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"A Comparative Analysis of Multicultural Perspectives on Leadership Competencies and Organizational Capabilities Required for Competitiveness in the 90's"

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Acknowledgments

This thesis has served as one of the most profound and challenging learning experiences in this researcher's career. Indeed, it has provided a strong foundation for my current initiatives and its impact will certainly continue for many years to come.

I would like to first thank my primary advisor, Dr. Shaun Tyson, for both his important guidance, particularly in the area of influencing me to examine the data from the perspective of a cross cultural study, but also for his seemingly endless patience. I would also like to thank my internal examiner, Dr. Andrew Kakabadse, not only for his many substantive contributions that heavily influenced the research, but also for his challenge to me to reach beyond what I initially thought was my best. And I would like to thank my external examiner, Dr. Richard Ottaway, for his perceptions enabled this research to stand up to the scrutiny of rigorous analysis and his suggestions to organize the data into "culture groups" added a great deal of richness to the work.

I would also like to thank Wynn Huang for her organizational support, Dr. Anthony Morton for his tutorial on the details of research methods and factor analysis and Maureen Donovan for helping to type the thesis.

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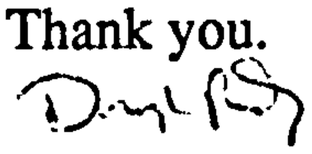
Thank you.



December, 1992

Abstract

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This thesis considers three main arguments. First, that managers from different cultural orientations tend to look at competitive, organizational and leadership challenges differently due to their cultural orientation or "mapping". Second, that even though it appears that managers from various cultures may have different cultural maps, it is possible to find a "multi cultural common ground" concerning the organizational capabilities and leadership competencies perceived as critical for competitiveness in the 90's. And third, that a perceived challenge facing senior managers in the 90's is managing the tensions and processes of transformation and change resulting from attempts to develop a shared meaning of the company's vision, balanced by an operating culture that encourages substantial differences in perspectives.

The introduction provides a rationale for the importance of the topic and explores this researcher's interest in the subject. It also provides the foundation for definitions and operating terms for a number of the words or phrases that are used throughout the text.

The review of the literature examines both the general breadth of this researcher's reading program that served as preparation for the study, as well as a look at the works that served as important foundations for the focal points of this research. It also explains how the literature influenced the research methods.

The thesis arguments provide the main questions that are examined in the research and includes the backgrounds and premises for selecting these arguments. The value and benefits of the research are also examined here.

The research methodologies chapter details in depth the processes used to conduct the research, provides the linkages between the methods and the literature and explores the use of analytical tools and frameworks in the study of managerial perceptions.

The results chapter presents the main findings of the research and explains how these findings support the thesis arguments. A subsequent discussion of these results, their linkage to the literature and an explanation of their meaning is discussed in the next chapter.

Finally, the main lessons of the research, the value of the methodologies, the implications of the research for practicing managers and researchers and suggestions for additional research are explored in the conclusions.

While the statistical procedures are explained in great depth, many of the actual data tables and detailed findings, as well as the questionnaire used may be found in the appendices.

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Chapter I

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Introduction

Why the Topic Was Chosen

This topic was chosen because this researcher believes that there is a significant amount of confusion and disorientation in business organizations today concerning the appropriate paths to take to build organizational capabilities and leadership competencies for competitive success. This research will show that organizations realize that in order to be competitive in the current environment, they will need to demonstrate flexibility, responsiveness, a propensity for action and a fierce dedication to improved productivity and a lean operating structure. However, the research will also show that many of these same organizations are struggling with understanding how to develop and sustain these organizational capabilities.

Similarly, managers in contemporary organizations from a variety of cultures appear to agree on at least a modest list of leadership competency themes for managerial effectiveness during the 1990's, yet there is also substantial agreement that significant gaps exist in our attempts to develop these competencies successfully. These competency themes appear to include: the ability to manage strategic change, to be customer focused, the ability to communicate visions, values and strategies within the context of diversity, globalization and change, the capacity to act amidst ambiguity and uncertainty, the capacity to handle cognitive complexity and the ability to manage and behave with a high degree of integrity.

Yet, exploring leadership as a separate condition, distinct from cultural variables, the changing nature of the external competitive environment and organizational realities, may lead companies to the impression that there is a single "recipe" for developing leadership skills in managers. This topic was chosen to help researchers untangle some of the variables that may come into play while exploring effective methods of developing leaders under conditions of change, including the challenges of managing the tensions resulting from the process of simultaneously crafting a shared vision that also allows sufficient room for individual interpretations and enthusiasm. The research seeks to probe into the less precise worlds of cross cultural interpretations, leadership development and organizational transformation by analyzing the responses of 294 managers from various "culture groups". The intent is to read the cross cultural responses as if they were a "language" and offer a translation of the responses based upon a carefully focused research methodology. The desire is to understand both areas of common interest across culture groups as well as areas of difference, especially those based upon or at least heavily influenced by cultural orientation. The research may also prove to be helpful to HRD managers as they continue to examine the most effective approaches to developing their managers' leadership potential.

Background

The globalization of markets, capital, labor, information and technology have changed the competitive landscape forever. Relentless competition from a host of sources is driving companies to realize that they no longer

can make trade offs between quality, cost, speed and customer focus. Change is rampant and it has become a key factor in conducting business effectively in today's environment. Within such an atmosphere of uncertainty, how are companies choosing and developing the individuals who will lead their organizations through these turbulent times? There is no singular approach but it does appear that many companies are focusing less attention on "training" for a specific set of skills and competencies and are focusing more attention on linking the *process* of management and executive development with their firms' strategic imperatives.

Today's contemporary firms are building new competitive frameworks around the notion of creating superior *organizational capabilities* and these companies are coming to the view that a more strategic approach to learning will lead to the development of these capabilities and improved competitiveness. Corporate executives and academicians alike are proclaiming that learning is the only true source of sustainable competitive advantage and the best response to such massive change. Consequently, companies have begun to seriously reassess not only on *whom* they will focus their attention for development but on *how* they are going to gain optimal leverage from their investments in development, education and learning.

Even though companies are shying away from a definitive list of ingredients of competency requirements for their recipes for leadership effectiveness, they are sharpening their focus on a broad set of what can best be described as *competency themes.* These competency themes seem to concentrate more on perspectives, attitudes, values and cultural orientation,

areas that serve to cultivate an "international mindset", than on skills acquisition. Again, broader themes seem to dominate over specific skills.

The Researcher's Interest in the Topic

This researcher's interest in this topic has come from working with hundreds of functional and general managers as well as management and executive development professionals over the last twelve years. This researcher created the first senior level research collaborative (the Executive Development Roundtable) in the United States for executive development professionals to explore how companies could improve competitiveness through more effective utilization of human resources and organizational development processes. This researcher also created the first international consortium for senior executive development professionals and university based researchers to improve international executive, organizational and leadership development initiatives for international competitiveness, called the International Consortium for Executive Development Research (ICEDR). ICEDR consists of thirty global corporations and twenty leading international business schools. By design and definition, the consortium's membership is a culturally diverse group. Members come from Japan, Korea, the U.K., the U.S., Germany, Italy, Spain, France, Australia, Finland, Hong Kong and The Netherlands, and it is likely that membership will soon include those from Latin America and Indonesia. This researcher, therefore, has a very deep interest in understanding both the content-related issues of developing effective leaders and organizations but also the process-related issues of

managing in a cross cultural context and improving cross cultural communications and understanding.

This researcher also serves as a consultant to Fortune Magazine on issues related to executive education and development. In that capacity, it is important to understand the pressing interests of corporations from around the world in this area. For example, at the time of this writing, this researcher was conducting a world wide study on trends and innovations in executive development. This researcher used a similar research design to that used for this thesis to conduct the Fortune project.

This researcher also serves as a consultant to a number of organizations on executive development. By providing more meaningful information for operating managers on issues relating to organizational transformation and leadership competencies required to compete successfully in the future, this researcher can add more value to these organizations. Therefore, one can see that this researcher's interest in this topic is long term and both conceptually based and applied in its orientation.

Definitions

Several key words and terms have been defined, since they appear a number of times throughout the study or they are key to understanding the processes used in the research methodology. The definitions are intended to serve as clarifiers of terms used, not as an attempt to create new definitions or challenge old assumptions.

Methodology Related Definitions

Pearson Product-Moment Correlation Coefficient/Correlation Coefficient/Correlation/r — This measures the association of two variables. If there is a perfect positive association between two responses (both are five), r equals 1.0. If there is a perfect negative association between two responses (one is five and the other is one), r equals -1.0. If there is a random relationship between two variables, r equals 0.0.

z'-value — This is a transformation of the r-value into a measure of the normal distribution curve, according to the following natural logarithm formula.

$$z' = 0.5 [\log_e (1+r) - \log_e (1-r)]$$

Since the z'-distribution is for all intents and purposes equal to the normal distribution curve, we can use the z'-values in the calculation of Chi square.

Chi-square Test — This will test whether the responses from the different culture groups can be considered as coming from the same population. The Chi-square value is calculated using the sample size, the r-value, and the z'-value for every group. The (n-3) value is n, or the number of respondents who answered all of the questions, minus 3, the number of degrees of freedom. The number of degrees of freedom equals the number of samples (four different cultural groups) minus one. The following is a sample Chi-square calculation for questions K1 and K2.

K1,K2 Section	r	z'	n-3	(n-3)z'	$(n-3)(z')^2$
US	0.126	0.127	53	6.714	0.850
Jap	0.131	0.132	26	3.426	0.451
UK	0.212	0.215	92	19.804	4.263
Multi	0.148	0.149	92	13.717	2.045
SUM	.0617	0.623	263	43.660	7.610

$$\text{Chi-square} = \sum (n-3)(z'^2) - \frac{[\sum (n-3)(z')]^2}{\sum (n-3)}$$

Analysis of Variance (ANOVA) — This was the statistical method used to test whether the three identified culture groups gave mean answers that were significantly different. ANOVA tests whether the variation (mean squared) between groups (US vs. Japan vs. UK) is much greater than the variation (mean squared) within each individual group.

F-ratio — This is the ratio of the between-groups mean square to the within-groups mean square.

p-value — This is the probability that such an F-ratio given above would have occurred due to chance alone.

Factor Analysis — This identifies groups of questions which tend to be intercorrelated (characterized by considerable positive correlations among them) but tend not to be correlated with questions outside the group. A statistical process for discovering underlying themes from a set of data generated.

- **Correlation Matrix** — This shows correlation between each variable and every other variable. It ranges from -1.00 (perfectly uncorrelated) to +1.00 (perfectly correlated).

- **Partials in off-diagonals and Squared Multiple R in diagonal** — The main diagonal indicates how much each of the other variables accounts for the variance in that variable.

Looking down the main diagonal, we can see how much of each variable can be explained by the other variables. However, the point of analysis is to find a small number of factors that explain the variance in a variable. With a large number of factors, we can explain anything.

The off-diagonals show the correlation between two variables when every other variable is held constant. Successful completion of this step is a signal that we should proceed with factor analysis.

- **Measures of Variable Sampling Adequacy** — a process of testing the variables to see if they are only randomly correlated with each other.

- **Eigenvalues and Proportion of Original Variance** — These are computed from the correlation matrix, with the same number of eigenvalues as original variables (questions on the survey). Each eigenvalue has a communality value which shows how much variance it shares with the other variables. We want the eigenvalues with high

communality values, because that means we can identify factors that explain the common variance in a lot of questions on the survey.

- **Unrotated Factor Matrix** — This is a rough draft of the final results.

- **Communality Summary** — This shows how well the Squared Multiple Correlations explain the common variance versus the other factors identified.

- **Orthogonal Transformation Solution/Varimax** — This is an attempt to achieve simple structure within the constraint that the factor axes must be at right angles to one another. A simple structure will allow us to identify and name the factors.

- **Oblique Solution Reference Structure** — This is the key to identifying and naming the factors. It shows the correlations between each factors and each variable.

- **Primary Intercorrelations** — This shows how the factors themselves are correlated with each other. This may prove useful in naming the factors.

- **Variable Complexity** — This shows how much each variable depends on more than one factor. Ideally, this should equal 1.

General Terms and Definitions

Human Resource Development (HRD) — the process of preparing a firm's workforce for the skills required to be effective in the present and the future. An HRD professional is an employee in the functional area of human resources who has responsibilities for identifying and developing the company's workforce skills requirements.

Competencies — the skills, attitudes, perceptions, traits, etc., that employees need to perform in their jobs effectively. "Critical competencies" are those competencies that are viewed as highly important for the individual's effectiveness and the company's success.

Organizational competencies are the "conditions" or collective capabilities of the workforce required for the company (or organizational unit in question) to be effective.

Organizational Learning — the capacity of the organization to experience both "adaptive" and "generative" learning (Senge, 1990), enabling it to both be responsive to a changing environment as well as stimulate and generate innovation. Organizational learning also suggests the capacity for "organizational self assessment", revitalization and renewal.

Learning Enriched Cultures — an environment in which learning has become integral to the execution of the firm's strategic vision. Learning has become an "operational given", practiced by top management and

"owned" by the workforce worldwide. Companies with learning enriched cultures have integrated their passion for continuous improvement with the day-to-day realities of their operating systems, such as human resource planning, compensation, career pathing and performance measurement.

Global Enterprise (global company, corporation, etc.) — a firm operating with a worldwide perspective and integrated systems to back it up. Global companies do not necessarily compete in all countries throughout the world, but they are prepared to do so, if it is in the best strategic interest of the firm. Global firms are usually characterized by a high degree of decentralization, with a strongly coordinated information center or regional centers. They may either have the capacity to produce global brands or the differentiation capabilities to produce products and services segmented to local markets and preferences.

Executive Development — this term will often be used as a general term to define the overall field of executive, management and human resource development. In its pure sense, executive development is concerned more with the identification and development of the top levels of management, usually the top 2% of the organization. However, it has become a term used more frequently by professionals in the field to characterize or define the field. As a general term, development may involve a number of methods, including education, assignments, critical events and relationships as approaches to preparing the individuals in question for current and future responsibilities (although the majority of the emphasis is placed on future responsibilities, as *training* concentrates more heavily on current responsibilities).

Executive Education — this term refers more specifically to the formal education process involved in the development of managers and executives within the firm. It may refer to both internal and external educational activities, although it usually refers to the sending out of managers and executives to universities.

Leadership Effectiveness — So much has been written about leadership effectiveness that it is useful for this researcher to lay out his own definition of the term.

"Leadership effectiveness is an *on-going process* of negotiating and sustaining a dominant *market share of the enthusiastic attention* of the organization and relationships with which one is involved."

The reference to *negotiation* is intended to convey a process of "give and take" and broad based participation, especially with those who hold a significant "market share" of organizational attention. To sustain a dominant leadership market share position requires high quality intelligence gathering capabilities, comprehensive communications mechanisms, a high degree of integrity, credibility and trust and a reasonable influence of resources and reward systems. Capturing the organization's enthusiastic attention requires the leader to offer a vision that serves as a map that is understandable, all inclusive and mutually beneficial.

Contemporary Organizations — in its most simple form, it is intended to mean well run organizations during the 90's. While it is not possible to

research the future, the respondents were asked to indicate their perceptions of what the key factors would be of contemporary, high performing organizations in the 90's and beyond. Again, it is the cross cultural perceptions that are being studied.

The Significance of the Research

This research was significant for the following reasons:

First, the research attempted to identify some common themes across geographic and cultural borders about the linkages between managers' perceptions of the changing organizational and individual competencies required for leadership effectiveness and their relationship to the changing nature of the external competitive environment. How did managers from the U.S., the U.K. and Japan view their external competitive environment to be changing and what changes did they see in their organizations and in their people in order for their firms to be successful in the coming decade? What common themes were identified? What key variances existed? Second, this researcher felt it would be most helpful to gather a comprehensive set of data on the issue surrounding the improvement of organizational and individual competencies. In order to do this, it was necessary to gather the managers' perceptions of changing organizational responses to the competitive environment and the changing nature of leadership competencies for individual effectiveness and data on the linkage between the firms' business strategies and their strategies for executive development. By itself, it serves as a useful approach for any manager or organization to explore the linkages between their firm's business

environment, their organizational responses and their most important leadership competencies. It is this process of exploration and discovery that served as the next significant reason for the research. The researcher has been able to create a survey tool and an interpretive process that serves as a forum for discussion for the companies using the instrument. The key points of discussion tend to focus on how the responding company's organization must change to address its critical strategic challenges, as identified through use of the survey instrument. It further serves as a means for the company to "audit" the variances between how important they feel a leadership competency is with their relative strength at performing in that competency area. This discussion helps to focus attention on the key competencies required for the firm to meet its new demands in a changing competitive arena.

Difficulties in Researching This Area

Several factors made conducting research in this area difficult:

The survey instrument was written and distributed in English and interpreted by an American researcher, so the document may have been difficult for the Japanese to understand and even some of the responses provided by the U.K. respondents may not have been fully understood by this researcher (although none of the respondents indicated that this was the case, the possibility exists). In the end, this is a study of perceptions and, by definition, perceptions are not "clear cut" and are subject to misinterpretation.

Second, drawing models and conclusions from perceptions of managers from various culture groups means that there is ample opportunity for further study as a follow on project by future researchers who may wish to further validate this type of work.

Third, because terms such as "leadership" and "change" and "culture" are not easily defined themselves, researching how to best prepare individuals and organizations to improve in these areas is a complex undertaking.

A Brief Overview of the Research Project

This researcher conducted a study on the perceptions of managers from a variety of cultures on the organizational capabilities and leadership competencies required for competitive success in a global economy. The total respondent population was 294, which included a sub-group of 199 managers from Japan, the U.K. and the U.S., who were formulated into "culture groups" for separate and further analyses.

All respondents were asked to identify the key factors impacting their competitive environments as well as the most significant changes taking place concerning organizational structure, decision making and culture as they related to these changing external factors. They were also asked to identify the most critical leadership competencies required within their workforce in order to execute their organization's strategies successfully. Additionally, participating companies indicated their perceptions of their firm's relative capability at performing in those skill areas previously identified as critical to successful strategy execution.

Further, respondents were asked to indicate their perspective on their firm's approach and methods of developing their executive talent as well as their views on how well linked their executive development strategy was to their firm's business strategy.

Chapter II

The Literature Review

Chapter II

The Literature Review

Review of the Literature: Overview

At its core, this thesis is concerned with tracking the perceptions of a sample of middle and senior managers from the U.S., the U.K. and Japan about how changes in the external competitive environment may change both the "organizational capabilities and leadership competencies" required for competitiveness and how well these managers feel their organizations are prepared to implement these changes in competency requirements.

However, as the thesis arguments deal heavily with the topics of cross cultural communications and the many related challenges facing managers in this complex competitive environment, the literature review covers the following main areas: cross cultural issues in managing, competitive strategies, leadership development, globalization, managing change and human resources development concerns. Further, since the thesis combined the more qualitative aspects of a "perceptual" study with the quantitative aspects stemming from an intensive analysis of the survey respondents, the discussion of the literature also includes a brief review these procedures and links them to the research methodologies and to the thesis arguments.

The Impact of Culture

It is fitting that the discussion of the literature for this thesis begins with the impact of culture because the entire study and many of its key findings were heavily influenced by a further analysis of the cross cultural perceptions of the respondents. Indeed, it provided the needed linkages among the research methodology, the thesis arguments, the results and the conclusions.

Hofstede's work (1980) helped to pave the way for researchers to assess the impacts of culture on decision making, communicating and cross cultural understanding. He helped researchers and practicing managers to see that there are no easy answers or unified solutions to the complex issues of managing in a multi cultural context by illustrating that we carry "mental programs" that are deeply rooted and reinforced by our families, our schools and by our various socializing institutions. His introduction of the concept of "culture groups" and his attempts to offer road maps for us by his categorization of tendencies toward "power distance", "uncertainty avoidance", "individualism" and "masculinity" have become the basis upon which much subsequent research on cross cultural issues have emerged. The work by Hofstede is particularly important because he not only focused on the issue of cross cultural communications from a content perspective but he also focused on the processes of merging qualitative perceptions with the quantitative methods of survey design and analysis (1980, 1990). In his earlier work (1980) he described the notion of "hologeistic" studies, or the studies that use statistical methods to determine the relationships among quantifiable variables across a number of cultures,

while in a more recent work on measuring organizational cultures (1990) he introduces a concept and a process for standardizing responses to "interpretive" questions. Hofstede's work links directly into a key component of this researcher's methodology by attempting to arrive at an acceptable "translation" of the responses from a variety of cultural perspectives, both for purposes of cross group analysis and for total group analysis.

A variety of important researchers complement Hofstede's foundations in various ways. Andre Laurent's work helps us to appreciate the importance of "leveraging" cultural difference for competitive advantage (1989, 1991). He explores the difficulties that managers face in attempting to achieve such leverage because of the barriers erected by our own cultural traits and orientations. Indeed, he submits that we often become confused and irritated when we observe that others do not behave as we would behave in certain situations, which furthers the blockage to cross cultural appreciation and understanding (1991). He goes on to stress that an important component of our being able to understand the orientation of others is to understand those components of ourselves that may be rooted in culture.

Before a general review of the literature is provided and the linkages made among the literature review (Chapter II), the thesis arguments (Chapter III) and the methodologies (Chapter IV), three additional researchers should be mentioned as having an important impact on this researcher's thinking and approach.

Differences in cultural orientation are being highlighted as critical, of course, because business organizations are competing much more extensively across borders. This almost appears to be a statement of the obvious but it is important to keep in mind that this was not always the case and that this relatively recent competitive reality is one of the reasons that topics such as "managing change", "managing diversity", "managing amidst ambiguity" and "managing transformation" have become household items in management development courses and boardroom discussions alike.

Hedlund's work on the multinational corporation (1977) called for a transformation of systems and structures as we knew them due to the increasing complexities brought on by changes in the external competitive environment. He issued a call for organizations to adapt more flexible structures, to revise their competitive strategies to include the elements of internationalization and to realize the importance that technological developments will play in the execution of such competitive strategies. This work laid the groundwork for additional and important research to be conducted in this field during the eighties (Bartlett and Goshal, 1987; Prahalad, 1989; Ohmae, 1989) and it laid an important foundation for the development of his own work on the "heterarchical" organization (1986), which described a new view of the modern corporation, including the focus on the notion of mutual dependency between the corporate center and subsidiary locations, the flow of information, people and other resources across borders and the development of complex networks. Indeed, this work not only influenced global strategists and observers of organizational structures but organizational behavior specialists as well. His work on the free flow of information and "knowledge transfer" can be seen in the later

works on organizational learning by researchers such as Senge (1990) and knowledge transfer by researchers such as Nonaka (1991).

And in the area of leadership development, Kakabadse stresses the issue of "competency clusters" and a "team view" of leadership (1991) that has enabled this researcher to look beyond a specific list of competencies required for competitive success or leadership effectiveness. Further, Kakabadse's notion of the tensions created by "splits in vision" serve as an important caution for those communicating missions, strategies and directions, as he stresses that these splits will result in reduced firm performance, poor management and lowered morale. This researcher took this message carefully and realized how much more likely managers were to misunderstand each other when separated by geography and cultural orientation. Attention to this issue resulted in special care given in the research methodology and it contributed to two of the thesis arguments.

Also in the area of leadership development, Kets de Vries' work had a profound impact on this researcher's approach. His work on the development of the global leader (1989) emphasizes the integration of skills, values and culture, within an assumed context of globalization, which seems to parallel the thrust of this researcher's work. He stresses that managers from a variety of cultures will work more effectively together if they internalize an operating set of values of their own as a group. To do this, he emphasizes that successful managers will need to develop a degree of "cultural adaptability". Additional traits or competency themes that Kets de Vries indicated include: a capacity for envisioning, the need to provide tangible meanings to the vision and mission stated, an ability to empower

others, a sensitivity to power and dependency — important to the development and management of complex networks, a sense of hardiness — needed to combat the stresses of doing business in the current complex competitive environment, the capacity to negotiate across cultures — important for building alliances, the ability to distill volumes of information and focus on the important and a sense of "internality" or the notion that one can control or at least exert a good deal of influence over one's life.

The researchers cited above certainly played an important role in shaping the foundation for this researcher's thesis. Their works influenced not only the research methodology but the thesis arguments and this researcher's interpretations of the findings and results of the research. However, many scholars and practitioners also influenced this researcher's thesis, and many of them will be cited in the following pages in a general review of the literature. This researcher read well over two hundred books, articles and working papers in preparation for the thesis. In addition, the literature review chapter will conclude with a reference to the research methods, as this serves as an important introduction to the thesis arguments, as well as the chapters on the methodology, discussions and conclusions.

A General Review of the Literature

Strategic and cultural changes appear to be impacting many factors in this increasingly complex competitive environment, so employees should learn to embrace change as a constant from this point on. It appears that leaders

in the 90's will manage organizations that are leaner, more responsive, more diverse and customer focused, all in an environment where high product quality is a given (Barham, 1989; Bartlett and Goshal, 1987; Drucker, 1988; Handy, 1990). And, for many companies competition will be on a transnational basis (Bartlett and Goshal, 1987).

Indeed, today's managers face unprecedented challenges due to the rapid economic, political, social and cultural changes taking place (Davidson, 1991; Davis, 1983) Organizations are experiencing a transformation of their competitive strategies, systems, style and operating assumptions (Handy, 1990; Kanter, 1983; Bartlett and Goshal, 1987). Competitors and collaborators now emerge not only from unanticipated industry segments but from virtually every geographic region in the world (Prahalad, 1989). Prahalad's reference to Honda's emergence in the automobile industry over the last two decades is a good example of a firm that gained strategic advantage in one industry from leveraging a core technology in a related segment (lawn mowers and motor cycles to cars). Few automobile manufacturers saw Honda as a significant threat in the early seventies.

Never before have pressures been so great to increase quality, improve cycle time yet reduce costs, all at a time when the competitive playing filed is shifting from a multi-domestic to a global focus (Hayes, Wheelwright, Clark, 1988). The need for emerging leaders in contemporary organizations to have broad based international experience is becoming well recognized as critical to the success of the enterprise (Barham, 1989; Korn Ferry & Columbia, 1989).

The focal point of this pressure is felt not only by the senior executive population but perhaps even more so by these emerging leaders at the mid-point of their careers. They are the functional, project and unit managers who serve as the interpreters and implementers of strategies that often are formulated at higher levels of management in their organizations (Kotter, 1988; Lawler, 1988). They will need to demonstrate the strategic capability and creative leadership required to gain the confidence of a rapidly changing workforce. They will need to create an entrepreneurial spirit in larger, more heavily structured organizations as their firms prepare to compete on less familiar terrain. They will need to think and behave like general managers, often without the formal authority of such a role.

These new roles and responsibilities being assumed by today's managers in this transformational environment, (Fombrun, Tichy and DeVanna, 1984) are serving to create a new understanding of the requirements for leadership effectiveness in the global enterprise. As these requirements begin to take shape, one thing is becoming increasingly clear — learning is one of the most powerful strategic weapons that an organization can have at its disposal in its quest for competitive advantage (Senge, 1990; Argyris, 1991; Stata, 1989). Learning is an important process for both individual and organizational development. *Organizational Learning* refers to a firm's internal environment concerning its capacity for growth, change and renewal (Argyris, 1991; Senge, 1990).

Previously, it was relatively easy for a firm to achieve some level of distinctive competence by focusing its strategic energies into a powerful, singular theme. IBM was known as the premier "solutions provider" for

its customer base. Toyota was known for its product reliability. Nordstrom dominated its retailing rival through superior customer service. Siemens prospered through a keen ability to integrate its technologies. The examples abound.

Today, however, a reliance on a narrow or singular competency inevitably will create a strategic vulnerability (Bartlett and Goshal, 1987; Porter, 1980). What real differentiation in the marketplace is created by being known solely for a capability in either quality, cycle time, customer service or technological innovation? The answer, of course, is very little. Rather, it is the integration of these competencies that is beginning to define what world class organizations will look like in the 90's and into the 21st century (Bartlett and Goshal, 1987; Porter, 1980).

Certainly, an organization that sets out to be all things to all people will risk working its way into oblivion. The challenge is to learn which capabilities, when integrated properly, will achieve a sustained competitive advantage over one's rivals (Bartlett and Goshal, 1987). Then as competitive forces change, so too must the organization demonstrate the flexibility to take advantage of these new opportunities (Bartlett and Goshal, 1987).

The most gifted strategists seem to maneuver the competitive playing field so that their unique strengths define the requirements for success in their particular segments (Prahalad, 1989). What better position to be in than to have your universe of competitors benchmarking your standards of excellence when you are the best in the world at what you do and are

totally dedicated to relentless continuous improvement and "organizational learning". While it has occasionally strayed from this course, IBM, for example, has enjoyed this strategic position for many years.

