (1979) as a positive example of reliability and validity considerations. Therefore, the procedures used by Haried to create his financial accounting semantic differential were used as a pattern to develop the management accounting semantic differential used in this study.

evaluative dimension of meaning. To more fully capture the various elements of evaluative meaning and because the evaluative factor accounted for more than half of the variance, the researcher determined that six bipolar adjective scales would be selected to represent the evaluative factor, and three adjective scales would represent the activity and influence/control factors.

Selecting the bipolar adjective scales requires a great deal of judgment. Generally the scales with the highest factor loadings were selected. When a scale with a lower factor loading was selected, it was believed by researcher that the meaning of the scale not selected was captured in a previously selected scales. Finally, if a scale loaded heavily on more than one factor, it was not selected to help maintain the concept of orthogonal dimensions of meaning in semantic space. The only exception to the above selection criteria was selecting the controllable-noncontrollable scale to represent the influence/control dimension of meaning. This scale was selected for the completed instrument since it appeared significantly more often in the triad procedure than any other scale. The inclusion of a controllable-noncontrollable scale in the semantic differential for management accounting is also intuitively appealing since it depicts one of the major functions of management. The selected bipolar adjective scales representing the three dimensions of meaning are highlighted by bold print in Table 6, and listed under their respective dimension of meaning in Table 7.

**Table 7. Management Accounting Dimensions of Meaning
with Their Respective Adjective Scales**

EVALUATIVE DIMENSION

Measurable - Unmeasurable
Relevant - Irrelevant
Important - Unimportant
Informative - Uninformative
Beneficial - Adverse
Unnecessary - Necessary

ACTIVITY DIMENSION

Variable - Fixed
Temporary - Permanent
Dynamic - Static

INFLUENCE/CONTROL DIMENSION

Controllable - Noncontrollable
Cost Oriented - Revenue Oriented
Strategic - Operational

4.2.5 Reliability and Validity of the Semantic Differential

The reliability and validity of the semantic differential as a measurement instrument is exhaustively covered by Osgood et al. (1957), Snider and Osgood (1969), and Grove and Savich (1979). Therefore a detailed discussion of reliability and validity will not be undertaken in this study. Rather a brief discussion of the relevant facets of reliability and validity of the management accounting semantic differential created for this study is presented.

Kerlinger (1986) considers reliability as synonymous with dependability, stability, consistency, predictability, and accuracy. Osgood et al. (1957) state that "the reliability of an instrument is usually said to be the degree to which the same scores can be reproduced when the same objects are measured repeatedly." The test-retest procedure was used to evaluate the reliability of the management accounting semantic differential. The semantic differential questionnaire was administered to a class of twenty-four undergraduate cost accounting students at Virginia Tech in late July, 1990. These students responded to the twelve scales for four of the selected management accounting terms. One week later, the same twenty-four students again responded to four management accounting terms, with the terms "Return on Investment" and "Variance" included in both the test and the retest. This provided 288 observations (twenty-four students by twelve scales) for

each term. The Spearman Rank Correlation Coefficient was calculated as a measure of inter-test reliability. The coefficient was .781 for both Return on Investment and Variance. The significance of the correlation obtained was tested by determining the t-values associated with each term. The "Return on Investment" t-value of 21.13 and the "Variance" t-value of 21.18 were both significant at the .001 level of confidence.

To gauge the respondents' care and accuracy in answering the intermediate test instrument and to provide a second test of reliability, selected bipolar adjective scales were reversed. Accurate responses to these reversed scales would result in negative factor loadings when compared with other scales with similar meaning within the same factor. An examination of Table 6, which presents the factor loadings for each bipolar adjective scale, provides evidence of the instrument's reliability. For example, under factor one, measurable-unmeasurable, exact-estimated, concrete-abstract, and certain-uncertain have positive factor loadings while subjective-objective, unplanned-planned, and unstructured-structured, which were reversed, have negative factor loadings. Under factor two, variable-fixed, flexible-inflexible, and temporary-permanent have positive factor loadings while exact-estimated, concrete-abstract, certain-uncertain, and stable-unstable have negative factor loadings.

Validity is commonly thought of as an assessment of a test instrument's ability to measure what it claims to measure. Kerlinger (1986) classifies the types of validity as content, criterion-related, and construct.

According to Kerlinger (1986) content validity is the representativeness of the content or substance of the measuring instrument. "Content validation is guided by the question: Is the substance or content of this measure representative of the content or the universe of content of the property being measured?" In constructing the management accounting semantic differential, it was not possible to draw a random sample of management accounting terms and adjective scales from a universe of all management accounting terms and all possible adjective scales to describe those terms. Thus, content validation consists essentially in judgment of whether the selected terms and scales are representative of management accounting communication and meaning. In addition, the sampling adequacy of response to the intermediate test instrument influences the content validity of the completed test instrument as it was developed from the principal components analysis of the data provided by the intermediate test instrument.

The content validity of the management accounting semantic differential was an underlying consideration in the procedures followed in developing this test instrument. Grove and Savich (1979) cite Haried's (1972, 1972) work in

developing his semantic differential as a good example where content validity considerations were rigorously addressed. For this reason, the procedures employed by Haried were followed in developing the management accounting semantic differential.

A review of the procedures followed in selecting the management accounting terms and the adjective scales (Sections 4.2.1 and 4.2.2) provides assurances that care was taken to avoid any selection bias. The procedures employed in the selection of terms was more objective than those used by Haried. The terms selected were those identified by both accountants and managers from two different industries as being the most important and commonly used in their accounting communication. The use of the triad procedure to identify potential adjective scales was both random and objective. The procedures followed to reduce the number of adjective scales to the twelve that appear on the completed instrument as objective as possible. Finally, the response of actual professionals to the intermediate test instrument rather than students strengthens the content validity of the completed instrument. The sampling adequacy of response to the intermediate test instrument was considered reasonable. A review of Table 4 shows that responses were obtained from an almost equal number of accountants and managers from both the electronics and textile industries, as well as receiving responses from organizations representing each of the SIC code.

Criterion-related validity is examined "by comparing test or scale scores with one or more external variables, or criteria, known or believed to measure the attribute under study" (Kerlinger, 1986). This element of validity is most important in practical or applied research where the primary interest lies in the ability of the criterion to predict the outcome of a related construct of interest. While the theory cited in this study postulates a relationship between connotative meaning and behavior, the nature of this research did not permit an evaluation of this element of validity.

Kerlinger (1986) states that construct validity is the most important form of validity from a scientific research point of view. Construct validity examines what property or constructs can explain the variance of the tests to determine if the instrument is measuring what it purports to measure. Kerlinger (1986) maintains that:

"In order to study the construct validity of any measure, it is always helpful to correlate the measure with other measures . . . Factor analysis is a powerful and indispensable method of construct validation . . . It is a method for reducing a large number of measures to a smaller number called factors by discovering which ones 'go together' and the relations between the clusters of measures that go together."

Construct validation was considered successful as the three dimensions of meaning identified in components analysis correspond with Osgood's three dimensions that account for the general domain of meaning.

The management accounting semantic differential satisfies the demands of reliability and validity required of a measurement instrument. A copy of the completed semantic differential questionnaire is presented in Appendix A.

4.3 The Measurement of Organizational Culture

Because culture manifests itself in several different ways, it can be an elusive construct to measure. Students and researchers of organizational culture generally accept Schein's (1985) conceptualization of culture as consisting of three layers. The first layer consist of artifacts consisting of the behavioral patterns and the visible, tangible results of behavior, i.e. an organization's language and jargon, office layouts, organizational structure, dress codes, technology, and behavioral norms. These elements of culture are the most objective and accessible to the researcher, and are capable of being measured using quantitative research methods. The second layer consists of values and beliefs, which includes an organization's philosophies, ideologies, ethical and moral codes, and attitudes. These constructs are less objective and accessible to the researcher than level one manifestations of culture, and may call for qualitative as well as quantitative research methods. The third layer consists of basic underlying assumptions-- beliefs, values and perceptions that have been so taken for granted that they have become unconscious to the members of the organization. These constructs are

the least objective and accessible to the researcher and requires a qualitative interactive process of joint inquiry between a few key organization members and researchers.

A researcher's preference for research method depends upon how they view the manifestations of culture. As the elements of culture that a researcher is interested in become more objective and accessible, they can be measured by structured, quantitative methods. A quantitative approach allows the researcher to measure the extent to which members of a unit agree with predefined values and behavioral norms, and to measure the intensity or strength of those values and norms. A quantitative approach also facilitates intra- and inter-unit comparisons that will identify the of subcultures and reveal the diversity of cultural patterns among and between organizational units.

Since this study focuses upon the relationship between connotative meaning and behavior norms, and the purpose of the study is to make intra- and inter-organization comparisons, a quantitative approach was appropriate. This study utilizes a questionnaire designed by Cooke and Lafferty (1984, 1987), the Organizational Culture Inventory (OCI). A sample of the OCI is presented in

Appendix B.²⁵ This instrument was designed to measure a specific aspect of organizational culture--the direction and intensity of the shared norms and expectations that guide the thinking and behavior of members in relation to both their tasks and to other people. The instrument uses a five-point scale to measure twelve different behavioral norms, or cultural styles by responding to 120 different statements. A description of the twelve cultural styles is provided in Appendix B.

The twelve styles measured by the OCI are placed around a circular diagram or clock. When the cultural style scores are plotted on the clock, it presents a cultural profile of the respondent's organization or unit. The twelve cultural styles are interrelated, and their location on the clock reveals the extent to which the values of the organization emphasize a concern for people versus tasks (from the leadership literature, Stodgill, 1963), and promote behaviors leading to the fulfillment of satisfaction versus security needs (individual needs from Maslow, 1954). A reproduction of the OCI clock is shown in Figure 8.

When the data from the OCI is subjected to a principal components analysis, the rotated factor pattern yields a three factor structure (Cooke and Rousseau, 1988). The first factor represented people/security cultures with cultural styles three

²⁵When permission was requested to reproduce the Organizational Culture Inventory in the Appendix of this study, Human Synergistics, Inc. indicated that they generally do not grant permission for reproduction of their instruments. They requested that I include two representative items from each cultural style in addition to the cultural style descriptions provided in Table 8.

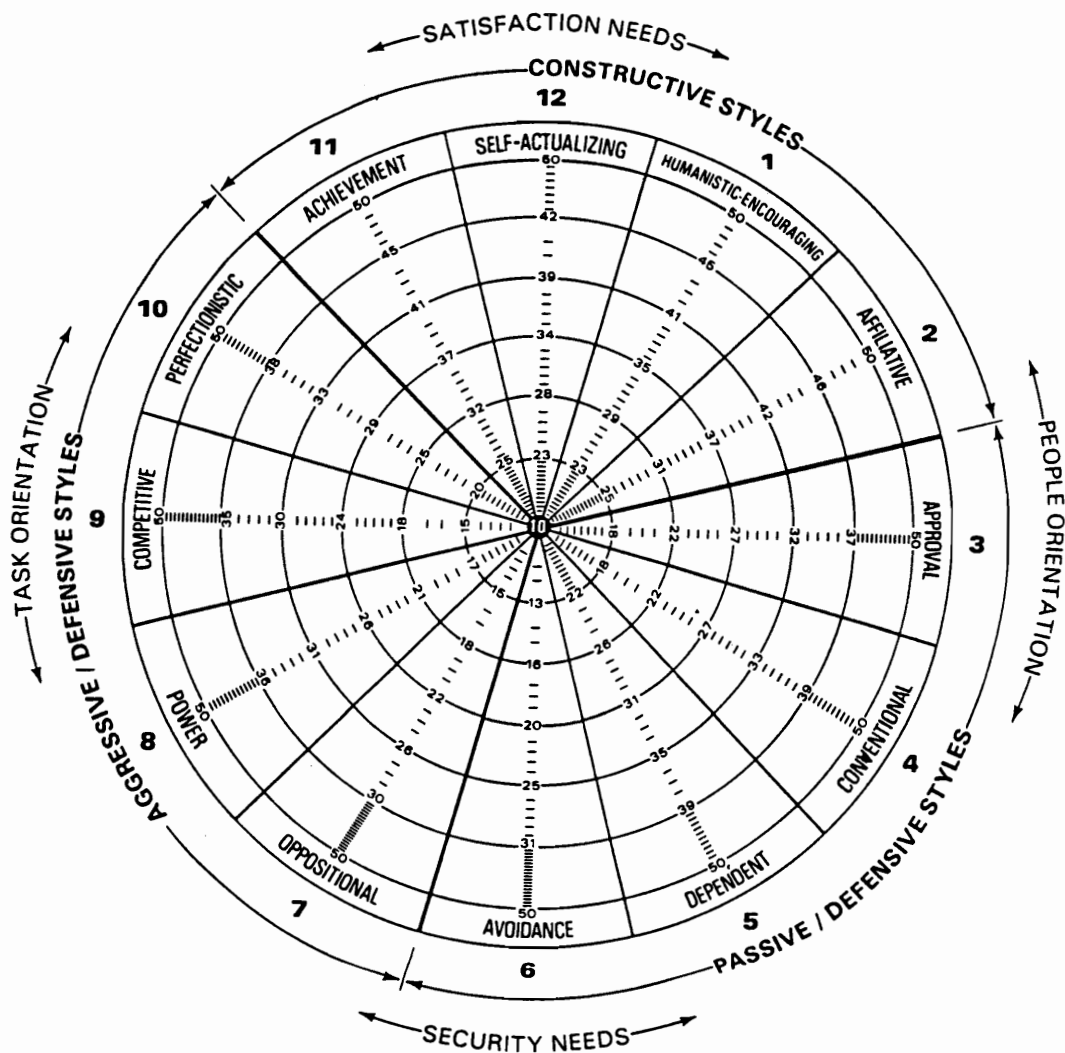


Figure 8. Organizational Culture Inventory Clock

Reprinted with permission from Cooke RA, Lafferty JC. Organizational Culture Inventory, copyright 1989, Human Synergetics.

through six on the clock loading more heavily than the other cultural styles. The second factor represented satisfaction cultures with cultural styles eleven through two loading heavily than the other cultural styles. The third factor represented task/security cultures with cultural styles seven through ten loading heavily on that factor. To test the validity of the OCI and the representativeness of the data collected in this study, the data were subjected to a principal components analysis. The results presented in Table 8 give greater validity to the OCI as a measure of organizational culture in this study.

To summarize, the OCI measures three general types of organizational cultures represented by twelve cultural styles--satisfaction cultures characterized by the cultural styles in the eleven o'clock to the two o'clock positions, people/security cultures characterized by the cultural styles in the three o'clock to the six o'clock positions, and task/security cultures characterized by cultural styles on the seven o'clock to ten o'clock positions.

Cooke and Rousseau (1988) addressed the reliability and validity of the OCI. This instrument has been used in a wide array of organizations including heavy manufacturing and high technology firms, R&D laboratories, schools and universities, government agencies and volunteer organizations. It had been tested in over a hundred business firms in the U.S., Canada, New Zealand, Thailand,

Table 8. Principal Components Matrix of OCI Data

	People/Sec	Satisfaction	Task/Sec
Humanistic/Helpful	-.06655	.87696	-.12960
Affiliative	.14822	.86917	-.25226
Approval	.81625	.04166	.19255
Conventional	.85944	-.10332	.25931
Dependent	.82058	.03899	.26462
Avoidance	.62967	-.42968	.37138
Oppositional	.18930	-.04702	.75601
Power	.40218	.12219	.73403
Competitive	.26130	.02763	.76805
Perfectionistic	.57042	.00418	.60393
Achievement	-.09453	.83134	.19525
Self-Actualizing	-.06364	.79806	.27070

and Western Europe at the time the article was written (1988). The Cronbach alpha reliability coefficients for the twelve cultural styles ranged from .70 to .96. Cooke and Rousseau (1988) developed hypotheses that addressed the validity of the instrument, specifically, is there consensual validity--culture reflects ways of thinking that members have in common; and construct validity--are there stable factor solutions across samples. The validity of the instrument was supported on all points.