While broad based strategic capability, as discussed above, is important to competitive success, the ability to *execute* strategies effectively appears to be vital(Prahalad, 1989; Porter, 1980; Bartlett and Goshal, 1987). Strategies are executed successfully when an organization learns to integrate and leverage its resources to optimal advantage. Percey Barnevik, Chairman and CEO of ABB, discusses his firm's ability to leverage its diversity and knowledge of local markets to become an effective "Global/Local" company (Taylor, 1991). This is especially true when implementing complex global strategies, where issues such as regulatory differences, exchange rate fluctuations, labor policies, regional variance in customer preferences, global sourcing and transnational product development and quality standards are just a few of the variables that come into play (Taylor, 1991).

Some corporations appear to be learning how to better adapt their organizational capabilities to the external factors impacting their competitive environments. In so doing, these corporations are taking a fresh look at issues such as organizational structure, decision making, reporting relationships, skills requirements, rewards and operating style, to name a few. General Electric's Jack Welch, for example, has brought in a number of external change management consultants to help create what Welch calls a "boundaryless organization" through a project called "Workout". Welch felt a total paradigm shift (Barker, 1985) was required

to focus GE's managers world-wide on the increasing challenges and opportunities brought about by the emerging global economy. These consultants are helping managers within General Electric to question many of the basic operating assumptions that have guided the company over the past few decades. They are examining the utility of functional management and they are exploring operating much more in project and task teams. It is viewed that team competencies are an important criteria for strategic success for the future (Kakabadse, 1988; Senge, 1990).

As organizations begin to identify the key factors impacting their competitive environments, they seem to be initiating changes in organizational responses to this new reality (Drucker, 1988; Senge, 1990; Kakabadse, 1988). However, that is not enough. People make organizations "go" and therefore the major investment in strategic realignment is not in plant, equipment or new technologies, but may well be in human resources. Researchers are now realizing the danger in creating false expectations that things will soon stabilize and that this awkward period of tumultuous change will begin to settle down (Drucker, 1988; Senge, 1990; Kanter, 1983; Handy, 1990).

Embracing change enables managers to be receptive to learning new technologies, new skills and new ideas (Argyris, 1991; Senge, 1990). What do managers need to know about the external competitive environment? How should managers think about our organizations in such times of change? And what new skills, attitudes and perspectives will be important for the workforce to possess (Walker,1990)? And beyond these important issues, what *process of learning* will be most effective for organizations

and their people, so that they prosper instead of perish in these complex times (Argyris, 1991; Bolt, 1982)?

As more is learned about how organizations are adapting in response to changing competitive environments, managers and researchers indeed are learning more about the skills required to lead effectively in these times (Senge, 1990; Barham, 1989; Kakabadse, 1988; Kotter, 1988; Drucker, 1988; Ready, 1990). Tomorrow's leaders will be both the creators and products of the global age. They should demonstrate a facility for international affairs and global economic, political, cultural and social issues (Barham, 1989). They should be broadly educated, integrative thinkers, with an ability to aggregate and synthesize complex information into focused and clear decisions concerning strategy execution (Drucker, 1988; Argyris, 1991; Kotter, 1988). They should understand the importance of continuous improvement (Senge, 1990; Stata, 1989) and they will know how to learn from bosses, peers, subordinates, customers, suppliers and from business successes as well as business failures (McCall, 1988).

Given the unpredictable nature of their competitive environments, it might be assumed that these leaders will need to be highly effective at managing strategic and cultural change. Indeed, they will seek out change in systems, procedures, strategies, products, assignments and working relationships. They should be comfortable with new technologies and ideas (Senge, 1990; Handy, 1990; Kanter, 1983).

Researchers such as Bennis, (1985) and Kotter, (1988) have tended to focus on the concept of the "makeup" of the leader — a set of competencies to be developed which will result in leadership effectiveness. Researchers such as Lawler, (1988) Peters, (1987) and Walker, (1980, 1989) have tended to place a great deal of emphasis on organizational conditions that will result in a firm's strategic success.

However, researchers such as Barham, (1989) Bartlett and Goshal, (1987) Drucker, (1988) Handy, (1990) Kakabadse, Kets de Vries, (1989) Schein, (1983) and Senge, (1990) have begun to place increasing importance on the integration of organizational and individual competencies as the key to sustained competitive advantage and leadership effectiveness.

It is not new thinking that leading firms are those who are in touch with their external competitive environments. To the best of this researcher's knowledge, this has always been an important criterion for success. It is also not new thinking that organizations must adapt to their changing environments, as Greiner, (1972) Walker (1980) and others have been supporting this concept for many years.

One of the most destabilizing aspects of our current competitive environment is the adverse impact that uncertainty places on formulating competitive strategies (Hamel, Prahalad, 1989). Leading recent competitive strategy literature created models that placed emphasis on managing ambiguity and uncertainty (Kets de Vries,1989), while some stressed common categories of competitive strategies, (Porter, 1980).

What is certainly more clear now is that globalization has created a world without borders (Ohmae, 1989, Bartlett and Goshal, 1987, Barham, 1989) and that leading industrialized nations, such as the United States, had better take stock of their competitive position and focus their energies on critical areas for improvement (Dertouzos, 1989). This emphasis on focusing critical resources seems particularly important at this stage, because companies and countries are learning how to compete along new dimensions, such as time (Stalk, 1988) and this is creating a new set of rules of competitive engagement (Hamel, Prahalad, 1989, Taylor, 1991). More frightening still, some researchers submit that competitive strategies of the future will be waged along dimensions that are currently not even within our conceptual frameworks (Davis, 1987).

By competing in an uncertain environment and being forced to manage multiple factors such as time, cost, quality, technology and globalization, forward thinking companies have begun to think about new organizational forms and structures to deal effectively with this changes atmosphere (Barham, 1989, Bower, 1988; Davis, 1987; Dertouzos, 1989; Drucker, 1989, Senge, 1990). Bower (1988) indicates that organizations will engage and disengage more frequently and become more project and customer focused. Drucker (1988) submits that the organization of the future will more closely resemble an orchestra than a corporate organizational chart, due to the high degree of knowledge workers in the organization of the future.

These changes in organizational form, structure, style and strategy are impacting on roles that managers are performing in their organizations

(Kakabadse, 1988). Certainly more than ever before, managers seem to be operating in a global environment and this is causing them to become citizens of the world (Sanders, 1988, Taylor, 1991). They should be future oriented strategic vision builders (Kotter, 1988; Davis, 1987; Walker, 1989). And they should help manage their corporations through significant stages of change (Kanter, 1983; Bower, 1988; Peters, 1987), yet it appears they must accomplish this with a strong influence broker's approach (Kotter, 1988; Drucker, 1989).

Contemporary managers perform at least two more critical roles in their organizations. They serve as mentors or developers of talent (Kram, 1988; Hall, 1986; McCall, 1988) within their units, but they must also serve as highly effective integrators (Drucker, 1988) and implementers of complex strategies (Miller, Roth, 1989; Hayes, Wheelright, Clark, 1988).

These changes in environmental factors, organizational forms and competitive strategies and evolving managerial roles appear to be creating a new set of skills requirements for leadership effectiveness. To name a few, managers should be comfortable with an integrated team approach to problem solving (Kakabadse, 1988; Dainty; Kotter, 1988; Ulrich). They should have the skill to learn how to learn (Knowles, 1977; Hayes, Wheelwright, Clark, 1988). They should be highly flexible and adaptive (Kanter, 1983; Bower, 1988) and they should know how to structure developmental job assignments in order to provide as much challenge as possible for their new breed of work force (McCall, 1988; Hall, 1986; Magerison, Kakabadse, 1988). Further, they should understand how to plan for human resources requirements in a changing environment

(Walker, 1989, 1980; Ulrich, 1986, 1987; Bolt, 1982). And they should be comfortable integrating new technologies and new information into their operating strategies (Dertouzos, 1989). And of great interest to forward thinking organizations is the notion of mental imaging and managing one's self regard or an important component of leadership development (Bennis, Nanus, 1985).

Literature That Influenced the Research Methodology

While the general review of the literature was important for building a strong conceptual foundation for the researcher to cultivate increased depth in the content-driven aspects of the research, it was also important to develop increased capabilities in the processes used to analyze both qualitative and quantitative data. This emphasis also generated a sense of confidence that the methods used and the results produced will hold up to intense scrutiny by other researchers and scholars.

Harman's work in the area of factor analysis (1976) provided an important foundation for viewing the research as a continuum by showing this researcher the importance of searching for underlying themes in the volumes of data that are often generated by survey research. Harman's work served as a "tutorial" by offering understandable examples of variance, correlations and clustering.

And Gorsuch's important work in factor analysis (1983) enabled this researcher to probe deeper into the quantitative aspects of the research. His demonstration of a .30 minimum for correlations between variables

and the emergence of factors in the Oblique Solution Reference Structure served as a reference point for this researcher in the process of identifying the factors.

Concerning the development of the survey instrument itself, the works of Miller and Roth (1988, 1989) influenced this researcher's survey design in important ways. Their work focused on manufacturing managers' perceptions of their changing environment and the changes that the respondents felt would be required for improved manufacturing effectiveness. Further, they introduced the concepts of gap analysis ("strength vs importance" and variance of given variables) in their work, which guided a key part of this researcher's survey in the area of leadership competitive capabilities. Their publications are based on a ten years of research in this area.

And finally, Hofstede's work on measuring organizational cultures (1990) provided a valuable reference point for this researcher to better understand how to merge the qualitative and quantitative aspects of research into a coherent message. Hofstede's work illustrated the feasibility of "translating" the responses of various "culture groups" by generating a "grand mean" and relating the culture group's mean to the mean of the means, thereby identifying a particular culture group's "handicap", as it relates to the entire respondent group's responses. This work served as an important reference point for this researcher to pursue his factor analysis and to identify differences in responses due to culture <u>after</u> the data were adjusted for cultural bias.

The comprehensive literature review, taken as a whole, helped substantially to drive the research methods, to develop and refine the thesis arguments and to help with a careful interpretation of the results of the findings.

Gaps in the Literature

A great deal has been written about the changing competitive environment, organizational transformation and leadership development. Often, these subjects are written about in isolation of one another and they are rarely linked with the complexities of the cross cultural context. Yet there is relatively little in the way of effectiveness research concerning the processes of development, the building of organizational capabilities and the challenge of improving competitiveness. To the best of this researcher's knowledge, there is no definitive study that points to the linkages between development and firm performance. And there appears to be little more than anecdotal evidence (Taylor, 1991) that attention to cultural difference really impacts a firm's competitive position, although the prevailing wisdom is that it matters a great deal. The issue is that, at present, we do not have sufficient data to confirm these assumptions completely.

This research will not solve this problem yet it should provide additional momentum to the notion that managers from different cultures do, indeed, think and behave differently from their counterparts in some ways. It should help us to better understand that because of these differences we should not look to singular approaches to addressing complex management problems. Yet it should also enable us to see that there are areas of

"common ground" concerning managerial concerns which can serve as a starting point for building and sustaining more of an "international mindset" throughout our organizations. And it should certainly point to the importance of thorough and iterative communications, especially when dealing with a diverse group, because we are learning that technical comprehension of the words does not necessarily mean that understanding has been reached. This research intends to address some of these points but there will still be significant advances to be made from here.

Chapter III

The Thesis Arguments

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The Thesis Arguments

This thesis consists of three closely related thesis arguments:

Thesis Argument I: Managers from different cultural orientations tend to look at competitive, organizational and leadership challenges differently due to their cultural orientation or "mapping".

Thesis Argument II: Even though it appears that managers from various cultures may have different cultural maps, it is possible to find a multi-cultural "common ground" concerning the organizational capabilities and leadership competencies perceived as critical for competitiveness in the 90's.

Thesis Argument III: The perceived challenge for senior managers in the 90's is managing the tensions and processes of transformation and change resulting from attempts to develop a shared meaning of the company's vision, balanced by an operating culture that encourages substantial differences in perspectives.

Background to the Thesis Arguments

As indicated in both the introduction and the review of the literature, this thesis and its main arguments have evolved from this researcher developing a perspective on what is known and where gaps exist concerning the areas

of competitive dynamics, organizational change and transformation, leadership and executive development, strategic human resources management and measuring cultural differences. Again, as indicated, there seems to be significant resources devoted to the areas of human resources management and even leadership and organizational development from a generic perspective, so this researcher's interest focused more carefully on the cross-cultural dynamics of developing organizational capabilities and leadership competencies to achieve competitiveness.

Therefore, the first thesis argument deals with the issue of culturally-based differences. Is there such a thing? Can we identify such culturally-based differences readily and scientifically, or are we forced to deal from intuitive perceptions? If we can "prove" that these culturally-based differences exist, what does it matter? What is the relevance of such findings? Beyond scholarly pursuits, will this body of knowledge improve the practicing manager's ability to be effective?

The second thesis argument deals with the issue of "common ground". If the first thesis argument is "proven", does this mean that managers from different cultures disagree on everything? Is it impossible to find any important basis for agreement? This argument suggests that this is not the case. It goes on to suggest that the researcher has identified such areas of "common ground" concerning organizational capabilities and leadership competencies as a result of carefully analyzing the data from the three culture groups and by conducting an extensive factor analysis of all of the respondents. Chapters V, VI and VII will deal with the specifics of the analysis of these data in great depth.

The third thesis argument deals with the importance of balancing the tensions that arise while trying to manage differences — differences in perspective, differences in vision, differences in values, differences in approaches and many others. This researcher suggests that, given some of the findings that will emerge in support of thesis argument two, that tension is a natural, almost inevitable product of managing in complex times. This researcher suggests that avoiding or fighting these natural tensions may prove to be counter productive and that it appears to be more advisable to manage these tensions and even leverage them to the organization's advantage.

Value and Benefits of This Research

One of the key benefits of this research is that it should improve our understanding of managing complexity in the context of multi-culturalism. Managers of contemporary organizations realize the importance of managing complexity and managing diversity, but this researcher will show that realizing the importance of an issue and being capable of doing something about it might well be two different things. As multi-regional and global competition increases, it can be assumed that complexity will increase, as will the amount of competition and partnerships that will take place across borders. With an improved understanding of cultural orientation, the "language" of culture, and an appreciation of the notion of differences in perspectives, practicing managers might better understand how to manage more effectively, thereby improving competitiveness and researchers might well develop improved models and frameworks for

improving approaches to managing within the context of multi-culturalism and diversity.

Related to the above point, this research should provide benefits to those interested in studying the management of transformation and change. Certainly, the research will support the notion that managing strategic change remains as one of the more difficult challenges facing practicing managers today. And a number of the findings from the research seem to indicate that transformation is not too strong a term for what is needed in order for organizations to be competitive for the future. The research will focus on the management of change both as a leadership competency and as a management and organizational process.

Following this point, another benefit of this research is that it should add considerably to our understanding of the perceived organizational capabilities and leadership competencies for competitiveness from the perspectives of managers from several different cultures. There appears to be a great deal of interest in the area understanding the competencies required for leadership effectiveness in today's complex times. Similarly, there is a good deal of interest in understanding the most effective organizational capabilities for competing in the 90's and beyond. This research should add to our understanding of these related areas and add the multi-cultural context that this researcher feels is key to a more comprehensive understanding of the subject matter. This researcher does not mean to be prescriptive in any way by indicating the stated organizational capabilities and leadership competencies. In fact, mention is made of the term "competency themes" to underline the notion that these

capabilities and competencies are the perceptions of a select group of managers. It is likely that organizational capabilities and leadership competency requirements will change over time. While this researcher wishes to place some emphasis on these areas, he feels the process of discovering these capabilities and competencies is at least as important of a learning point.

Another key benefit of this research is that, while it focuses most of its attention on the future, it also serves to reinforce a very fundamental idea: the importance of effective communications. Not only will the research show that *communicate effectively* is a highly rated perceived leadership competency requirement but massaging the data and conducting the factor analysis reveals that communicating the vision and values throughout the organization is a key to competitive success.

Related to the above point, another benefit is understanding that many of the "natural tensions" caused by managing in such highly turbulent times will be dealt with more effectively when they are managed rather than ignored. There is a certain increased feeling of "raw tension" when trying to negotiate with someone from a different culture or when trying to run a multi-cultural meeting. The tensions can only be intensified if one is trying to manage multi-cultural perspectives to craft a vision for a company that does business around the world. And those tensions do not lessen when one is trying to communicate that vision to employees around the world. And to make matters more complex, leaders of contemporary organizations are trying to find a balance between generating "shared meaning" from a broad

based vision yet encouraging differences in perspectives, styles, approaches and procedures.

These benefits should provide value for both researchers and practicing managers. The value for researchers in this area is that it should pave the way for additional research in the areas of managing cross-cultural tensions, the further identification of important organizational capabilities and leadership competencies and in effectiveness research. The value for practicing managers is in working with the initial findings concerning capabilities and competencies and in appreciating the notion of balancing the trade-offs between shared vision and leveraging diversity.

In the following pages, this researcher will provide a very brief outline for each of the three thesis arguments as an introduction to the research methodology chapter.

Thesis Argument I

Managers from different cultural orientations tend to look at competitive, organizational and leadership challenges differently due to their cultural orientation or "mapping".

Premise

The review of the literature illustrated that scholars such as Hofstede, Laurent and Hedlund pointed to identifiable differences in perspective based upon cultural orientation. This argument carries this notion to the

framework of postulating competitive dynamics, organizational capabilities and leadership competencies required for competitive success in the 90's and into the 21st century.

The research will show that the various "culture groups" did respond differently to the questions in the survey. Starting independently but then drawing upon Hofstede's work mentioned in the literature review the researcher illustrates how the culture groups were weighted or "handicapped" to allow for cultural bias yet still showed a substantial difference in their responses to the questions due to their cultural maps.

Thesis Argument II:

Even though it appears that managers from various cultures may have different cultural maps, it is possible to find a multi-cultural "common ground" concerning the organizational capabilities and leadership competencies perceived as critical for competitiveness in the 90's.

Premise

Influenced by scholars such as Kets de Vries, Hofstede (as illustrated in the literature review) and Tyson (in his excellent writings on comparative studies of international human resources practices), this researcher sought to illustrate that even though managers from various culture groups may hold different views toward the competitive environment, organizational capabilities and leadership competencies in some instances, that these various culture groups do tend to agree in certain core areas concerning

competitive dynamics, organizational capabilities and leadership competencies.

This researcher indicates how these areas of agreement are termed "multi-cultural common ground" and they may serve as a basis for further exploration and discussion on issues such as designing the "global corporation" or developing the "international manager".

While dangers do exist for outlining prescriptions for specific competency requirements given such times of change, it does appear possible to craft some frameworks which may serve as important foundations for practicing managers and researchers alike.

This researcher will support thesis argument two by a variety of means, including an illustration of the findings from the analysis of the data, as well as the interpretations of the factor analysis.

In a sense, the first and second thesis arguments serve as introductions to the third argument, in that they establish the foundation for appreciating and embracing a competitive environment marked by change, ambiguity and natural tensions.

Thesis Argument III:

The perceived challenge for senior managers in the 90's is managing the tensions and processes of transformation and change resulting from

attempts to develop a shared meaning of the company's vision, balanced by an operating culture that encourages substantial differences in perspectives.

Premise

As indicated in the review of the literature, scholars such as Kakabadse, Hofstede, Kets de Vries and Laurent influenced this researcher to postulate that the tensions caused by managing in such turbulent times are less "problems to be solved" than they are "processes to be managed".

The researcher suggests that these tensions are natural tensions, caused by attempting to merge the views of diverse culture groups and that the tensions are heightened further by attempting to balance the concepts of shared vision with distinctive cultural identity.

The researcher will go on to suggest that the integration of the findings in support of these three arguments will illustrate the importance of this work in areas such as pursuing effective and extensive communications as one means of improving understanding of cross cultural differences, understanding approaches toward the management of change, the development of shared vision — but one that allows for individual meaning to be drawn from it, the resolution of culturally based conflicts, the development of more adaptive organizations, as well as the development of more effective leaders in this changing competitive environment.

The following chapter illustrates the methods used to conduct this research, provides an indication for why these methods were chosen and links the methods both to the thesis arguments and to the review of the literature.

Chapter IV

The Research Methodology

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The Research Methodology

Description of Methods

The primary method used to gather and analyze the data in the research was a survey questionnaire. The survey tool went through a number of revisions both before, during and after the main research was conducted. However, in most cases, the survey tool was supplemented with group discussions with those who filled out the survey, which should help add some more perspective to the data.

Evolution of the Methods

While the instrument used in the research was modified as improvements were made, the process used varied very little. In each case, with the exception of the initial pilot survey, the respondents were asked to examine their key factors in their competitive environment and then assess what kind of organization they felt would be needed to be a "contemporary, high performing" organization over the next decade and then explore the key competencies which will be required for leadership effectiveness during the 90's (with an accompanying section which served as a leadership audit, since it asked the respondents to rate their firm's effectiveness in each of the competency areas listed). All regional responses (U.S., U.K. and Japanese data) included this section as well as the data on linking HRD strategies to their firms' business strategies.

Steps in the Evolution of the Research

While some of the steps took place simultaneously, the research process followed approximately the following path:

- **Step 1:** A pilot study was done on 100 human resources managers from the New England (USA) area. The focus of this study was to gain a better understanding of the professional development needs of the human resources community. The researcher initially felt that this would be the target group for the research. However, as the researcher's thinking progressed, it became more clear that operating managers within companies should have significant "human resource" related responsibilities and, in a sense, that such human resource development related issues were too important to leave to human resources professionals alone.

- **Step 2:** A draft survey was then put together and sent out to the U.S. company representatives in the sample. The thirty member companies of the researcher's Executive Development Roundtable were used to distribute the surveys to operating managers within their firms. In addition to these companies, the researcher used both a proprietary database as well as survey responses from a "high potential" group of managers from Southwestern Bell Corporation.

The initial U.K. representatives were secured through Cranfield, by using the Executive MBA class. Additional respondents from the U.K. were used

by including survey respondents from the Woolwich Building Society and companies that have worked with Kent County Council.

The Japanese representatives were secured through Waseda University, using their Executive MBA class as well. In most cases, the researcher had the opportunity to discuss the findings with the respondents and references to these discussions will be made in Chapters V and VI.

In all, the respondent group totaled 294 responses. However, for purposes of establishing the "culture groups", the respondent population was broken down into two groups: separate culture groups of U.S. (65 respondents), U.K. (96 respondents) and Japanese (38 respondents), or a total of 199 managers within the culture groups. The other 95 respondents were already classified as culturally mixed because they were taken from an internationally diverse pool of respondents from a Penn State Executive Program and from a well balanced mix of executives from Pepsico International.

Because they were easily identifiable as coming from distinct culture groups, the 199 managers were used as the basis of analysis to determine whether the respondents gave answers to the survey that appeared to be culturally based after adjustments (or handicaps) were made by using the methods similar to Hofstede's, as discussed in the literature review. The total respondent group of 294 served as the basis for analysis for the factor analysis, as the respondents were then able to be analyzed as a group.

Formatting the Data

In order to quantify and qualify the answers that were received, the data for the draft survey was originally formatted and calculated on the Microsoft Excel program for the Macintosh. This data was set up, on a spreadsheet, following the exact format of the survey that was created. The vertical column of cells along the left side of the first page indicate the number of the survey. The horizontal row along the top of every page represents the survey questions.

This researcher analyzed the responses using this draft survey and, upon the recommendation of the researcher's thesis committee, engaged in an additional level of analysis to ensure that the questionnaire was valid and that the proper statistical procedures, such as a factor analysis, were conducted to search for underlying themes within the data. Per the recommendation of Professor Ottaway, the researcher's external examiner, the researcher engaged in both an additional reading program and an intensive "tutorial" in order to grasp the intricate details of survey validation and factor analysis. During the first half of 1992 this researcher participated in more than twenty meetings with an advisor to learn about quantitative analysis. This advisor holds the PhD in Quantitative Methods from Princeton University. The advisor also provided the researcher with a number of books and articles to read on quantitative methods and factor analysis. This entire process, while time consuming and detailed, proved to be of enormous value to this researcher, not only for the purposes of this study but for the balance of his professional career.

Every questionnaire was re-entered into the computer again, this time using a StatView Plus program, as some of the data had not been entered for the draft analysis. The process of conducting the reliability analysis for the validation of the questionnaire resulting in "weeding out" 31 of the original 134 questions in the draft survey. This left the survey with 103 questions, but now the questions were "strong" questions for the final analysis.

The Questionnaire: Introduction

The method of data collection did not require a geographic sort, because all of the U.K. and Japanese responses were collected together. No responses were sought from smaller firms. The researcher was more interested in examining responses from relatively larger, more complex firms.

Key Factors Impacting An Organization's Competitive Environment

This part of the tool made it possible for firms to identify common environmental factors that are viewed as having a high degree of impact of their competitive environment.

There should be value in enabling managers to understand and state the array of factors that are impacting their competitive environment. This value should be increased even more if multiple managers from the same company were to fill out the assessment tool. This should help to highlight similarities in responses as well as identify areas of disagreement and

confusion. The value should be enhanced even greater after a considerable data base is established by this researcher to compare and contrast responses of the company in question with the broader data base, in future research.

Contemporary Organizations in the Year 2000

This part of the tool made it possible to look at agreement on several key factors about the changing nature of contemporary organizations as we look to the 21st century.

It should be valuable for managers to reflect upon how various factors in their competitive environment are changing the structure, form and style of organizations as we head toward the 21st century. By exploring the relationship between these factors and the changing nature of organizations it should be easier to accept and embrace change through an enhanced understanding of its roots.

Again, this data should serve as a valuable communication tool among managers when the assessment tool is completed by multiple managers in a company.

Leadership Competitive Capabilities Profile

The assessment tool should help managers to track the stated importance of managerial skill areas to a firm's strategy and the firm's current strength providing those skills.

After exploring the factors impacting a firm's competitive environment, the changing nature of organizations and changing managerial competencies required to be effective leaders in the future, it should also be important for the firm to assess its current strength in developing those future oriented skills requirements. When gaps are discovered (between important skill areas and the firm's ability to develop those skills), this should serve as a useful "road map" for a skills development agenda.

Executive/Management Development Philosophy

This part of the tool enabled respondents to reflect on their firm's approaches to and methods of developing their managerial and executive talent.

This should be a useful component of the tool because it should begin to clarify the process of developing the firm's future leadership. It also should begin to highlight any conflicts or differences in perspective re: the process of development if the tool were to be filled out by a group of respondents from the same company.

Executive/Management Development Strategy

This part of the assessment tool enabled operating managers to determine how well linked their executive and management development strategies were to their firm's business strategy.

This exercise should be helpful in clarifying the HRD needs and priorities for operating managers.

Statistical Procedures

I. Assessing the Validity of the Questions

In conducting a reliability analysis for the validation of the questionnaire, the desired outcome is to retain only the strong and useful questions. For purposes of this process, the following assumptions were outlined. Questions would be considered weak if:

1. Respondents indicated they did not understand the question, or could not agree on the answer, or did not group themselves into two schools of thought.

   This researcher could test for this by looking for either flat distributions (20% of the people answer each 1,2,3,4, and 5) or for a random distribution of answers.

2. The question addresses the same issue as another question (ex., highly centralized versus highly decentralized).

   This researcher could test for this by looking for questions that ask the same question — one asks the respondents the exact opposite of the other, yet both ask the respondent to rate their response.

To test for flat distributions, this researcher added the percentage who provided the most common answer with the percentage who answered this second most common answer. If this added up to greater than 60%, then this researcher kept the question. If the distribution were flat, the sum would be 40%.

To test for overlapping questions, this researcher calculated the Pearson product-moment correlation ("r") between each answer and every other answer to every question in the survey. When these values were practically significant, or greater than 0.50, this researcher retained only one question from the pair.

The **Pearson product moment correlation** or simply correlation coefficient (hereafter referred to as "r") measures the association of two variables. If there is a perfect positive association between responses (both are five), r equals 1.0. If there is a perfect negative association between two responses (one is five and the other is one), r equals -1.0. If there is a random relationship between two variables, r equals 0.0.

II. Cultural Differences

This researcher discovered what appeared to be culturally-based differences in how the respondents answered, especially in questions where the mean answer was at least "3", indicating ratings of great impact, indications of agreement, high importance, or great strength. This researcher found that the means for American respondents were

significantly more extreme (closer to 5) than those of the Japanese and British ones.

This researcher had to "translate" the data from all three cultures into the same "language", so that all of the numbers were on a similar scale. To do this, this researcher needed to handicap, very similar to Hofstede's process mentioned in the literature review, the answers through the method outlined below.

1. The means of the mean answers for each culture group follows:

US	3.845
Japanese	3.545
UK	3.627

2. This researcher needed to analyze each section of questions separately. For example, in the Key Factors section, the following is the mean of the responses in that section for each cultural group:

US	3.907
Japanese	3.636
UK	3.542

3. The mean of the means listed above is 3.695.

4. The difference between each of the means and the mean of the means will yield the adjustment factor for each culture group.

3.907 - 3.695 = 0.212 = the adjustment factor for US ratings

3.636 - 3.695 = -0.059 = the adjustment factor for Japanese ratings

3.542 - 3.695 = -0.153 = the adjustment factor for UK ratings

Again, reference should be made to Hofstede's work on managing organizational cultures as an additional means of substantiating this process.

5. To generate adjusted ratings in each culture group, subtract the adjustment factor from each person's rating for all questions where the mean is at least three.

Summary of the Reliability Analysis for the Validation of the Questionnaire

In conclusion, this researcher narrowed the questionnaire down to the best questions — those with lower variances (hence greater agreement by respondents) and those with less overlap (fewer repetitive questions).

This researcher then handicapped the three culture groups so that they speak the same "language." Since people from a certain culture may have a higher propensity to check extreme answers, we can standardize the responses by adding or subtracting points from the answers. This will allow us to compare the responses despite the fact that they come from different culture groups.

To do this, this researcher took the responses of each of the three culture groups within each major section and computed the means for each group. This researcher then calculated the means of the three means of each major section. From these means of the means, this researcher subtracted the original mean for each cultural group. This number is the adjustment factor or handicap for each culture group within each section. We add or subtract this handicap from each response to translate all of the responses into a common language.

This procedure was only used where the means of the responses were equal to or greater than three. This is because responses where the mean was less than three showed no significant intercultural differences. Using this procedure does not mean that all of the responses now have the same average, it means that the three cultural groups have the same average within each major section.

- **Can we combine the three groups as one population?**

One question which we must determine is whether we can combine the three culture groups as one population. If each culture group has a different pattern of response, for example one always answers positively while another answers randomly, we cannot combine the groups. To test for this, this researcher compared the responses to each question to those of every other question, testing for the correlation ("r" discussed above) between the two. An r or correlation coefficient of one means that the answers are perfectly correlated, while a correlation of zero means that the answers are uncorrelated. This researcher calculated the r values for every

two responses within every culture group. This researcher then had to test whether these four r's for every pair of questions could be considered as coming from the same population.

This researcher needed to test whether the r's for each culture are significantly different. If they were significantly different, then we could not combine the culture groups into a large sample. To test the r's, this researcher used the Chi-square analysis. This involves changing each correlation coefficient r to a z value (measure of distribution curve) according to the formula and definition described below.

The **z'-value** is a transformation of the r-value into a measure of the normal distribution curve, according to the following natural logarithm formula.

$$z' = 0.5 [\log_e (1+r) - \log_e (1-r)]$$

Since the z'-distribution is for all intents and purposes equal to the normal distribution curve, we can use the z'-values in the calculation of Chi-square.

With this z value and the n number of respondents, we can calculate a Chi-square value, defined below, which can be compared to a 7.815 threshold level defined below. If Chi-square is equal to or greater than 7.815, then there is a significant difference among cultures and we cannot combine the groups into one large sample. (Reference: "Testing Hypotheses about

Correlation Coefficients" , chapter in Allen L. Edwards' *Experimental Design in Psychological Research*, Rinehart & Company).

This **Chi-square test** will test whether the responses from the different culture groups can be considered as coming from the same population. The Chi-square value is calculated using the sample size, the r-value, and the z'-value for every group. The (n-3) value is n, or the number of respondents who answered all of the questions, minus 3, the number of degrees of freedom. The number of degrees of freedom equals the number of samples (four different cultural groups) minus one. The following is a sample Chi-square calculation for questions K1 and K2.

K1,K2

Section	**r**	**z'**	**n-3**	**(n-3)z'**	**$(n-3)(z')^2$**
US	0.126	0.127	53	6.714	0.850
Japan	0.131	0.132	26	3.426	0.451
UK	0.212	0.215	92	19.804	4.263
Multi	0.148	0.149	92	13.717	2.045
SUM	.0617	0.623	263	43.660	7.610

$$\text{Chi-square} = \sum (n-3)(z'^2) - \frac{[\sum (n-3)(z')]^2}{\sum (n-3)}$$

This researcher compared this value to the critical value found on the Chi-square table. Based on three degrees of freedom and a 95% significance level, our critical Chi-square value was 7.815. If the calculated value was

greater than or equal to 7.815, then the four r's were considered as coming from different groups.

We know from Gorsuch and Harman that by chance, five percent of the responses will show significant differences among cultures. We would only combine the cultural groups if less than twenty percent of the responses show a significant difference among cultural groups. We found that 10.66% of the responses showed a significant difference among cultures, below the set threshold of twenty percent. We can therefore combine the culture groups and perform a factor analysis of the data.

- **See Appendices for "Cultural Differences, Adjusted Data, 6/1/92"**

In the compilation of the culturally adjusted data, each page of the analysis represents an analysis of variance for each of the 103 questions in the survey. Note that there are three subtables on each page of the packet.

Some key terms on those pages include:

- **Analysis of Variance (ANOVA)** — This was the statistical method used to test whether the three identified culture groups gave mean answers that were significantly different. ANOVA tests whether the variation (mean squared) between groups (US vs. Japan vs. UK) is much greater than the variation (mean squared) within each individual group.

- **F-ratio** — This is the ratio of the between-groups mean square to the within-groups mean square. For example, for K1, the F-ratio is 4.683 to 1.325 (from the information given on the K1 page of "Cultural Differences, Adjusted Data, 6/1/92) or 3.535.

- **p-value** — This is the probability that such an F-ratio given above would have occurred due to chance alone. If p is less than 0.05, we consider that there are significant differences among the culture groups. We should therefore ignore any question where p is 0.05 or larger, as that means that the result could have been due to chance alone.

On each page, we should look for the following things:

- p value (again, we want p less than or equal to 0.05)

After this researcher adjusted the scores for the cultural language differences, we wanted to discover whether there are still differences between cultures. If differences remain, they are differences in reacting to the substance of the question, not their own cultural biases. The p value shows the probability that chance alone is operating. We want a small p value, equal to or less than 0.05, to show that the result is <u>not</u> due to chance.

This researcher found that 36 of the 103 variables showed a p value equal to or less than 0.05, where there are significant differences among the culture groups.

(See appendices for the p values which were equal to or less than 0.05. After identifying those questions with a low p value, this researcher had to determine where those cultural differences lie. To do that, one should look at the third subtable under the Fisher PLSD test. If the mean differences between two culture groups are significant at the 95% significance level, there will be an asterisk next to the value under the Fisher PLSD test, meaning that that cultural difference is significant at the 95% confidence level and is <u>not</u> due to chance).

We can now move on to Factor Analysis.

Summary of Factor Analysis

Factor analysis is essentially an attempt to identify underlying themes (or factors) which explain the correlations between different variables. After the reliability analysis for the validation of the questionnaire, this researcher, upon the recommendation of the thesis committee, took up the process of factor analysis to search for clustering or themes. In all, ten steps comprised the process of preparing and executing the factor analysis. These steps are listed below.

Step 1 — <u>Correlation Matrix</u>

This shows correlation between each variable and every other variable. It ranges from -1.00 (perfectly uncorrelated) to +1.00 (perfectly correlated).

Step 2 — <u>Partials in off-diagonals and Squared Multiple R in diagonal</u>

- The main diagonal indicates how much each of the other variables (questions in the questionnaire) accounts for the variance in that variable.

(Example: In square [K1,K1], the other variables account for 46.8% of the variance in K1. That is, we could use the other variables to explain 46.8% of the variance in K1.)

Looking down the main diagonal, we can see how much of each variable can be explained by the other variables. <u>However, the point of analysis is to find a small number of factors that explain the variance in a variable</u>.

- The off-diagonals show the correlation between two variables when every other variable is held constant. These correlations are much lower than the correlations found in the first step, when we did not hold the other variables constant.

Step 2 shows that we should proceed with factor analysis. This is because a matrix is ideal for factor analysis if:

a. there is a lot of shared variance among the variables; and

b. if most of the variance shared between any two variables is also shared with other variables in the matrix.

The squared multiple R's in the main diagonal address item 1. If they are sizable, then we should proceed.

The partials in the off diagonals address item 2. In this case, these partial correlations should be low to proceed with factor analysis.

Step 3 — <u>Measures of Variable Sampling Adequacy</u>

This researcher then had to test the variables to see if they were only randomly correlated with each other. This researcher found this <u>not</u> to be true.

This also corroborated the conclusion that we should proceed with the factor analysis. In other words, the variables were correlated with each other in some non-random way (they were <u>not</u> randomly correlated with each other.)

Step 4 — <u>Eigenvalues and Proportion of Original Variance</u>

These were computed from the correlation matrix, with the same number of eigenvalues as original variables (questions on the survey). Each eigenvalue has a communality value which shows how much variance it shares with the other variables. We want the

eigenvalues with high communality values, because that means we can identify factors that explain the common variance in a lot of questions on the survey.

We can identify how many eigenvalues to use by looking at the scree plot and holding a straight edge to the last dot on the plot on the right. Adjusting the straight edge, we can cover up to point ten (eigenvalue 10). We should therefore use 9 factors, because starting with the tenth, there are diminishing rates of return. In the thesis, the first 9 factors account for 35.1 % of the common variance.

Step 5 — <u>Unrotated Factor Matrix</u>

This produced a rough draft of the final results.

Step 6 — <u>Communality Summary</u>

This showed how well the Squared Multiple Correlations (from the main diagonal in Step 2) explain the common variance versus the 9 factors we identified. This is because the SMC's can take advantage of the explanatory variables while there are only 9 factors in the factor analysis.

Step 7 — <u>Orthogonal Transformation Solution/Varimax</u>

This is an attempt to achieve simple structure within the constraint that the factor axes must be at right angles to one another. A simple structure allows us to identify and name the factors.

Step 8 — <u>Oblique Solution Reference Structure</u>

This was the key to identifying and naming the factors. It showed the correlations between each factors and each variable. According to Gorsuch, we should look for values equal to or greater than 0.30.

The goal of factor analysis is to achieve a simple structure that will allow us to interpret and name the factors. The Orthogonal Transformation Solution (Step 7) attempts to achieve simple structure within the constraint that the factor axes must be at right angles to one another (orthogonal/perpendicular).

This achieves a simple structure and allows us to identify and name the factors.

Step 9 — <u>Primary Intercorrelations</u>

This showed how the factors themselves were correlated with each other. This may prove useful in naming the factors.

Step 10 — <u>Variable Complexity</u>

This showed how much each variable depends on more than one factor. Ideally, this should equal 1.

The Questionnaire: A Summary

The assessment tool should help the organization and the HRD function to develop an agenda for action concerning managerial development that is tied to future strategic challenges.

Viewed comprehensively, the assessment tool should serve as a strong foundation for developing a strategic development agenda. An organization should be able to:

- explore the key factors impacting its competitive environment;
- consider how those factors are influencing the changing nature and form of their organizations;
- examine the changing nature of organizational competencies as the environment changes;
- identify the critical skills required of effective leaders in their organization; and
- refine its level of sophistication in critical HRD activities.

And, of course, the approaches used to measure cultural difference as well as areas of cultural "common ground" should be very useful for researchers interested in cross cultural comparative studies, but this will be discussed in much greater detail in Chapters VI and VII.

Linking the Methodology Back to the Literature

The literature served as a driver for the research methods and the impact of the literature was felt from both a content and a process point of view.

From a content perspective, researchers such as Bartlett and Goshal, Prahalad, Porter, Dertouzos, Hedlund and Hofstede served as key influences in framing many of the questions concerning the key factors in the external competitive environment in the questionnaire.

Researchers such as Greiner, Doz, Schein, Kanter and Drucker helped to shape this researcher's thinking for many of the questions in the contemporary organizations section of the questionnaire.

Researchers such Kets de Vries, Kakabadse, McCall, Kotter, Bennis, Peters and Handy helped to shape this researcher's thinking about the important questions to ask concerning leadership competencies in the questionnaire.

Researchers such as Argyris, Senge, Hall, Tyson, Knowles, Walker, Ulrich, Adler and McCall provided the framework for this researcher to link

learning and human resource capabilities to the development of organizational capabilities and competitive advantage.

And from a process perspective, researchers such as Harman and Gorsuch provided the important inputs to undertake the process of reliability analysis for validation of the questionnaire and for conducting the factor analysis. Further, Miller and Roth's work in the manufacturing area truly influenced the design of the questionnaire and Hofstede's work enabled this researcher to dig deeper into the data by illustrating how a cross cultural group can be measured both as a group and as separate "culture groups". This represented a "break through" in this researcher's progress. And Laurent's work influenced this researcher to take a second and third look at all of the data to ensure that cultural bias was minimized whenever possible.

Chapter V

Research Results

Chapter V

Research Results

Introduction

As discussed in the previous chapter on research methodology, a series of statistical tests and procedures were used to support the main thesis arguments which, in turn, evolved from the review of the literature. The results focus primarily on three areas.

The first area deals with the notion of managers from the different culture groups responding differently to a substantial number of questions in the questionnaire. Tests were conducted, after adjusting for the potential of cultural bias, to determine whether these differences in responses were due to cultural orientation. The results will show that even after adjusting for cultural bias that more than one third of the questions showed differences in responses from the culture groups that were culturally based, using the 95% significance factor discussed in the methodology chapter. As discussed in the methodology section, the subjects of analysis for this step were the three culture groups, consisting of a subset of 199 managers, who were clearly identifiable as coming from either the U.S., the U.K. or Japan.

These results clearly support thesis argument I, which will be discussed in some depth in Chapters V, VI and VII.

The second area deals with the analysis of the mean responses to the questionnaire from the entire group of the 294 managers studied. Again, as discussed in the methodology section and supported in the review of the literature section by Hofstede's work, this analysis was done after adjusting for the potential of cultural bias, as these adjustments were required in order to have a common language or basis for comparison.

This step indicates areas of common ground by illustrating the top mean scores for each section of the questionnaire. Again, this step is dealt with in Chapters V, VI and VII.

This step serves to support thesis argument II most directly but also begins to support thesis argument III.

The third area deals with searching for statistical correlations among the variables and interpreting the underlying themes within these correlations through the process of factor analysis discussed in the methodology section. The basis for analysis for the factor analysis is the total group of 294 respondents, again after culturally adjusting the data as discussed previously in Chapter IV.

The factor analysis enabled this researcher to probe the data more deeply, to refine the main thesis arguments and to develop many of the conclusions contained in the thesis.

The third step supports thesis argument III most directly.

While some of the actual data tables from these procedures are contained in this chapter, such as the culture group differences as discussed in step one, additional data, such as the details of the factor analysis, may be found in the appendices.

What follows immediately are the thirty six questions from the questionnaire that showed culturally based differences. Following the listing of the thirty six questions are groupings of approximately three questions per page as a means of discussing some of the findings, when appropriate, although the findings will also be discussed in Chapter VI. Following the page listing the group of three questions will be the actual data pages for those questions illustrating several key items.

There are several things to look for in the data pages. First, the designation at the top of the page will indicate which question is being presented. For example, Y1:K1 refers to question K1 in the questionnaire (widespread global competition). On the top right hand side of each data page is an F-test score. As discussed in both the review of the literature and in the research methods, we are looking for F-test scores that are less than or equal to .05 for an indication that chances are less than five in one hundred that these responses vary by chance alone and not due to cultural orientation.

The second box in the middle of the data pages breaks the respondents' scores out by culture groups and the third box shows us the cross cultural variances and the statistically significant variances (as designated by a star

under the Fisher PLSD column) as discussed in the literature review and research methodology chapters.

Cross-Cultural Analysis

Note that the order in which the groups are listed is important. For example, for K1, Japan vs. UK means "take the Japanese mean and subtract the UK mean from it". The sign of the mean difference is therefore important. In the case of K1, the Japanese mean is 0.562 higher than the UK mean, even after adjusting for cultural differences.

Question	Culture Groups that Differ	Mean Difference
K1	Widespread global competition	
	Japan vs. UK	0.562
K2	Mergers, acquisitions, divestitures	
	US vs. Japan	- 0.441
	US vs. UK	- 0.435
K8	Time based competition	
	US vs. Japan	- 0.447
	US vs. UK	0.364
	Japan vs. UK	0.811
K9	Keeping costs in line	
	US vs. Japan	0.774
	Japan vs. UK	- 0.685

Question		Culture Groups that Differ	Mean Difference
K10	Quality		
		US vs. Japan	0.612
		Japan vs. UK	- 0.654
K12	Differentiating products/businesses		
		US vs. UK	- 0.409
K13	Difficulty in finding skilled people		
		US vs. UK	- 0.586
		Japan vs. UK	- 0.593
K16	Increasing diversity in the workforce		
		US vs. UK	0.437
		Japan vs. UK	0.452
C20	Be leaner than today		
		US vs. Japan	0.458
		Japan vs. UK	- 0.479
C21	Be about the same as today		
		US vs. UK	- 0.589
C22	Have better leadership than today		
		Japan vs. UK	0.558
C24	Have fewer unions than today		
		US vs. Japan	0.687
		Japan vs. UK	- 0.825
C26	Have fewer layers than today		
		US vs. Japan	0.581
		Japan vs. UK	- 0.526

Question	Culture Groups that Differ	Mean Difference
C28	Have more women and minority managers	
	US vs. UK	0.325
	Japan vs. UK	0.424
C30	Be fully integrated globally	
	US vs. Japan	- 0.517
	US vs. UK	0.729
	Japan vs. UK	1.246
C32	Be more smaller "spun off" SBU's	
	US vs. UK	- 0.455
C33	Have sabbatical programs for their staff	
	US vs. Japan	- 0.661
C34	Have more MBA's in key management positions	
	US vs. UK	- 0.989
	Japan vs. UK	- 0.712
I38	Exhibit a high degree of integrity	
	US vs. Japan	0.511
	Japan vs. UK	- 0.369
I41	Understand global economic, political, cultural, social issues	
	US vs. Japan	- 0.63
	Japan vs. UK	0.771
I65	Negotiate for resources	
	Japan vs. UK	- 0.433

Question	Culture Groups that Differ	Mean Difference
I66	Manage ethnically/culturally diverse workforce	
	US vs. Japan	0.424
	US vs. UK	0.781
	Japan vs. UK	0.357
I67	Exhibit a strong customer orientation	
	US vs. Japan	0.527
	Japan vs. UK	- 0.551
I69	Manage a fast cycle organization	
	US vs. UK	0.398
	Japan vs. UK	0.516
I71	Manage quality improvement	
	US vs. Japan	0.401
	Japan vs. UK	- 0.542
I72	Manage strategy to action/results	
	US vs. U.K.	- 0.243
	Japan vs. UK	- 0.368
I76	Manage a staff re-skilling effort	
	US vs. Japan	- 0.444
	Japan vs. UK	0.739
I77	Make future oriented staffing decisions	
	US vs. Japan	- 0.526
	Japan vs. UK	0.456
S53	Exhibit a high degree of integrity	
	US vs. Japan	0.945
	Japan vs. UK	- 0.762

Question	Culture Groups that Differ	Mean Difference
S88	Take risks/initiative	
	US vs. Japan	- 0.497
	Japan vs. UK	0.462
S90	Structure development job assignments	
	US vs. Japan	- 0.349
	Japan vs. UK	0.595
P95	Prefer to grow and promote from within	
	US vs. Japan	0.812
	US vs. UK	0.615
P96	Look both inside and outside for talent	
	US vs. Japan	- 1.087
	US vs. UK	- 0.552
	Japan vs. UK	0.534
P99	Develop a large pool; assess for potential later	
	Japan vs. UK	0.608
P100	Senior executives have tended to be specialists	
	US vs. UK	- 0.487
	Japan vs. UK	- 0.612
T103	Link between leadership skills requirements and current development activities	
	US vs. Japan	0.536
	Japan vs. UK	- 0.518

The previous data indicates where and to what extent the cultural groups differ. One may consider the differences in the means listed as X vs. Y.

The data shows that X-Y equals the difference between the means after adjusting for cultural differences. If the number is positive, it means that X is larger than Y; if the number is negative, it means that Y is larger than X.

The following data tables will show more detail to the responses from each of the thirty six questions where significant differences existed. For example, taking question K1 again (widespread global competition), we can see that the mean response from the Japanese culture group to question K1 is 4.059, while the mean response to this question from the British culture group is 3.497, resulting in a difference in the means of .562 and indicated as significant under the Fisher PLSD column. Again, as indicated previously, the questions have been grouped into three questions per page, followed by three pages of data pages. There is no significance to the groupings of three questions per page in any way. This was done simply to economize on pages, as this researcher felt that a page per question was not needed, especially since many of the results will be discussed again in Chapter VI.

Examples of questions showing no statistically significant differences caused by cultural orientation are in the appendices as a point of information.

Questions

K1: Widespread Global Competition

K2: Mergers, Acquisitions, Divestitures

K8: Time Based Competition

Observations

Only the Japanese and British culture groups had significant differences in their responses to the question about global competition. The data tables following this page illustrate that the Japanese appeared most concerned about the impacts of globalization, while the U.K. respondents appeared the least concerned about this issue.

Concerning the issue of mergers, acquisitions and divestitures, the U.S. respondents appeared to differ substantially with and be less concerned about this issue relative to their British and Japanese counterparts. Perhaps this is because so much M & A activity takes place as a part of U.S. business activities that they are more comfortable with this as a competitive factor.

Concerning the issue of time based competition, all groups disagree. The Japanese feel the most strongly about this issue and they share a significant difference with the U.K. respondents on this topic.

One Factor ANOVA X_1: Culture Y_1: K1

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.367	4.683	3.535
Within groups	196	259.656	1.325	p = .031
Total	198	269.023		

Model II estimate of between component variance = 1.679

1

One Factor ANOVA X_1: Culture Y_1: K1

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.788	1.212	.15
Japan	38	4.059	.805	.131
UK	96	3.497	1.221	.125

2

One Factor ANOVA X_1: Culture Y_1: K1

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.271	.464	.665	1.153
US vs. UK	.291	.365	1.241	1.575
Japan vs. UK	.562	.435*	3.248*	2.549

* Significant at 95%

3

One Factor ANOVA X_1: Culture Y_2: K2

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	8.341	4.17	4.469
Within groups	196	182.902	.933	p = .0127
Total	198	191.243		

Model II estimate of between component variance = 1.619

4

One Factor ANOVA X_1: Culture Y_2: K2

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.25	.969	.12
Japan	38	3.691	.97	.157
UK	96	3.684	.962	.098

5

One Factor ANOVA X_1: Culture Y_2: K2

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.441	.389*	2.499	2.236
US vs. UK	-.435	.306*	3.924*	2.802
Japan vs. UK	.006	.365	.001	.034

* Significant at 95%

6

One Factor ANOVA X_1: Culture Y_8: K8

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	18.371	9.186	8.882
Within groups	192	198.566	1.034	p = .0002
Total	194	216.937		

Model II estimate of between component variance = 4.076

22

One Factor ANOVA X_1: Culture Y_8: K8

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	62	3.288	.937	.119
Japan	37	3.735	.747	.123
UK	96	2.924	1.147	.117

23

One Factor ANOVA X_1: Culture Y_8: K8

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.447	.417*	2.235	2.114
US vs. UK	.364	.327*	2.415	2.198
Japan vs. UK	.811	.388*	8.489*	4.12

* Significant at 95%

24

Questions

K9: Keeping Costs in Line

K10: Quality

K12: Differentiating Products/Businesses

Observations

The Japanese and U.S. respondents share the most significant differences concerning the issue of keeping costs in line. The Americans feel this is a very important competitive factor, while the Japanese consider it relatively unimportant. The U.K. respondents also share differences with their Japanese counterparts on this topic, although not quite as strong as the differences between the Americans and the Japanese.

Concerning the issue of quality, the Japanese share differences with both the British and the Americans. Somewhat of a surprise, however, the Japanese appear to feel that quality is less of a key competitive factor than do their counterparts. With all the discussion about the Japanese and quality, one might postulate that the Japanese feel that they are ahead on this issue and therefore do not consider it as key of a competitive factor as the others.

Concerning the issue of product/business differentiation, the U.K. respondents share the biggest differences with their American counterparts. The British respondents feel the most strongly about this variable as a key competitive factor in relation to their Japanese and American colleagues.

One Factor ANOVA X_1: Culture Y_9: K9

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	16.274	8.137	10.986
Within groups	196	145.173	.741	p = .0001
Total	198	161.447		

Model II estimate of between component variance = 3.698

25

One Factor ANOVA X_1: Culture Y_9: K9

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.096	.683	.085
Japan	38	3.322	1.083	.176
UK	96	4.007	.87	.089

26

One Factor ANOVA X_1: Culture Y_9: K9

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.774	.347*	9.686*	4.401
US vs. UK	.089	.273	.205	.64
Japan vs. UK	-.685	.325*	8.623*	4.153

* Significant at 95%

27

One Factor ANOVA X_1: Culture Y_{10}: K10

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	12.538	6.269	10.901
Within groups	196	112.72	.575	p = .0001
Total	198	125.258		

Model II estimate of between component variance = 2.847

28

One Factor ANOVA X_1: Culture Y_{10}: K10

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.434	.672	.083
Japan	38	3.822	.943	.153
UK	96	4.476	.733	.075

29

One Factor ANOVA X_1: Culture Y_{10}: K10

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.612	.305*	7.809*	3.952
US vs. UK	-.042	.24	.059	.343
Japan vs. UK	-.654	.287*	10.116*	4.498

* Significant at 95%

30

One Factor ANOVA X_1: Culture Y_{12}: K12

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	6.914	3.457	3.45
Within groups	196	196.402	1.002	p = .0337
Total	198	203.315		

Model II estimate of between component variance = 1.227

34

One Factor ANOVA X_1: Culture Y_{12}: K12

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.619	1.024	.127
Japan	38	3.98	.85	.138
UK	96	4.028	1.039	.106

35

One Factor ANOVA X_1: Culture Y_{12}: K12

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.361	.403	1.562	1.767
US vs. UK	-.409	.317*	3.239*	2.545
Japan vs. UK	-.048	.378	.031	.25

* Significant at 95%

36

Questions

K13: Difficulty in Finding Skilled People

K16: Increasing Diversity in the Workplace

Observations

Concerning the difficulty in finding skilled people, the U.K. respondents share differences with both their American and Japanese counterparts. They feel the most strongly about this issue, whereas the Americans and Japanese feel moderately strongly and come very close to agreement on this topic. In discussing this issue with the British respondents, this researcher recalls the British culture group mentioning that professional management development in the U.K. is a relatively recent area of focus.

Concerning the issue of increasing diversity in the workplace, again the U.K. respondents share disagreements with the other two groups. The British group felt the least strongly about increasing diversity as a key competitive factor. The Japanese felt the most strongly about it. In discussing this topic with the Japanese group, this researcher learned that the Japanese group realized the importance of reaching out beyond their current workforce if they were to implement successfully their plans for globalization.

One Factor ANOVA X_1: Culture Y_{13}: K13

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	17.236	8.618	10.879
Within groups	196	155.273	.792	p = .0001
Total	198	172.509		

Model II estimate of between component variance = 3.913

37

One Factor ANOVA X_1: Culture Y_{13}: K13

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.619	.821	.102
Japan	38	3.612	1.005	.163
UK	96	4.205	.887	.091

38

One Factor ANOVA X_1: Culture Y_{13}: K13

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.007	.358	.001	.039
US vs. UK	-.586	.282*	8.409*	4.101
Japan vs. UK	-.593	.336*	6.051*	3.479

* Significant at 95%

39

One Factor ANOVA X_1: Culture Y_{16}: K16

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.735	4.868	5.547
Within groups	196	171.979	.877	p = .0045
Total	198	181.714		

Model II estimate of between component variance = 1.995

One Factor ANOVA X_1: Culture Y_{16}: K16

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.465	.954	.118
Japan	38	3.48	.919	.149
UK	96	3.028	.932	.095

One Factor ANOVA X_1: Culture Y_{16}: K16

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.015	.377	.003	.079
US vs. UK	.437	.297*	4.216*	2.904
Japan vs. UK	.452	.354*	3.17*	2.518

* Significant at 95%

Contemporary Organizations in the Year 2000

Questions

C20: Be Leaner Than Today

C21: Be About the Same as Today

C22: Have Better Leadership Than Today

Observations

The Japanese differ with both the U.K. and U.S. respondents on the area of contemporary organizations needing to be leaner than they are today. The Japanese feel this is less of an important organizational capability than do the Americans and British groups, who feel very similar about the topic.