Cooke and Szumal (1991) conducted more recent tests that examine the reliability of the OCI. Cooke and Szumal felt that "given the shared and enduring nature of organizational norms," three types of reliability--internal consistency, inter-rater, and test-retest were critical to demonstrating the psychometric adequacy of the OCI. These reliability tests were based on data provided by 4,772 respondents representing a wide range of positions in organizations in diverse industries and geographical locations. Internal consistency was tested by administering the OCI to organization members split into two groups based on tenure (less than one year versus a year or more with the organization). Average Cronbach alpha coefficients of .84 for each group indicate that tenure has little or no impact on the consistency of responses to the OCI. The F statistics for the inter-rater reliability test indicate that a significant ($p < .001$) of variance in responses on the OCI is explained by organizational membership. Finally, the test-retest procedure

was assessed using data from two large processing organizations. The time interval between the initial administration and the follow-up was twenty-one and twenty-four months. Significant changes were found in only one of the twelve cultural styles for the first organization, and two cultural styles in the second organization. These longitudinal results provide evidence for the test-retest reliability of the OCI.

4.4 Selection of the Sample

Generally speaking, this study hypothesizes that organizational culture impacts the meaning attached to commonly used management accounting terms. Ott (1989) states that industry is a strong determinant of the content of an organization's culture. Therefore, an objective in selecting organizations to participate in the study was to draw the sample from a variety of manufacturing industries to make the sample as culturally diverse as possible. Such a diverse sample would be more likely to elicit the anticipated cultural effects if culture does impact the content of meaning and the degree to which is widely held.

A sample of thirty-six organizations stratified by standard industry code (SIC)²⁶

²⁶The strata for the sample were distinguished at the two-digit SIC code level. Thus, sample firms were drawn from the following industries: food, textile mill products, apparel and other finished products, lumber and wood products, furniture and fixtures, paper and allied products, chemicals and allied products, printing and publishing, petroleum, and rubber and miscellaneous plastics products,

within manufacturing was drawn from several sources. Thirty were drawn from the North Carolina Manufacturing Firms 1989-90 Directory and the 1990-91 Virginia Industrial Directory. Two organizations from Utah with which the researcher is personally familiar and four organizations identified by Howell and Soucy (1987) as representative of the new manufacturing philosophy were selected.

Selection into the stratified sample of thirty-six organizations was limited to organizations that employed more than 1,000 employees. The final sample of employees within each organization was to be drawn from both an accounting and a manager group, and it was necessary to have at least four or five employees from each group. Selecting small organizations to participate would prevent obtaining the necessary sample of accounting and manager employees. In several of the organizations, the entire cost/management accounting department was included in the sample as the accounting department was comprised of only four or five employees.

The president or chief executive officer of the thirty-six organizations was contacted by letter requesting their participation in the study. A copy of this letter is shown in Appendix B. This letter was followed with a telephone contact.

machinery, electrical, transportation, automated controls, and surgical/medical products.

In almost all cases, the letter had been referred to either the controller or the director of personnel/human resources.

Twelve of the thirty-six organizations agreed to participate in the study. It was the desire of the researcher to personally administer the Accounting Communication Survey and the OCI on-site to maintain more control over the data collection process and to guarantee the confidentiality of the individual employee responses. However, eleven of the twelve organization expressed a willingness to participate only if the survey instruments could be administered by their respective personnel/human resource departments. For the eleven organizations that personally administered the Accounting Communication Survey and the OCI, an instruction sheet was provided for each respondent. In addition, a detailed set of instructions on administering the OCI was provided for the employee in the personnel department who administered the questionnaires. The instructions received by each respondent is provided in Appendix A along with the Accounting Communication Survey and the OCI.

When the completed questionnaires were received from the twelve organizations, the questionnaires from two of the organizations were incomplete. These two organizations were eliminated from the study leaving ten organizations in the final sample. A brief description of those ten organizations and the sample size of

accountants and managers taken from each organization is provided in Table 9.

The final sample consists of eight manufacturers representing different product industries, one utility, and one distributor. Since the anonymity of the participating organizations was guaranteed, no further information is provided. The sample consisted of sixty-four accountants and sixty-eight managers representing ten different organizations.

4.5 Statistical Data Analysis Methods

Several different statistical data analysis methods are used to analyze the data collected in this study. A description of the methods selected are included in this section. All analyses are performed using the SAS package (Version 6.06) on the campus of Virginia Tech during January, 1991.

The first hypothesis examines differences in the meaning of commonly used management accounting terms across organizations and between profession. A two-way MANOVA (ten organizations x two professions) will be employed as an omnibus test for overall differences in meanings between organizations and between professions. A series of two-way MANOVAs will also be run for each term and for each of the three dimensions (factors) of meaning to determine on

Table 9. Description of the Ten Sample Organizations

Organization 1: A manufacturer of electronic components founded in the early 1950's, employing approximately 1,000 employees. (Sample = four accountants & four managers)

Organization 2: An electric utility located in the southeast United States. (Sample = 5 accountants & 5 managers)

Organization 3: A government contractor founded in the early 1940's, employing slightly less than 4,000 employees. (Sample = seven accountants & nine managers)

Organization 4: A shipbuilding and repair firm founded around 1910, employing approximately 3,000 employees. (Sample = ten accountants & ten managers)

Organization 5: A textile firm founded in the late 1980's, employing approximately 2,000 employees. (Sample = five accountants & five managers)

Organization 6: A distributor of medical supplies with a national-wide distribution network, employing approximately 1,500 employees. (Sample = seven accountants & ten managers)

Organization 7: A manufacturer of ball bearings employing approximately 1,000 employees. (Sample = four accountants & four managers)

Organization 8: A "world class" electronics manufacturer employing 13,000 employees. (Sample = eleven accountants & ten managers)

Organization 9: A manufacturer of paper and allied products founded around 1920, employing approximately 4,500 employees. (Sample = five accountants & five managers)

Organization 10: A manufacturer of motor vehicles founded in the early 1980's, employing approximately 1,000 employees. (Sample = six accountants & six managers)

which terms and factors of meaning the hypothesized differences exist.

The two sub-hypotheses which follow from the first hypothesis are an attempt to more precisely identify the source of hypothesized differences in meaning between organizations by examining the consistency in meaning across organizations for each profession. One-way MANOVAs will be used to test for overall differences between accountants across organizations and between managers across organizations. As in the first hypothesis, a series of one-way MANOVAs will be run for each term and for each of the three dimensions (factors) of meaning to determine on which terms or factors differences in meaning exist.

The second hypothesis examines differences in meaning between accountants and managers within an organization. A limitation in the data analysis for this hypothesis results from a small sample size within each organization. The SAS package was unable to perform an omnibus test for differences in meaning at the organization level due to insufficient error degrees of freedom. However, one-way MANOVAs were run to examine the difference in meaning between accountants and managers within each organization by term.

MANOVA is a multivariate procedure used to assess group differences across multiple dependent variables simultaneously. The null hypothesis tests for the

equality of vectors of means on multiple dependent variables across groups (Hair et al. 1987). In this study, there are twenty-seven dependent variables for each respondent, three factor for each of nine accounting terms. Each factor score is derived by averaging the scores obtained on the individual adjective scales associated with that factor.

Multiple dependent variables calls for a multivariate statistical method to analyze the data. A less satisfactory statistical method would employ the repeated application of individual univariate t-test until all of the dependent variables were analyzed. This leaves the researcher without control of the type one error rate.

Hair et al. (1987) identify another weakness of a univariate methodology:

"A series of t-tests also ignores the possibility that some linear combination of the dependent variables could provide evidence of an overall group difference that may go undetected by examining each dependent variable separately. Individual t-tests ignore the correlations among the dependent variables and thus use less than the total information available for assessing overall group differences."

MANOVA provides a solution to these problems by providing a single overall test of group differences across all dependent variables at a specified alpha level. It also solves the composite problem by ensuring that the linear combination of the dependent variables that produces the most reliable evidence of group differences is implicitly considered in this test.

For each MANOVA, the SAS package provided four different MANOVA test statistics, Wilks' Lambda (maximum likelihood criterion), Pillai's Trace, Hotelling-Lawley Trace, and Roy's Greatest Root. Hair et al. (1987) state that the appropriate test statistics for MANOVA include the greatest characteristic root statistic (gcr) and Wilks' lambda. There is some controversy over which test statistic is preferred for MANOVA, but either test is defensible. While the other three test statistics provided by SAS were mentioned, the gcr and Wilks' lambda were preferred. In reviewing all four test statistics provided by the SAS package, it was determined that in many cases, there was no difference between the four test statistics. Where differences did exist, those differences were negligible. In almost all cases, the Wilks' lambda proved to be the most conservative test statistic. The Wilks' lambda test statistic was selected for this study.

The third hypothesis examines the relationship between the strength of the organizational culture and the degree to which meaning is widely shared in an organization. This test entails a correlation of two variance statistics from both the accounting and management subcultures in each of the ten organizations.

Cultural strength or intensity is the degree of consensus among organization members regarding what the culture emphasizes. It is measured by calculating a variance from the response analysis and the cultural data provided by each

organization or unit within the organization. A small variance indicates more consensus among organization members and depicts a strong culture. Likewise, a large variance signifies little consensus and a weak culture. For each of the twenty possible cultural groups (accountant group and manager group in ten organizations), a variance around the mean was calculated for each of the twelve cultural styles, providing twelve different variance statistics. The mean variance of the twelve cultural styles represents the strength of culture for each accountant group and manager group within each organization.

The amount of shared meaning that exists within the accounting or management group of each organization is represented by the variance of responses to the semantic differential on the Accounting Communication Survey. The meaning of each of the nine terms is represented by the three factor scores. Each factor score is the mean of the responses to each adjective scale representing the factor. When a factor score is calculated for each respondent, a corresponding variance is also calculated for each factor across the nine accounting terms. This yields twenty-seven variance statistics (nine terms x three factors) for each accounting and management group in the ten organizations. The measure of shared meaning is the mean variance of the twenty-seven variances statistics for each of the twenty groups. A small variance indicates a high degree of shared meaning for the group, while a large variance indicates very little shared meaning.

The twenty variance measures of cultural strength are correlated with twenty variance measures of shared meaning using Spearman's Rank Order correlation (because of the small sample size). For the third hypothesis to be supported, a strong positive correlation is required. Because of the small sample size, a significant positive correlation is unlikely. However, given the scope of this study, the purpose of the third hypothesis is to examine the magnitude of the r^2 statistic in an attempt to examine the possibility of a relationship between cultural strength and intensity, and the degree to which the meaning of the organizational language is shared by member of the organization.

4.6 Chapter Summary

The research and statistical methods used to test the hypotheses of this study were presented in this chapter. The process of developing a management accounting semantic differential was presented. This process was comprised of selecting the terms for which connotative meaning were measured, identifying a large sample of relevant bipolar adjective scales, performing principal components analysis on data collected from an intermediate survey instrument that identified the three dimensions of meaning and the selection of bipolar adjective scales to represent those dimensions of meaning on the completed semantic differential. Next, the justification for selecting the Organizational Culture Inventory to measure culture

was presented. The process of selecting ten organizations for participation in the study was presented. Finally the statistical methods for analyzing the data were identified. The results of the data analysis are presented in the next chapter.

Chapter 5

Research Results

5.1 Introduction

The purpose of this study is to examine the fidelity of communication between accountants, and managers who use accounting information in organizations. It is hypothesized that organizational culture has a significant effect the fidelity of communication between accountants and managers by facilitating various degrees of shared meaning for the organization's technical accounting language.

Specifically, it is hypothesized that organizational culture influences two separate dimensions of meaning--the content of meaning and the intensity of shared meaning, or the degree to which meaning is widely shared within an organization.

The results of the statistical analysis for the three hypotheses presented are in

this chapter. The first two hypotheses address the impact of organizational culture on the content dimension of meaning. The question of whether organizations with different cultures develop different meanings for the same management accounting terms was examined in the first hypothesis. The fidelity of communication between accountants and managers within an organization was examined by the second hypothesis. It was hypothesized that the existence of professional subcultures within an organization's dominant culture could inhibit the fidelity of communication between accountants and managers. Significance for the first two hypotheses is defined as $p < .05$. The impact of organizational culture on the intensity dimension of meaning was addressed in the third hypothesis by examining the relationship between the strength of the organizational culture and the degree of shared meaning within the organization. A summary of the chapter is provided in the final section.

5.2 Hypothesis I

It was hypothesized that the meaning of commonly used management accounting terms will be different from one organization to another due to the unique culture that each organization possesses.²⁷ Organizations operate in different business

²⁷The organizations in this study are "assumed" to have different organizational cultures. The organizational culture literature maintains that each organization has its own unique culture. To verify this assumption, a MANOVA was run using the data from the Organizational Culture Inventory to test for cultural differences in the ten sample organizations. A p value of .0047 served to satisfy this

environments, are subject to different environmental demands, employ different management styles, all of which cultivates different sets of organization values and behavioral norms. To the extent that members of different organizations have different experiences with budgets, cost structures, and other manufacturing or operating concepts, the meaning of management accounting terminology used to communicate about these organization activities and concepts will be different.

The results of the statistical data analysis supports the first hypothesis. In a two-way MANOVA (ten organizations by two professions) omnibus test,²⁸ which considers differences in meaning for all nine terms across all ten organizations in the sample, there was both a significant organization effect and a significant profession effect. A p value of .0002 indicates notable differences in meaning across organizations, and a p value of .0036 indicates notable differences in meaning between the accounting and management professions. However, the interaction was also significant with a p value of .0137, which indicates that the differences in meaning are not consistent over all terms or across all

assumption.

²⁸An omnibus test in multivariate analysis in which large amounts of data are considered simultaneously is a conservative statistical test. Each cell in the omnibus test MANOVA contains twenty-seven different variables (nine terms by three dimensions of meaning). Because of the immense amount of data, this test can by nature hide significant main effects. In addition to the omnibus test, individual MANOVAs and ANOVAs which examines smaller sections of the data were run. As the results of separate MANOVAs and ANOVAs are presented in this chapter, a few significant effects will appear that may have been masked in tests involving larger sections of the data. It is recognized that running a large number of separate MANOVAs and ANOVAs may produce a few significant effects by chance.

organizations. Consequently, significant differences in meaning between organizations or between professions might exist for certain terms but not for others. Likewise, significant differences in meaning might exist for some organizations, but not for others.

Three separate two-way MANOVAs which analyzed the data by factors, or dimensions of meaning, shows significant main effects for both organizations and professions across all three factors. These results indicate that differences in meaning are not confined to specific dimensions of meaning, but occur across all three dimensions. However, significant interaction effects for factors one and two signify that the differences in meaning are not consistent across all terms or across all organizations. The p values are shown in Table 10a, with significant p values shown in bold print.