The Americans feel the most strongly that contemporary organizations by the year 2000 will not be the same as today, and they differ most strongly with their British counterparts. Perhaps this is due to the fact that U.S. firms started to downsize and restructure their organizations earlier than most as a means of improving competitiveness. However, by looking at the mean scores for all groups, it appears that none of the culture groups would want to be marked down as indicating that organizations will look much like they do today in another decade.

Somewhat of a surprise, the Japanese feel most strongly that contemporary organizations will have better leadership than today. They share the most difference with the U.K. respondents.

One Factor ANOVA X_1: Culture Y_{20}: C20

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	6.679	3.339	4.509
Within groups	194	143.681	.741	p = .0122
Total	196	150.359		

Model II estimate of between component variance = 1.299

58

One Factor ANOVA X_1: Culture Y_{20}: C20

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	64	4.035	.821	.103
Japan	37	3.578	1.07	.176
UK	96	4.057	.795	.081

59

One Factor ANOVA X_1: Culture Y_{20}: C20

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.458	.351*	3.316*	2.575
US vs. UK	-.022	.274	.012	.157
Japan vs. UK	-.479	.328*	4.145*	2.879

* Significant at 95%

60

One Factor ANOVA X_1: Culture Y_{21}: C21

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	13.346	6.673	5.771
Within groups	195	225.467	1.156	p = .0037
Total	197	238.813		

Model II estimate of between component variance = 2.758

61

One Factor ANOVA X_1: Culture Y_{21}: C21

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	64	1.922	.841	.105
Japan	38	2.237	1.101	.179
UK	96	2.51	1.196	.122

62

One Factor ANOVA X_1: Culture Y_{21}: C21

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.315	.434	1.023	1.43
US vs. UK	-.589	.342*	5.752*	3.392
Japan vs. UK	-.274	.406	.881	1.327

* Significant at 95%

63

One Factor ANOVA X_1: Culture Y_{22}: C22

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.279	4.639	4.523
Within groups	196	201.02	1.026	p = .012
Total	198	210.298		

Model II estimate of between component variance = 1.807

64

One Factor ANOVA X_1: Culture Y_{22}: C22

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.694	.983	.122
Japan	38	3.959	.831	.135
UK	96	3.401	1.094	.112

65

One Factor ANOVA X_1: Culture Y_{22}: C22

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.264	.408	.817	1.278
US vs. UK	.294	.321	1.629	1.805
Japan vs. UK	.558	.383*	4.132*	2.875

* Significant at 95%

66

Questions

C24: Have Fewer Unions Than Today

C26: Have Fewer Layers Than Today

C28: Have More Women and Minority Managers

Observations

Concerning the issue of having fewer unions than today, the Japanese differ most strongly with both the Americans and the British groups. While no group feels very strongly about this issue, the British group feels most strongly that unions will be less of a factor in the future.

Again, the Japanese group differs with both their U.S. and U.K. respondents on the issue of having fewer layers than today. The Americans feel most strongly about this subject, again, perhaps a reflection of their attempts to restructure their organizations to improve competitiveness.

On the subject of having more women and minority managers, the U.K. respondents shared the most difference with their Japanese and U.S. counterparts. The British group felt least strongly that this would be a defining factor for contemporary organizations by the year 2000. The Japanese, however, felt the most strongly about this issue. Again, this may support the Japanese group's indications earlier that they need to open their horizons in order to achieve competitiveness in a global environment. Again, this is somewhat of a surprise, as informal observations on the part of this researcher would indicate that Japanese corporations might not

support the development of female managers as strongly as their counterparts.

One Factor ANOVA X_1: Culture Y_{24}: C24

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	18.939	9.469	12.807
Within groups	196	144.919	.739	p = .0001
Total	198	163.858		

Model II estimate of between component variance = 4.365

70

One Factor ANOVA X_1: Culture Y_{24}: C24

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.356	.886	.11
Japan	38	2.669	.946	.153
UK	96	3.494	.805	.082

71

One Factor ANOVA X_1: Culture Y_{24}: C24

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.687	.346*	7.646*	3.911
US vs. UK	-.139	.272	.503	1.003
Japan vs. UK	-.825	.325*	12.537*	5.007

* Significant at 95%

72

One Factor ANOVA X_1: Culture Y_{26}: C26

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.348	4.674	6.393
Within groups	196	143.299	.731	p = .002
Total	198	152.646		

Model II estimate of between component variance = 1.971

76

One Factor ANOVA X_1: Culture Y_{26}: C26

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.987	.831	.103
Japan	38	3.406	.938	.152
UK	96	3.932	.837	.085

77

One Factor ANOVA X_1: Culture Y_{26}: C26

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.581	.344*	5.528*	3.325
US vs. UK	.055	.271	.079	.398
Japan vs. UK	-.526	.323*	5.149*	3.209

* Significant at 95%

78

One Factor ANOVA X_1: Culture Y_{28}: C28

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	6.734	3.367	3.335
Within groups	196	197.888	1.01	p = .0377
Total	198	204.622		

Model II estimate of between component variance = 1.179

82

One Factor ANOVA X_1: Culture Y_{28}: C28

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.017	.916	.114
Japan	38	4.117	.957	.155
UK	96	3.692	1.077	.11

83

One Factor ANOVA X_1: Culture Y_{28}: C28

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.099	.405	.117	.483
US vs. UK	.325	.318*	2.028	2.014
Japan vs. UK	.424	.38*	2.426	2.203

* Significant at 95%

84

Questions

C30: Be Fully Integrated Globally

C32: Have More "Spun Off" SBU's

C33: Have Sabbatical Programs for Their Staff

Observations

The area of global integration is a topic on which there seems to be multiple differences, in that each culture group disagrees with the other two groups. The Japanese group feels the most strongly about the issue of achieving global integration, and they share very large differences with the U.K. group. In discussing this issue with the U.K. respondents, this researcher recalls the group indicating that European integration is more compelling of an issue at the time of this research than globalization.

Concerning the issue of increased SBU's (strategic business units), the British respondents felt the most strongly about this variable as an indicator of a contemporary organization by the year 2000. They shared the most difference with their U.S. counterparts, and these two groups are the only groups that differed significantly on this topic.

On the topic of sabbatical programs for staff, the Japanese and American respondents were the only groups to share any significant differences. The Japanese felt most strongly that sabbaticals would be a factor in the future, however, no group felt that this was an extremely important factor.

One Factor ANOVA X_1: Culture Y_{30}: C30

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	48.446	24.223	28.074
Within groups	196	169.113	.863	p = .0001
Total	198	217.559		

Model II estimate of between component variance = 11.68

88

One Factor ANOVA X_1: Culture Y_{30}: C30

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.494	.86	.107
Japan	38	4.011	.837	.136
UK	96	2.765	1.004	.103

89

One Factor ANOVA X_1: Culture Y_{30}: C30

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.517	.374*	3.714*	2.726
US vs. UK	.729	.294*	11.938*	4.886
Japan vs. UK	1.246	.351*	24.494*	6.999

* Significant at 95%

90

One Factor ANOVA X_1: Culture Y_{32}: C32

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	8.123	4.061	7.051
Within groups	193	111.161	.576	p = .0011
Total	195	119.284		

Model II estimate of between component variance = 1.743

94

One Factor ANOVA X_1: Culture Y_{32}: C32

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.279	.725	.09
Japan	35	3.493	.739	.125
UK	96	3.734	.788	.08

95

One Factor ANOVA X_1: Culture Y_{32}: C32

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.214	.314	.901	1.342
US vs. UK	-.455	.24*	6.968*	3.733
Japan vs. UK	-.242	.296	1.299	1.612

* Significant at 95%

96

One Factor ANOVA X_1: Culture Y_{33}: C33

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	10.42	5.21	5.001
Within groups	195	203.133	1.042	p = .0076
Total	197	213.553		

Model II estimate of between component variance = 2.084

97

One Factor ANOVA X_1: Culture Y_{33}: C33

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.079	.795	.099
Japan	37	3.74	1.029	.169
UK	96	3.369	1.145	.117

98

One Factor ANOVA X_1: Culture Y_{33}: C33

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.661	.415*	4.94*	3.143
US vs. UK	-.29	.323	1.57	1.772
Japan vs. UK	.37	.39	1.757	1.874

* Significant at 95%

99

Questions

C34: Have More MBA's in Key Management Positions

Observations

The British respondents clearly shared significant differences with their Japanese and American counterparts. The British group felt most strongly that more MBA's would be in key management positions in the future, while the U.S. respondents felt the least strongly about this factor. While the British group consisted partly of executive MBA students from Cranfield, this was not the make up of the entire group. The group also consisted of some rather senior level executives from a variety of companies, so something else is more than likely responsible for the relatively high marking for this topic. Again, perhaps it is related to the notion expressed earlier that professional management development is a relatively recent activity among British companies. The relative low showing from the U.S. group might well be because MBA's have been around for a long time and questions exist among corporate managers as to whether they are a sound investment.

This is the end of the "contemporary organizations" section of the questionnaire. We now move on to the "leadership competitive capabilities profile". Please notice that a skill area's relative importance to strategy execution is viewed as a separate question from the respondents' indication of their company's relative strength in that skill area.

One Factor ANOVA X_1: Culture Y_{34}: C34

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	40.915	20.458	22.673
Within groups	196	176.852	.902	p = .0001
Total	198	217.768		

Model II estimate of between component variance = 9.778

100

One Factor ANOVA X_1: Culture Y_{34}: C34

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	2.787	.785	.097
Japan	38	3.064	1.139	.185
UK	96	3.776	.97	.099

101

One Factor ANOVA X_1: Culture Y_{34}: C34

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.277	.383	1.022	1.43
US vs. UK	-.989	.301*	21.01*	6.482
Japan vs. UK	-.712	.359*	7.642*	3.91

* Significant at 95%

102

Leadership Competitive Capabilities Profile

Questions

I38: Exhibit a High Degree of Integrity

I41: Understand Global, Economic, Political, Cultural, Social Issues

I65: Negotiate for Resources

Observations

Concerning the issue of exhibiting integrity, the Japanese share significant differences with both the Americans and the British. The Americans feel the most strongly about this issue, with the British very close behind. This researcher observes that there has been a lot of attention to the issue of integrity following the many abuses that took place during the 80's. This could well be a factor in the relatively high responses for this competency area.

Again, the Japanese responded differently from their U.S. and U.K. counterparts to the competency area of understanding global economic, political, cultural and social issues. This time they felt more strongly about this topic than did the other culture groups. Again, this could be tied to their interest in globalization. They shared a rather significant difference with the U.K. respondents in this competency area.

Concerning the competency of negotiating for resources, the U.K. and Japanese groups responded differently, with the British feeling that this was a more important competency area.

One Factor ANOVA X_1: Culture Y_{38}: I38

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	6.242	3.121	5.202
Within groups	195	117.005	.6	p = .0063
Total	197	123.247		

Model II estimate of between component variance = 1.261

One Factor ANOVA X_1: Culture Y_{38}: I38

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.375	.612	.076
Japan	37	3.865	.852	.14
UK	96	4.234	.84	.086

One Factor ANOVA X_1: Culture Y_{38}: I38

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.511	.315*	5.122*	3.2
US vs. UK	.141	.245	.643	1.134
Japan vs. UK	-.369	.296*	3.038*	2.465

* Significant at 95%

One Factor ANOVA X_1: Culture Y_{41}: I41

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	16.119	8.059	7.233
Within groups	195	217.28	1.114	p = .0009
Total	197	233.398		

Model II estimate of between component variance = 3.473

121

One Factor ANOVA X_1: Culture Y_{41}: I41

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.668	1.102	.137
Japan	37	4.297	1.022	.168
UK	96	3.526	1.036	.106

122

One Factor ANOVA X_1: Culture Y_{41}: I41

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.63	.429*	4.194*	2.896
US vs. UK	.142	.334	.349	.836
Japan vs. UK	.771	.403*	7.129*	3.776

* Significant at 95%

123

One Factor ANOVA X_1: Culture Y_{50}: I65

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	5.69	2.845	3.56
Within groups	196	156.611	.799	p = .0303
Total	198	162.301		

Model II estimate of between component variance = 1.023

148

One Factor ANOVA X_1: Culture Y_{50}: I65

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.621	.682	.085
Japan	38	3.426	1.025	.166
UK	96	3.859	.962	.098

149

One Factor ANOVA X_1: Culture Y_{50}: I65

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.196	.36	.574	1.071
US vs. UK	-.238	.283	1.371	1.656
Japan vs. UK	-.433	.338*	3.199*	2.529

* Significant at 95%

150

Questions

I66: Manage Ethnically/Culturally Diverse Workforce

I67: Exhibit a Strong Customer Orientation

I69: Manage a Fast Cycle Organization

Observations

Regarding the competency of managing an ethnically and culturally diverse workforce, all groups share in their differences with one another. The U.S. group feels the most strongly about the importance of this competency area and the U.K. respondents feel the least strongly about it. Perhaps the Americans are already experiencing the difficulties of managing diversity.

Concerning the importance of exhibiting a strong customer orientation, the Japanese responded differently from both the U.S. and U.K. groups. The British group felt the strongest about the importance of being customer oriented, with the Americans just slightly behind. It should be noted that even though the Japanese rated this competency the least important of the three groups, they still rated it as a highly important competency.

Concerning the importance of managing a fast cycle organization, the U.K. group responded differently from both their Japanese and American counterparts. The British group rated this competency area as of lesser importance than did the other culture groups. The Japanese felt the most strongly about this area, with the Americans just slightly behind.

One Factor ANOVA X_1: Culture Y_{51}: I66

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	23.671	11.835	13.58
Within groups	195	169.955	.872	p = .0001
Total	197	193.626		

Model II estimate of between component variance = 5.482

151

One Factor ANOVA X_1: Culture Y_{51}: I66

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.775	.865	.107
Japan	37	3.351	.866	.142
UK	96	2.995	1	.102

152

One Factor ANOVA X_1: Culture Y_{51}: I66

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.424	.379*	2.433	2.206
US vs. UK	.781	.296*	13.55*	5.206
Japan vs. UK	.357	.356*	1.948	1.974

* Significant at 95%

153

One Factor ANOVA X_1: Culture Y_{52}: 167

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.032	4.516	11.125
Within groups	196	79.558	.406	p = .0001
Total	198	88.59		

Model II estimate of between component variance = 2.055

154

One Factor ANOVA X_1: Culture Y_{52}: 167

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.637	.417	.052
Japan	38	4.11	.882	.143
UK	96	4.661	.646	.066

155

One Factor ANOVA X_1: Culture Y_{52}: 167

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.527	.257*	8.195*	4.048
US vs. UK	-.024	.202	.029	.239
Japan vs. UK	-.551	.241*	10.188*	4.514

* Significant at 95%

156

One Factor ANOVA X_1: Culture Y_{54}: 169

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	10.02	5.01	5.028
Within groups	196	195.288	.996	p = .0074
Total	198	205.308		

Model II estimate of between component variance = 2.007

160

One Factor ANOVA X_1: Culture Y_{54}: 169

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.914	.831	.103
Japan	38	4.031	.823	.133
UK	96	3.515	1.152	.118

161

One Factor ANOVA X_1: Culture Y_{54}: 169

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.117	.402	.166	.576
US vs. UK	.398	.316*	3.085*	2.484
Japan vs. UK	.516	.377*	3.633*	2.696

* Significant at 95%

162

Questions

I71: Manage Quality Improvement

I72: Manage Strategy to Action?results

I76: Manage a Staff Re-skilling Effort

I77: Make Future Oriented Staffing Decisions

Observations

Again, somewhat of a surprise that the Japanese answered differently from their American and British counterparts regarding managing quality improvement. As mentioned previously, it could well be because of their perceived lead in this area. The British group rated this competency the highest of the three groups.

Regarding managing strategy to action/results, the U.K. group answered differently than both the Americans and the Japanese. The British group rated this competency higher than their counterparts, indeed it was among the top five competencies ranked by the U.K. group. All three groups rated this competency highly, however.

Regarding managing a staff re-skilling effort, the Japanese answered this question differently from the Americans and the British. They viewed this skill as significantly more important than did the British and moderately more important than did the Americans.

Regarding making future oriented staffing decisions, again the Japanese hold different views from the counterparts. They viewed this as a more important competency area than did either of their counterparts.

One Factor ANOVA X_1: Culture Y_{56}: I71

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	8.001	4.001	7.752
Within groups	196	101.144	.516	p = .0006
Total	198	109.145		

Model II estimate of between component variance = 1.742

166

One Factor ANOVA X_1: Culture Y_{56}: I71

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.406	.581	.072
Japan	38	4.005	1.036	.168
UK	96	4.547	.648	.066

167

One Factor ANOVA X_1: Culture Y_{56}: I71

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.401	.289*	3.74*	2.735
US vs. UK	-.141	.228	.743	1.219
Japan vs. UK	-.542	.272*	7.745*	3.936

* Significant at 95%

168

One Factor ANOVA X_1: Culture Y_{57}: I72

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	4.534	2.267	4.831
Within groups	196	91.986	.469	p = .009
Total	198	96.52		

Model II estimate of between component variance = .899

One Factor ANOVA X_1: Culture Y_{57}: I72

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	4.314	.59	.073
Japan	38	4.189	.959	.156
UK	96	4.557	.613	.063

One Factor ANOVA X_1: Culture Y_{57}: I72

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.125	.276	.397	.891
US vs. UK	-.243	.217*	2.446	2.212
Japan vs. UK	-.368	.259*	3.93*	2.803

* Significant at 95%

One Factor ANOVA X_1: Culture Y_{61}: I76

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	14.919	7.46	8.445
Within groups	195	172.244	.883	p = .0003
Total	197	187.163		

Model II estimate of between component variance = 3.288

181

One Factor ANOVA X_1: Culture Y_{61}: I76

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.529	.781	.097
Japan	37	3.973	.712	.117
UK	96	3.234	1.1	.112

182

One Factor ANOVA X_1: Culture Y_{61}: I76

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.444	.382*	2.628	2.292
US vs. UK	.295	.298	1.908	1.954
Japan vs. UK	.739	.359*	8.247*	4.061

* Significant at 95%

183

One Factor ANOVA X_1: Culture Y_{62}: I77

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	7.397	3.698	5.763
Within groups	196	125.777	.642	p = .0037
Total	198	133.174		

Model II estimate of between component variance = 1.528

184

One Factor ANOVA X_1: Culture Y_{62}: I77

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.821	.718	.089
Japan	38	4.347	.823	.133
UK	96	3.89	.844	.086

185

One Factor ANOVA X_1: Culture Y_{62}: I77

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.526	.323*	5.16*	3.212
US vs. UK	-.069	.254	.144	.536
Japan vs. UK	.456	.303*	4.42*	2.973

* Significant at 95%

186

Company's Current Relative Strength in This Skill Area

This section of the questionnaire deals with the respondents' perceptions of their company's current strength in the competency area identified (to be viewed separately from how important they thought the competency was)

Questions

S53: Exhibit a High Degree of Integrity

S88: Take Risks/Initiative

S90: Structure Developmental Job Assignments

Observations

Concerning the competency of exhibiting integrity, the Japanese answered this question differently from both the British and the Americans, indicating that it was not nearly as much of a strength as the other two groups. Both the Americans and the British rated this competency as their company's highest strength, with mean rankings at 3.928 and 3.745 respectively, which this researcher observes as high for rating a strength.

Concerning the strength of taking risks and initiative, again the Japanese answered differently from their counterparts. They rated their firms' strength in this area as higher than either the British or the Americans. The Americans rated themselves the lowest in this area.

Concerning structuring developmental job assignments, again the Japanese stand out as sharing the most difference with the other culture groups. The Japanese rated themselves more strongly in this area than did their counterparts. Given their emphasis on OJT, this is not surprising.

One Factor ANOVA X_1: Culture Y_{68}: S53

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	22.299	11.15	12.128
Within groups	195	179.263	.919	p = .0001
Total	197	201.562		

Model II estimate of between component variance = 5.115

202

One Factor ANOVA X_1: Culture Y_{68}: S53

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.928	.899	.112
Japan	37	2.984	.938	.154
UK	96	3.745	1.004	.103

203

One Factor ANOVA X_1: Culture Y_{68}: S53

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.945	.389*	11.444*	4.784
US vs. UK	.183	.304	.707	1.189
Japan vs. UK	-.762	.366*	8.424*	4.105

* Significant at 95%

204

One Factor ANOVA X_1: Culture Y_{88}: S88

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	7.018	3.509	3.379
Within groups	195	202.533	1.039	p = .0361
Total	197	209.551		

Model II estimate of between component variance = 1.235

262

One Factor ANOVA X_1: Culture Y_{88}: S88

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	2.728	.982	.122
Japan	38	3.226	1.138	.185
UK	95	2.763	.994	.102

263

One Factor ANOVA X_1: Culture Y_{88}: S88

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.497	.41*	2.854	2.389
US vs. UK	-.035	.324	.023	.212
Japan vs. UK	.462	.386*	2.793	2.363

* Significant at 95%

264

One Factor ANOVA X_1: Culture Y_{90}: S90

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.849	4.925	6.739
Within groups	195	142.494	.731	p = .0015
Total	197	152.343		

Model II estimate of between component variance = 2.097

268

One Factor ANOVA X_1: Culture Y_{90}: S90

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	2.677	.812	.101
Japan	38	3.026	.822	.133
UK	95	2.432	.895	.092

269

One Factor ANOVA X_1: Culture Y_{90}: S90

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.349	.344*	2.003	2.002
US vs. UK	.245	.271	1.59	1.783
Japan vs. UK	.595	.324*	6.569*	3.625

* Significant at 95%

270

Executive/Management Development Philosophy

This section refers to the six questions on the survey regarding company processes and philosophies concerning development.

Questions

P95: ***Prefer to Grow Our Own Management/ Promote From Within***

P96: ***Look Both Inside and Outside for Management Talent***

P99: ***Develop a Large Pool of Managers-Assess for Potential Later***

P100: ***Senior Executives Have Tended to be Specialists***

The American respondents answered the question of promoting from within differently than both the British and Japanese. The Americans agreed with this statement significantly more than did their counterparts. They showed a significant difference with the Japanese (.812) in their response to this statement. This is somewhat surprising, as this researcher held strong opinions that the Japanese promoted strictly from within and based almost exclusively on seniority, but this response seems to counter that belief.

Concerning the statement about looking both inside and outside for management talent (P 96), all three groups responded to the question with significant differences. Again a surprise, but supporting their rating of P 95, the Japanese agreed most strongly with this statement than did the

Americans and the British groups. The Americans agreed with this statement the least.

Concerning the statement of preferring to develop a large pool of young managers and assessing them for executive potential later in their careers, the Japanese and the British groups responded with significant differences. The Japanese agreed with this statement more strongly than did the British by a significant .608. The British agreed with this statement the least.

Concerning the statement that their senior executives have tended to be specialists in their careers, coming up through a particular function or type of business, the British group held strong differences with their American and Japanese counterparts. The U.K. respondents clearly agreed with this statement the most, and they held a significant difference with the Japanese of .612. The Japanese agreed with this statement the least.

One Factor ANOVA X_1: Culture Y_{95}: P95

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	17.452	8.726	8.653
Within groups	159	160.337	1.008	p = .0003
Total	161	177.79		

Model II estimate of between component variance = 3.859

283

One Factor ANOVA X_1: Culture Y_{95}: P95

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	52	4.301	.879	.122
Japan	38	3.489	1.005	.163
UK	72	3.686	1.084	.128

284

One Factor ANOVA X_1: Culture Y_{95}: P95

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.812	.423*	7.186*	3.791
US vs. UK	.615	.361*	5.664*	3.366
Japan vs. UK	-.197	.398	.48	.98

* Significant at 95%

285

One Factor ANOVA X_1: Culture Y_{96}: P96

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	26.022	13.011	11.497
Within groups	158	178.809	1.132	p = .0001
Total	160	204.831		

Model II estimate of between component variance = 5.94

286

One Factor ANOVA X_1: Culture Y_{96}: P96

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	51	2.481	1.016	.142
Japan	38	3.568	.942	.153
UK	72	3.033	1.153	.136

287

One Factor ANOVA X_1: Culture Y_{96}: P96

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-1.087	.45*	11.36*	4.767
US vs. UK	-.552	.385*	4.023*	2.837
Japan vs. UK	.534	.421*	3.138*	2.505

* Significant at 95%

288

One Factor ANOVA X_1: Culture Y_{99}: P99

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.3	4.65	4.354
Within groups	157	167.693	1.068	p = .0144
Total	159	176.994		

Model II estimate of between component variance = 1.791

295

One Factor ANOVA X_1: Culture Y_{99}: P99

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	51	3.039	1.019	.143
Japan	38	3.368	.942	.153
UK	71	2.761	1.088	.129

296

One Factor ANOVA X_1: Culture Y_{99}: P99

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.329	.437	1.105	1.486
US vs. UK	.279	.375	1.079	1.469
Japan vs. UK	.608	.41*	4.281*	2.926

* Significant at 95%

297

One Factor ANOVA X_1: Culture Y_{100}: P100

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	11.957	5.978	5.098
Within groups	158	185.283	1.173	p = .0072
Total	160	197.24		

Model II estimate of between component variance = 2.403

298

One Factor ANOVA X_1: Culture Y_{100}: P100

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	51	3.324	1.149	.161
Japan	38	3.199	.921	.149
UK	72	3.811	1.113	.131

299

One Factor ANOVA X_1: Culture Y_{100}: P100

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.125	.458	.145	.538
US vs. UK	-.487	.391*	3.018	2.457
Japan vs. UK	-.612	.429*	3.97*	2.818

* Significant at 95%

300

Executive/Management Development Strategy

This section dealt with the perceived linkages between the respondents' company strategies and their management development activities/strategies. Since there was only one question in this section, it is being placed at the end of this section.

Question

T103: Link between Leadership Skills Requirements and Current Management Development Activities

Observation

The Japanese held the most difference with the American and British groups on this question. They rated their performance lower than the other two groups. This researcher has observed that Japanese companies partake in little formal education and this might be the cause for the low response.

One Factor ANOVA X_1: Culture Y_{103}: T103

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	8.054	4.027	4.301
Within groups	159	148.89	.936	p = .0152
Total	161	156.944		

Model II estimate of between component variance = 1.545

307

One Factor ANOVA X_1: Culture Y_{103}: T103

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	52	3.115	.983	.136
Japan	38	2.579	.793	.129
UK	72	3.097	1.037	.122

308

One Factor ANOVA X_1: Culture Y_{103}: T103

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	.536	.408*	3.374*	2.598
US vs. UK	.018	.348	.005	.103
Japan vs. UK	-.518	.383*	3.567*	2.671

* Significant at 95%

309

Observations of Differences Based on Cultural Orientation

It is interesting to note that the Japanese responded to the questionnaire with a good deal more differences than did the Americans or the British. Further, the British were much more likely to disagree with the Japanese than they were with the Americans — in fact twice as likely. Of the thirty six questions where differences in responses were tied to cultural orientation or "mapping" at the 95% level of significance as discussed in the literature review and methodology sections, the Japanese and British differed significantly 30 times out of 36. The British only differed significantly with the Americans 15 times out of the 36, or with half the tendency to disagree significantly. The Americans differed significantly with the Japanese 23 times out of the 36 variables.

Linkage to the Thesis Arguments

The data on the three culture groups clearly supports thesis argument I. Even after adjusting the respondent groups for cultural bias, clear differences emerged in more than one out of three of the questions in the questionnaire. By establishing an F-test threshold of .05, this researcher illustrated that with these 36 questions there is little to no likelihood that these differences occurred by chance. Further, many of the F-test readings were in the tens of thousands, indicating that beyond a shadow of a doubt the responses varied due to the culture group formation.

The next section will identify areas of "multi-cultural common ground", as presented in thesis argument II, as well as highlight the key challenge of

balancing the tensions from searching for shared meaning and vision with encouraging differences in perspectives, as presented in thesis argument III.

Multi-Cultural Common Ground

Thesis argument II addresses the notion that in spite of the fact that managers from different cultural orientations will tend to look at competitive, organizational and leadership challenges differently due to their cultural orientation or "mapping", that it is possible to identify areas of common ground concerning organizational capabilities and leadership competencies perceived as critical in the 90's.

The processes for "proving" that this common ground can be identified has already been supported in the review of the literature, most specifically by Hofstede's work and by explanation of the research methodologies related to "handicapping" the responses, thus creating a common "language", as discussed in Chapter IV. What follows then are the findings of the prioritized responses of the culturally adjusted data from the entire respondent population of 294 managers.

The data includes the top five or six ratings from each section of the questionnaire, an overview summary table listing all of the ratings in descending order of ranking, a few pages of the actual data tables from the analysis, with the balance of the data tables being placed in the appendices.

Summary Table: Mean Ratings from the Questionnaire

Section K		Section C		Section I		Section S		Section P		Section T	
Question	Mean	Question	Mean	Question	Mean	Question	Mean	Question	Mean	Question	Mean
11	4.5	18	4.5	67	4.6	53	3.7	95	3.8	101	3.5
10	4.4	29	4.0	42	4.6	82	3.4	100	3.5	103	3.0
5	4.1	26	3.9	40	4.5	80	3.3	97	3.2	102	2.8
9	4.0	28	3.9	35	4.5	58	3.2	96	3.0		
13	3.9	27	3.9	72	4.5	54	3.2	98	3.0		
12	3.8	20	3.9	71	4.5	83	3.2	99	2.9		
7	3.8	25	3.9	45	4.4	93	3.2				
14	3.7	23	3.8	37	4.4	59	3.1				
15	3.7	22	3.8	38	4.3	57	3.1				
1	3.7	19	3.6	79	4.3	61	3.1				
2	3.6	32	3.5	43	4.3	63	3.1				
3	3.5	30	3.4	73	4.3	87	3.1				
6	3.4	24	3.4	36	4.3	85	3.1				
17	3.4	34	3.4	39	4.2	86	3.1				
16	3.3	33	3.3	74	4.2	60	3.0				
4	3.2	31	2.8	68	4.2	88	3.0				
8	3.1	21	2.2	44	4.2	52	3.0				
				46	4.1	94	3.0				
				77	4.1	64	3.0				
				70	4.1	84	3.0				
				78	4.0	55	2.9				
				49	4.0	89	2.9				
				47	4.0	81	2.9				
				75	3.9	92	2.9				
				69	3.9	56	2.9				
				65	3.8	50	2.8				
				41	3.8	62	2.8				
				76	3.6	90	2.7				
				66	3.6	51	2.7				
				48	3.6	91	2.7				

Immediately following these data is the factor analysis data, listing the nine factors, with some sample data tables from the actual factor analysis, with the balance of these data tables also being placed in the appendices. Relatively little commentary is made in this section, as this is covered in Chapter VI.

Prioritized Ratings for Each Section of the Questionnaire From the Entire Respondent Group of 294 Managers

- ***Key Factors Impacting Your Organization's Competitive Environment***

1. Keeping Close to the Customer ..... (K 11, rating 4.5)
2. Quality ..... (K 10, rating 4.4)
3. Technological Innovation ..... (K 5, rating 4.1)
4. Keeping Costs in Line ..... (K 9, rating 4.0)
5. Difficulty in Finding Skilled People..... (K 13, rating 3.9)

- ***Contemporary Organizations in the Year 2000***

1. Be More Flexible and Adaptive..... (C 18, rating 4.5)
2. Be Close to Total Quality Operations..... (C 29, rating 4.0)
3. Have Fewer Layers Than Today..... (C 26, rating 3.9)
4. Have More Women and Minorities ..... (C 28, rating 3.9)
5. More Work Done Through Project Teams ..... (C 27, rating 3.9)
6. Be Leaner Than Today..... (C 20, rating 3.9)
7. Be More Productive Than Today *..... (C 25, rating 3.9)

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* 7 variables listed because the last five tied in score.

- ***Leadership Competitive Capabilities Profile***

Competencies Perceived as Most Important

1. Exhibit a Strong Customer Orientation..... (I 67, rating 4.6)
2. Be Flexible and Adaptive..... (I 42, rating 4.6)
3. Communicate Effectively ..... (I 40, rating 4.5)
4. Manage Strategic Change..... (I 35, rating 4.5)
5. Manage Strategy to Action/Results..... (I 72, rating 4.5)
6. Manage Quality Improvement..... (I 71, rating 4.5)

Perceived Company Strengths in Competency Areas

1. Exhibit a High Degree of Integrity ..... (S 53, rating 3.7)
2. Exhibit a Strong Customer Orientation ..... (S 82, rating 3.4)
3. Negotiate for Resources ..... (S 80, rating 3.3)
4. Be a Team Leader ..... (S 58, rating 3.2)
5. Communicate Corporate Values ..... (S 54, rating 3.2)
6. Build Customer/Supplier Alliances ..... (S 83, rating 3.2)
7. Excellence in Functional Management* ..... (S 93, rating 3.2)

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* 7 because ratings tied

Three Largest Variances (Importance vs Strength) From the Competencies Perceived as Most Important

1. Manage Strategic Change..... (4.5-2.8= V of 1.7)
2. Communicate Effectively ..... (4.5-2.9= V of 1.6)
3. Be Flexible and Adaptive..... (4.6-3.1= V of 1.5)

- ***Executive/Management Development Philosophy***

1. Grow Our Own Management and Promote From Within.... (P 95, 3.8)
2. Our Senior Executives Have Tended to be Specialists ..... (P100, 3.5)
3. Place Great Value on Early Identification of Talent ..... (P 97, 3.2)

- ***Executive/ Management Development Strategy***

1. Link Between Business Environment and Business Strategy ..... (T 101, 3.5)

2. Link Between Leadership Skills Requirements and Current Management/Executive Development Activities .... (T 103, 3.0)

3. Link Between Business Strategy and Strategy for Executive and Management Development..... (T 102, 2.8)

From looking at these data it appears that there is substantial agreement concerning the most important perceived leadership competencies required for competitive success, as the group was able to agree on six competencies

with at least a 4.5 (on a 5 point scale) rating. There also seemed to be a reasonable amount of agreement concerning the perceived key factors impacting the respondents' competitive environment, as well as the perceived characteristics of contemporary organizations by the year 2000.

However, in order to search for underlying themes by seeking to determine whether correlations existed among any of the variables in the questionnaire that might not have emerged by a more cursory look at the data; this researcher conducted a factor analysis of all 294 managers' responses to 94 of the 103 questions. A number of respondents did not complete the sections on management development philosophy and strategy and since these questions were not critical to the outcome, they were excluded from this process in order to ensure the integrity of the data. The processes and methods chosen (Principal Axis Analysis) for the factor analysis are explained in depth in Chapter IV and the foundations (Gorsuch and Harman) for these methods were also supported in depth in the review of the literature in Chapter II.

Factor Analysis

By conducting the factor analysis with a .3 threshold as discussed in Chapter IV, nine factors were identified. The variables produced in the nine factors are listed below, as are several pages of the data tables, with additional data tables being placed in the appendices.

Factor 1

0.546	S50	Manage strategic change
0.538	S51	Manage cultural change
0.512	S52	Articulate a tangible vision
0.392	S53	Exhibit a high degree of integrity
0.401	S54	Communicate corporate values
0.483	S55	Communicate effectively
0.384	S56	Understand global economic, political, cultural, social issues
0.549	S57	Be flexible and adaptive
0.545	S58	Be a team leader
0.493	S59	Be a team member
0.635	S60	Manage innovation
0.59	S61	Synthesize complex information
0.593	S62	Learn how to learn
0.464	S64	Influence others without authority
0.395	S80	Negotiate for resources
0.434	S81	Manage ethically/cultural diverse workforce
0.525	S82	Exhibit a strong customer orientation
0.441	S83	Build customer/supplier alliances
0.572	S84	Manage a fast cycle organization
0.507	S85	Manage a leaner organization
0.542	S86	Manage quality improvement
0.623	S87	Manage strategy to action/results
0.562	S88	Take risks/initiative
0.64	S89	Develop and coach others
0.551	S90	Structure development job assignments
0.488	S91	Manage a staff re-skilling effort
0.59	S92	Make future oriented staffing decisions
0.541	S93	Demonstrate excellence in functional management
0.568	S94	Have knowledge of the total business

Factor 2

0.543	I35	Manage strategic change
0.496	I36	Manage cultural change
0.506	I37	Articulate a tangible vision
0.494	I38	Exhibit a high degree of integrity
0.608	I39	Communicate corporate values
0.502	I40	Communicate effectively
0.301	I41	Understand global economic, political, cultural, social issues

Factor 2 (Continued)

0.547	I42	Be flexible and adaptive
0.438	I43	Be a team leader
0.411	I44	Be a team member
0.424	I45	Manage innovation
0.511	I46	Synthesize complex information
0.535	I47	Learn how to learn
0.334	I48	Demonstrate effective political skills
0.424	I49	Influence others without authority
0.456	I65	Negotiate for resources
0.312	I67	Exhibit a strong customer orientation
0.394	I70	Manage a leaner organization
0.353	I71	Manage quality improvement
0.604	I72	Manage strategy to action/results
0.46	I73	Take risks/initiative
0.651	I74	Develop and coach others
0.601	I75	Strucutre development job assignments
0.503	I76	Manage a staff re-skilling effort
0.567	I77	Make future oriented staffing decisions
0.528	I78	Demonstrate excellence in functional management
0.512	I79	Have knowledge of the total business

Factor 3

0.579	C18	be more flexible and adaptive
0.331	C19	be highly decentralized
-0.563	C21	be about the same as today
0.527	C22	have better leadership than today
0.46	C23	engage in more alliances than today
0.639	C25	be more productive than today
0.49	C30	be fully integrated globally

Factor 4

0.33	K10	Quality
0.49	K11	Keeping close to the customer
0.449	K12	Differentiating products/businesses
0.352	I42	Be flexible and adaptive
0.44	I67	Exhibit a strong customer orientation
0.373	I68	Build customer/supplies alliances
-0.368	I76	Manage a staff re-skilling effort

Factor 5

0.324	K15	Employee attitudes/values are changing
0.31	C27	get work done through project teams
0.389	C28	have more women and minority managers
0.352	C29	be close to total quality operations
0.435	C32	be more smaller "spun off" SBU's
0.376	C33	have sabbatical programs for their staff
0.375	C34	have more MBA's in key management positions

Factor 6

0.407	K2	Mergers/acquisitions/divestitures
0.395	K4	Volatile capital markets
0.351	K7	Short-term pressures (ROI) vs. Long-term strategy
0.403	K8	Time based competition
0.422	K14	Changes in leadership and/or environment creating cultural changes
0.477	K15	Employee attitudes/values are changing
0.478	K16	Increasing diversity in the workforce
0.538	K17	Changing environment creating workforce skills mismatch

Factor 7

0.513	K9	Keeping costs in line
0.51	K10	Quality
-0.362	C30	be fully integrated globally

Factor 8

0.389	K5	Technological innovation
0.319	C20	be leaner than today
0.3	I45	Manage innovation
0.418	I70	Manage a leaner organization
0.32	S53	Exhibit a high degree of integrity
0.348	S54	Communicate corporate values
0.371	S55	Communicate effectively

Factor 9

0.308	I41	Understand global economic, political, cultural, social issues
0.312	I48	Demonstrate effective political skills
0.318	S56	Understand global economic, political, cultural, social issues
0.351	S61	Synthesize complex information
0.468	S63	Demonstrate effective political skills

Naming the Factors

Factor 1. Distinctive Competencies

The respondents agreed with the concept of a company strength when asked to list their company's current relative strengths in a variety of leadership capabilities areas. They tend to either rate their strengths as positive or negative, but in either case they identify with the notion that an organization's people can comprise a competitive capability and, as such, this researcher has identified the first factor as *distinctive competencies.*

Factor 2. Organizational Capabilities

The respondents also identified strongly with the concept that such leadership competitive capabilities are important to competitive success for the future. And as such, these leadership competencies would then comprise the foundations for powerful organizational capabilities as a means of enhancing competitiveness.

Factor 3. Networked Organizations

The respondents agree that contemporary organizations will be much more responsive and flexible, engaging in "webs" of relationships, not only with their own, more decentralized organizations but with suppliers and competitors alike through new organizational forms.

Factor 4. Market Driven Quality

The respondents indicate that the winners in this fierce competitive environment will be those who stay close to their customers, provide them with superior quality and who have employees who are dedicated to providing the highest quality products and services to their customers.

Factor 5. Diverse Perspectives

The respondents seem to indicate that fundamental changes are taking place both throughout the external competitive environment and within our organizations, as employee values continue to change and as the people that comprise these organizations change. It appears that the group is indicating that *diversity of perspectives* will be a reality, with the implication that contemporary organizations should be aware of these changes and encourage them.

Factor 6. Transformational Change

The respondents indicate that their competitive environment is characterized by widespread, *transformational change* and that these changes exist in the make-up of the workforce, the cultural context, in competitive strategies and in the values of the workforce and the "new leadership".

Factor 7. Providing Value

The respondents indicate that *providing value* to the customer is critical, whether the enterprise is a local or global company. Increasing competition demands that organizations provide the highest possible value for the lowest possible cost.

Factor 8. Communicating a New Vision

The respondents seem to indicate that a new vision of leadership is emerging and that leaders of contemporary organizations will need to communicate the values that will drive this vision, as well as demonstrate the skills required to lead these transformed organizations.

Factor 9. Managing Complexity

The respondents indicate that leaders of the future will need to master cognitive complexity and manage complex webs of relationships in order to be successful in this changing competitive environment.

Linking the Factor Analysis to the Thesis Arguments

As stated previously, the process of surfacing areas of difference due to cultural mapping was most directly linked to the development and support of thesis argument I, while the process of identifying merged priorities served to support thesis argument II most directly. Thesis argument III is supported most directly by the factor analysis, although the factor analysis also serves to confirm the first two arguments as well.

The factor analysis provides the indication that the external competitive environment is transforming the conduct of business and management as we know it. Whether it is local, regional or global, competition has increased and customers seem to care about value above all else. Organizations will need to compete under conditions of complexity, ambiguity and uncertainty and, to do so, they will need to be more responsive and anticipatory. A new vision for leadership is emerging as well- characterized by one's ability to both merge and leverage diversity of views and communicate a shared vision for the future simultaneously. To do this will require both an organizational framework or capability supportive of this mode as well as individual competencies that are up to the task.

The management of such complexity will by its very nature create tensions that will need to be managed. The leader's relative success at managing these tensions will be one of the key determinants of whether an organization will be competitive in this changing environment. The

products of the factor analysis have served to structure these underlying themes, thus supporting the third thesis argument.

What follows in Chapter VI is a further discussion of the results of the research.

Chapter VI

Discussion of the Results

Chapter VI

Discussion of the Results

Background: Linking the Literature Review, the Thesis Arguments and Research Methods to the Results

As discussed is Chapter II, the review of the literature focused on several key areas, including competitive dynamics, globalization, cross cultural management, organizational systems and structures, leadership development, human resources development processes, competencies, managing change and the linkage of human resource systems to the business' strategy and competitive environment. In addition, focus was placed on research methodologies, particularly methodologies that blended qualitative and quantitative inquiry.

The review of the literature led this researcher to explore in more depth the notion that managers from different cultural orientations may tend to look at competitive, organizational and leadership challenges differently due to their cultural orientation or "mapping" (Thesis Argument I).

In order to examine this hypothesis, this researcher, drawing upon Hofstede's work, would need to standardize the various culture groups by "handicapping" their responses to adjust for factors such as gravitating toward hyperbole, as one might expect from American respondents, or to be more reserved than normal, as one might expect from the British respondents, or to draw another meaning from the question, as one might expect from the Japanese respondents. As explained in depth in Chapter

IV, this researcher conducted statistical tests to weight the responses, thereby creating a "common language" among the respondents.

The results, indeed, indicated that a substantial amount of disagreement occurred among the culture groups due to their cultural mapping, using an F-test threshold of .05 or less. In fact, many of the differences registered in the tens of thousands in the F-test column, indicating no doubt that the differences were due to cultural orientation. The specifics of these and other results from the research results will be discussed later in this chapter.

But what did these findings mean? Did they mean that managers would essentially hold polarized views about the external competitive environment, about organizational capabilities or about the critical competencies required for leadership effectiveness for competitive success? This researcher felt that this was not the case from his review of the literature and from his extensive interactions with corporations from around the world. Whether the scholar came from Europe, Asia or North America, the discussion was about the changing nature of the competitive environment, the need to change our organizations or the need to identify and develop a new generation of leaders.

Knowing that fundamental differences in perspective existed through examination of thesis argument I, yet sensing that there were, in fact, areas of substantial agreement on these issues, this researcher postulated that even though it appears that managers from various cultures may have different cultural maps, it is possible to find a multi-cultural "common ground"

concerning the organizational capabilities and leadership competencies perceived as critical for competitiveness in the 90's (thesis argument II). The influences of Hofstede, Kets de Vries, Laurent and Hedlund were evident in the execution of the methods to search for areas of agreement across culture groups. As mentioned in Chapter II, this researcher was also influenced by Miller and Roth in the initial design and development of the survey. These combined influences enabled this researcher to weight the responses of the various culture groups into a common group and then proceed with the analytical framework through the administration of the questionnaire, which was designed to measure perceptions.

The results, in fact, supported the thesis argument, in that substantial areas of agreement were identified concerning the competitive environment, the view toward contemporary organizations and the perceived competency requirements for leadership effectiveness. In addition, strong gaps were identified between the perceived importance of several key competencies and the respondents' perceptions of their companies' capabilities in those areas, which should prove valuable for researchers and practicing managers alike.

And by further exploring the literature in the areas of competencies, leadership and vision, this researcher mentioned strong influences in Chapter II caused by scholars such as Kets de Vries and Kakabadse. In particular, Kets de Vries emphasis on cultural adaptability and Kakabadse's emphasis on the conflicts caused by managing the process of creating a common vision caused this researcher to postulate that a significant challenge facing corporations in the 90's is managing the tensions and

processes of transformation and change resulting from attempts to develop a shared meaning of the company's vision, balanced by an operating culture that encourages substantial differences in perspectives (thesis argument III).

This researcher realized that in order to cultivate these themes more fully that an exploration into the underlying themes of the data would be required. Therefore, and upon the urging of this researcher's advisory committee, this researcher conducted an extensive factor analysis of the data of the total respondent pool of 294 managers. The methods of the factor analysis are covered in depth in Chapter IV.

The results of the factor analysis were, indeed, revealing and helped this researcher to gain a better perspective on the group's responses. These results will be examined in more detail later in this chapter.

The important point to be drawn from this background is that the review of the literature served as a driver of both the thesis arguments and the research methodologies, which of course were also linked to the findings. This continuity of approach in the research proved extremely valuable to the researcher in his learning.

Discussion and Meaning of the Results

The discussion and meaning of the results will be handled in the same sequence as the research was conducted. Therefore, we will first look at the responses of the different culture groups, which largely served to support thesis argument I. We will then look at the merged responses of

the entire group in search of the "multi-cultural common ground", which served to largely support thesis argument II. We will next look at the results of the factor analysis to search for underlying themes, which largely supported thesis argument III.

This researcher will first discuss the results of a procedure and then explore the meaning before moving on to the next procedure. A brief summary discussion will follow as an introduction to the final chapter on conclusions, Chapter VII.

- ***Differences among Culture Groups***

As indicated previously in Chapter IV, this researcher organized a large sub-set of the total respondent pool into three "culture groups". The culture groups consisted of Americans, British and Japanese respondents. The groups consisted of 65 Americans, 96 British and 38 Japanese respondents, for a total sub-group population of 199 managers.

In conducting the tests for cultural orientation, this researcher found that 36 out of the 103 questions contained responses that were clearly biased by cultural orientation or "mapping".

Due to the fact that a culture group could potentially disagree with two groups per question, it would be possible for 108 disagreements to occur (36 questions x 3 disagreements, e.g. Japan vs US, Japan vs UK, US vs UK). Out of the 108 possibilities, this researcher found 68 disagreements, with 42 of these differences showing a mean difference greater than .5.

This researcher also found that it was considerably more likely that the Japanese respondents would respond differently to a question than the other two groups. This researcher found that the U.K. respondents were twice as likely to have differences with their Japanese counterparts than they would with their American counterparts. Specifically, the U.S. and U.K. respondents held significant differences fifteen times, while the U.K. and Japanese respondents held differences 30 times. The U.S. and Japanese respondents held significant differences 23 times.

Some examples of where the culture groups responded with significant differences include:

- ***Time Based Competition***: This was variable K8 in the questionnaire, residing in the section on *Key Factors Impacting Your Organization's Competitive Environment.*

In this instance, all three groups held significant differences on this topic due to their cultural orientation. However, the Japanese and British groups responded in very different ways, with a mean difference of .811 on a five point scale. The Japanese felt that time based competition was a much more important factor that will impact their competitive environment than did the British.

- ***Be Fully Integrated Globally***: This was another case where all three groups responded with significant culturally based influences. In this case, the question was in the section on *Contemporary*

Organizations in the Year 2000. The respondents were to indicate their perceptions of what contemporary, high performing organizations might look like by the year 2000.

In this case, the Japanese and British respondents held huge variances in their responses to this variable. The difference in their mean responses was 1.25 on a five point scale. Again, the Japanese felt more strongly that contemporary organizations of the future would be characterized by being fully integrated globally. In this particular instance, the Japanese responded most strongly to this variable, although their difference in mean response was only .52 with the Americans.

- ***Keeping Costs in Line:*** This variable resided in the Key Factors section, and it is interesting to note that both the American and British respondents felt more strongly about this topic than did their Japanese counterparts. The difference in mean responses between the U.S. and Japanese was .77, while the difference between the U.K. and Japanese respondents was .69.

- ***Manage Ethnically/Culturally Diverse Workforce:*** This variable resided in the Leadership Competitive Capabilities Profile section of the questionnaire. Respondents were asked to perform a dual ranking with these questions, first indicating their perceptions of how important a certain competency area was to the successful execution of their company's strategy and then rating their company's relative strength at developing that particular competency area within their company. In this particular example, this researcher is concerned only

about the responses given to the importance of this competency area. An example of the questionnaire used is in the appendices.

Again, this is an area on which all groups responded with significant differences. The Americans felt most strongly about this competency area, while the British felt the least strongly. The Americans rated this competency area .78 higher than did the British. The Americans rated it .42 higher than did the Japanese.

It would be somewhat redundant to go over all of the responses, as the total set of differences are contained in Chapter V and details of the data tables are contained in the appendices. However, this researcher wanted to provide a few examples to serve as an illustration as to how meanings can be extracted from both the procedure used as well as from some of the actual responses.

What Do the Results of the Culture Groups Analysis Mean?

The results hold a variety of meanings. They add further support to Hofstede's already considerable work in the area of cross cultural management. These findings help to support the notion that our biases, values and patterns of decision making may reside deep within culturally influenced roots.

These findings may also suggest why "manage strategic change", "communicate effectively" and "be flexible and adaptive" were the three competency areas listed as having the largest gaps between importance and

capability by the total respondent population. If we are heavily influenced by such cultural mapping then changing would become more difficult, communicating effectively would certainly be more difficult and being adaptive would likely be problematic as well.

Further, since we now know that these fundamental differences do exist, it is perhaps easier to understand the degree of complexity involved in seeking agreement on important issues while communicating with a cross cultural group. These findings might help us to look beyond the surface in improving communications. It might be possible, for example for an individual to absorb every word another individual is saying while extracting a very different meaning from the conversation, complexities of language aside.

Take the issue of managing an ethnically/culturally diverse workforce listed above as an example. If five individuals were members of a transnational project team with a goal to develop a new product that will be distributed globally, and some of the team members feel less enthusiastic about the notion of going the extra step to manage diverse views then the product launch might indeed suffer. Or, more fundamentally, from a selection point of view, if an individual is incapable of growing beyond some deeply held beliefs then their career progression might well become hampered.

Concerning the specific issues raised in the thesis argument, the results mean that we now know that managers from different cultural orientations will tend to hold rather significantly different views toward their

perceptions of the external competitive environment, toward their views about the characteristics of high performing organizations and toward their perceptions about the most important competencies required for leadership effectiveness. On the surface this creates enormous anxieties but this researcher believes that it is far more important to feel confident that one will be facing such variances in perceptions before these differing perceptions fester into complex management problems.

These findings lend more support to the foundation of the third thesis argument as well, as they underscore that individuals will tend to draw different meanings from any communication but perhaps even more so from a broad based vision statement.

- ***Finding a Multi-Cultural Common Ground***

Again, the processes used to weight the responses of the total respondent population so as to create a common language are explained extensively in Chapter IV and supported in the review of the literature.

Whereas the first procedure concentrated on a sub-group of the respondents, the last two procedures included the entire population of 294 managers.

The concept was to move beyond appreciating that differences due to cultural mapping existed and to try to identify if and if so, where some areas of common ground existed. One of the rationales for this is due to the need for organizations to develop organizational responses to

competitive realities and to develop a workforce capable of managing and producing results amidst great uncertainty and change. In order to accomplish this, it is important to identify starting points — areas of common agreement or common belief and build from there.

The goal was not simply to create a list of competencies required for leadership effectiveness, nor to identify the three or four specific traits of high performing organizations. Rather, the goal was also to follow a process that would involve an exploration of these issues. Refinement of the process of exploration was indeed an equally important goal to the establishment of the list of organizational capabilities and leadership competencies, as these capabilities and competencies will almost surely change significantly within the next five years.

The identification of these capabilities and competencies is not unimportant, as they should help to offer an additional foundation of support for organizational change and development efforts and leadership development initiatives.

- ***Examples of the Weighted Findings***

Again, the complete findings are listed in Chapter V and some of the data tables are listed in the appendices, so it would be redundant to go over them all again. However, as with the cultural orientation section, this researcher will lay out a few examples as a framework for discussing the results.

It appears clear that the total respondent population is concerned about providing value, quality and technologically advanced products to the customer at the most reasonable price possible. That is essentially a summary of the top findings from the "Key Factors" section of the questionnaire.

"Keeping Close to the Customer" and "Quality" clearly ranked the highest among all variables in that section, followed by "Technological Innovation" and "Keeping Costs in Line". The fifth variable was "Difficulty in Finding Skilled People", indicating that concerns existed about whether these organizations would be able to deliver on these competitive challenges.

Concerning the "Contemporary Organizations" section, "More Flexible and Adaptive" was the clear winner. The respondents seem to feel as though their competitive environment is changing so rapidly that their organizations should be poised for change as well.

There also seemed to be a great deal of interest in increased efficiency and diversity in the responses. Responses included "Have Fewer Layers", "Be Leaner", "Be More Productive", and "Have More Women and Minorities" and "Do More Work Through Project Teams".

Concerning important competency areas, there seemed to be strong agreement. Rated highly were: "Exhibit a Strong Customer Orientation", "Be Flexible and Adaptive" (both 4.6 on a 5 scale), "Communicate Effectively", "Manage Strategic Change", "Manage Strategy to Action/Results", and "Manage Quality Improvement" (all rated 4.5).

The largest gaps between perceived importance of a competency and the organization's strength at cultivating that competency within their organizations were: "Manage Strategic Change" (1.7), "Communicate Effectively" (1.6) and "Be Flexible and Adaptive" (1.5). Addressing these perceived deficiencies would also tend to support thesis arguments I and III.

The top three strengths identified by these organizations were "Exhibit a High Degree of Integrity", "Exhibit a Strong Customer Orientation" and "Negotiate for Resources". The rating of "Customer Orientation" as the second highest strength was a bit surprising to this researcher, as it was listed as such a high variable in the competitive environment and as a key determinant in contemporary organizations. One would think that due to the severity of the perceived challenge that the perceived strength in that area would have been lower.

Concerning the "Management/Executive Development Philosophy" section, the most highly rated pattern of developing management talent appears to be "Growing Our Own and Promoting From Within", scoring a 3.8, followed by "Our Senior Executives Have Tended to be Specialists...", rating a 3.5 and "We Place a Great Deal of Value on the Early Identification of Management Talent...", scoring a 3.2.

And concerning the "Management/Executive Development Strategy" section, it is clear that the respondents feel that their organizations' business strategies are more closely in alignment with their external competitive

environments than they feel that their business strategies are in alignment with their strategies for executive and management development (the first rating a 3.5 and the second rating a 2.8).

What Do the Results of the Multi Cultural Common Ground Procedures Mean?

One of the important meanings to be drawn from the procedures to identify the areas of multi cultural common ground is that it is important to try to identify and manage both differences and similarities while searching for a deeper understanding of the interests or priorities of a multi cultural group.

While the "culture group" procedures helped us to see that there appear to be very strong indications that managers from different cultural backgrounds may tend to look at competitive, organizational and leadership challenges differently due to their cultural mapping, the procedures to merge the total population's responses into a "readable language" helped us to see that it not impossible to find substantial room for agreement among a rather diverse group.

The notion of a "multi cultural common ground" is an important one to this researcher because it serves as a foundation upon which discussions and communications can flow. It is important to recognize differences but it is equally important to understand at which points interests merge.

Concerning the specific results generated from this research, the findings will help researchers and practicing managers to better understand the perceptions of the forces that are driving the external competitive environment, the organizational capabilities and leadership competencies thought to be key for future competitiveness, as well as the core development processes to build world class organizations and world class leaders.

While these procedures might not result in identifying a set of specific competencies and capabilities for individual organizations, they should at least serve as an important benchmark against which these organizations can reflect and then search for more tailored meaning or value.