One way of overcoming the problem raised by the significant interaction between the organization and profession is to consider the organization and profession effects on a term by term basis. Table 10b shows the p values across organization and between professions for each of the nine terms. When examined on a term by term basis, significant differences in meaning across organizations exist for five of the nine terms--"direct cost," "variance," "contribution margin," "just-in-time," and "variable cost." Significant differences in meaning between professions exist

Table 10a. p Values by Factor - Hypothesis I

FACTOR	ORG	PROF	INTER
One (Evaluative)	.0001 *	.0360 *	.0001 *
Two (Activity)	.0117 *	.0126 *	.0555 *
Three (Control)	.0002 *	.0044 *	.6070

Table 10b. p Values by Term - Hypothesis I

TERM	ORG	PROF	INTER
Budget	.1674	.2605	.3164
Product Cost	.1202	.2774	.0115 *
Fixed Cost	.3192	.0744	.0825
Direct Cost	.0114 *	.5180	.2786
Return on Investment	.0868	.0192 *	.2269
Variance	.0115 *	.0276 *	.3753
Contribution Margin	.0001 *	.0025 *	.0582 *
Just-In-Time	.0049 *	.4478	.2068
Variable Cost	.0566 *	.0384 *	.3993

* Significant at $p < .05$

for four of the nine terms--"return on investment," "variance," "contribution margin," and "variable cost." A significant interaction effect exists for "product cost," a term for which there was no significant organization or profession main effects, and "contribution margin," where both a significant organization and profession main effect was evident.

The meaning of each management accounting term is operationally defined as the "set of factor scores" representing each term. This means that the analysis of differences in meaning across organizations and between professions can be segmented even further. An analysis of each of the three dimensions of meaning for each management accounting term more accurately identifies where differences in meaning exist across organizations and between professions. The p values of separate ANOVAs for each of the twenty-seven variables is presented in Table 11, with significant p values shown in bold print. Table 11 indicates that significant differences in meaning exist for eleven of the twenty-seven variables. "Budget," "fixed cost," and "variance" differ only on one of the three dimensions of meaning, while "direct cost," "contribution margin," just-in-time," and "variable cost" differ on two dimensions. These results are consistent with the results shown in Table 10b with two exceptions. First, a significant difference appears for the activity factor of "budget" in Table 11 while no significant differences for "budget" was identified in Table 10b. Second, a significant difference on the activity factor

Table 11. p Values by Factor Within Each Term

TERM AND FACTOR	ORG	PROF
Budget - Evaluative	.7602	.8648
Budget - Activity	.0388 *	.4282
Budget - Control	.3795	.0998
Product Cost - Evaluative	.2528	.6216
Product Cost - Activity	.8313	.0197 *
Product Cost - Control	.0714	.5992
Fixed Cost - Evaluative	.7232	.6547
Fixed Cost - Activity	.0299 *	.0354 *
Fixed Cost - Control	.9546	.1450
Direct Cost - Evaluative	.0495 *	.3820
Direct Cost - Activity	.2388	.3027
Direct Cost - Control	.0016 *	.2496
Return on Investment - Evaluative	.0736	.0171 *
Return on Investment - Activity	.4893	.7458
Return on Investment - Control	.1205	.3166
Variance - Evaluative	.1149	.0111 *
Variance - Activity	.1362	.5207
Variance - Control	.0004 *	.9146
Contribution Margin - Evaluative	.0001 *	.0351 *
Contribution Margin - Activity	.0012 *	.0860
Contribution Margin - Control	.1921	.0015 *
Just-In-Time - Evaluative	.0039 *	.5992
Just-In-Time - Activity	.9573	.5394
Just-In-Time - Control	.0012 *	.0800
Variable Cost - Evaluative	.0551 *	.0361 *
Variable Cost - Activity	.0810	.0383 *
Variable Cost - Control	.0074 *	.0535 *

* Significant at $p < .05$

of "fixed cost" appears in Table 11 with no significant differences appearing in Table 10b.

5.2.1 Differences in Meaning Between Organizations

The mean factor scores for all twenty-seven variables is displayed in Table 12 for each organization. The overall mean factor score for all ten organizations is provided in the first column in bold print. Scanning horizontally across each term and factor gives some indication of the organizations where differences in meaning are most notable. The organization factor scores shown in bold print are those which are most markedly different from the overall mean in terms of absolute difference, and are only shown for those terms and factors for which there are significant differences in meaning shown in Table 11.

The factor scores shown by term in Table 12 is graphically presented in Appendix C. In this graphical profile of meaning, only three of the six adjective scales representing the evaluative dimension of meaning are shown along with the three adjective scales representing the activity and control dimensions respectively. The graphical presentation gives a quick visual synopsis of the general meaning of each management accounting term selected for this study. For example, accountants and managers generally see the term "budget" as quite measurable,

Table 12. Mean Factor Scores by Organization

	Organizations										
	Mean	1	2	3	4	5	6	7	8	9	10
Budget - Eval	1.86	1.67	1.52	1.93	1.75	1.77	1.94	2.04	2.01	1.88	2.08
Budget - Actv	4.33	4.42	4.80	3.87	4.08	4.20	4.53	3.58	5.00	4.67	4.11
Budget - Ctrl	2.93	2.58	3.13	2.87	3.03	2.37	3.37	3.00	2.92	3.10	2.92
Prod Cost - Eval	1.72	1.42	1.82	1.71	1.84	1.38	2.23	1.65	1.77	1.52	1.88
Prod Cost - Actv	3.61	3.75	3.63	3.58	3.50	3.40	3.76	3.29	4.06	3.30	3.86
Prod Cost - Ctrl	2.68	3.25	2.87	2.40	2.92	2.47	2.71	2.96	2.08	2.23	2.86
Fixed Cost - Eval	2.04	1.79	1.87	2.22	2.09	1.75	2.10	1.94	2.25	2.18	2.24
Fixed Cost - Actv	5.10	5.13	4.83	4.58	4.93	5.37	5.43	4.46	5.84	5.43	5.03
Fixed Cost - Ctrl	2.82	2.92	2.83	2.91	2.55	2.77	2.78	2.83	2.84	2.70	3.08
Direct Cost - Eval	1.92	1.60	2.28	1.67	2.18	1.65	2.44	1.65	1.81	1.77	2.11
Direct Cost - Actv	3.23	3.46	3.17	3.20	3.92	3.20	3.22	2.92	2.94	2.87	3.39
Direct Cost - Ctrl	2.47	2.50	3.03	2.24	2.87	2.13	2.86	2.38	1.98	1.77	2.89
ROI - Eval	1.80	1.35	1.45	2.00	1.86	1.72	1.63	2.33	2.02	1.93	1.68
ROI - Actv	3.19	2.96	3.33	3.20	3.48	3.00	2.65	3.29	3.52	3.17	3.31
ROI - Ctrl	3.97	4.17	4.27	3.60	3.50	3.80	4.35	3.75	4.00	4.33	3.97
Variance - Eval	2.31	2.85	2.18	2.14	2.59	2.18	2.41	1.85	2.04	2.30	2.53
Variance - Actv	2.70	3.08	2.67	2.47	3.27	2.43	2.63	2.21	2.51	2.93	2.75
Variance - Ctrl	2.88	3.13	3.53	2.69	3.45	2.40	3.31	2.46	2.24	2.77	2.83
Cont Mrgn - Eval	2.30	2.04	2.12	3.17	2.73	2.10	1.99	1.94	1.88	1.98	3.08
Cont Mrgn - Actv	3.12	2.96	3.10	3.60	4.02	2.83	2.80	2.71	3.02	3.03	3.14
Cont Mrgn - Cntl	3.63	3.63	3.27	3.64	3.60	4.27	3.82	3.00	3.71	3.77	3.61
JIT - Eval	2.36	2.23	2.43	2.92	2.83	2.07	2.62	1.63	1.90	2.77	2.22
JIT - Actv	3.35	3.33	3.23	3.09	3.50	3.43	3.37	3.13	3.29	3.47	3.61
JIT - Ctrl	3.09	3.13	3.20	3.78	3.63	2.70	2.84	3.42	2.44	2.93	2.83
Varbl Cost - Eval	2.26	2.40	2.15	2.69	2.55	1.85	2.72	1.98	1.95	1.95	2.32
Varbl Cost - Actv	2.68	2.71	2.90	2.67	3.32	2.73	2.65	2.29	2.44	2.40	2.67
Varbl Cost - Ctrl	2.57	2.71	2.67	2.80	3.18	2.10	2.92	2.42	2.22	2.00	2.69

informative and beneficial. There is very little variability between organizations in their assessment of the evaluative dimension of "budget." Accountants and managers were generally neutral in assessing the activity dimension of meaning, however, there was a larger variance between the ten organizations. Finally, accountants and managers felt that budgets were slightly cost oriented, operational, and controllable.

5.2.2 Differences in Meaning Between Professions

The MANOVA omnibus test also indicates significant differences in meaning between the accounting and management professions. This portion of the hypothesis tests for differences in meaning across professional cultures. The p values for the separate ANOVAs for each term are shown in Table 10b under the PROF column, and for each term by factor under the PROF column in Table 11. Significant differences appear for four of the nine terms (with "fixed cost" approaching significance) in Table 10b, and for nine of the twenty-seven variables in Table 11. "Product cost," "fixed cost," "return on investment," and "variance" differ on one dimension of meaning. "Contribution margin" differs on two dimensions of meaning, and "variable cost" differs on all three dimensions of meaning. The differences in meaning at the factor level from Table 11 are consistent with the differences in meaning at the term level in Table 10b with two

minor exceptions. First, there was a significant difference in meaning on the activity dimension of "fixed cost" (Table 11), while the profession main effect for "fixed cost" in Table 10 only approached significance. Second, the term "product cost" from Table 10b showed no significant profession effects, however there was a significant interaction. It is possible that the interaction is masking a significant main effect that appears for "product cost" in Table 11 in the activity factor, indicating a difference in meaning between accountants and managers.

The factor means for each term for accountants and managers are provided in Table 13. Like the organization differences in Table 12, the absolute differences in meaning in Table 13 appear to be small even though several of those differences are statistically significant.

5.2.3 Profession Differences in Meaning Across Organizations

Using separate one-way MANOVAs, Hypothesis 1a and 1b examined differences in meaning among accountants across organizations and among managers across organizations. The p values for these two test disclosed significant within profession differences in meaning for accountants (.0295) and managers (.0035). The p values for separate MANOVAs for each factor and for each term are shown in Tables 14a and 14b respectively. The differences in meaning are

Table 13. Factor Means--Accountants vs Managers

TERM AND FACTOR	ACCT	MGR
Budget - Evaluative	1.86	1.88
Budget - Activity	4.28	4.44
Budget - Control	3.10	2.83
Product Cost - Evaluative	1.73	1.80
Product Cost - Activity	3.40	3.90
Product Cost - Control	2.67	2.58
Fixed Cost - Evaluative	2.05	2.11
Fixed Cost - Activity	5.38	4.96
Fixed Cost - Control	2.69	2.92
Direct Cost - Evaluative	1.89	2.02
Direct Cost - Activity	3.15	3.35
Direct Cost - Control	2.38	2.57
Return on Investment - Evaluative	1.66	1.96
Return on Investment - Activity	3.25	3.19
Return on Investment - Control	4.03	3.87
Variance - Evaluative	2.13	2.48
Variance - Activity	2.66	2.76
Variance - Control	2.88	2.90
Contribution Margin - Evaluative	2.15	2.52
Contribution Margin - Activity	3.04	3.33
Contribution Margin - Control	3.41	3.89
Just-In-Time - Evaluative	2.45	2.36
Just-In-Time - Activity	3.30	3.40
Just-In-Time - Control	2.92	3.23
Variable Cost - Evaluative	2.12	2.46
Variable Cost - Activity	2.54	2.86
Variable Cost - Control	2.46	2.77

significant on two of the three factors for accountants, and on all three factors for managers. However, there are fewer differences in meaning within the accountant and manager professions than across organizations for the nine management accounting terms. The accountants differ on three of the nine terms, "product cost," "contribution margin," and "just-in-time." Managers differ on "direct cost" and "contribution margin."

The results of separate ANOVAs for all twenty-seven variables for accountants and managers appears in Table 15. Significant p values are shown in bold print. Table 15 shows significant differences in meaning for only seven of the twenty-seven variables for accountants. "Variance," "contribution margin," and "variable cost" differ on only one of the three dimensions of meaning, while "product cost," and "just-in-time" differ on two dimensions. There are nine significant differences in meaning for managers. "Fixed cost," "direct cost," "return on investment," "variance," and "variable cost" all differ on only one of the three dimensions, while "contribution margin" and "just-in-time" differ on two dimensions.

Table 14a. p Values by Factor - Hypothesis I (a) and (b)

FACTOR	ACCT	MGR
One (Evaluative)	.0043 *	.0001 *
Two (Activity)	.0758	.0099 *
Three (Control)	.0321 *	.0403 *

Table 14b. p Values by Term - Hypothesis I (a) and (b)

TERM	ACCT	MGR
Budget	.4721	.1083
Product Cost	.0023 *	.3229
Fixed Cost	.3113	.1945
Direct Cost	.4566	.0096 *
Return on Investment	.2261	.1309
Variance	.1311	.0778
Contribution Margin	.0440 *	.0002 *
Just-In-Time	.0102 *	.0728
Variable Cost	.3957	.0858

* Significant at $p < .05$

Table 15. p Values by Factor Within Each Term

TERM AND FACTOR	ACCT	MGR
Budget - Evaluative	.2683	.3146
Budget - Activity	.3140	.0615
Budget - Control	.7562	.5657
Product Cost - Evaluative	.0014 *	.6857
Product Cost - Activity	.1390	.4017
Product Cost - Control	.0584 *	.1354
Fixed Cost - Evaluative	.1077	.4654
Fixed Cost - Activity	.4541	.0076 *
Fixed Cost - Control	.5439	.9974
Direct Cost - Evaluative	.3484	.1311
Direct Cost - Activity	.4986	.0780
Direct Cost - Control	.4178	.0013 *
Return on Investment - Evaluative	.3116	.0244 *
Return on Investment - Activity	.6199	.1010
Return on Investment - Control	.3134	.7015
Variance - Evaluative	.0502 *	.2999
Variance - Activity	.3883	.5371
Variance - Control	.1543	.0034 *
Contribution Margin - Evaluative	.3937	.0001 *
Contribution Margin - Activity	.0543 *	.0325 *
Contribution Margin - Control	.0671	.9635
Just-In-Time - Evaluative	.0408 *	.0384 *
Just-In-Time - Activity	.8577	.9792
Just-In-Time - Control	.0046 *	.0167 *
Variable Cost - Evaluative	.5448	.0951
Variable Cost - Activity	.0168 *	.2446
Variable Cost - Control	.2742	.0321 *

* Significant at $p < .05$

5.3 Hypothesis II

The fidelity of communication between accountants and managers within an organization is examined in the second hypothesis. While the first hypothesis recognizes that the meaning of management accounting terminology may differ between organizations due to differences in organizational culture, very little accounting communication across organization boundaries occurs. When an accountant or manager leaves one organization and become a member of another, they learn new or modified meanings for the accounting terminology that is relevant for their work in the new organization through the socialization process. This addresses the quality of communication where it actually occurs, within the organization. It is hypothesized that the amount of shared meaning and the fidelity of communication will be high within an organization with one strong, dominant organizational culture, or where the accountant and manager subcultures are similar. However, the existence of different professional or functional subcultures within an organization's culture could inhibit the fidelity of communication between accountants and managers.