It seems important, for example, that managers from around the world appear to indicate that organizational responsiveness and adaptability will be vital for competitive success in the future. It appears important that these same managers indicate that an atmosphere characterized by market driven quality will dominate the external competitive environment and that the leaders of high performing organizations will demonstrate a strong customer orientation and a sense of responsiveness to unfamiliar and extensive competition. It appears important that these managers believe that the largest gaps between competency importance and leadership capabilities within their organizations are in the areas of managing strategic change, communications and demonstrating flexibility and responsiveness.

These findings help us to identify early themes — what this researcher has termed "competency themes". They provide broad signals for

organizations from which point they can refine these themes into a more actionable agenda for development. Another example of a competency theme might be "a TQM Orientation" (Total Quality Management). If one were to examine the findings from the merged responses, they would discover that "quality" emerged as a concern in the "Key Factors", "Contemporary Organizations" and "Leadership Competitive Capabilities Profile" sections of the questionnaire as a priority for attention. "Communication" and "Customer Orientation" also would emerge as a highlighted area.

While these competency themes may help us to develop a stronger intuitive sense of the factors that are of greatest concern to practicing managers today, we need to go further. This is one of the key reasons for undertaking the process of Factor Analysis.

While the process of analyzing the merged results was useful even at this level of analysis for this researcher, it really served to lay a proper foundation for the Factor Analysis. Organizations may not have the resources or capabilities to conduct factor analyses on their data, but it is somewhat easier to manage this process as a means of searching for merged meanings from analyzing data. However, to be clear, for purposes of this research, it was viewed as important to factor analyze the data to search even more deeply for the themes underlying the data.

What follows is the discussion of the factor analysis results and a summary of the meanings drawn from these results.

- ***The Factor Analysis***

The methods used to conduct the factor analysis were explained in depth in Chapter IV, the results presented in Chapter V and the rationale for using factor analysis was supported in Chapter II.

What follows, therefore, is a discussion of the results presented in Chapter V, followed by a summary of the meanings extracted from this analysis.

The factor analysis produced nine factors. As a brief review those factors were:

Factor I: ***Distinctive Competencies***
Factor II: ***Organizational Capabilities***
Factor III: ***Networked Organizations***
Factor IV: ***Market Driven Quality***
Factor V: ***Diverse Perspectives***
Factor VI: ***Transformational Change***
Factor VII: ***Providing Value***
Factor VIII: ***Communicating a New Vision***
Factor IX: ***Managing Complexity***

By conducting the factor analysis, this researcher was able to observe linkages that might otherwise have been overlooked. It also served as an important "glue" that bonded the processes of analyzing the culture group data with the multi cultural merged data. Indeed, this process was largely responsible for this researcher's refinement of the third thesis argument.

The Distinctive Competencies factor was named after determining that the managers' responses seemed to confirm the notion of company strengths in certain competency areas. These managers also confirmed the notion that these competency areas would, indeed, contribute to competitiveness, which led this researcher to name the second factor Organizational Capabilities.

In discussing their organizations, these managers responded with correlated patterns by indicating that they felt that high performing organizations would be flexible, adaptive, decentralized, allianced based, more integrated globally and, essentially not look anything like today's organizations. This led this researcher to name the third factor Networked Organizations, because of this flexible yet still coordinated texture to their responses.

The fifth factor was named Market Driven Quality because of a number of references to customer orientation, customer focused, quality, customer alliances and differentiation, which also would serve to provide value to the customer.

The sixth factor was named Diverse Perspectives because of the linkages drawn among changing values, changing organizational forms, and a changing workforce.

As change dominated a number of the responses within the sixth factor, this factor was named Transformational Change. The term transformational change was used because the emphasis on change was widespread, including

environmental change, workforce make up, changing leadership, changes in approaches to doing business and changing attitudes and values.

The seventh factor was straightforward, in that the managers linked quality, cost and environment. Regardless of place or orientation, a correlation existed that seemed to indicate that customer value was a key. Therefore, this factor was named Providing Value.

Linkages were also drawn among issues such as effective communications, communicating values, and items that seem to signal a new age of organization, technology productivity and responsiveness. These issues tend to comprise a new vision of leadership and organization for the future, which is why this factor was named Communicating a New Vision.

Lastly, the ninth factor seemed to be characterized by complexity. The complexity either seemed to consist of the external environment, the webs of relationships in the internal and external environment or in the sheer depth of complexity that managers need to wrestle with in today's world. This researcher felt that these linkages seemed to call for a mastery of cognitive complexity, which led to the naming of this factor as Managing Complexity.

- ***What Do the Findings From the Factor Analysis Mean?***

One can draw many meanings from the findings of the factor analysis. First, it strikes this researcher that change is not a sufficiently strong term to describe the conditions that pervade in both the external and internal environments today. Transformation does not appear to be too strong a term. Markets are changed, customers have changed, competitors have changed, leadership requirements have changed, values have changed, and so on.

It is clear, and we have seen it by exploring the culture group data, that differences in perspective, orientation, methods and approaches, styles and values exist in substantial proportions in the current business environment. It is also clear, and we have seen this by exploring the merged multi cultural perspectives, that common assumptions can be found, that agreement can be identified and that a common ground can be identified.

These do not necessarily need to be mutually exclusive phenomenon — indeed it appears that they must be linked. And it appears as though the new leader's role will be one of synthesizing the complexities brought on by recognizing and appreciating distinctiveness while searching for a shared vision for the future.

These forces create a certain amount of tension. Those who have engaged in any multi cultural meetings or negotiations will recognize the complexities involved. But it is not enough to simply acknowledge that these tensions will exist. These tensions are not problems. In the current

environment, they are managerial processes to be managed. They will not go away. The choice is to not deal with them, which may result in enormous problems later on, or to manage and even leverage them, which might present difficulties at first but which might result in improved management processes later on.

Introduction to the Conclusions

This research has led us through the processes of exploring the perceptions of a culturally diverse group of managers about their views of the complexities of linking the changing external environment with the changes required in their organizations and leadership competencies.

The conclusions will enable us to examine some of these views on the environmental, organizational and leadership challenges for the future. But this is only part of the learning to be extracted from this research.

The processes used to analyze and interpret these data were very valuable to this researcher's development and these processes of both understanding how to identify perceptions influenced by cultural mapping, as well as processes used to identify and understand multicultural common ground will be examined in more depth.

And this researcher will also look at the managerial implications of managing the natural tensions resulting from this new transformational environment as well as the human resources development implications and challenges facing today's contemporary organizations.

We will then examine the linkages among the literature, the value of the methodologies, the findings and the conclusions and explore what we have learned, as well as explore what research should now follow.

Chapter VII

Conclusions

Chapter VII

Conclusions

What Have We Learned?

This research has helped us to learn just how deeply rooted our perspectives can be and begins to explain why managers seem to be having such enormous difficulties adjusting to the sense of uncertainty that surrounds them.

Yet, this researcher believes that this work has also provided encouragement and hope. Encouragement in that there are clear signs to be found that the varying perspectives that diversity brings can be managed and leveraged for improved competitiveness in today's environment. Hope in that there appears to be intensive interest in this area of study at present, which should bring a richer understanding of the complexities with which we are dealing.

To explore what we have learned in more depth requires us to weave a few threads — between the literature, the thesis arguments, the methodologies, the findings and the implications. These implications include implications not only for practicing managers and human resource development specialists but for other researchers who may wish to follow with this work as well.

A Final Note on the Literature

There seems to be no shortage of literature on competitive strategy, excellent organizations, management and leadership, or globalization. However, there are surprisingly few on works that link these chains together.

If a "stay the course" competitive strategy were the recipe for success in the 90's, then responsiveness and diversity would more than likely be a detriment. If a clear, orderly, hierarchical organization were the appropriate means to the end of executing our competitive strategies in the 90's then perhaps the emerging flexible, networked organization would impede our abilities to perform. And if the image of the savior, the "man at the top" with the grand plan and the answers to match were the competencies required for leadership effectiveness in the 90's then the team oriented, ever-listening, ever-communicating, flexible diplomat that appears to be emerging as a new profile for leadership effectiveness would be inappropriate. But it appears that these images of the competitive environment, organization and leadership are disappearing — perhaps not as rapidly as one might think in this environment, but disappearing just the same.

Several scholars have had a significant impact on this researcher. In the final analysis, it was those researchers that presented an integrated perspective of the challenges facing organizations and leaders today that left the most important impressions and influenced the progression of this research. In the area of competitive strategy, for example, scholars such as

Bartlett and Goshal, Ohmae and even Hedlund left large impacts, as they drove home the points of managing internationally instead dealing with the issue of international management.

In the area of organizational transformation and learning, scholars such as Senge, Handy, Nonaka and Argyris enabled this researcher to develop a view of organizations as "currency transmitters" — a device that is able to receive, store and send messages to a variety of locations with which it is networked.

In the area of leadership development, Kets de Vries and Kakabadse probably had the greatest impact, as their work wove together the psychological, sociological, political and managerial challenges facing leaders today. Kakabadse's work strongly influenced this researcher's refinement of thesis argument III concerning the special challenges of managing the tensions that flow from doing what is the right thing in these times — searching for varying views and perspectives. Laurent's emphasis on cultural patterns also had a strong influence and helped this researcher to refine thesis arguments I and II.

Overall, Hofstede's work had a profound influence on this researcher's thinking. It guided the final phase of the literature review, it drove the initial design of the thesis arguments, it certainly shaped the research methodologies and the results were far more valuable as a result. Upon Professor Tyson's urging, this researcher's primary advisor, Hofstede became the foundation for the balance of the research and it proved to be of great value.

The Thesis Arguments

From reviewing the literature, this researcher felt that it would be important to explore how Laurent's theories of cultural patterns could be played out through an examination of an interest area that has held this researcher for some time — that of linking the changing nature of the competitive environment to our view toward organization design and leadership. Thesis argument I served to offer a challenge to see whether it was possible to discern the perceptions of managers from different cultural orientations on issues such as the external competitive environment, organizational capabilities and leadership competencies and attribute at least some of those perceptions to cultural orientation or mapping.

Thesis argument II offered a different but related challenge. If, as suspected, we were able to reinforce this notion of cultural patterns or maps, in this case, in the area of organization and leadership development, would it still be possible to identify areas of "multi cultural common ground"? Are there enough areas of merged agreement that could serve as a foundation for developing themes for building organizational capabilities and leadership competencies for competitive success in these times of change and uncertainty?

Indeed, the research enabled this researcher to not only identify perspectives attributed to cultural orientation but to identify areas of multi cultural common ground. This researcher is deliberately using the term "common ground" to serve as a means of differentiating between consensus

or complete agreement. In other words, if a Japanese manager indicates that being customer focused is a top priority it might not necessarily mean the exact same thing if an American or a British manager were to identify this capability or competency as a top priority as well.

These first two arguments helped to shape the third argument for this researcher. If we are in the midst of an environment in which we must acknowledge and actively search for varying views, and if we find that managers feel that contemporary leaders are those who are able to shape a shared vision and communicate corporate values, aren't there some inherent areas of conflict and tension built into managing these processes? Would not, then, a significant challenge facing our leaders be to manage effectively the tensions and processes of transformation and change resulting from attempts to develop a shared meaning of the company's vision, all the while trying to cultivate an operating culture that encourages substantial differences in perspectives?

This is the progression that led to the development and refinement of the thesis arguments. The methods chosen to research these issues have been examined extensively but a few comments on the methodologies would still be in order.

The Research Methodologies

The initial approach to grouping the managers' responses was proving difficult in terms of extracting any meaningful learning from the data for several reasons. First, there were too many small "case examples" from a

variety of settings and second, the respondents seemed to be providing substantially different answers to the questions. Upon the suggestion of this researcher's external examiner, Professor Richard Ottaway, this researcher reconfigured the respondents into "culture groups" and another group which, for purposes of description, will be called the multi cultural group. This solved the first problem.

Then, with Hofstede's influence, this researcher engaged in a process to "weight" or handicap the responses, based upon the initial responses as analyzed by culture group. The variances attributed to each culture group in relation to the grand mean of the the sum of the three culture groups, which enabled this researcher to solve the second problem.

The structuring and subsequent analysis of this data, explained extensively in Chapters IV, V and VI, enabled this researcher to prove thesis argument I.

This weighting procedure also enabled the group to be analyzed as a group, which served to facilitate the work performed in support of thesis argument II. The respondents' perceptions could now, at least, be read as a "common language". It was then possible to identify areas of multi cultural common ground by searching for areas on which there seemed to be substantial agreement. A draft set of perceived priorities concerning the key factors impacting the external competitive environment, a view of what contemporary, high performing organizations might look like and the profile of the leadership competencies required for competitive success were formulated by analyzing the culturally adjusted data. Further, gaps

were identified concerning the difference between the perceived importance of certain competency areas and the respondent's perception of their company's capabilities to cultivate a particular competency within their organization.

However, while this process enabled this common language to now be read, it was determined that conducting a factor analysis would provide the foundation for translating this language into meaningful themes that might be underlying the data.

The factor analysis, in fact, was extremely helpful. It drove the refinement of thesis argument III and, practically speaking, it provided this researcher with the understanding of the managerial implications of this research, which will be touched upon later. In particular, it surfaced the notion of managing the tensions resulting from managing diverse perspectives, and that the management of this tension was an important managerial process upon which great emphasis should be placed in the future. It helped this researcher to understand that leadership in the 90's is more about the art of managing difference than about the practice of managing conformity. Yet, the analysis also brought out the importance of values and vision, which has led this researcher to understand that the management of difference should be directed toward a continuing process of offering a framework within which employees from diverse backgrounds may derive individual meaning from a vision that also offers a sense of common understanding and enthusiasm.

These three major steps provided this researcher with a powerful learning experience and a set of findings that should be useful for both practicing managers and for other researchers.

A Final Note on the Results

In the end, it is no more important to this researcher to list the 36 areas on which the culture groups answered differently on the 103 item questionnaire due to cultural orientation or mapping than it is to understand that these forces are operating. The results are contained in Chapter V, and some data tables are included in that chapter, as well, with the balance in the appendices.

The essence of the learning from this analysis is that cultural mapping deeply influences our thinking, our perspectives and our decision making. To say that the Japanese are more concerned about globalization than the British is to make a generalization, but to be able to indicate that members from various cultural orientations may well respond differently to questions raised or issues presented because of their cultural patterns, as Laurent terms it, might well be more useful with a variety of applications.

Similarly, the results produced from exploring thesis argument II, multi cultural common ground, are transitory in and of themselves. What is perhaps even more important to learn is understanding that, while clear individual cultural perspectives exist and impact decision making, there is substantial room for common understanding, or the potential for developing a sense of shared meaning. If the past two decades serve as any

example, we can be certain that the perceived organizational capabilities and leadership competencies required for competitive success in the 90's will surely change over the next two decades. Therefore, the processes for identifying and analyzing these trends and perceptions are as important to this researcher as the specific outputs although, again these outputs are contained in Chapters V and VI, with additional data tables contained in the appendices.

This researcher believes that the factor analysis served to synthesize the first two thesis arguments, resulting in the third argument and that this third argument holds out perhaps the largest challenge for leaders in contemporary organizations in the 90's. Themes emerged from the factor analysis that were less visible in the raw data, especially in the area of managing difference while searching for shared meaning, and the resulting tensions caused by this process.

In the end, we must look for the implications of the findings, so before closing a summary of the implications for practicing managers, human resource development specialists and other researchers will be presented.

Implications for Managers, HRD Specialists and Researchers

- ***Managerial Implications***

One of the important implications of this research is to recognize the depth of importance of being able to manage the natural tensions that will emerge from a leader's attempts to search for varying views and perspectives.

This should not be a strategy for containment, rather it should be a managerial process for drawing out the perspectives of a variety of cultures and other points of orientation that might help to shed better light on the complexities of doing business in the current competitive environment.

The tensions are enhanced because while managers will hold on to their cultural perspectives they are also interested in "signing on" to a meaningful vision for the future. By their very nature, the processes of searching for varying perspectives will surface areas of disagreement and conflict. Leaders of contemporary organizations will need to be highly skilled in managing these processes.

As mentioned in the introduction, this researcher heads an international organization that conducts applied research in executive development and organizational transformation. The membership is comprised of twenty leading business schools and twenty eight leading global corporations. The consortium consists of approximately fifteen different cultures and the members also come from the somewhat distinct "thought worlds" of the corporate and academic communities.

The process of establishing priorities for research and benchmarking with this group has proven to be an enormous challenge, not to mention the challenge of running the research meetings, during which critical decisions are made concerning priorities, funding and so on (see information on ICEDR in the appendices). This research has also helped this researcher's perspective in some very pragmatic ways.

Additional managerial implications include providing managers with a better understanding of some of the perceived determinants for competitive success for the 90's. Among others, these include ensuring that our organizations are fiercely focused on providing customer value, which means providing the highest quality, most technologically advanced products and services at the most reasonable cost — as quickly as possible.

It means building organizations that are ready to do business anywhere, any time and any how. It means designing these organizations to be transmitters — enabling them to receive, store and send current, (or learning or capability), as effectively as possible.

It means identifying and developing leaders who are able to manage high degrees of complexity. Not only cognitive complexity but cultural and political complexity as well. These leaders will be excellent listeners and superior communicators. They will need to listen because they will need to seek out varying views and perspectives in order to understand the complexities of global competition. They will need to be superior communicators because they will need to forge from these varying perspectives a shared vision for the future of the organization that offers both individual enthusiasm and group cohesion. And, since their competitive environment is marked by incessant change, they will need to be highly skilled in change management approaches and methods.

- ***Implications for HRD Specialists***

Human resource development specialists should be able to draw important information from this research. While every manager should, indeed, be responsible for developing talent within their organizations, it is the HRD specialist who deals with these issues on a day-to-day basis. Increasingly, HRD specialists are also being called upon to help consult on issues surrounding organizational design and other human resources systems.

The perceptions of the respondents should therefore have immediate practical value as a benchmark for HRD specialists' own activities in organizational and executive development. This researcher knows from his leadership of ICEDR that there exists significant interest in the identification of competencies for the leader of the future. These findings, while not meant to be comprehensive globally, should be a valuable start.

This research should also help these HRD specialists to "cast a wider net" while searching for the next generation of leaders. It will be important for them to check their own assumptions, for example, regarding recruiting, selection and identifying high potential candidates. Further, it will be important for them to check their paradigms about the assessment instruments used to identify and evaluate potential talent.

They will, of course, need to understand the business environment that surrounds them, and this research should provide them with some additional insights into just how complex that environment is at present and how much more complex it will likely become.

They should be able to see how important it is for them to be expert in their technical specialty in conjunction with possessing a high level of competence in the strategic integration of complex information and the superior communication skills required to use this information so that they might offer sound guidance to operating executives at the highest levels. This will require the combined ingredients of technical skill, an enterprising spirit, a strategic capability and courage — as managing change and managing tensions is not an easy process.

Implications for Researchers

In this final section, this researcher will explore the value of the methodologies, lessons for other researchers and some suggestions regarding what research might follow.

The value of the methodologies resides mostly in the area of adding to the body of knowledge of a topical area that this researcher feels is vitally important yet where relatively little research has been conducted. With such a strong emerging interest in globalization, organizational transformation, leadership development and cross cultural management, the methodologies used in this research should serve as a follow on to the excellent foundations created by scholars such as Bartlett, Goshal, Hofstede, Hedlund, Kakabadse, Kets de Vries, Laurent, Senge and others.

The value also serves as an important lesson for this and other researchers in that it helps to show that quantitative methods can be effectively

employed to measure perceptions or other areas of research that might otherwise be viewed as qualitative in nature. This researcher's examiners provided a challenge for this to be done through this study and the study has emerged as a more important and useful piece of research because of this challenge.

A related lesson from this research is that rigorous analysis will produce better results. The learning from the respondents grew with each level of analysis and the interpretation of the results was therefore much richer because the data could be analyzed from a variety of perspectives.

What Other Research Should Follow?

This research should provide a useful foundation for additional work in several areas. First, the questionnaire itself could be improved upon, with variables added to reflect up-to-the-minute concerns and more targeted questions about the challenges of managing across cultures. Related to this point, the study (or a similar version) could be conducted on a world wide basis, with the questionnaire being translated into several major languages.

More research is needed in this whole area of how to manage the tensions discussed throughout the thesis, especially tensions resulting from cross cultural initiatives.

Additional work is also needed in the area of the role of the HRD specialist in the executive development and organizational transformation process,

including work on building organizational capabilities and leadership competencies.

And a related area is that of effectiveness research on executive development initiatives. Which methods of developing our future leaders are most effective? How do we develop leaders once we have a better idea of the competency areas on which to focus? Can we identify strong correlations between leadership and executive development initiatives and improved firm performance and competitiveness?

There are, of course, many related areas for future research but these are the key ones. Indeed, several of these themes could be incorporated into one major area of need, an area that will enjoy much attention over the next decade — the need for large scale organizational transformation.

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Appendices

Appendix A

Final Questionnaire

KEY FACTORS IMPACTING YOUR ORGANIZATION'S COMPETITIVE ENVIRONMENT

Below is a list of factors that may have an impact on your organization's competitive capabilities. Please indicate how strongly each factor might weigh on your organization over the next ten years. Please respond to all factors, leaving none blank.

	Factors that may have an impact on your organization's competitive capabilities	**Factor's projected impact on company's competitive environment over next ten years**				
		No Impact				*Great Impact*
K1.	Widespread global competition	*1*	*2*	*3*	*4*	*5*
K2.	Mergers/acquisitions/divestitures	*1*	*2*	*3*	*4*	*5*
K3.	Excessive government influence	*1*	*2*	*3*	*4*	*5*
K4.	Volatile capital markets	*1*	*2*	*3*	*4*	*5*
K5.	Technological Innovation	*1*	*2*	*3*	*4*	*5*
K6.	Core business maturing	*1*	*2*	*3*	*4*	*5*
K7.	Short-term pressure (ROI) vs. Long-term strategy	*1*	*2*	*3*	*4*	*5*
K8.	Time based competition	*1*	*2*	*3*	*4*	*5*
K9.	Keeping costs in line	*1*	*2*	*3*	*4*	*5*
K10.	Quality	*1*	*2*	*3*	*4*	*5*
K11.	Keeping close to the customer	*1*	*2*	*3*	*4*	*5*
K12.	Differentiating products/businesses	*1*	*2*	*3*	*4*	*5*
K13.	Difficulty in finding skilled people	*1*	*2*	*3*	*4*	*5*
K14.	Changes in leadership and/or environment creating cultural changes	*1*	*2*	*3*	*4*	*5*
K15.	Employee attitudes/values are changing	*1*	*2*	*3*	*4*	*5*
K16.	Increasing diversity in the workforce	*1*	*2*	*3*	*4*	*5*
K17.	Changing environment creating workforce skills mismatch	*1*	*2*	*3*	*4*	*5*

CONTEMPORARY ORGANIZATIONS IN THE YEAR 2000

Changes in a company's competitive, political and social environment often leads to changes in organizational strategy, form, structure and culture. Similarly, these changes may well call for new "skills" in the organization' s human resources.

Below is a list of statements indicating what well-run, contemporary organizations might look like as we begin the 21st century. Please circle the number that best describes the extent to which you agree or disagree with the statement.

Contemporary organizations in 10 years will:

		Strongly Disagree				*Strongly Agree*
C 18.	be more flexible and adaptive	*1*	*2*	*3*	*4*	*5*
C 19.	be highly decentralized	*1*	*2*	*3*	*4*	*5*
C 20.	be leaner than today	*1*	*2*	*3*	*4*	*5*
C 21.	be about the same as today	*1*	*2*	*3*	*4*	*5*
C 22.	have better leadership than today	*1*	*2*	*3*	*4*	*5*
C 23.	engage in more alliances than today	*1*	*2*	*3*	*4*	*5*
C 24.	have fewer unions than today	*1*	*2*	*3*	*4*	*5*
C 25.	be more productive than today	*1*	*2*	*3*	*4*	*5*
C 26.	have fewer layers than today	*1*	*2*	*3*	*4*	*5*
C 27.	get work done through project teams	*1*	*2*	*3*	*4*	*5*
C 28.	have more women and minority managers	*1*	*2*	*3*	*4*	*5*
C 29.	be close to total quality operations	*1*	*2*	*3*	*4*	*5*
C 30.	be fully integrated globally	*1*	*2*	*3*	*4*	*5*
C 31.	be few huge conglomerates	*1*	*2*	*3*	*4*	*5*
C 32.	be more smaller "spun off" SBU's.	*1*	*2*	*3*	*4*	*5*
C 33.	have sabbatical programs for their staff	*1*	*2*	*3*	*4*	*5*
C 34.	have more MBA's in key management positions	*1*	*2*	*3*	*4*	*5*

LEADERSHIP COMPETITIVE CAPABILITIES PROFILE

Answer all questions; leaving none blank. Use your best understanding of the meaning of the terms used in this instrument in making your response.

For each managerial activity listed in the center of the page:

a) on the left, circle the number that indicates how important each managerial skill or behavior is for your managers to possess in executing your firm's future competitive strategy;

b) on the right, circle the number that indicates your company's current organizational capabilities or strengths in each skill area.

	Skill area's relative importance to execution of company's strategy:					**The ability to:**	**Company's current relative strength in this skill area:**					
	No Importance				*High Importance*		*Very Weak*				*Very Strong*	
I 35.	*1*	*2*	*3*	*4*	*5*	Manage Strategic Change	*1*	*2*	*3*	*4*	*5*	S 50.
I 36.	*1*	*2*	*3*	*4*	*5*	Manage Cultural Change	*1*	*2*	*3*	*4*	*5*	S 51.
I 37.	*1*	*2*	*3*	*4*	*5*	Articulate a Tangible Vision	*1*	*2*	*3*	*4*	*5*	S 52.
I 38.	*1*	*2*	*3*	*4*	*5*	Exhibit a High Degree of Integrity	*1*	*2*	*3*	*4*	*5*	S 53.
I 39.	*1*	*2*	*3*	*4*	*5*	Communicate Corporate Values	*1*	*2*	*3*	*4*	*5*	S 54.
I 40.	*1*	*2*	*3*	*4*	*5*	Communicate Effectively	*1*	*2*	*3*	*4*	*5*	S 55.
I 41.	*1*	*2*	*3*	*4*	*5*	Understand Global Economic, Political, Cultural, Social Issues	*1*	*2*	*3*	*4*	*5*	S 56.
I 42.	*1*	*2*	*3*	*4*	*5*	Be Flexible and Adaptive	*1*	*2*	*3*	*4*	*5*	S 57.
I 43.	*1*	*2*	*3*	*4*	*5*	Be a Team Leader	*1*	*2*	*3*	*4*	*5*	S 58.
I 44.	*1*	*2*	*3*	*4*	*5*	Be a Team Member	*1*	*2*	*3*	*4*	*5*	S 59.
I 45.	*1*	*2*	*3*	*4*	*5*	Manage Innovation	*1*	*2*	*3*	*4*	*5*	S 60.
I 46.	*1*	*2*	*3*	*4*	*5*	Synthesize Complex Information	*1*	*2*	*3*	*4*	*5*	S 61.
I 47.	*1*	*2*	*3*	*4*	*5*	Learn How to Learn	*1*	*2*	*3*	*4*	*5*	S 62.
I 48.	*1*	*2*	*3*	*4*	*5*	Demonstrate Effective Political Skills	*1*	*2*	*3*	*4*	*5*	S 63.
I 49.	*1*	*2*	*3*	*4*	*5*	Influence Others Without Authority	*1*	*2*	*3*	*4*	*5*	S 64.