A MANOVA utilizing the data from all organizations to test for differences in meaning between accountants and managers within organizations produced a p value of .0030. This indicates that differences in meaning between the

accountants and managers exist in at least one organization. To identify the organization(s) where significant differences in meaning exist, a separate MANOVA was run for each organization. However, due to the small sample size within each organizations (insufficient error degrees of freedom), SAS was unable to generate MANOVAs for any of the sample organizations. To identify the terms in each organization for which there were significant differences in meaning between accountants and managers, a separate MANOVA was run for each term by organization . These p values are shown in Table 16 with significant p values shown in bold print.

At first glance, Table 16 provides support for the influence of organizational culture in developing a shared meaning for the organizations technical language. Five of the ten organizations show no significant differences in meaning and three organizations show significant differences on only one term. However, an examination of the organizational culture data is necessary before a statement supporting the hypothesis can be made with any degree of confidence.

The Organizational Culture Inventory measured twelve different cultural styles²⁹ for the accounting group and manager group within each organization. Separate MANOVAs were run on the organizational culture data for each organization to

²⁹See Appendix B for a description of the twelve cultural styles.

Table 16. p Values for Differences in Meaning Within Organizations

		ORGANIZATION									
TERM	1	2	3	4	5	6	7	8	9	10	
Budget	.938	.500	.513	.414	.942	.719	.442	.348	.012	.098	
Product Cost	.782	.259	.770	.122	.504	.031	.061	.040	.260	.058	
Fixed Cost	.730	.075	.115	.103	.668	.299	.821	.170	.030	.275	
Direct Cost	.955	.102	.365	.107	.036	.973	.413	.786	.554	.216	
ROI	.591	.232	.241	.628	.197	.111	.493	.290	.009	.925	
Variance	.834	.115	.387	.773	.204	.554	.863	.790	.030	.079	
Cont Margin	.335	.282	.029	.753	.585	.140	.278	.299	.497	.264	
JIT	.838	.358	.129	.273	.431	.277	.312	.169	.092	.591	
Variable Cost	.382	.568	.097	.978	.603	.703	.853	.036	.177	.812	

Table 17. p Values for Differences in Subcultures Within Organization

		ORGANIZATION									
CULTURE	1	2	3	4	5	6	7	8	9	10	
Humanistic	.132	.744	.579	.039	.480	.496	.937	.108	.765	.308	
Affiliative	.234	.418	.288	.028	.371	.195	.887	.004	.849	.188	
Approval	.528	.604	.487	.107	.004	.386	.822	.383	.147	.040	
Conventional	.943	.004	.678	.215	.103	.279	.383	.463	1.00	.805	
Dependent	.784	.192	.768	.100	.234	.372	.779	.625	.539	.884	
Avoidance	.007	.127	.664	.022	.011	.020	.251	.979	.137	.430	
Oppositional	.488	.155	.139	.718	.119	.033	.643	.296	1.00	.317	
Power	.629	.073	.416	.357	.003	.772	.054	.205	.221	.502	
Competitive	.544	.949	.708	.717	.122	.417	.906	.928	.582	.494	
Competence	.539	.015	.873	.025	.401	.099	.606	.142	.569	.937	
Achievement	.275	.040	.941	.118	.957	.234	.711	.228	.622	.288	
Self-Actualize	.380	.003	.285	.959	.681	.070	.552	.113	.450	.179	

identify differences between the accounting and manager subcultures. Again, due to the small sample size in six of the sample organizations, SAS was unable to generate results by organization due to insufficient error degrees of freedom. The P values for the organizations that SAS was able to perform the MANOVA are Organization 3 ($p < .622$), Organization 4 ($p < .008$), and Organization 6 ($p < .170$).

The results of separate ANOVAs examining within organization differences between accountants and managers for each of the twelve cultural styles is provided in Table 17. A visual comparison of the accountant and manager subculture profiles within each organization is shown on the Organizational Culture Inventory circumplex in Appendix C. The accountant subculture is represented by solid lines, and the manager subculture by dotted lines.

Significant differences for various cultural styles in eight of the organizations are identified in Table 17. Only Organization 3 and Organization 9 shows no significantly different cultural styles. When considering all twelve cultural styles collectively, only Organization 4 is identified as having significantly different accountant and manager subcultures. Since the MANOVAs were only able to produce p values for four of the ten organization, identifying potentially different subcultures must rely on inferences. Organization 4 had significant differences on

four cultural styles. Applying this criteria to the other organizations, only Organization 2 with differences on four cultural styles and possibly Organization 5 with differences on three cultural styles could be considered by have significantly different accountant and manager subcultures. The remaining seven organizations appear to have similar accountant and manager subcultures.

A comparison of Tables 16 and 17 shows only a weak relationship between the similarity of subcultures and number of differences in meaning. Of the seven organizations with similar subcultures, there are either no differences in meaning or differences for only one term in five of those organizations (One, Three, Six, Seven and Ten). Of the remaining two organizations, Organization Eight shows differences in meaning for two terms, and Organization Nine shows differences for four terms. Of the three organizations whose subcultures appear to be significantly different, Organizations Two and Four have no significant differences in meaning, and Organization Five has only a single difference in meaning.

5.4 Hypothesis III

The intensity dimension of meaning, or the degree to which meaning is widely shared within a cultural group was examined by the third hypothesis. It was hypothesized that there would be little variation in meaning in strong cultures and

large variations in meaning in weak cultures. This hypothesis was not supported as the Spearman Rank Correlation between the variance of shared meaning and the variance in responses to the Organizational Culture Inventory was -0.03007. A correlation of near zero provides no support for the hypothesized relationship between the strength of the organizational culture and the intensity dimension of meaning, at least for this sample of organizations.

5.5 Chapter Summary

The results of the statistical analysis of data gathered in this study were presented. The results permit a rejection of the first hypothesis and support the theory that the meaning of commonly used management accounting terms is different across traditional organizational and professional culture boundaries. While the second hypothesis can be rejected as significant differences in meaning were found within some organizations, it cannot be rejected in principle as the results did not support the theoretical model. There was support for the theory that shared meaning develops for the terms that comprise the organization's technical language. However, the relationship between the similarity of subcultures and the number of differences in meaning was weak as only five of the ten organizations supported the theory. Finally, the third hypothesis could not be rejected as the results provided no support for the hypothesized relationship between the strength

of organizational culture and the amount of shared meaning. A discussion of the results is provided in Chapter 6.

Chapter 6

Discussion and Conclusion

6.1 Introduction

The results of the data analysis from Chapter 5 and the researcher's conclusions drawn from those results are presented in this chapter. A discussion of the results of the three hypotheses is presented in the first section. In addition, the impact of organizational and professional cultures on meaning is addressed and the significant differences in meaning are reviewed. The relationship between strength of culture and shared meaning is discussed and as well as the relationship between strength of culture and intensity of meaning. The conclusions of the researcher drawn from the results of this study are provided in the second section. The limitations of the study are reviewed in the third section. This is followed by the researcher's assessment of the contributions made by this study.

Recommendations for further research are identified in the concluding section.

6.2 Discussion of Hypotheses

6.2.1 The Impact of Organizational and Professional Cultures on Meaning

It is apparent from the results of the first hypothesis that the meaning of management accounting terminology is not consistent:

- (1) across organizations,
- (2) between professions,
- (3) among accountants across organizations,
- (4) among managers across organizations.

Returning to Table 10b and defining statistical significance as $p < .10$, statistically significant differences in meaning exist across organizations for six terms and between professions for five terms. From Table 14b, significant differences across organizations exists within the accountant and management professions for three and six terms respectively. Drawing from the collective theory presented in the Chapter Three, it is presumed that organizational culture accounts for the differences in the content of meaning. The impact of organizational culture on meaning across organizations also reveals itself through an analysis of the variances of the factor scores. The average variance across all

twenty-seven variables (nine terms by three factors) for all 132 subjects on the seven point semantic scale is .9112. The average variance of all twenty-seven variables within each organization is .8245. While the difference between the two means is not significant, it does manifest a higher measure of shared meaning within as opposed to between organizations.

A similar comparison of the factor score variances reveals a significantly higher degree of shared meaning among accountants than among managers. Professional cultures within an organization appear as subcultures that would likely increase the within company variance of shared meaning. This could contribute toward the lack of significance between the average variance across organizations and the average variance within organizations in the previous paragraph. The average variance across all twenty-seven variables was .7816 for accountants, and 1.012 for managers. This difference is significant at $p < .002$.

The differences in meaning between the accounting and management professions also indicate that professional cultures impact the content of meaning. There is more consistency in meaning across organizations within the accounting culture than within the management culture. Most of the differences in meaning across organizations can be traced to differences among managers rather than among accountants.

Aranya and Ferris (1984) provide a brief review of literature that recognizes differences in organizational and professional norms and values in general and among accountants in particular. A strong accounting culture is intuitively appealing. Accountants have much more exposure to their "language" both through the formal education process and interaction with the terminology through their structured work experience than their manager counterparts. On the other hand, managers come from more varied and diverse backgrounds including general management, operations management, engineering, finance, and accounting.

6.2.1.1 Review of the Significant Differences in Meaning

Table 18 summarizes the terms with significant differences in meaning, identifies which of the four statistical test of the first hypothesis that significant differences in meaning were found, i.e. between organizations, between professions, among managers or among accountants, and the dimensions of meaning where the significant differences were found. When statistical significance is defined as $p < .10$, all nine terms show significant differences in meaning across organizations, between professions, or within professions.

"Budget," "product cost," and "fixed cost," appear to be the most easily understood

Table 18. Summary of Significant Differences in Meaning

TERM	DIFFERENCE	DIMENSION
Budget	Managers	Activity
Product Cost	Accountants	Evaluative/Control
Fixed Cost	Professions	Activity
Direct Cost	Organizations	Evaluative/Control
Direct Cost	Managers	Activity/Control
Return on Investment	Organizations	Evaluative
Return on Investment	Professions	Evaluative
Variance	Organizations	Control
Variance	Professions	Evaluative
Variance	Managers	Control
Contribution Margin	Organizations	Evaluative/Activity
Contribution Margin	Professions	Evaluative/Activity/Control
Contribution Margin	Accountants	Activity/Control
Contribution Margin	Managers	Evaluative/Activity
Just-In-Time	Organizations	Evaluative/Control
Just-In-Time	Accountants	Evaluative/Control
Just-In-Time	Managers	Evaluative/Control
Variable Cost	Organizations	Evaluative/Activity/Control
Variable Cost	Professions	Evaluative/Activity/Control
Variable Cost	Managers	Evaluative/Control

terms in the accounting communication process. Significant differences in meaning were found on only one of the four statistical tests of the first hypothesis for these three terms. The meaning of "budget" is most misunderstood by managers. Since budgets are used as tools to evaluate performance, it was anticipated that differences in meaning for "budget" would appear on the evaluative dimension of meaning depending upon whether managers perceive the budget generating and evaluating procedures to be fair within their respective organizations. The general evaluation of budget by both accountants and managers was quite favorable. The differences in meaning for "budget" occur on the activity dimension of meaning. Most organizations felt the budget was neither variable nor fixed, but managers in Organizations Eight and Nine perceived the budget as quite fixed. The managers in most organizations saw the budget as slightly dynamic, while the managers in Organization Seven saw the budget as quite dynamic and the managers in Organization Eight saw the budget as slightly static. The differences in meaning on the activity dimension could result from different cost structure for each organization, or from organization differences in management philosophy concerning the flexibility of the budget. Operating in a static versus a dynamic business environment could demand different types of budgets and budgeting procedures. Different experiences with the budget result in different cultural values and differences in meaning.

Accountants are the product cost specialists within the organization, yet the meaning of "product cost" is most misunderstood by accountants. Differences in the nature and types of products between organizations would likely contribute toward the differences in meaning among accountants. The definition of product cost has been a debated issue among accountants when discussing absorption and direct costing. More recently, as traditional cost accounting systems have been challenged because of their inability to determine accurate product costs, the meaning of product cost has possibly changed for some organizations. The differences in meaning occur on both the evaluative and control dimensions. Organization Six (the distributor) accounts for the difference in meaning on the evaluative dimension. This organization perceived "product cost" less positively than the manufacturing organizations. The differences on the control dimension were mixed. The accountants of most organizations felt that "product cost" is quite cost oriented while Organization Six was neutral between a cost and revenue orientation. Most accountants felt that "product costs" are slightly operational (as opposed to strategic), while Organization One's response was neutral and Organizational Five's response was quite operational. Finally, accountants in the sample perceived "product costs" as being slightly controllable, while accountants from Organizations Three and Eight felt that "product costs" are quite controllable.

"Return on investment" (ROI) exhibited differences in meaning on the evaluative dimension both across organizations and between the accounting and management professions. ROI was generally evaluated quite positively by organizations and by both professions. However, Organization Seven (manufacturer of ball bearings) was consistently less positive than the other organization in its evaluation of ROI. Managers were consistently less positive than accountants in their evaluation of ROI. A possible explanation is that managers collectively face the stress and unpleasantness of evaluation by ROI, which might lead to a less positive evaluation with the manager culture.

"Variance," "just-in-time," and "variable cost" have significant differences in meaning on three of the four statistical tests of the first hypothesis. Variances are an integral part of almost any management control system and would likely be a topic of regular accounting communication. Yet "variance" showed significant differences in meaning across organizations on the control dimension, between the accounting and management professions on the evaluative dimension, and among managers on the control dimension. On the evaluative dimension, accountants and managers generally evaluated "variance" as quite important, relevant, measurable, informative, and necessary. Yet their evaluations were near neutral on the adverse-beneficial scale. It seems that they recognize the importance of variances to the operation of the organization, but are less willing to give a

favorable evaluation on the scale that might affect them personally in a performance evaluation setting. On all six adjective scale that comprise the evaluative dimension of meaning, managers were less positive in their evaluation than accountants. As with ROI, it is possible that the stress of performance evaluation apparently leads to less positive assessments of those items connected with the performance evaluation procedures. Finally, the differences in meaning across organizations are accounted for by managers' assessment on the control dimension scales. The variance of response from the managers of each organization range from quite cost oriented to neutral on the cost oriented-revenue oriented scale, from quite operational to neutral on the operational-strategic scale, and from quite controllable to neutral on the controllable-noncontrollable scale.

"Just-in-time" (JIT) is a term where significant differences in meaning were expected because the term is new and novel. The differences in meaning occur between organizations, within the accounting profession, and within the management profession on the evaluative and control dimensions of meaning. Manufacturers were generally more favorable in their evaluation of JIT than the nonmanufacturers and government contractor. Both accountants and managers generally perceive JIT as quite important, relevant, measurable, informative, necessary and beneficial on the evaluative dimension of meaning, and slightly cost

oriented, operational, and controllable on the control dimension of meaning. However, there was a considerable amount of variance in the response within these professions across organizations.

The two most misunderstood terms in this study were "contribution margin" and "variable cost." "Variable cost" displayed significant differences across organizations and between the accounting and management profession on all three dimensions of meaning, and among managers on the control dimension. "Contribution margin" displayed significant differences across organizations on the evaluative and activity dimensions, between the accounting and management profession on all three dimensions, among accountants on the activity and control dimensions, and among managers on the evaluative and activity dimensions. The differences in meaning for these two terms was so widespread that no observable patterns were apparent. The results of Table 4 show that both terms are regularly used terms in accounting communication, yet the meaning of these terms appears to vary widely. Variable cost and contribution margin are related cost behavior concepts in many cost and managerial accounting textbooks. Yet, Cooper and Kaplan (1988) state that many of the organizations they have studied use only one cost system designed primarily for inventory valuation, and that the inability of the cost system to report variable cost information was a common deficiency for operational control.

Two points are apparent after analyzing Tables 16, 17 and 18. First, comparing Table 16 with Table 18, it appears that differences in meaning are more prevalent across cultural boundaries outside of the organization than within the organization. Table 18 indicates that differences in meaning exist for all nine terms between organizations, between the accounting and management profession, among accountants across organizations, and/or among managers across organizations. Table 16 shows that five of the ten organizations displayed no significant differences in meaning and three organizations differed on only one term. Terms like "Contribution Margin" or "Just-In-Time" that are universally misunderstood across organizations show few if any differences in meaning within organizations. This provides sufficient evidence that organizational culture, does impact the meaning of accounting terminology across organizations while creating a similar or shared meaning within organizations.

Second, the differences in meaning within organizations do not appear consistently for the same terms that were generally most misunderstood in the first hypothesis. Table 18 shows that "Variance," "Contribution Margin," "Just-In-Time" and "Variable Cost" were almost universally misunderstood across organizations. However, within organizations significant differences in meaning for these same terms is infrequent. The within organization differences in meaning is fairly evenly distributed among the nine terms. A significant difference in meaning

occurs for seven of the nine terms in only one organization. A significant difference for one term, "Product Cost," occurs in two organization. Finally, there are no significant differences in meaning were found for "Just-In-Time."

6.2.2 The Relationship Between Strength of Culture and Shared Meaning

According to theory, similar subcultures enhance the shared meaning of accounting terms used in communication between accountants and managers. Only five of the seven organizations with compatible subcultures support the theory. The remaining two organizations with similar subcultures and the three organizations with different subcultures give cause to question the theory. A review of the definition of a subculture provides a possible explanation. Ott (1989) states:

"All institutions of any size have subcultures, pockets in which the organizational culture varies to some degree from the culture in other pockets and from the dominant culture. Subcultures may develop in any organizational groups . . . in a building, a floor of a building, among employees who take breaks in a lounge or ride in a car pool . . . (a)cross horizontal or vertical organizational boundaries . . . made up of people who work on a program or project, perform similar functions, share ethnic or religious backgrounds, have the same supervisor, service the same clients or customers, or were trained in the same professional cultures. Subcultures interlock, overlap, partially coincide, and sometimes conflict. Just as the dominant organizational culture, they may be strong, pervasive, and controlling, or they may be weak and hardly affect behavior." (emphasis added)

The dominant culture of an organization is likely to have a more pervasive impact on the meaning of its terminology than a subculture, especially if the subculture is not "strong, pervasive and controlling." A variance statistic provides a measure of the strength of the subculture, or the amount of agreement among subculture members as to what the behavioral norms of the organization are. The average standard deviation of each cultural style for each of the twenty subcultures measured are shown in Table 19. The large standard deviations at the top of the table represent weaker subcultures while the standard deviations at the bottom of the table represent strong subcultures. None of the subcultures measured in this study are overwhelmingly strong. For example, the range of possible scores on the Organizational Culture Inventory for each cultural style is from ten to fifty. In order to capture the scores of ninety-five percent of the respondents from the strongest subculture measured (plus or minus two standard deviations) requires a range of over slightly greater than fourteen, or approximately thirty six percent of the total possible range of scores.

Examining the strength of the accounting and management subcultures of the three organizations where the difference for those subcultures were considered statistically significant, the subcultures of Organizations Two were moderately strong, the subcultures of Organization Four were moderate to weak, and the subcultures of Organization Five were moderate to moderately strong. Table 17

Table 19. Strength of Accountant and Manager Subcultures

Subculture	Standard Deviation
Organization 7 (Mgr)	7.15
Organization 10 (Mgr)	6.81
Organization 4 (Acct)	6.18
Organization 1 (Acct)	6.04
Organization 8 (Acct)	6.03
Organization 10 (Acct)	5.67
Organization 6 (Acct)	5.55
Organization 6 (Mgr)	5.43
Organization 5 (Mgr)	5.33
Organization 3 (Acct)	5.21
Organization 4 (Mgr)	5.17
Organization 3 (Mgr)	4.99
Organization 9 (Acct)	4.87
Organization 7 (Acct)	4.66
Organization 8 (Mgr)	4.50
Organization 9 (Mgr)	4.27
Organization 2 (Acct)	4.06
Organization 1 (Mgr)	3.99
Organization 5 (Acct)	3.91
Organization 2 (Mgr)	3.57

shows that those three organizations were different on only three or four of the twelve cultural styles. This modest difference does not appear to be sufficient to consider even those subcultures that are moderately strong as "strong, pervasive and controlling," nor sufficient enough to significantly impact the content of meaning for the organization's technical language.

Ott stated that subcultures "interlock, overlap, partially coincide, and sometimes conflict." A review of each organization's culture circumplexes in Appendix C indicates that the subcultures generally "interlock, overlap, and partially coincide" rather than conflict. None of the subcultures appear notably different.

These explanations still do not account for the results obtained from Organization Nine which showed no significant differences for any of the twelve cultural styles, but significant differences on four of the nine terms. It is possible that a significant difference in meaning for a particular term in a particular organization might occur because that term is not commonly used in that organization.

However, it is unlikely that "budget," "fixed cost," "return on investment," and "variance" are not part of Organization Nine's technical language.

Another plausible explanation addresses the measurement of organizational culture. A different measure of culture may have produced results more in line

with the theory and expectations of this study. While the Organizational Culture Inventory appears to be a valid and reliable measure of the element of organizational culture that it purports to measure, it may not have measured the appropriate element of culture of this study. This instrument was initially appealing for two reasons. First, it measured behavioral norms which are related to connotative meaning. Behavioral norms are part of the most visible and most easily measured level of organizational culture--artifacts. This level of culture is easy to see, but hard to interpret without an understanding of the values and basic assumptions level of organizational culture. It is possible that the content of meaning is determined by one of the deeper element or layer of organizational culture.

The second reason is that the Organizational Culture Inventory fit well with the research methodology of this study. A quantitative approach to data collection permits the researcher to measure the extent to which various members of an organization unit agree with predefined measures of organizational culture, and to measure the intensity or strength of those measures. A quantitative approach also facilitates the intra- and inter-unit comparisons. Both criteria were necessary to fulfill the purpose of this study.

The primary disadvantage of the quantitative approach is the inability to measure

deeper and perhaps more relevant levels of organizational culture. A qualitative approach would have permitted a more in depth examination of the organization and possibly facilitated interpreting and relating the values and assumptions of the organizational culture to the meaning of management accounting terminology. It may have also permitted an examination of the hypothesized outcomes of communication shown in Figure 5. However, these objectives were beyond the scope of this study.

6.2.3 The Relationship Between Strength of Culture and Intensity of Meaning

The third hypothesis could not be rejected. This study failed to establish a relationship between the intensity dimension of meaning and the amount of shared meaning which exists in each organization. Kerlinger (1986) states that:

"any weak link in the research chain can cause negative results. They can be due to any one, or several or all of the following: incorrect theory and hypotheses, inappropriate or incorrect methodology, inadequate or poor measurement, and faulty analysis . . . All must be scrutinized and the negative results laid at the door of one, several, or all of them. If we can be fairly sure that the methodology, the measurement, and the analysis are adequate, then negative results can be definite contributions to scientific advance, since only then can we have some confidence that are hypotheses are not correct."

The methodology and analysis were fairly simple and straightforward. The test was a simple correlation of two variance statistics. The variance of agreement on what the behavioral norms of the organization are seems to be an acceptable

measure of cultural strength, and the variance of seems an adequate measure of shared meaning. A correlation of near zero is not difficult to analyze. It seems reasonable that the blame must be laid to either the measurement of an inappropriate element of culture that does not influence meaning or to incorrect theory. The identification of one or the other as the cause must be left to future research.

6.3 Conclusions

This study examined an issue that is rich in theory, but lacking empirical substantiation. Because of the lack of empirical substantiation, the scope of this study was necessarily broad and general in nature. It examined the relationship between culture and meaning from a macro rather than a micro point of view--a broad and general approach across several organizations rather than an intensive study within a single organization. Knowing that the quality of communication depends in large part on the congruence of meaning between the communicants, are differences in organizational culture a barrier to effective communication? Is there a relationship between meaning and culture? These questions are important not only to accountants attempting to communicate information to decision makers but to anyone interested in the quality of organizational communication, especially if organizational culture can be "managed" or altered.

The purpose of this study was to provide empirical evidence that would either support or refute the theoretical relationship between meaning and culture.

The data of this study support a relationship between the content dimension of meaning and organizational culture, but not the intensity dimension. The first hypothesis was rejected as differences in meaning for commonly used management accounting terms was common across cultural boundaries, while differences in meaning within the organization were generally limited. The second hypothesis was also rejected as differences in meaning between accountants and managers within organizations were found. However, the rejection of the hypothesis failed to convincingly support the theory as half of the sample organizations produced results that would refute the theory. The relationship between the elements of organizational culture measured in this study and the meaning of accounting terminology is uncertain. In retrospect, the research methodology utilized was more suited for testing the macro nature of the first hypothesis than it was for testing the micro nature of second hypothesis. A more appropriate approach for the second hypothesis may have been a combination of qualitative and quantitative methods. The general conclusion drawn by the researcher is that the dominant organizational culture determined the content of meaning more than the accountant or manager subcultures.

An unresolved issue that must be addressed in this study is the relationship between statistical significance and the quality of communication. Statistical significance may not be as meaningful with soft constructs like organizational culture or meaning. For example, how different does organizational culture have to be before it affects the content of meaning, or how different does meaning have to be before it affects the quality of communication? While statistically significant differences in meaning exist between organizations, it is apparent from a visual inspection of Table 12 and the graphical profile in Appendix C that differences in connotative meaning across organizations is not as vast as statistical significance might indicate. Determining how statistical differences in meaning affect the quality of communication requires an examination of the behavioral outcomes of communication, or untested portion of the model in Figure 5.

6.4 Limitations

The results of this study should be interpreted in light of its limitations. The most obvious limitation was the lack of control over the data collection process by not personally administering the questionnaires to the respondents on site. It is possible that employee responses could have been biased because of the lack of control. The inability to collect the data on site also prohibited the researcher from observing the organization structure, possible subculture boundaries, and

established patterns of communication between accountants and managers. This knowledge would have permitted more control over the direction and scope of the research, and over the selection of the sample.

In the process of collecting data for developing the semantic differential and to examine the hypotheses of this study, there was no attempt to determine the accounting background and experience of the respondents. It is assumed that the accounting respondents had substantial accounting backgrounds and experience. However, it is also possible that some of the managers also had extensive accounting backgrounds and experience. This introduces the possibility of bias in the results obtained in this study.

The small sample size in some of the organizations is also cited as a potential limitation. A small sample size in some organizations limited the ability to perform a complete statistical analysis of the data. In several of the organizations the sample of accountants consisted of the entire population.

In retrospect, it would have been desirable to determine for each management accounting term in the questionnaire how important and how frequently used each particular term was in the communication of each organization. This information would likely have improved the analysis of the second hypothesis. It is possible

that significant differences for some of the terms may have been due to their unimportance or infrequent use in a particular organization.

The final limitation was the inability to examine each organization more in depth. While a qualitative approach could have provided some insight to unanswered questions, such an approach was unfeasible and beyond the scope of this study.

6.5 Contributions

There are two general contributions made by this study. First, it partially validates theory by providing an empirical relationship between organizational culture and the meaning of the terminology that constitutes an organization's technical language. It also provides some guidance for future communications research, especially as it pertains to more in-depth analyses within organizations. The weak relationship between behavioral norms and meaning disclosed in the second hypothesis should encourage researchers to investigate the relationship of other elements of organizational culture with the content of meaning. In addition, the challenge to the postulated relationship between the strength of organizational culture and the amount of shared meaning is deserving of future investigation.

The second contribution of this study is the development of an instrument capable

of measuring meaning within the management accounting domain. In developing the semantic differential for this study, it was discovered that the dimensions of meaning that pertain to management accounting are similar to the dimensions of meaning for financial accounting, but are measured with a slightly different set of semantic scales. Knowing the dimensions of meaning that pertain to management accounting will allow this instrument to be modified if necessary, and used in future management accounting research.

6.6 Recommendations for Future Research

The Bedford/Baladouni model of accounting communication in Figure 1 emphasizes the importance of the communicative responsibility of the accounting profession. All of the work that accountants do to generate relevant and reliable information for management decision making is ineffectual if that information is not communicated with fidelity. This study establishes that differences in the meaning of commonly used management accounting terms exist in the business world. If the cause of these differences are not addressed, the potential for ineffective communication between accountants and managers could adversely affect the quality of decisions based on that accounting information, and damage the reputation of accountants as information specialists within organizations.

This line of accounting communication research can be extended in four general ways. First, future research should take a micro approach and focus on single organizations with a combination of quantitative and qualitative research methods. The research designs, methods of observation, methods of measurement, and types of analysis can be tailored to the characteristics of the organization. This approach would hopefully reveal a more concrete relationship between organizational culture and meaning. Future research should involve a variety of different organizations from small, centralized firms to large, decentralized firms. Examining the fidelity of communication in a multinational firm would prove to be both interesting and rewarding.

Second, future research should seek to establish an empirical relationship between shared meaning and the expected outcomes of effective communication. Does more effective communication suggest more effective and efficient business operations? Is it possible that too much shared meaning and cognitive similarity confines perception and inhibits an organization's ability to see their environment from different points of view?

Third, longitudinal studies would give insight about changes in meaning over time, and to the effects of the socialization process on new members of the organization. The relationship between organizational culture and meaning would

be better understood by examining the changes in meaning that occur over time in an organization attempting to change its organizational culture.

Finally, other constructs that may affect shared meaning and the quality of communication should be examined. Some examples of other constructs include the frequency of communication between accountants and managers, communication climate, attitudes toward accountants and accounting information, organizational commitment, and role conflict. Experimenting with ways of improving the quality of communication between accountants and managers should be undertaken. For example, would the quality of accounting communication be improved if the accounting function were decentralized and accountants placed physically closer to managers who use accounting information?

A review of the literature exposes a scarcity of research that addresses the accounting communication function. In addition to the line of research pursued by this study, the need for more communication-based research that will improve the quality of accounting communication is essential.