Skill area's relative importance to execution of company's strategy:					The ability to:	Company's current relative strength in this skill area:					
No Importance				*High Importance*		*Very Weak*				*Very Strong*	
I65. *1*	*2*	*3*	*4*	*5*	Negotiate for Resources	*1*	*2*	*3*	*4*	*5*	S80.
I66. *1*	*2*	*3*	*4*	*5*	Manage Ethnically/Culturally Diverse Workforce	*1*	*2*	*3*	*4*	*5*	S81.
I67. *1*	*2*	*3*	*4*	*5*	Exhibit a Strong Customer Orientation	*1*	*2*	*3*	*4*	*5*	S82.
I68. *1*	*2*	*3*	*4*	*5*	Build Customer/Supplier Alliances	*1*	*2*	*3*	*4*	*5*	S83.
I69. *1*	*2*	*3*	*4*	*5*	Manage a Fast Cycle Organization	*1*	*2*	*3*	*4*	*5*	S84.
I70. *1*	*2*	*3*	*4*	*5*	Manage a Leaner Organization	*1*	*2*	*3*	*4*	*5*	S85.
I71. *1*	*2*	*3*	*4*	*5*	Manage Quality Improvement	*1*	*2*	*3*	*4*	*5*	S86.
I72. *1*	*2*	*3*	*4*	*5*	Manage Strategy to Action/Results	*1*	*2*	*3*	*4*	*5*	S87.
I73. *1*	*2*	*3*	*4*	*5*	Take Risks/Initiative	*1*	*2*	*3*	*4*	*5*	S88.
I74. *1*	*2*	*3*	*4*	*5*	Develop and Coach Others	*1*	*2*	*3*	*4*	*5*	S89.
I75. *1*	*2*	*3*	*4*	*5*	Structure Developmental Job Assignments	*1*	*2*	*3*	*4*	*5*	S90.
I76. *1*	*2*	*3*	*4*	*5*	Manage a Staff Re-Skilling Effort	*1*	*2*	*3*	*4*	*5*	S91.
I77. *1*	*2*	*3*	*4*	*5*	Make Future Oriented Staffing Decisions	*1*	*2*	*3*	*4*	*5*	S92.
I78. *1*	*2*	*3*	*4*	*5*	Demonstrate Excellence in Functional Management	*1*	*2*	*3*	*4*	*5*	S93.
I79. *1*	*2*	*3*	*4*	*5*	Have Knowledge of the Total Business	*1*	*2*	*3*	*4*	*5*	S94.

EXECUTIVE/MANAGEMENT DEVELOPMENT PHILOSOPHY

Please indicate your agreement or disagreement with the following statement as they relate to your firm's philosophy or assumptions about management and executive development. Please check (4) the appropriate response:

	Strongly Disagree 1	*Disagree* 2	*Undecided* 3	*Agree* 4	*Strongly Agree* 5
P 95. We prefer to grow our own management talent and promote from within.					
P 96. We look both inside and outside for management talent, letting our own people compete with outside candidates; we select the best person for a position, independent of where they come from.					
P 97. We place great value on early identification of management talent.					
P 98. We prefer to target a small group of "high potential" people early in their careers and then focus our management development efforts on that group.					
P 99. We prefer to develop a large pool of young managers and potential managers; we assess them for their executive potential later in their careers.					
P 100. Our senior executives have tended to be <u>specialists</u> in their careers, coming up through a particular function or type of business.					

EXECUTIVE/MANAGEMENT DEVELOPMENT STRATEGY

1. Linking Business Strategy and Executive/Management Development Strategy: How strong would you say the following linkages are in your company?

		Very weak				*Very strong*
T 101.	The link between the business environment and your firm's business strategy.	*1*	*2*	*3*	*4*	*5*
T 102.	The link between your business strategy and your strategy for executive/management development.	*1*	*2*	*3*	*4*	*5*
T 103.	The link between your leadership skills requirements you are trying to develop and your current executive/management development activities.	*1*	*2*	*3*	*4*	*5*

2. What is the single most important improvement that could be made in your firm to better link your executive/management development strategies with your business strategies?

3. What is the one key thing that executive/management development professionals must do to insure that their activities are adding optimal value to the firm's strategic direction?

Appendix B

Examples of Analyses of Variance on Culturally Adjusted Data

One Factor ANOVA X_1: Culture Y_1: K1

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	9.367	4.683	3.535
Within groups	196	259.656	1.325	p = .031
Total	198	269.023		

Model II estimate of between component variance = 1.679

1

One Factor ANOVA X_1: Culture Y_1: K1

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.788	1.212	.15
Japan	38	4.059	.805	.131
UK	96	3.497	1.221	.125

2

One Factor ANOVA X_1: Culture Y_1: K1

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.271	.464	.665	1.153
US vs. UK	.291	.365	1.241	1.575
Japan vs. UK	.562	.435*	3.248*	2.549

* Significant at 95%

3

One Factor ANOVA X_1: Culture Y_2: K2

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	8.341	4.17	4.469
Within groups	196	182.902	.933	p = .0127
Total	198	191.243		

Model II estimate of between component variance = 1.619

4

One Factor ANOVA X_1: Culture Y_2: K2

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.25	.969	.12
Japan	38	3.691	.97	.157
UK	96	3.684	.962	.098

5

One Factor ANOVA X_1: Culture Y_2: K2

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.441	.389*	2.499	2.236
US vs. UK	-.435	.306*	3.924*	2.802
Japan vs. UK	.006	.365	.001	.034

* Significant at 95%

6

One Factor ANOVA X_1: Culture Y_3: K3

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	1.365	.683	.531
Within groups	195	250.49	1.285	p = .5887
Total	197	251.855		

Model II estimate of between component variance = -.301

7

One Factor ANOVA X_1: Culture Y_3: K3

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	64	3.476	1.067	.133
Japan	38	3.559	.98	.159
UK	96	3.351	1.228	.125

8

One Factor ANOVA X_1: Culture Y_3: K3

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.083	.458	.065	.36
US vs. UK	.125	.361	.232	.681
Japan vs. UK	.208	.428	.459	.958

9

One Factor ANOVA X_1: Culture Y_4: K4

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	2	5.164	2.582	2.157
Within groups	196	234.648	1.197	p = .1184
Total	198	239.812		

Model II estimate of between component variance = .692

10

One Factor ANOVA X_1: Culture Y_4: K4

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
US	65	3.08	.996	.123
Japan	38	3.322	.978	.159
UK	96	3.445	1.196	.122

11

One Factor ANOVA X_1: Culture Y_4: K4

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
US vs. Japan	-.242	.441	.586	1.082
US vs. UK	-.364	.347*	2.149	2.073
Japan vs. UK	-.123	.414	.171	.584

* Significant at 95%

12

Appendix C

Mean Value of Responses by All 294 Respondents after Cultural Adjustment

X_1: K1

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.667	1.178	.069	1.387	32.117	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.788	5.153	4.365	1078.15	4360.223	0

1

X_2: K2

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.555	1.052	.061	1.107	29.603	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.788	5.153	4.365	1045.15	4039.919	0

2

X_3: K3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.459	1.093	.064	1.195	31.603	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.788	5.153	4.365	1016.838	3866.911	0

3

X_4: K4

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.211	1.075	.063	1.157	33.487	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.788	5.153	4.365	944.15	3370.893	0

4

X_5: K5

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.075	1.013	.059	1.026	24.849	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1	5.153	4.153	1198.15	5183.345	0

5

X_6: K6

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.402	1.164	.068	1.355	34.215	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	1000.15	3799.323	0

6

X_7: K7

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.776	.982	.057	.964	25.995	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	1110.15	4474.263	0

7

X_8: K8

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.124	1.028	.06	1.056	32.906	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.788	5.153	4.365	918.326	3177.982	0

8

X_9: K9

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.963	.86	.05	.74	21.707	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.059	5.153	4.094	1165.15	4834.433	0

9

X_{10}: K10

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.368	.799	.047	.639	18.297	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.059	5.153	4.094	1284.15	5796.117	0

10

X_{11}: K11

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.49	.754	.044	.569	16.8	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	1320.15	6094.617	0

11

X_{12}: K12

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.813	1.025	.06	1.05	26.873	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.788	5.153	4.365	1121.15	4583.139	0

12

X_{13}: K13

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.936	.935	.055	.875	23.762	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.788	5.153	4.365	1157.15	4810.689	0

13

X_{14}: K14

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.718	1.023	.06	1.047	27.517	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	1093.15	4371.253	0

14

X_{15}: K15

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.681	.91	.053	.828	24.728	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	1082.15	4225.891	0

15

X_{16}: K16

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.3	.987	.058	.974	29.911	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.788	5.153	4.365	970.15	3486.761	0

16

X_{17}: K17

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.356	.965	.056	.931	28.751	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.153	4.153	986.619	3583.7	0

17

X_{18}: C18

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.51	.735	.043	.541	16.307	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1326.039	6139.377	0

18

X_{19}: C19

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.619	.989	.058	.978	27.321	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1064.039	4137.427	0

19

X_{20}: C20

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.904	.917	.053	.84	23.478	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1147.709	4726.528	0

20

X_{21}: C21

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.17	1.08	.063	1.166	49.758	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	637.922	1725.694	0

21

X_{22}: C22

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.769	.993	.058	.986	26.348	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1108.039	4464.941	0

22

X_{23}: C23

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.816	.907	.053	.824	23.778	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1122.039	4523.507	0

23

X_{24}: C24

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.418	.96	.056	.923	28.096	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.057	4.057	1005.039	3706.019	0

24

X_{25}: C25

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.867	.91	.053	.829	23.536	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.057	5.064	4.007	1137.039	4640.251	0

25

X_{26}: C26

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.915	.878	.051	.771	22.434	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1151.039	4732.469	0

26

X_{27}: C27.

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.908	.762	.044	.58	19.491	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.064	5.064	4	1149.039	4660.815	0

27

X_{28}: C28

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.912	.959	.056	.919	24.505	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1150.039	4767.819	0

28

X_{29}: C29

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.986	.899	.052	.808	22.55	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.064	4.064	1171.977	4908.634	0

29

X_{30}: C30

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.432	1.044	.061	1.09	30.414	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	1009.039	3782.389	0

30

X_{31}: C31

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.789	.954	.056	.911	34.221	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	820	2554	0

31

X_{32}: C32

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.542	.82	.048	.672	23.141	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.064	4.064	1041.326	3885.13	0

32

X_{33}: C33

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.292	1.004	.059	1.008	30.507	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.064	4.064	967.715	3480.727	0

33

X_{34}: C34

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.384	1.029	.06	1.059	30.405	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.879	5.064	4.185	995.039	3677.971	0

34

X_{35}: I35

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.51	.666	.039	.443	14.758	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2.189	5.189	3	1326.052	6110.818	0

35

X_{36}: I36

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.259	.786	.046	.617	18.446	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.806	5.189	3.383	1252.052	5512.896	0

36

X_{37}: I37

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.364	.709	.041	.503	16.243	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.189	5.189	4	1283.052	5746.632	0

37

X_{38}: I38

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.339	.744	.043	.554	17.151	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2.005	5.189	3.184	1275.728	5697.941	0

38

X_{39}: I39

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.225	.782	.046	.612	18.516	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.005	5.189	4.184	1242.052	5426.548	0

39

X_{40}: I40

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.541	.579	.034	.335	12.755	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2.189	5.189	3	1335.052	6160.754	0

40

X_{41}: I41

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.82	1.043	.061	1.088	27.309	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.806	5.189	4.383	1123.16	4609.683	0

41

X_{42}: I42

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.551	.631	.037	.398	13.868	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2.005	5.189	3.184	1338.052	6206.46	0

42

X_{43}: I43

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.279	.693	.04	.48	16.189	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2	5.189	3.189	1258.052	5523.92	0

43

X_{44}: I44

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.18	.773	.045	.597	18.481	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.189	4.189	1229.052	5312.872	0

44

X_{45}: I45

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.395	.702	.041	.492	15.967	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.806	5.189	3.383	1292.052	5822.488	0

45

X_{46}: I46

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.129	.764	.045	.584	18.507	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.806	5.189	3.383	1214.052	5184.476	0

46

X_{47}: I47

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.959	.9	.052	.81	22.733	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.189	4.189	1164.052	4846.266	0

47

X_{48}: I48

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.578	.943	.055	.89	26.365	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.189	4.189	1052.052	4025.46	0

48

X_{49}: I49

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.01	.85	.05	.723	21.198	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.189	4.189	1179.052	4940.204	0

49

X_{50}: I65

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.83	.866	.051	.75	22.617	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.005	5.189	4.184	1126.052	4532.776	0

50

X_{51}: I66

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.596	1.041	.061	1.083	28.939	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.005	5.189	4.184	1057.214	4118.992	0

51

X_{52}: I67

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.609	.659	.038	.434	14.301	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1	5.189	4.189	1355.052	6372.766	0

52

X_{53}: I68

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.188	.945	.055	.892	22.558	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1	5.189	4.189	1231.194	5417.397	0

53

X_{54}: I69

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.885	.99	.058	.981	25.497	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1	5.189	4.189	1142.052	4723.768	0

54

X_{55}: I70

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.082	.819	.048	.671	20.069	294
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.005	5.189	4.184	1200.052	5095.006	0

55

X_{56}: I71

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.466	.703	.041	.494	15.733	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.189	5.189	4	1313.052	6008.964	0

56

X_{57}: I72

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5	.656	.038	.43	14.571	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
2.189	5.189	3	1323.052	6079.948	0

57

X_{58}: I73

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.262	.709	.041	.503	16.644	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.189	5.189	4	1253.052	5488.054	0

58

X_{59}: I74

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.225	.721	.042	.52	17.073	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.806	5.189	3.383	1242.052	5399.682	0

59

X_{60}: I75

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.898	.842	.049	.708	21.591	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.806	5.189	4.383	1146.052	4675.022	0

60

X_{61}: I76

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.622	.986	.058	.973	27.228	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.189	4.189	1064.836	4141.679	0

61

X_{62}: I77

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.099	.798	.047	.637	19.475	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.005	5.189	4.184	1205.052	5125.992	0

62

X_{63}: I78

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.038	.799	.047	.638	19.778	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.005	5.189	4.184	1187.052	4979.666	0

63

X_{64}: I79

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.306	.774	.045	.6	17.983	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1.189	5.189	4	1266.052	5627.712	0

64

X_{65}: S50

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.844	.925	.054	.856	32.537	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	836	2628	0

65

X_{66}: S51

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.701	.908	.053	.825	33.628	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	794	2386	0

66

X_{67}: S52

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.995	1.045	.061	1.092	34.897	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	880.476	2956.889	0

67

X_{68}: S53

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.742	.97	.057	.94	25.913	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.173	4.173	1100.287	4393.358	0

68

X_{69}: S54

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.189	.976	.057	.953	30.611	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.173	4.173	937.476	3268.481	0

69

X_{70}: S55

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.942	.89	.052	.792	30.245	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	865	2777	0

70

X_{71}: S56

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.853	.961	.056	.924	33.69	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	838.784	2663.751	0

71

X_{72}: S57

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.114	.907	.053	.823	29.133	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	915.476	3091.789	0

72

X_{73}: S58

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.233	.828	.048	.685	25.608	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	950.476	3273.625	0

73

X_{74}: S59

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.124	.794	.046	.631	25.422	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.037	4.247	918.476	3054.197	0

74

X_{75}: S60

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.032	.971	.057	.943	32.021	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	891.538	2979.797	0

75

X_{76}: S61

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.114	.931	.054	.867	29.907	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.037	4.247	915.476	3104.773	0

76

X_{77}: S62

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.84	.837	.049	.701	29.486	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	835	2577	0

77

X_{78}: S63

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.093	.926	.054	.857	29.93	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	909.476	3064.601	0

78

X_{79}: S64

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.976	.899	.052	.808	30.208	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	875	2841	0

79

X_{80}: S80

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.281	.844	.049	.713	25.723	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.037	4.247	964.754	3374.586	0

80

X_{81}: S81

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.91	.923	.054	.852	31.719	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	855.654	2739.987	0

81

X_{82}: S82

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.356	.928	.054	.861	27.639	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	986.792	3564.258	0

82

X_{83}: S83

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.189	.875	.051	.766	27.439	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5.173	4.173	937.708	3215.222	0

83

X_{84}: S84

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.976	.918	.054	.842	30.846	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	874.842	2850.077	0

84

X_{85}: S85

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.076	.863	.05	.745	28.06	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	904.381	3000.295	0

85

X_{86}: S86

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.073	.877	.051	.769	28.535	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	903.413	3001.313	0

86

X_{87}: S87

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.086	.956	.056	.913	30.969	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	907.329	3067.808	0

87

X_{88}: S88

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.007	1.026	.06	1.053	34.125	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	884.202	2967.85	0

88

X_{89}: S89

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.918	.859	.05	.737	29.429	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	857.832	2719.02	0

89

X_{90}: S90

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.702	.93	.054	.864	34.405	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	794.432	2399.915	0

90

X_{91}: S91

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.678	.854	.05	.73	31.895	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	787.325	2322.196	0

91

X_{92}: S92

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.872	.939	.055	.882	32.7	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	844.341	2683.27	0

92

X_{93}: S93

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.182	.886	.052	.786	27.854	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.037	4.247	935.623	3207.736	0

93

X_{94}: S94

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.988	.953	.056	.908	31.889	294

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.79	5.173	4.383	878.375	2890.251	0

94

X_{95}: P95

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.806	1.082	.079	1.171	28.433	188

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.936	5.128	4.192	715.616	2943.015	106

95

X_{96}: P96

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.019	1.143	.084	1.305	37.849	187

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.936	5	4.064	564.488	1946.798	107

96

X_{97}: P97

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.249	1.123	.082	1.26	34.556	187

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.936	5.128	4.192	607.488	2207.878	107

97

X_{98}: P98

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.984	1.133	.083	1.285	37.984	187

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	558	1904	107

98

X_{99}: P99

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.925	1.042	.076	1.086	35.634	186

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	544	1792	108

99

X_{100}: P100

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.473	1.13	.083	1.278	32.544	187

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.936	5.128	4.192	649.488	2493.43	107

100

X_{101}: T101

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.455	.961	.076	.923	27.814	162

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.844	5.297	4.453	559.722	2082.564	132

101

X_{102}: T102

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.815	.947	.074	.897	33.65	162

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	456	1428	132

102

X_{103}: T103

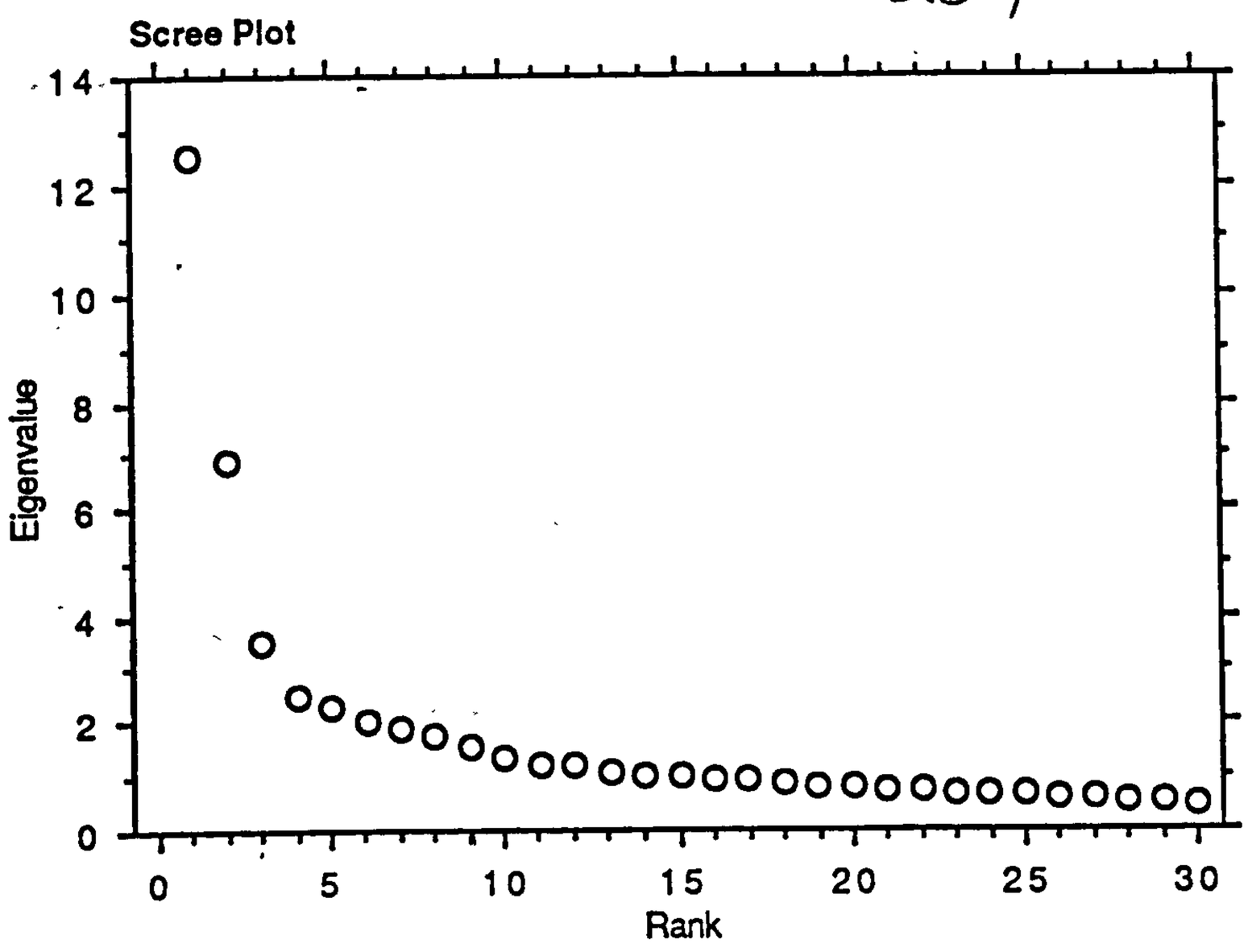
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.981	.987	.078	.975	33.115	162

Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
1	5	4	483	1597	132

103

Appendix D

Examples of Tables Generated by Factor Analysis


Scree Plot
Eigenvalue
14
12
10
8
6
4
2
0
0
5
10
15
20
25
30
Rank

Sample Data

Factor Analysis for Correl94Vars: X_1 ... X_{94}

Summary Information

Factor Procedure	Principal Axes Analysis
Extraction Rule	User Specified
Transformation Method	Orthotran/Varimax
Number of Factors	9

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
K1	1							
K2	.165	1						
K3	-.048	.086	1					
K4	.116	.327	.162	1				
K5	.086	.118	.132	.014	1			
K6	.077	.163	.023	-.048	.181	1		
K7	.098	.222	.027	.166	.191	.263	1	
K8	.234	.169	.04	.157	.185	.218	.134	1
K9	.037	.001	.187	.064	.208	.084	.199	.181
K10	-1.28E-4	.111	.083	.018	.212	.21	.21	.143
K11	.093	.132	.041	.089	.013	.249	.178	.07
K12	.124	.266	-.11	.127	.193	.211	.189	.221
K13	-.042	.148	.044	.123	.086	-.078	.188	-.003
K14	-.002	.173	.149	.13	.088	.072	.151	.221
K15	.005	.148	.162	.171	.009	.023	.244	.094
K16	.076	.174	.097	.12	.063	.13	.166	.234

Sample Data

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
K17	.166	.226	.186	.21	.171	.106	.268	.198
C18	-.019	.059	.006	-.095	.013	.189	.101	.102
C19	.122	.028	.008	-.07	-.067	-.031	.009	-.023
C20	-.013	.089	.029	.057	.152	.08	.109	.047
C21	-.06	-.074	-.063	.119	-.024	-.245	-.054	-.179
C22	.126	.081	.007	-.043	-.065	.07	.053	.127
C23	.09	.123	-.044	-.059	.068	.195	.114	.161
C24	.033	.051	.031	.015	-.064	.031	.051	-.153
C25	.08	.068	-.061	-.203	.048	.175	.107	.115
C26	-.036	.017	.074	-.029	-.011	.066	.072	.055
C27	.082	-.009	.037	.103	.015	.065	-.059	.01
C28	.134	.09	-.007	.139	.063	-.034	.111	-.003
C29	.036	.119	.041	.07	-.061	-.024	.039	-.039
C30	.224	.122	.042	-.054	-.02	.126	-.028	.184
C31	-.073	-.054	.114	.035	-.063	-.011	.079	-.073
C32	-.05	.092	.032	.139	-.042	-.026	.007	-.068

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
C33	.035	.076	.061	.176	-.015	-.085	.004	-.014
C34	.032	.077	-.069	.187	.024	-.031	.124	-.056
I35	.004	.078	.048	.076	-.002	.014	.117	-.088
I36	-.023	.113	.127	.089	-.053	-.036	.094	.009
I37	.049	.133	.062	.006	.02	-.009	.192	.007
I38	-.008	.064	.099	.095	-.028	-.064	.013	-.057
I39	-.145	.077	.198	.099	-.044	.018	-.065	-.024
I40	-.016	.027	.108	.104	.011	-.003	.044	.016
I41	.39	.124	.058	.07	.032	.019	.053	.149
I42	-.059	.121	.133	.119	.021	.045	.106	.021
I43	.009	.204	.078	.102	-.075	-.121	.01	.111
I44	.006	.117	.137	.117	.008	.031	.03	-.002
I45	.122	.138	.141	.063	.221	.053	.053	.206
I46	-.002	.102	.129	.098	.049	-.003	.07	-.001
I47	-.02	.049	.233	.095	.01	.033	.054	.164
I48	-.041	.034	.247	.039	.086	-.009	.099	.031

Sample Data

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
149	-.019	.118	.145	.151	-.059	-.046	.114	.03
165	-.077	.069	.241	.025	.036	.028	.053	.042
166	.045	.055	.134	-.039	.008	-.037	.103	.066
167	.006	.078	.056	.162	.043	-.011	.184	.003
168	.077	.195	.067	.124	.051	.011	.125	.043
169	.13	.049	.052	.047	.066	.068	.091	.271
170	-.038	-.004	.214	.061	.162	.018	.197	.102
171	-.042	.016	.055	.09	.109	.057	.117	.035
172	.022	.166	.069	.138	.045	.02	.126	-.052
173	.162	.176	.069	.123	-.018	.077	.133	.088
174	-.056	.03	.129	.007	-.014	-.004	.042	.06
175	.02	.126	.087	.048	.004	.012	.119	.076
176	.09	.085	.138	.082	.113	.002	.108	.151
177	-.044	.108	.129	.015	-.059	.045	.055	.038
178	.016	.077	.212	.1	-.047	-.132	.057	-.014
179	.009	.037	.085	.029	-.028	.102	.025	.018

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
S50	.047	.028	.014	.004	.036	-.057	-.037	.037
S51	-.046	-.011	.019	-.008	.002	-.008	-.106	.044
S52	-.018	.019	.006	.008	-.033	-.111	-.024	-.073
S53	.013	.016	.112	.097	.055	-.089	.028	-.048
S54	.04	-.042	.01	-.031	.074	-.106	.006	.037
S55	.022	-2.61E-5	.087	.001	.109	-.101	.019	.068
S56	.14	-.006	-.032	-.071	.059	-.003	-.018	.04
S57	.03	.01	-.09	.067	-.032	-.089	.007	.07
S58	.02	.028	.06	.095	.059	.015	-.07	.163
S59	.044	-.038	.043	.101	.088	-.033	.036	.078
S60	.029	.021	.008	.015	-.023	-.134	-.041	.052
S61	-.027	-.035	.072	.032	-.064	-.083	-.038	.018
S62	.024	.053	.012	.074	.025	-.019	.055	.054
S63	-.026	.012	.062	.075	-.036	-.021	-.102	.034
S64	.055	.023	-.034	-.036	.112	.023	.042	.077
S80	-.079	-.003	.076	-.028	.026	.006	.04	.091

Sample Data

Correlation matrix

	K1	K2	K3	K4	K5	K6	K7	K8
S81	-.038	-.133	.109	.056	.063	-.064	-.025	.094
S82	.041	.049	.05	.088	.024	-.077	-.073	.078
S83	.03	.153	.077	.121	.029	-.062	-.073	.068
S84	-.02	.105	.056	.146	-.032	-.037	.072	.165
S85	.039	-.084	.004	.024	-.027	-4.20E-4	.057	-.005
S86	.047	.049	-.033	.042	.077	.048	-.048	.123
S87	-.041	.131	.126	-.028	-.034	-.094	-.024	.092
S88	.01	.022	.03	.019	-.034	-.1	-.028	.061
S89	-.035	-.016	.175	.109	.118	-.058	-.029	.121
S90	.127	.018	.091	.036	.033	-.13	-7.24E-5	.12
S91	-.037	-.013	.084	.052	.051	-.115	.015	.102
S92	-.048	-.132	.034	-.001	-.139	-.089	-.009	-.066
S93	.034	.052	.02	.038	-.074	-.099	-.047	.06
S94	-.096	-.044	.075	-.029	-.053	-.054	-.036	.053

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
K9	1							
K10	.405	1						
K11	.106	.408	1					
K12	-.006	.18	.323	1				
K13	-.006	.026	.054	.197	1			
K14	.122	.044	.075	.174	.251	1		
K15	.24	.142	.12	.1	.203	.412	1	
K16	.126	.06	.098	.121	.184	.288	.522	1