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APPENDIX A

DEVELOPMENT OF SEMANTIC DIFFERENTIAL INSTRUMENT

Absorption Costing	Mixed Cost
Accelerated Cost Recovery	Motivation
Budget(ing)	Net Present Value
Byproduct	Normal Costing
Capital Budget(ing)	Operating Budget
Cash Budget	Operating Leverage
Committed Cost	Opportunity Cost
Common Cost	Overabsorbed Overhead
Constraint	Parameter
Continuous Budget	Performance Report
Contribution Margin	Period Costs
Controllable Cost	Planning
Conversion Cost	Practical Capacity
Cost	Predetermined O/H Rate
Cost Center	Present Value
Cost Accounting	Prime Cost
Cost Allocation	Probability
Cost of Capital	Process Costing
Decision Table	Product Costing
Differential Cost	Product Costs
Direct Costing	Profit Center
Direct Labor	Regression
Direct Materials	Relevant Cost
Discounted Cash Flow	Relevant Range
Discretionary Cost	Residual Income
Economic Order Quantity	Responsibility Accounting
Expected Value	Return on Investment
Finished Goods	Safety Stock
Fixed Cost	Sales Mix
Flexible Budgeting	Segment
Full Cost	Semivariable Cost
Gross Profit	Sensitivity Analysis
Hurdle Rate	Separable Cost
Incremental Cost	Service Departments
Indirect Cost	Spending Variance
Internal Rate of Return	Split-Off Point
Investment Center	Standard Cost
Investment Tax Credit	Strategic Plan
Job Order Sheet	Sunk Cost
Job Order Costing	Transfer Price
Linear Programming	Underabsorbed Overhead
Management Accounting	Variable Cost
Management by Exception	Variance
Marginal Cost	Volume Variance
Marginal Revenue	Zero Base Budgeting

Alphabetical Listing of Management Accounting Terms



VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24064-0101

DEPARTMENT OF ACCOUNTING 3007 FAMELIN HALL 703-431-4991

June 11, 1990

John C. Doe
 ABC Manufacturing Corporation
 123 Hardwork Way
 Blacksburg, Virginia 24060

Dear Mr. Doe:

Many of the decisions made within an organization make use of accounting information. Identifying and providing the proper information requires communication between accountants and managers. Communication is considered successful if accountants and managers attach the same meaning to the terms used in the communication process.

To learn more about the quality of organizational communication, we are conducting a research project. Because you have been involved with using accounting information in the manufacturing industry for several years, you have a good understanding of the communication process that takes place between the accountant and the manager. For this reason we are asking for your participation in this study.

The purpose of this phase of the study is to identify those commonly used accounting terms that from a production manager's perspective are the most important in the communication process. The enclosed questionnaire can be answered in five minutes and should be returned in the envelope provided. We understand the great demands on your time, but the success of this research project depends in large part upon your cooperation. If you feel that another employee under your supervision could better respond to this survey, please pass the questionnaire on to that individual with encouragement to complete it.

To insure that the results are representative of organizations in industry, it is important that each questionnaire be completed and returned. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is done to allow us to check your name off the mailing list and to avoid the inconvenience of a second mailing to you. The results of this study will be published in aggregate form only.

Thank you for your assistance.

Sincerely,

Larry N. Killough, Ph.D., CPA
 Peat Marwick Professor of Accounting

Steven Johnson, CPA
 Research Assistant

Term Survey Questionnaire Letter

INSTRUCTIONS

On this and the following page is a list of commonly used management accounting terms. For each term indicate how important a common understanding of the meaning of each term is in the communication process within **your** organization. Importance is determined by how frequently the term is used and how crucial it is that those you are communicating with understand the term. Each judgment should reflect your personal feeling.

For each term, put a circle around the number corresponding with how important you feel a common understanding of meaning for that term is. For example, if you felt that a common understanding of the meaning of the term Absorption Costing is "Extremely Important", you would circle the number 1. If you felt it was less than "Extremely Important", but more than "Moderately Important", you would circle the number 2.

	Extremely Important	Moderately Important	Not Important		
Absorption Costing	1	2	3	4	5
Budget	1	2	3	4	5
Fixed Cost	1	2	3	4	5
Indirect Cost	1	2	3	4	5
Direct Cost	1	2	3	4	5
Responsibility Accounting	1	2	3	4	5
Relevant Cost	1	2	3	4	5
Sunk Cost	1	2	3	4	5
Differential Cost	1	2	3	4	5
Opportunity Cost	1	2	3	4	5
Contribution Margin	1	2	3	4	5
Direct (Variable) Costing	1	2	3	4	5

Term Survey Questionnaire

	Extremely Important		Moderately Important		Not Important
Variable Cost	1	2	3	4	5
Just-In-Time	1	2	3	4	5
Variance Analysis	1	2	3	4	5
Economic Order Quantity	1	2	3	4	5
Controllable Cost	1	2	3	4	5
Cost of Capital	1	2	3	4	5
Semivariable Cost	1	2	3	4	5
Product Cost	1	2	3	4	5
Residual Income	1	2	3	4	5
Return on Investment	1	2	3	4	5
Discounted Cash Flow	1	2	3	4	5
Sensitivity Analysis	1	2	3	4	5
Probability	1	2	3	4	5
Regression Analysis	1	2	3	4	5
Predetermined Overhead Rate	1	2	3	4	5
Byproduct	1	2	3	4	5
Separable Cost	1	2	3	4	5
Common (Joint) Cost	1	2	3	4	5
Over/Underabsorbed Overhead	1	2	3	4	5
Discretionary Cost	1	2	3	4	5
Term Survey Questionnaire					

	Extremely Important		Moderately Important		Not Important
Relevant Range	1	2	3	4	5
Sales Mix	1	2	3	4	5
Transfer Price	1	2	3	4	5
Flexible Manufacturing System	1	2	3	4	5

Please list other accounting terms that you feel are important in your organization that are not listed on this questionnaire:

Your position/title with the company is: _____

TRIAD QUESTIONNAIRE INSTRUCTIONS

We would like to learn what various terms, as they are used in management accounting, mean to you. On the answer sheet accompanying these instructions there are fifteen sets of three words each. Please complete the following instructions for each of the sets. Complete all of the instructions for each set before going on to the next set.

1. First, decide which of the terms is most different from the other two. In making this decision, think of the meanings you would attribute to these terms when you encountered them in an accounting report.

CIRCLE THE WORD WHICH YOU THINK IS MOST DIFFERENT FROM THE OTHERS
IN THE SET.

2. Next, take a few minutes and think of some of the characteristics of the word that make it most different from the other two. As you think of these characteristics, note them on a piece of scratch paper.
3. Then, with one or more of these characteristics in mind think of a one or two word adjective that you can use to complete a sentence of the following form:

"The DIFFERENT word" is more (less) _____ than "the OTHER two words".
4. Finally, write down the adjective(s) that you used to complete this sentence on the answer sheet under A. On the answer sheet under B, write down the logical opposite to the adjective you wrote down under A.

Please take the time to read through the following example provided before completing the questionnaire.

EXAMPLE:	SET	A	B
	Variable Cost	_____	_____
1.	Fixed Cost	_____	_____
	Sunk Cost	_____	_____

Assume the first set consists of the terms "fixed cost", and "variable cost" and "sunk cost". A person decided that the term "variable cost" was most different from the terms "fixed cost" and "sunk cost." This person felt that one of the important characteristics that made the term "variable cost" different from the other two terms was that "with a variable cost you have more control in managing a budget." The person then completed the standard sentence and answer sheet as follows:

Variable Cost is more CONTROLLABLE than Fixed Cost or Sunk Cost.

SET	A	B
Variable Cost	<u>Controllable</u>	<u>Noncontrollable</u>
1. Fixed Cost	_____	_____
Sunk Cost	_____	_____

One or more of the words in a set may be unfamiliar to you. You may nonetheless, have some inclination of the meaning you would attribute to such a word if you encountered it in an accounting report, in which case you should go ahead and complete the set. If it should happen that one of the words in a set has no meaning to you at all, do not try to complete that set but put a rectangle around the unfamiliar term and then go on to the next set. Work at a fairly high rate of speed but do not be careless in your responses. Try to complete as many sets as possible but do not be concerned if you are unable to complete them all. Space has been provided for more than one response to a set if you have the time. Thank you for your cooperation.

Triad Questionnaire

ANSWER SHEET

Class (Circle One) Fr. So. Jr. Sr. Grad. Major_____

If you are not an accounting major, indicate the number of semester hours of accounting you have completed_____.

SET	A	B
1. Direct Cost	_____	_____
Relevant Cost	_____	_____
Transfer Price	_____	_____
2. Predetermined Overhead Rate	_____	_____
Contribution Margin	_____	_____
Over/Underabsorbed Overhead	_____	_____
3. Direct Cost	_____	_____
Residual Income	_____	_____
Cost of Capital	_____	_____
4. Contribution Margin	_____	_____
Return on Investment	_____	_____
Sales Mix	_____	_____
5. Sunk Cost	_____	_____
Controllable Cost	_____	_____
Fixed Cost	_____	_____
6. Cost of Capital	_____	_____
Budget	_____	_____
Return on Investment	_____	_____
7. Variable Cost	_____	_____
Contribution Margin	_____	_____
Absorption Costing	_____	_____

Triad Questionnaire

8.	Fixed Cost Semivariable Cost Differential Cost	_____	_____
9.	Economic Order Quantity Flexible Manufacturing System Just-In-Time	_____	_____
10.	Return on Investment Controllable Cost Variable Cost	_____	_____
11.	Absorption Costing Over/Underabsorbed Overhead Product Cost	_____	_____
12.	Fixed Cost Discretionary Cost Opportunity Cost	_____	_____
13.	Direct (Variable) Costing Responsibility Accounting Contribution Margin	_____	_____
14.	Predetermined OverheadRate Budget Controllable Cost	_____	_____
15.	Probability Sensitivity Analysis Discounted Cash Flow	_____	_____

Triad Questionnaire

General-Specific

Broad-Narrow
Definite-Indefinite

Measurable-Unmeasurable

Determinable-Indeterminable
Knowable-Unknowable
Identifiable-Unidentifiable

Concrete-Abstract

Tangible-Intangible

Estimated-Exact

Accurate-Inaccurate
Actual-Estimated
Precise-Imprecise

Cost Oriented-Revenue Oriented

Cost Based-Market Based

Future Oriented-Past Oriented

Future Value-Present Value
Contemporary-Traditional
Modern-Obsolete

Real-Hypothetical

Conceptual-Pragmatic
Theoretical-Applied

Profitable-Unprofitable

Productive-Unproductive

Positive-Negative

Beneficial-Detrimental
Desirable-Undesirable
Good-Bad

Analytical-Nonanalytical

Evaluative-Nonevaluative

Certain-Uncertain

Predetermined-Random
Predictable-Unpredictable

Complete-Incomplete

Comprehensive-Partial
Full Cost-Partial Cost
Incremental-Full

Flexible-Rigid

Adjustable-Nonadjustable
Changeable-Unchangeable
Manageable-Unmanageable

- 61 **Controllable - Noncontrollable**
- 45 **Fixed - Variable**
- 23 **General - Specific**
- 14 Financial - Operational
- 13 Cost Oriented - Revenue Oriented
- 13 **Measurable - Unmeasurable**
- 13 **Objective - Subjective**
- 12 **Estimated - Exact**
- 11 **Concrete - Abstract**
- 10 Relevant - Irrelevant
- 9 Analytical - Nonanalytical
- 9 **Flexible - Inflexible**
- 9 Internal - External
- 8 **Planned - Unplanned**
- 7 **Current - Past**
- 7 Input Oriented - Output Oriented
- 6 Dependent - Independent
- 6 **Direct - Indirect**
- 6 Quantitative - Qualitative
- 6 Simple - Complex
- 6 **Static - Dynamic**
- 6 Structured - Unstructured
- 5 **Certain - Uncertain**
- 5 **Real - Imaginary**
- 5 Stable - Unstable
- 5 Strategic - Operational
- 4 Allocated - Nonallocated
- Discretionary - Required**
- Temporary - Permanent**
- Cause - Effect
- Important - Unimportant
- Informative - Uninformative**
- Beneficial - Adverse**
- Long Term - Short Term**
- Necessary - Unnecessary
- Productive - Unproductive**



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DEPARTMENT OF ACCOUNTING 9007 FAMPLIN HALL 703-431-6391

June 11, 1990

John H. Doe
 ABC Industries, Inc.
 12 Successful Way
 Blacksburg, VA 24060

Dear Mr. Doe:

Several months ago you participated in an early phase of a research project that addressed the quality of organizational communication between accountants and users of accounting information. You responded to a questionnaire that identified which accounting terms are most commonly used in your organization. We would like to thank you for your assistance and ask for your help during this final stage of the research project.

This phase of the project is attempting to determine the meaning of commonly used accounting terms in your organizations. We are asking that you pass the enclosed questionnaire to one of your subordinates who has worked for the company in the same position for at least two years. Please request the employee to complete the questionnaire in the next two or three days and return it in the envelope provided. The questionnaire can be answered in approximately 40 minutes.

To insure that the results are representative of organizations in industry, it is important that this questionnaire be completed and returned. You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is done to allow us to check your name off the mailing list and to avoid the inconvenience of a second mailing to you. The results of this study will be published in aggregate form only.

Thank you for your assistance.

Sincerely,

Larry N. Killough, Ph.D., CPA
 Peat Marwick Professor of Accounting

Steven Johnson, CPA
 Research Assistant

BUDGET

Controllable	_____	_____	_____	_____	_____	_____	Noncontrollable
Variable	_____	_____	_____	_____	_____	_____	Fixed
Financial	_____	_____	_____	_____	_____	_____	Operational
Cost Oriented	_____	_____	_____	_____	_____	_____	Revenue Oriented
Specific	_____	_____	_____	_____	_____	_____	General
Measurable	_____	_____	_____	_____	_____	_____	Unmeasurable
Subjective	_____	_____	_____	_____	_____	_____	Objective
Discretionary	_____	_____	_____	_____	_____	_____	Required
Exact	_____	_____	_____	_____	_____	_____	Estimated
Relevant	_____	_____	_____	_____	_____	_____	Irrelevant
Flexible	_____	_____	_____	_____	_____	_____	Inflexible
Internal	_____	_____	_____	_____	_____	_____	External
Unplanned	_____	_____	_____	_____	_____	_____	Planned
Concrete	_____	_____	_____	_____	_____	_____	Abstract
Nonanalytical	_____	_____	_____	_____	_____	_____	Analytical
Past	_____	_____	_____	_____	_____	_____	Current
Input Oriented	_____	_____	_____	_____	_____	_____	Output Oriented
Dependent	_____	_____	_____	_____	_____	_____	Independent
Direct	_____	_____	_____	_____	_____	_____	Indirect
Temporary	_____	_____	_____	_____	_____	_____	Permanent
Qualitative	_____	_____	_____	_____	_____	_____	Quantitative
Simple	_____	_____	_____	_____	_____	_____	Complex
Dynamic	_____	_____	_____	_____	_____	_____	Static
Unstructured	_____	_____	_____	_____	_____	_____	Structured
Certain	_____	_____	_____	_____	_____	_____	Uncertain
Imaginary	_____	_____	_____	_____	_____	_____	Real
Stable	_____	_____	_____	_____	_____	_____	Unstable
Strategic	_____	_____	_____	_____	_____	_____	Operational
Allocated	_____	_____	_____	_____	_____	_____	Nonallocated
Cause	_____	_____	_____	_____	_____	_____	Effect
Important	_____	_____	_____	_____	_____	_____	Unimportant
Uninformative	_____	_____	_____	_____	_____	_____	Informative
Beneficial	_____	_____	_____	_____	_____	_____	Adverse
Long Term	_____	_____	_____	_____	_____	_____	Short Term
Unnecessary	_____	_____	_____	_____	_____	_____	Necessary
Productive	_____	_____	_____	_____	_____	_____	Unproductive

Intermediate Test Instrument Sample



THE R. B. FAMPLIN COLLEGE OF BUSINESS

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24064-0101

DEPARTMENT OF ACCOUNTING 3007 FAMPLIN HALL 703-231-6991

INSTRUCTIONS

You should have two separate questionnaires to complete. The first is the Accounting Communication Survey. There are two different versions of this questionnaire. If you are an accounting employee, there should be an (A) in the upper right hand corner of the first page. Likewise, if you are a manager, there should be an (M) in the upper right hand corner. Make certain that you have the correct version. This questionnaire contains four different sections:

- A. Accounting Terms
- B. Demographic Information
- C. Communication Frequency
- D. Communication Climate

Follow the instructions provided to complete each section. It should take you approximately ten minutes.

The second questionnaire is the Organizational Culture Inventory (OCI). After opening the OCI, instructions for completing this questionnaire are found in the upper left hand corner. If you have any questions concerning how you should respond to this questionnaire, please ask the supervisor who is administering the questionnaires. Once you have responded to the 120 items on the inside pages, you can score your responses, if you desire, by following the instructions in the upper right hand corner. Then close the OCI and answer the questions on the back page. This questionnaire should take you approximately twenty minutes.

Thank you for participating in this research project. It addresses an important issue, and the time you spend and the care you exercise in completing these questionnaires is greatly appreciated.

Semantic Differential Test Instrument

BUDGET

Important	:	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as BUDGET? YES NO

If YES, please list the term(s) _____

PRODUCT COST

Important	:	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as PRODUCT COST? YES NO

If YES, please list the term(s) _____

Semantic Differential Test Instrument

FIXED COST

Important	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as BUDGET? YES NO
 If YES, please list the term(s) _____

DIRECT COST

Important	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as PRODUCT COST? YES NO
 If YES, please list the term(s) _____

Semantic Differential Test Instrument

RETURN ON INVESTMENT

Important	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as BUDGET? YES NO
 If YES, please list the term(s) _____

VARIANCE

Important	:	:	:	:	:	:	Unimportant
Variable	:	:	:	:	:	:	Fixed
Irrelevant	:	:	:	:	:	:	Relevant
Measurable	:	:	:	:	:	:	Unmeasurable
Temporary	:	:	:	:	:	:	Permanent
Cost-Oriented	:	:	:	:	:	:	Revenue-Oriented
Uninformative	:	:	:	:	:	:	Informative
Operational	:	:	:	:	:	:	Strategic
Necessary	:	:	:	:	:	:	Unnecessary
Dynamic	:	:	:	:	:	:	Static
Adverse	:	:	:	:	:	:	Beneficial
Controllable	:	:	:	:	:	:	Noncontrollable

Are there other term(s) commonly used in your organization that have the same meaning as PRODUCT COST? YES NO
 If YES, please list the term(s) _____

Semantic Differential Test Instrument

D. Communication Climate

Please circle the appropriate number, 1-5, in response to each item below.

TO WHAT EXTENT . . .

	not at all	to a slight extent	to a moderate extent	to a great extent	to a very great extent
1. ... do you find the accounting information you receive sufficient to perform your work?	1	2	3	4	5
2. ... do you find the accounting personnel you communicate with open and friendly?	1	2	3	4	5
3. ... do you find the accounting information you receive relevant to your work?	1	2	3	4	5
4. ... do you receive feedback from accounting personnel regarding accounting information?	1	2	3	4	5
5. ... do you trust and respect the accounting personnel you communicate with?	1	2	3	4	5
6. ... do you find the accounting information you receive accurate and reliable?	1	2	3	4	5
7. ... do you feel that communication with accounting personnel improves your understanding of accounting information?	1	2	3	4	5

APPENDIX B

MEASUREMENT OF ORGANIZATIONAL CULTURE

A Humanistic-Helpful Culture characterizes organizations that are managed in a participative and person-centered way. Members are expected to be supportive, constructive, and open to influence in their dealings with one another.

An Affiliative Culture characterizes organizations that place a high priority on constructive interpersonal relationships. Members are expected to be friendly, open, and sensitive to the satisfaction of their work group.

An Approval Culture describes organizations in which conflicts are avoided and interpersonal relationships are pleasant--at least superficially. Members feel that they should agree with, gain the approval of, and be liked by others.

A Conventional Culture characterizes organizations that are conservative, traditional, and bureaucratically controlled. Members are expected to conform, follow rules, and make a good impression.

A Dependent Culture is descriptive of organizations that are hierarchically controlled and nonparticipative. Centralized decision making in such organizations leads members to do only what they are told and to clear all decisions with superiors.

An Avoidance Culture characterizes organizations that fail to reward success but nevertheless punish mistakes. This negative reward system leads members to shift responsibilities to others and avoid any possibility of being blamed for a mistake.

An Oppositional Culture describes organizations in which confrontation prevails and negativism is rewarded. Members gain status and influence by being critical and thus are reinforced to oppose the ideas of others and to make safe (but ineffectual) decisions.

A Power Culture is descriptive of nonparticipative organizations structured on the basis of the authority inherent in members' positions. Members believe they will be rewarded for taking charge, controlling subordinates and, at the same time, being responsive to the demands of superiors.

A Competitive Culture is one in which winning is valued and members are rewarded for outperforming one another. People in such organizations operate in a "win-lose" framework and believe they must work against (rather than with) their peers to be noticed.

A Competence/Perfectionistic Culture characterizes organizations in which perfectionism, persistence, and hard work are valued. Members feel they must avoid all mistakes, keep track of everything, and work long hours to attain narrowly defined objectives.

An Achievement Culture characterizes organizations that do things well and value members who set and accomplish their own goals. Members of these organizations set challenging but realistic goals, establish plans to reach these goals, and pursue them with enthusiasm.

A Self-Actualization Culture characterizes organizations that value creativity, quality over quantity, and both task accomplishment and individual growth. Members of these organizations are encouraged to gain enjoyment from their work, develop themselves, and take on new and interesting activities.

Description of Twelve Cultural Styles Measured by the OCI

Organizational Culture Inventory: Introduction (The following are the instructions included as part of the Organizational Culture Inventory)

Every organization has its own culture and set of expectations for its members. For example, some organizations are "competitive" and members feel that they must out-perform one another; other organizations are "cooperative" and members are more likely to feel they should work together as a team.

This inventory presents a list of 120 statements which describe some of the behaviors and "personal styles" that might be expected or implicitly required of members of organizations. Please read each statement and indicate the extent to which the behavior described helps people to "fit in" and meet expectations in your organization.

When responding to the statements, you might find it helpful to consider the behaviors expected by and rewarded by people in higher positions. Please keep in mind that all the statements refer to the way people within your organization are expected to deal with one another rather than with people external to the organization.

RESPONSE OPTIONS:

- | | |
|-------------------------|---------------------------|
| 1. Not at all | 4. To a great extent |
| 2. To a slight extent | 5. To a very great extent |
| 3. To a moderate extent | |

Using the above response options, indicate the extent to which people are expected to:

- | | |
|---|---|
| <input type="checkbox"/> show concern for the needs of others | <input type="checkbox"/> resolve conflicts constructively
(Humanistic-Helpful Culture) |
| <input type="checkbox"/> think in terms of the group's satisfaction | <input type="checkbox"/> uses good human relations skills
(Affiliative Culture) |
| <input type="checkbox"/> stay on the good side of superiors | <input type="checkbox"/> do things for the approval of others
(Approval Culture) |
| <input type="checkbox"/> treat rules as more important than ideas | <input type="checkbox"/> conform
(Conventional Culture) |
| <input type="checkbox"/> follow orders...even when they're wrong | <input type="checkbox"/> be a good follower
(Dependent Culture) |
| <input type="checkbox"/> "Lay low" when things get tough | <input type="checkbox"/> take few chances
(Avoidance Culture) |
| <input type="checkbox"/> question decisions made by others | <input type="checkbox"/> stay detached and perfectly objective
(Oppositional Culture) |
| <input type="checkbox"/> use the authority of their position | <input type="checkbox"/> personally run everything
(Power Culture) |
| <input type="checkbox"/> out-perform their peers | <input type="checkbox"/> compete rather than cooperate
(Competitive Culture) |
| <input type="checkbox"/> be precise...even when it's unnecessary | <input type="checkbox"/> personally take care of every detail
(Competence/Perfectionistic Culture) |
| <input type="checkbox"/> work for the sense of accomplishment | <input type="checkbox"/> take on challenging tasks
(Achievement Culture) |
| <input type="checkbox"/> emphasize quality over quantity | <input type="checkbox"/> think in unique independent ways
(Self-Actualization Culture) |

Sample of Organizational Culture Inventory



~~THE R. B. FAMPLIN COLLEGE OF BUSINESS~~

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24064-0101

DEPARTMENT OF ACCOUNTING 3007 FAMPLIN HALL 703-231-6391

June 10, 1990

John C. Doe
ABC Manufacturing Corporation
123 Hardwork Way
Blacksburg, VA 24060

Dear Mr. Doe:

We are conducting a study of the fidelity of accounting communication in manufacturing organizations. Specifically, we are addressing the question of whether accountants and managers attach the same "meaning" to commonly used management accounting terminology.

We are requesting your help in this study by asking for your cooperation as one of the sample organizations. This would entail administering a twenty minute questionnaire to several of your accountants and managers who receive and use accounting information. We would like to administer the questionnaire on site. However, if this is not acceptable, we could arrange to work with your Personnel Department and have them administer the questionnaire.

If the information and results of this study are published, the anonymity of your organization will be preserved. We will contact you by telephone in the next couple of days to discuss your willingness to participate and to answer any questions you may have.

Please accept our thanks for your time and attention to our request.

Sincerely,

Larry N. Killough, Ph.D., CPA
Peat Marwick Professor of Accounting

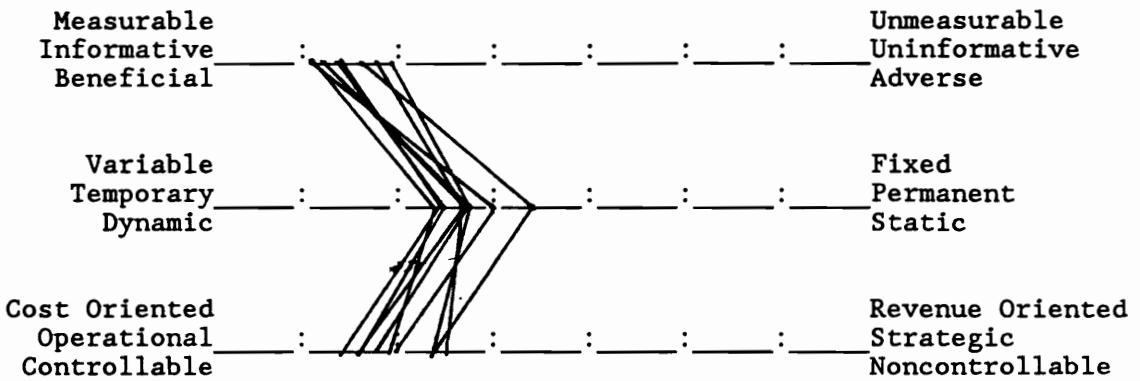
Steven Johnson, CPA
Research Assistant

Letter Sent to Thirty Six Organizations Requesting Participation in the Study

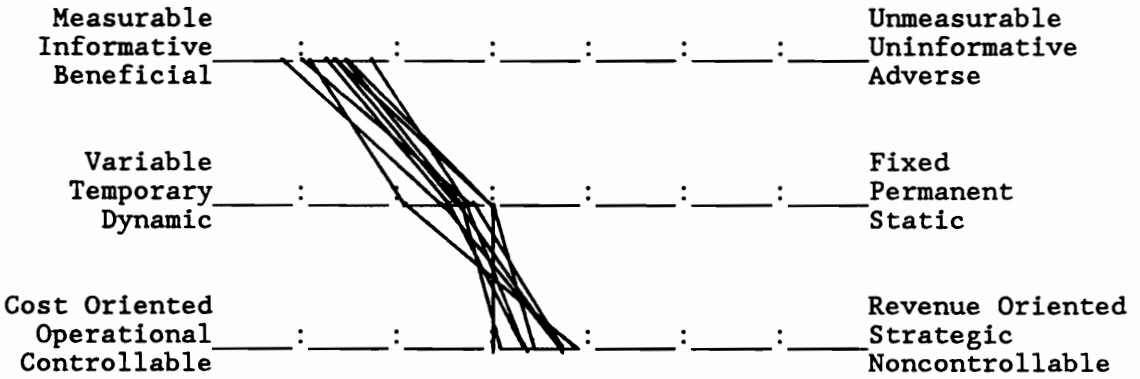
APPENDIX C

RESEARCH RESULTS

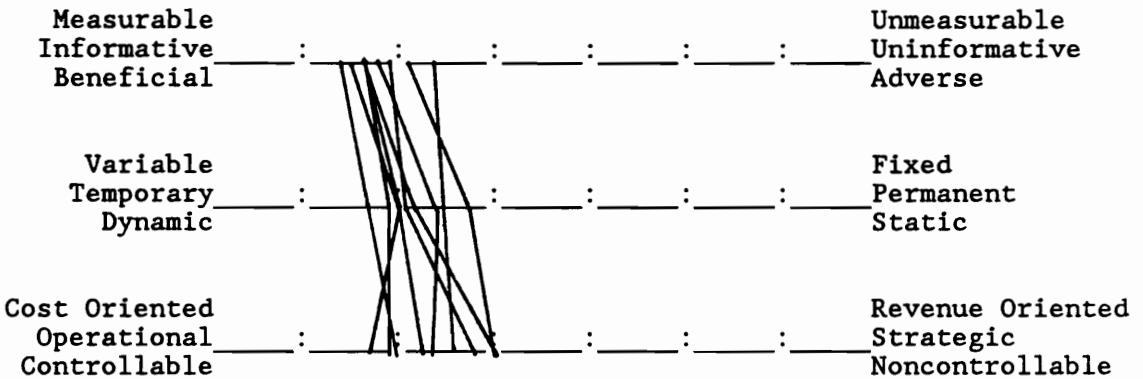
DIRECT COST



RETURN ON INVESTMENT

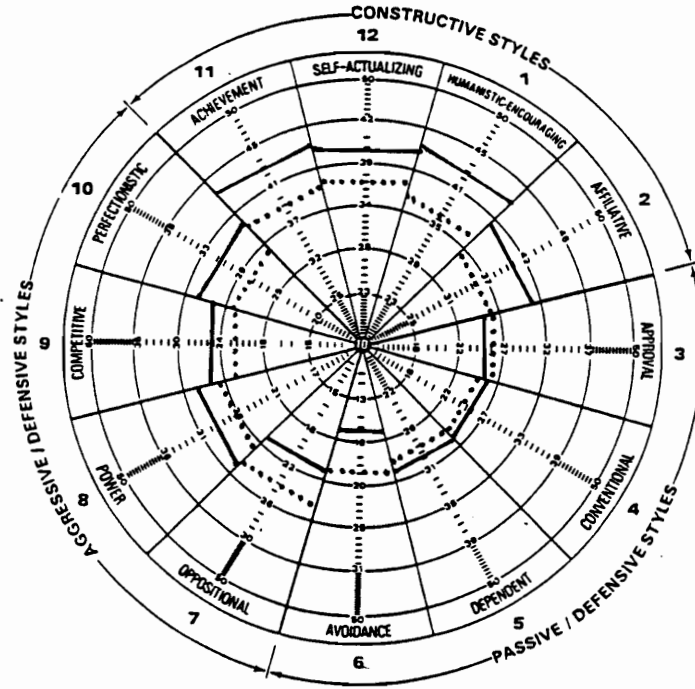


VARIANCE

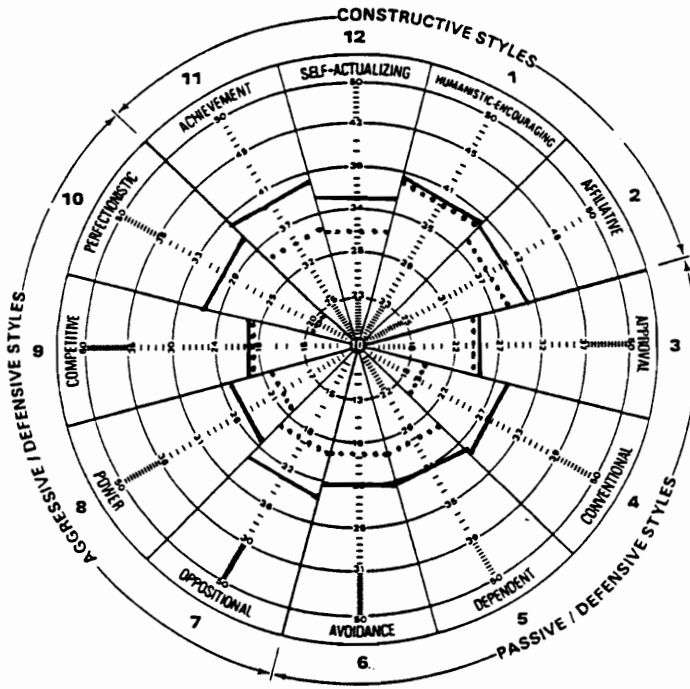


Graphical Profile of Meaning Across Organizations by Term

Organization 1



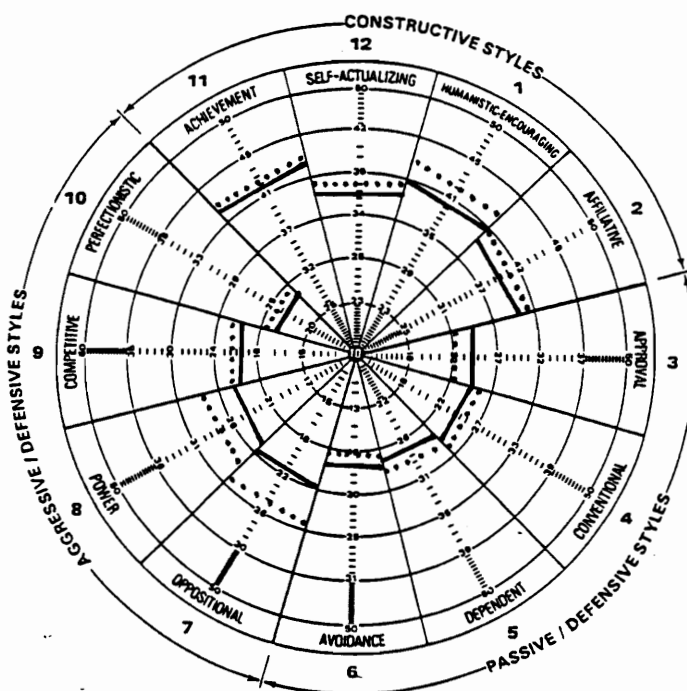
Organization 2



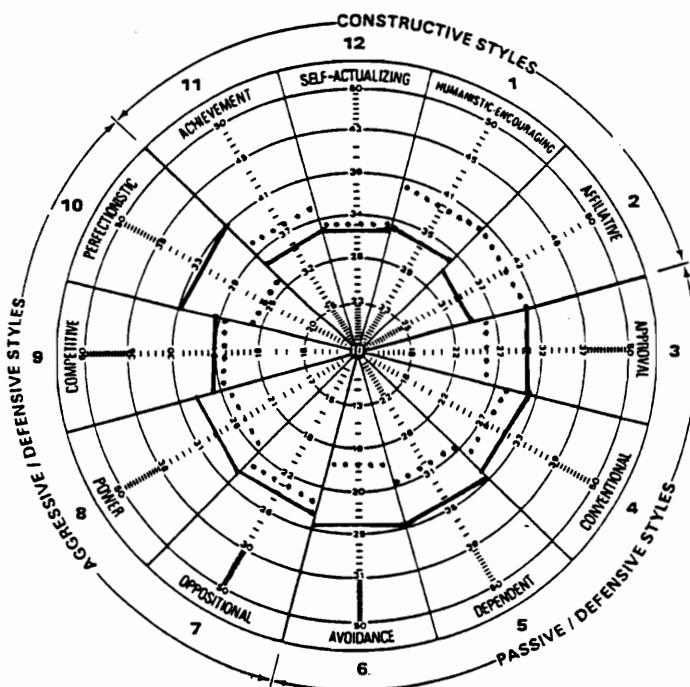
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Accountant and Manager Subculture Profiles

Organization 3



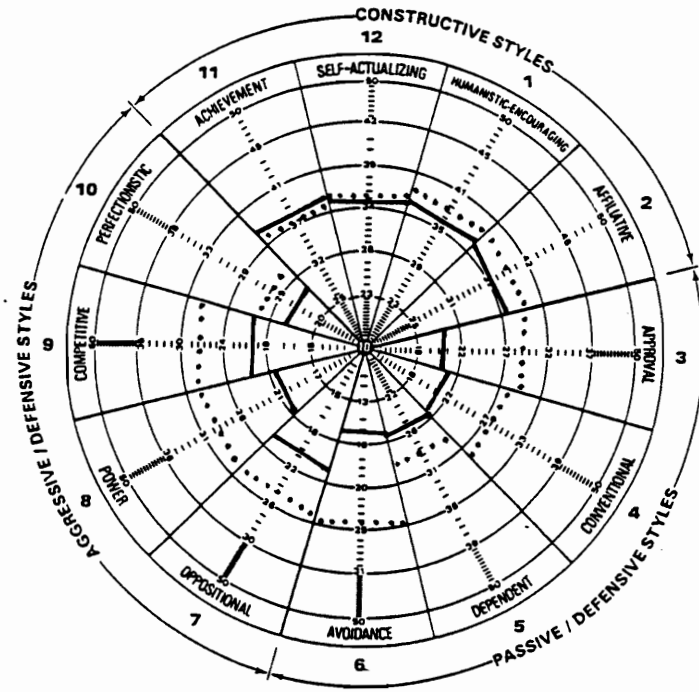
Organization 4



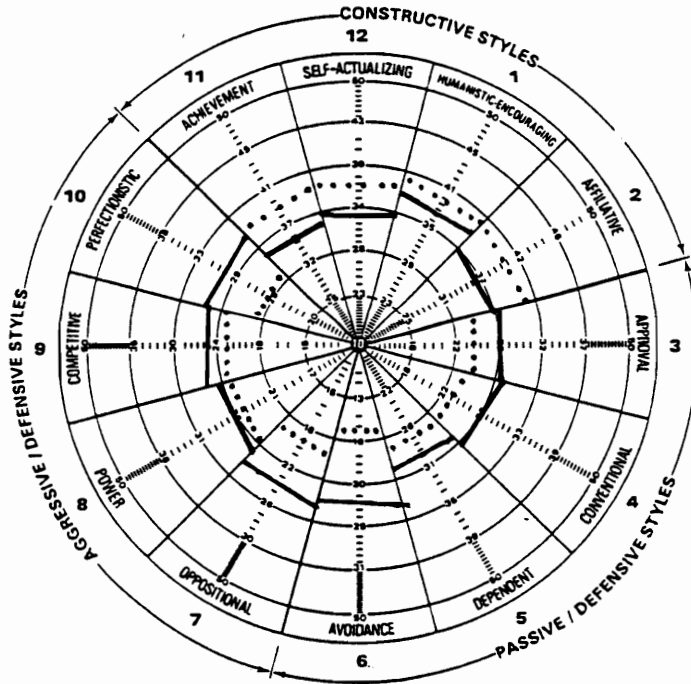
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Accountant and Manager Subculture Profiles

Organization 5



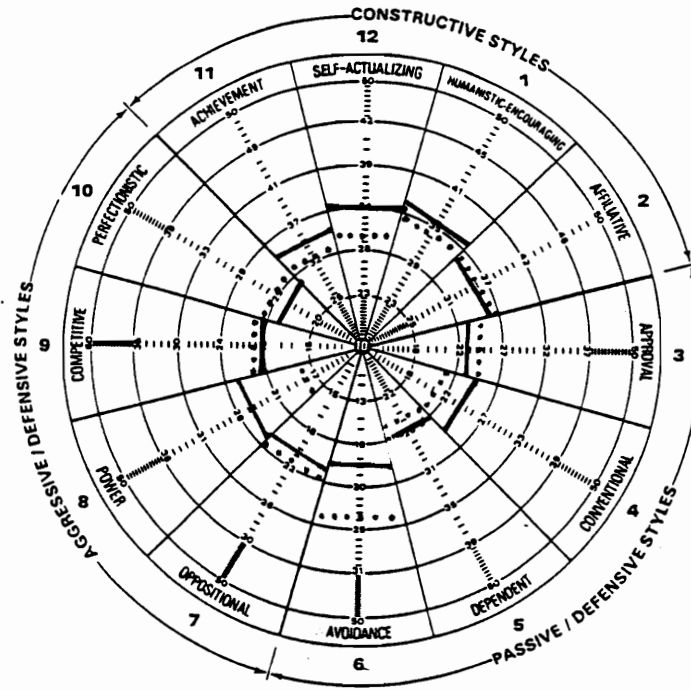
Organization 6



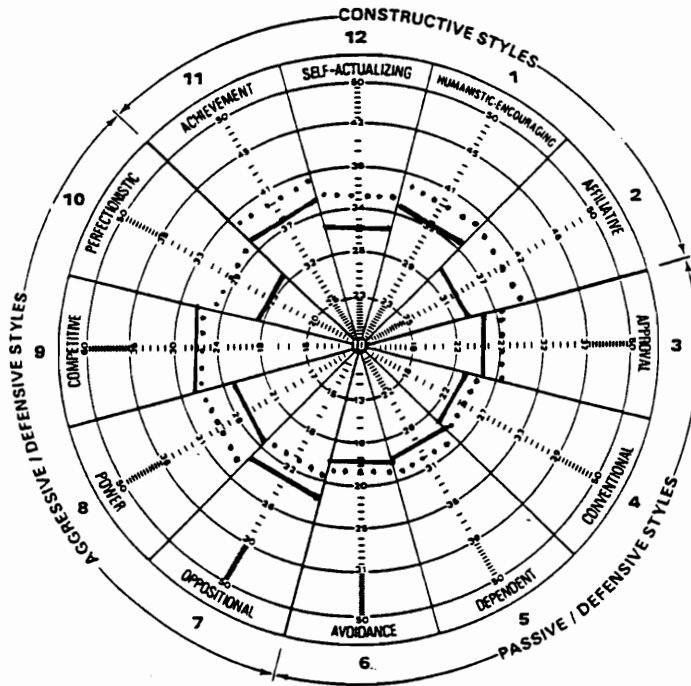
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Accountant and Manager Subculture Profiles

Organization 7



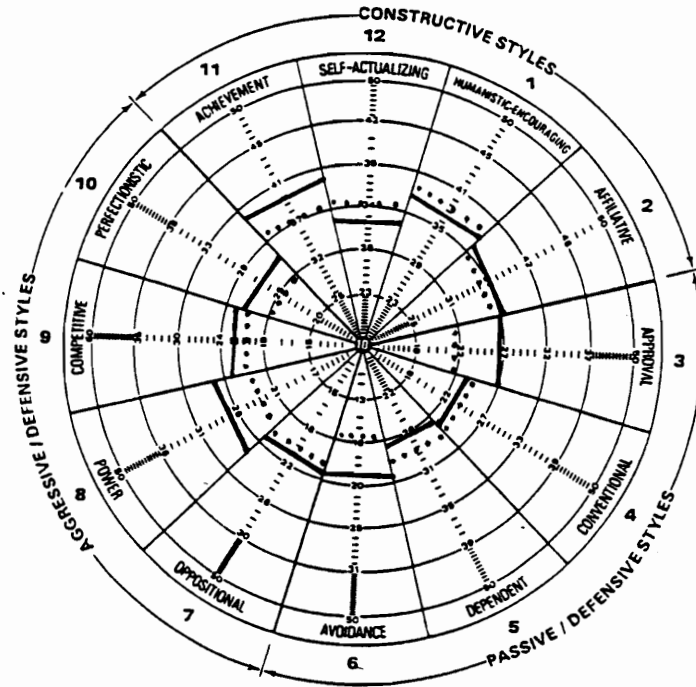
Organization 8



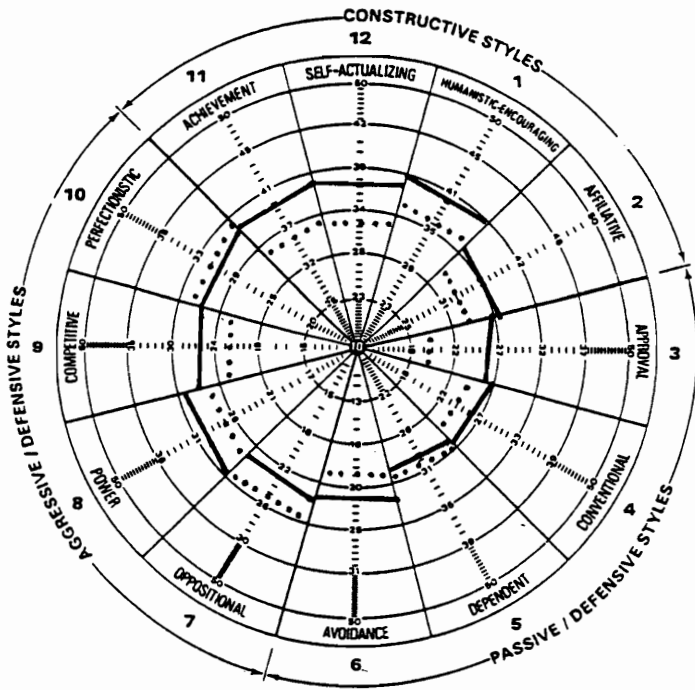
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Accountant and Manager Subculture Profiles

Organization 9



Organization 10



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Accountant and Manager Subculture Profiles

VITA

Steven D Johnson was born in Brigham City, Utah on December 1, 1952. He attended Box Elder County public schools and graduated from Box Elder High School in May, 1971.

After high school Steve served a two year mission for The Church of Jesus Christ of Latter-day Saints. Following his mission, Steve entered Brigham Young University in Provo, Utah where he completed a Bachelor of Science degree in accounting and a Master of Accountancy degree (emphasis in taxation) in December, 1978.

Following graduation from Brigham Young University, Steve purchased and developed a tax practice in Brigham City where he worked until May, 1982. While working as a tax accountant, he sat for, and passed, the Utah Uniform Certified Public Accountant's Examination in November, 1980.

In May, 1982, Steve began working for Thiokol Chemical Corporation (which later merged with Morton to become Morton-Thiokol) as a Cost Analyst. He left Morton-Thiokol in August, 1984 and began work as an Assistant Professor of Accounting at Brigham Young University - Hawaii Campus (BYU-Hawaii).

In August, 1987, Steve took a three year leave of absence from BYU-Hawaii and entered the doctoral program in accounting at Virginia Tech. In August, 1990 after completing the coursework and comprehensive examinations, Steve rejoined the Business Division faculty at BYU-Hawaii to teach and complete the work on his dissertation. He has since accepted a position at the University of Lethbridge in Alberta, Canada and will join the faculty there in July, 1991.