Sample Data

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
K17	.168	.077	.163	.188	.349	.259	.37	.468
C18	.066	.155	.193	.137	.128	.124	.154	.168
C19	.006	.095	.141	.065	.21	.11	.093	.197
C20	.043	.133	-.004	.072	.052	-.023	.048	.1
C21	-.019	-.124	-.136	-.122	.012	-.197	-.07	-.154
C22	-.009	.075	.15	.098	.016	.244	.208	.222
C23	-.014	.083	.172	.184	.036	.15	.128	.194
C24	.054	.078	.097	-.069	.145	.068	.185	.107
C25	.132	.165	.109	.065	.019	.161	.118	.153
C26	.122	.142	.177	.086	.053	.058	.113	.119
C27	.037	.074	.14	.028	.033	.065	.222	.142
C28	.044	.005	.031	.063	-.002	.134	.156	.243
C29	.105	.074	.122	.006	.039	.168	.255	.189
C30	-.066	-.06	.165	.15	.023	.218	.029	.142
C31	-.036	-.03	.104	.003	.006	.028	.019	-.007
C32	-.074	.057	.058	.119	.142	.042	.073	.027

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
C33	-.079	.015	-.046	.071	.122	-.035	.212	.187
C34	.072	.025	-.038	-.003	.132	-.001	.183	.099
I35	.015	.054	.157	.169	.114	.067	.115	.071
I36	.138	.033	.108	.078	.072	.144	.197	.12
I37	-.027	.045	.111	.15	.007	.125	.117	.097
I38	.109	.118	.165	.045	.026	.006	.029	.084
I39	.134	.077	.047	.051	-.017	.131	.218	.171
I40	.067	.059	.121	.083	.116	.08	.131	.047
I41	.031	-.057	.101	.048	-.074	.161	.075	.092
I42	.058	.056	.182	.276	.202	.132	.104	.051
I43	.057	.02	.087	.063	-.024	.039	.155	.145
I44	.103	.111	.214	.05	.107	.035	.143	.102
I45	.103	.066	.081	.101	.008	.065	-.018	.117
I46	.075	-.019	.006	.052	-.007	.122	.121	.069
I47	.151	.046	.112	.09	.062	.143	.16	.196
I48	.132	.009	-.028	-.005	-.054	.089	.019	.01

Sample Data

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
I49	.115	.035	.147	.066	.06	.01	.102	.107
I65	.21	.111	.03	-.011	.087	.072	.187	.129
I66	.085	.004	.072	-.018	.067	.183	.218	.226
I67	.136	.283	.355	.172	.097	.023	.146	.057
I68	.086	.116	.23	.173	.125	.088	.124	.065
I69	.047	-.026	-.036	.169	.051	.092	.146	.153
I70	.165	.057	-.033	.075	-.027	.053	.162	.18
I71	.171	.306	.113	.116	.131	.071	.157	.038
I72	.069	.036	.093	.108	.02	.084	.095	.003
I73	.034	.05	.127	.048	.048	.221	.165	.13
I74	.184	.18	.215	.093	.053	.129	.196	.072
I75	.126	.058	.049	.071	.1	.303	.227	.15
I76	.008	-.11	-.09	.026	.053	.195	.169	.263
I77	.032	-.025	.072	-.01	.029	.174	.137	.14
I78	.156	.029	.04	.003	.04	.08	.221	.17
I79	.035	.027	.087	.026	-.064	.108	.144	.13

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
S50	.08	.057	.098	-.051	-.03	.048	.056	.034
S51	-.101	-.05	.051	-.023	.006	.008	-2.73E-4	.028
S52	-.05	-.034	.099	-.005	.087	-.002	-.032	.033
S53	.174	.117	.026	.008	.063	.039	.053	.048
S54	-2.38E-4	-.018	-.075	-.006	-.032	-.009	-.072	.095
S55	.071	.028	-.107	-.047	.006	-.005	-.029	.154
S56	.099	-.038	.115	-.005	-.026	-.029	-.063	.002
S57	.036	-.033	.113	.103	-.019	.089	-.032	.006
S58	.069	.098	.095	.111	.006	.129	.101	.171
S59	.1	.057	.057	.111	.079	.101	.08	.202
S60	-.059	-.083	.074	-.003	.12	.041	.05	.171
S61	.138	-.013	-.025	-.099	-.05	.034	.042	.029
S62	.009	-1.01E-4	.069	.051	.029	.042	.012	.045
S63	.04	.045	-.048	-.013	-.042	-.079	-.13	-.12
S64	.084	.114	.074	.082	.065	.039	-.008	.021
S80	.093	.111	.11	.064	.023	.093	-.034	-.043

Sample Data

Correlation matrix

	K9	K10	K11	K12	K13	K14	K15	K16
S81	.071	-.046	.001	-.009	-.021	.002	-.011	.031
S82	-.012	.048	.071	.159	-.029	-.002	.005	.032
S83	.062	-.035	.076	.111	.027	.126	.106	.113
S84	-.002	.001	.035	.077	.108	.098	.142	.113
S85	.072	.019	.026	-.07	-.07	.082	.068	.072
S86	.008	-.008	.065	.132	.01	.057	.002	.107
S87	.011	.007	.067	-.007	.05	.146	.139	.118
S88	.078	.035	.066	-.032	.036	.14	.109	.119
S89	.03	.031	.022	-.013	.054	.155	.135	.144
S90	.03	-.033	.061	-.049	-.031	.129	.096	.143
S91	-.027	-.069	-.085	-.081	-.089	.172	.093	.068
S92	.037	.034	.102	-.11	-.022	.096	.056	.082
S93	.123	.117	.064	-.035	-.094	-.089	.034	.008
S94	-1.98E-4	.016	.014	-.055	-.005	.042	.069	.1

Correlation matrix

	K17	C18	C19	C20	C21	C22	C23	C24
K17	1							
C18	.21	1						
C19	.127	.217	1					
C20	.085	.164	.1	1				
C21	-.074	-.402	-.166	-.234	1			
C22	.144	.372	.153	.022	-.361	1		
C23	.117	.387	.208	.126	-.24	.297	1	
C24	.038	.054	-.015	.099	.023	-.014	.057	1
C25	.18	.468	.243	.133	-.318	.396	.227	.087
C26	.087	.163	.089	.312	-.204	.09	.178	.143
C27	.056	.128	.095	.151	-.044	.162	.037	.025
C28	.194	.109	.138	.115	-.029	.083	.147	.041
C29	.242	.191	.152	.11	-.022	.171	.085	.16
C30	.218	.259	.279	.029	-.259	.297	.25	-.007
C31	.113	.067	-.002	.053	.005	.082	.054	.004
C32	.037	.002	.043	.163	.134	.037	-.071	.164

Sample Data

Correlation matrix

	K17	C18	C19	C20	C21	C22	C23	C24
C33	.187	-.028	-.022	.147	.133	.013	-.083	.039
C34	.114	.06	.04	.204	.094	-.047	-.041	.098
135	.181	.103	.159	.122	.064	.022	.046	.052
136	.197	.152	.165	.043	.052	.067	-.015	.032
137	.143	.085	.134	.111	.016	.051	.125	-.109
138	.052	-.001	.093	-.007	.1	-.051	-.064	.11
139	.16	.166	.075	.03	.055	.001	.044	.066
140	.17	.179	-.004	1.153E-4	-.006	.003	2.750E-4	.063
141	.159	.088	.049	.031	-.104	.118	.156	.018
142	.138	.13	.05	.065	-.033	.022	.014	.061
143	.08	.042	.057	-.026	-.018	.081	.003	.016
144	.161	.072	.011	.076	-.013	.087	-.043	.116
145	.106	.086	-.041	.064	-.04	-.013	.016	.076
146	.122	.059	.057	.022	-.019	.032	.036	.035
147	.224	.154	.17	.071	-.07	.135	.113	-.031
148	.101	-.056	-.072	-.055	.013	-.08	.04	-.047

Correlation matrix

	K17	C18	C19	C20	C21	C22	C23	C24
149	.145	.07	.035	-.003	-.01	.151	.133	.047
165	.118	.077	-.024	.022	.03	.05	.061	.07
166	.177	.127	.178	-.017	-.112	.167	.15	.077
167	.146	.152	.08	.019	-.046	.102	.058	.093
168	.128	.122	.032	.079	-.092	.113	.135	.098
169	.139	.119	.162	.092	-.062	.078	.054	.02
170	.214	.063	-.01	.242	-.032	.042	.069	.141
171	.16	.105	.04	.096	-.15	.023	.012	.08
172	.098	.064	.043	.081	-.029	.091	.014	.102
173	.21	.177	.155	.126	-.157	.162	.147	.052
174	.138	.265	.173	.018	-.08	.15	.111	.072
175	.265	.122	.126	-.006	-.022	.14	.093	.134
176	.411	.132	.119	.03	.029	.17	.062	.006
177	.175	.156	.082	-.04	-.016	.106	.077	.03
178	.173	.061	.162	-.039	.036	.026	-.045	.075
179	.103	.145	.096	.062	-.104	.112	.16	.008

Sample Data

Correlation matrix

	K17	C18	C19	C20	C21	C22	C23	C24
S50	.024	.116	.038	.031	-.017	-.026	.098	.207
S51	-.042	-.013	.042	-.006	.004	-.041	.064	.045
S52	.016	.042	.055	.032	.102	-.008	-.035	.083
S53	.03	.083	.131	.094	-.013	-.03	-.028	.191
S54	.061	-.025	.007	.016	.068	-.048	.021	.044
S55	.088	.059	.137	.057	.024	-.009	.028	.027
S56	.154	.123	.059	-.023	-.104	-.001	.09	.047
S57	.001	.086	.085	-.051	-.039	-.049	.088	.02
S58	.078	.138	.106	.064	-.108	.065	.128	.082
S59	.075	.122	.026	.02	-.023	-.008	-.023	.096
S60	.092	.099	.16	-.074	.012	.021	.149	.025
S61	-.004	.088	.045	-.118	.016	-.06	.08	.046
S62	.038	-.01	.01	-.059	.049	-.068	.156	.055
S63	.03	.006	.072	-.075	.057	-.145	.07	-.042
S64	.027	.042	.145	-.134	.008	-.05	.043	-.034
S80	.015	.054	-.015	-.128	-.062	-.03	.049	.038

Correlation matrix

	K17	C18	C19	C20	C21	C22	C23	C24
S81	.002	.048	.042	-.04	.083	.047	.002	-.05
S82	.021	.084	.078	.069	-.015	.022	.07	.058
S83	.044	.066	.027	.112	1.987E-4	-.03	.035	.132
S84	.057	.086	.115	-.094	.028	.038	.095	.103
S85	-.016	.105	.121	-.061	.035	.007	.084	.091
S86	.107	.141	.073	-.011	-.055	.11	.119	-.093
S87	.077	.082	.059	-.116	.021	.023	-.083	.048
S88	.043	.073	.107	-.046	-.092	-.014	.048	.063
S89	.057	.053	.106	.033	.012	-.002	.049	.078
S90	.121	.093	.069	-.025	-.031	.123	.119	.029
S91	.045	.058	-.007	-.012	.024	.019	.12	.031
S92	2.915E-4	.127	.151	-.041	.041	.071	.1	.207
S93	-.027	.104	.002	.023	.001	-.044	.047	.059
S94	-.013	.024	.049	.011	.003	-.061	.069	.061

Sample Data

Correlation matrix

	C25	C26	C27	C28	C29	C30	C31	C32
C25	1							
C26	.17	1						
C27	.077	.107	1					
C28	.081	.151	.206	1				
C29	.21	.159	.148	.241	1			
C30	.305	.104	.107	.114	.276	1		
C31	-.028	.053	.054	-.016	.101	.171	1	
C32	-.095	.126	.192	.172	.193	-.031	-.015	1

Correlation matrix

	C25	C26	C27	C28	C29	C30	C31	C32
C33	-.178	.015	.204	.165	.152	-.054	.178	.255
C34	.01	.055	.146	.149	.174	-.181	-.038	.146
I35	-.005	.075	.122	.182	.112	.119	.058	.096
I36	.065	.108	.066	.157	.169	.065	.055	.054
I37	.062	.146	.092	.194	.061	.19	.135	.029
I38	-.024	.092	.014	.071	.172	.04	.063	.038
I39	.05	.051	.114	-.027	.257	.122	.11	.004
I40	.088	.1	.071	.16	.112	.122	.109	.001
I41	.096	-.041	.094	.104	.183	.341	-3.47E-5	-.092
I42	-.037	.073	.03	-.062	.066	.115	.064	.068
I43	.027	.05	.076	.06	.217	.139	.085	.048
I44	.02	.163	.145	.024	.202	-.008	.196	.037
I45	.014	.111	.058	.051	.163	.135	.049	.028
I46	.01	.031	.092	.144	.154	.186	.066	.026
I47	.13	.111	.094	.119	.182	.232	.134	-.034
I48	-.036	-.043	-.019	-.023	-.012	.02	.167	-.137

Sample Data

Correlation matrix

	C25	C26	C27	C28	C29	C30	C31	C32
149	.02	.089	.04	.025	.092	.069	.18	-.025
165	.014	.136	.141	.073	.169	-.071	-.01	.07
166	.144	.177	.099	.208	.151	.199	-.003	.011
167	.049	.235	.003	.087	.09	-.003	.075	.062
168	.085	.187	.011	.05	.187	.184	.026	-.022
169	.138	.083	4.236E-4	.07	.15	.214	.054	.001
170	.071	.2	.036	-.009	.148	.019	.119	.061
171	.037	.179	.086	.042	.255	.007	-.01	.067
172	.06	.079	.079	.073	.176	.062	.055	.074
173	.135	.07	.18	.158	.213	.184	.083	.065
174	.154	.056	.143	.055	.185	.151	.104	.006
175	.155	.061	.108	.138	.225	.251	.076	.02
176	.066	-.025	.064	.057	.193	.265	.193	-.095
177	.03	.097	.126	.074	.154	.217	.162	-.022
178	.05	.068	.136	.029	.222	.12	.119	.035
179	.135	.043	.107	.094	.126	.224	.088	-.047

Correlation matrix

	C25	C26	C27	C28	C29	C30	C31	C32
S50	.055	.099	.026	.067	.135	.09	.028	-.001
S51	-.108	.022	.013	-.001	.035	.15	.1	-.023
S52	.008	.037	.116	.107	.173	.068	.082	.127
S53	.022	.077	.04	-.026	.128	.016	-.006	.039
S54	-.026	.061	.045	.069	.12	.12	-.062	.03
S55	.078	-.029	-.075	.033	.104	.147	-.039	-.069
S56	.117	-.027	-.043	-.03	.032	.221	.085	-.211
S57	4.096E-4	.014	-.056	.058	.118	.09	-.077	-.03
S58	.011	.075	.073	.071	.162	.121	.042	.058
S59	.043	-.078	.008	.075	.181	.158	.068	.093
S60	.037	-.084	.102	.034	.12	.196	.034	-.044
S61	-.013	-.045	.036	.022	.053	.038	-.106	-.048
S62	-.076	.024	.043	-.059	.075	.049	-.012	-.023
S63	-.062	.017	-.032	.025	-.018	.018	.004	-.065
S64	.09	-.069	-.01	.027	.07	.111	-.03	-.114
S80	.045	.005	-.065	-.043	.024	.059	.063	-.053

Sample Data

Correlation matrix

	C25	C26	C27	C28	C29	C30	C31	C32
S81	.021	.045	.084	-.018	.076	.123	-.025	-.023
S82	-.035	.08	.067	.057	.085	.148	-.029	.102
S83	.037	.075	.068	.006	.117	.142	-.061	-.023
S84	.031	.013	-.054	-.062	.102	.067	.017	.013
S85	.134	.034	.046	.079	.169	.175	-.058	-.009
S86	.096	.032	.053	.092	.217	.254	-.054	-.049
S87	.095	.032	-.023	-.025	.17	.164	-.042	-.008
S88	.113	.01	.051	.007	.06	.196	.006	-.103
S89	-.024	-.046	.019	-.084	.079	.1	.004	-.01
S90	.103	-.031	.01	.043	.1	.232	.017	-.024
S91	.038	-.036	.034	-.005	.179	.087	.073	-.056
S92	.053	.11	.129	.088	.159	.138	.11	-.074
S93	.046	.145	.003	-.005	.1	.05	-.009	-.008
S94	.11	.04	-.005	-.018	.19	.178	.006	-.034

Correlation matrix

	C33	C34	I35	I36	I37	I38	I39	I40
C33	1							
C34	.271	1						
I35	.228	.12	1					
I36	.07	.092	.487	1				
I37	.158	-.075	.457	.375	1			
I38	.023	.048	.379	.263	.317	1		
I39	.088	.076	.285	.312	.385	.442	1	
I40	.043	.051	.413	.381	.36	.328	.316	1
I41	.03	.04	.246	.174	.201	.225	.195	.26
I42	.093	.045	.394	.291	.272	.347	.35	.374
I43	.157	.024	.23	.249	.261	.269	.343	.247
I44	.132	.056	.185	.198	.187	.337	.355	.31
I45	.135	.076	.263	.218	.215	.244	.224	.243
I46	.067	.086	.327	.247	.326	.299	.323	.302
I47	.095	.036	.195	.301	.267	.319	.435	.269
I48	.072	-.005	.13	.151	.154	.103	.201	.176

Sample Data

Correlation matrix

	C33	C34	I35	I36	I37	I38	I39	I40
I49	.125	.002	.211	.209	.22	.324	.291	.245
I65	.181	.147	.325	.263	.256	.184	.35	.237
I66	.015	-.111	.164	.256	.298	.268	.21	.178
I67	.015	.118	.323	.202	.227	.262	.195	.272
I68	.07	.061	.244	.203	.221	.202	.156	.254
I69	.118	.026	.213	.135	.178	.157	.099	.159
I70	.09	.071	.22	.177	.248	.169	.287	.201
I71	.082	.149	.248	.164	.106	.241	.274	.271
I72	.081	.177	.449	.414	.377	.315	.368	.309
I73	.091	.146	.341	.341	.345	.238	.283	.285
I74	.17	.064	.342	.366	.342	.425	.489	.34
I75	.1	.082	.34	.327	.296	.322	.426	.288
I76	.13	.008	.206	.263	.317	.198	.342	.201
I77	.138	.075	.287	.272	.303	.271	.393	.216
I78	.139	.143	.274	.264	.239	.276	.386	.19
I79	-.025	.077	.33	.228	.301	.295	.296	.377

Correlation matrix

	C33	C34	I35	I36	I37	I38	I39	I40
S50	-.004	-.028	.029	.064	.143	.229	.127	.08
S51	.093	-.042	.017	-.063	.17	.217	.143	-.034
S52	.211	.047	.131	.054	.161	.071	.052	.024
S53	.034	.053	.099	.158	.124	.395	.158	.137
S54	.084	-.029	.137	.03	.2	.111	.138	.066
S55	.038	.012	-.031	.026	.098	.153	.072	.033
S56	-.095	-.006	.067	.066	.051	.06	.023	.091
S57	-.054	.021	.032	.056	.1	.144	.073	.078
S58	.017	-.029	.014	.063	.09	.172	.178	.04
S59	.048	.021	.039	.004	.028	.175	.14	.069
S60	-.085	.012	.026	.066	.033	.138	.097	.073
S61	-.122	-.009	.083	.108	.007	.162	.101	.086
S62	.027	-.018	.004	-.058	.033	.109	.032	-.056
S63	-.026	.044	.092	.122	.031	.121	.124	.084
S64	-.051	-.058	.077	.003	.072	.135	.06	-.009
S80	-.106	-.038	.037	.1	.077	.051	.102	.042

Sample Data

Correlation matrix

	C33	C34	I35	I36	I37	I38	I39	I40
S81	-.028	-.105	.045	.035	.095	.133	.13	.05
S82	-.008	.004	.106	.047	.009	.154	.028	.104
S83	.012	.01	.107	.074	.015	.146	.046	.081
S84	.039	.001	-.007	.023	.061	.142	.136	.012
S85	-.121	.001	-.027	-.011	.04	.119	.101	-.012
S86	-.05	-.033	.019	-.059	.02	.13	.046	.081
S87	-.005	.028	.072	.048	.119	.206	.136	.075
S88	-.094	.015	.017	-.019	.084	.129	.064	.085
S89	-.037	-.046	-.03	-.056	.098	.16	.179	.047
S90	.038	.02	.05	-.014	.141	.124	.165	.056
S91	.016	-.01	.029	.035	.141	.119	.154	.039
S92	-.051	.012	.03	.028	.118	.139	.148	.037
S93	-.076	.022	-.025	.057	.048	.098	.059	.05
S94	-.114	.047	.037	-.007	.049	.092	.072	.034

Correlation matrix

	I41	I42	I43	I44	I45	I46	I47	I48
I41	1							
I42	.207	1						
I43	.129	.215	1					
I44	.076	.305	.508	1				
I45	.264	.332	.249	.232	1			
I46	.29	.326	.246	.161	.382	1		
I47	.275	.34	.301	.23	.322	.389	1	
I48	.163	.074	.062	.064	.229	.282	.235	1

Sample Data

Correlation matrix

	I41	I42	I43	I44	I45	I46	I47	I48
I49	.213	.208	.297	.31	.19	.252	.345	.294
I65	.146	.223	.267	.229	.258	.297	.298	.241
I66	.251	.093	.144	.138	.165	.201	.217	.069
I67	.057	.345	.13	.222	.185	.227	.114	.103
I68	.284	.404	.124	.242	.207	.185	.174	.1
I69	.193	.27	.253	.216	.32	.248	.25	.051
I70	.07	.297	.231	.198	.284	.285	.316	.194
I71	.075	.348	.128	.187	.296	.229	.207	.031
I72	.212	.431	.285	.225	.388	.39	.307	.126
I73	.401	.281	.205	.206	.281	.33	.317	.18
I74	.223	.414	.369	.37	.267	.261	.49	.161
I75	.294	.314	.248	.238	.307	.388	.415	.181
I76	.224	.181	.188	.171	.215	.292	.371	.228
I77	.21	.28	.246	.226	.237	.372	.339	.227
I78	.179	.298	.375	.248	.334	.306	.354	.241
I79	.345	.356	.212	.143	.271	.277	.28	.141

Correlation matrix

	I41	I42	I43	I44	I45	I46	I47	I48
S50	.163	.006	.141	.181	.125	.1	.114	.099
S51	.105	.075	.193	.165	.117	.165	.106	.016
S52	.049	-.032	.203	.145	.065	.122	.057	-.014
S53	.143	.138	.091	.091	.137	.158	.168	-.001
S54	.187	.082	.14	.042	.198	.149	.13	.083
S55	.15	.001	.048	-.04	.178	.101	.094	.056
S56	.391	.007	.064	.072	.144	.126	.09	.148
S57	.175	.156	.158	.09	.138	.112	.104	-.015
S58	.085	.107	.147	.143	.226	.165	.228	-.011
S59	.079	.085	.206	.106	.12	.013	.119	-.048
S60	.227	.025	.121	.146	.132	.109	.144	.057
S61	.155	-.031	.035	-.028	.09	.212	.01	.163
S62	.078	.049	.122	.101	.065	.041	-.015	.055
S63	.129	.008	.025	.046	.09	.166	.105	.335
S64	.184	.034	.043	.05	.106	.118	.045	.04
S80	.111	-.009	.023	-.026	.121	.033	.068	.075

Sample Data

Correlation matrix

	I41	I42	I43	I44	I45	I46	I47	I48
S81	.043	-.017	.085	.104	.132	.021	.073	.061
S82	.194	.127	.064	.025	.118	.138	.087	.035
S83	.252	.092	.112	.052	.083	.088	.063	.047
S84	.107	.071	.194	.137	.095	.113	.161	.056
S85	.118	-.016	.111	.046	.019	.112	.118	-.025
S86	.254	.106	.055	.067	.089	.157	.164	-.026
S87	.172	.115	.191	.134	.157	.186	.041	-.023
S88	.193	.112	.152	.135	.109	.187	.069	.05
S89	.166	.139	.181	.181	.098	.126	.141	.07
S90	.235	.085	.206	.104	.12	.072	.112	.035
S91	.158	-.015	.167	.035	.102	.114	.121	.194
S92	.124	.008	.031	.113	-.033	.121	.069	.009
S93	.101	-.022	.049	.085	.089	.076	-.009	.053
S94	.149	.045	.143	.036	.09	.197	.126	.046

Correlation matrix

	I49	I65	I66	I67	I68	I69	I70	I71
I49	1							
I65	.367	1						
I66	.274	.289	1					
I67	.19	.193	.127	1				
I68	.217	.179	.154	.446	1			
I69	.188	.116	.246	.147	.284	1		
I70	.159	.258	.109	.166	.162	.361	1	
I71	.124	.265	.19	.317	.257	.296	.307	1
I72	.197	.315	.111	.335	.246	.262	.359	.381
I73	.198	.253	.203	.168	.262	.242	.295	.131
I74	.358	.317	.258	.237	.262	.31	.257	.395
I75	.239	.255	.287	.18	.204	.326	.302	.358
I76	.215	.182	.275	.043	.118	.285	.389	.125
I77	.248	.283	.281	.164	.155	.144	.132	.167
I78	.284	.322	.275	.195	.091	.242	.269	.266
I79	.234	.25	.21	.19	.191	.168	.218	.216

Sample Data

Correlation matrix

	I49	I65	I66	I67	I68	I69	I70	I71
S50	.183	.068	.245	.06	.022	.113	.002	.142
S51	.199	.048	.204	-.019	-.025	.129	.015	.075
S52	.134	.09	.195	.013	1.314E-4	.098	.017	.058
S53	.182	.148	.207	.122	.124	.221	.218	.281
S54	-.013	.048	.223	-.046	-.031	.2	.201	.121
S55	.032	.049	.221	-.016	-.043	.17	.156	.124
S56	.086	-.01	.135	.011	.053	.041	.022	-.012
S57	.13	.054	.143	.119	.122	.142	-.013	.116
S58	.133	.1	.191	.113	.04	.166	.17	.158
S59	.042	-.005	.09	-.058	-.013	.146	.12	.051
S60	.094	-.01	.129	.025	.073	.092	-.033	.035
S61	.077	.042	.191	.03	.091	.041	-.029	.027
S62	.073	.069	.1	.033	.05	.075	.052	.009
S63	.097	.083	.16	.182	.132	-.016	-.002	-.008
S64	.156	.073	.149	.053	.077	.104	-.095	-.01
S80	.086	.182	.147	.022	.042	-.076	-.008	.087

Correlation matrix

	I49	I65	I66	I67	I68	I69	I70	I71
S81	.079	.079	.232	-.025	.023	.137	.109	.042
S82	.083	-.022	.121	.22	.18	.217	.103	.168
S83	.073	.031	.122	.079	.32	.125	.038	-.043
S84	.185	.091	.226	.093	.132	.362	.09	.082
S85	.148	.069	.131	-.03	.02	.222	.065	.002
S86	.087	.005	.11	.034	.172	.199	.051	.11
S87	.136	.046	.241	.123	.098	.236	.038	.048
S88	.089	.033	.205	.085	.048	.178	.056	.064
S89	.089	.004	.138	.003	.104	.217	.169	.046
S90	.112	.066	.186	-.007	.087	.192	.113	-.001
S91	.166	.003	.139	-.048	.012	.165	.198	.029
S92	.08	.068	.279	.098	.059	.135	.019	-.011
S93	.142	.018	.159	.082	.061	.089	.036	.041
S94	.11	.074	.169	.043	.049	.191	.064	.034

Sample Data

Correlation matrix

	172	173	174	175	176	177	178	179
172	1							
173	.477	1						
174	.425	.405	1					
175	.43	.414	.538	1				
176	.251	.339	.34	.51	1			
177	.326	.356	.423	.501	.409	1		
178	.318	.299	.375	.399	.314	.468	1	
179	.349	.394	.397	.383	.307	.354	.366	1

Correlation matrix

	172	173	174	175	176	177	178	179
S50	.026	.056	.2	.105	.003	.08	.122	.07
S51	.023	.033	.14	.103	.043	.107	.058	.18
S52	.119	.186	.126	.094	-.024	.081	.119	4.097E-4
S53	.178	.124	.198	.096	.08	.005	.119	.068
S54	.069	.152	.09	.114	.123	.086	.155	.077
S55	.014	.088	.099	.028	.133	-.098	.098	.02
S56	.038	.144	.046	.035	.094	.03	.081	.127
S57	.075	.111	.134	.11	-.035	.151	.176	.107
S58	.108	.082	.127	.12	.095	.124	.184	.159
S59	.037	.139	.095	.157	.076	.127	.201	.073
S60	-.01	.169	.123	.109	.022	.112	.147	.075
S61	.031	.126	.026	.109	-.034	.048	.101	.107
S62	.001	.138	.063	.091	.038	.058	.099	.079
S63	.023	.075	.046	.065	.071	.141	.058	.056
S64	.037	.095	.055	.095	-.015	.003	.029	.044
S80	.062	.11	.04	.078	-.085	.054	.087	.039

Sample Data

Correlation matrix

	I72	I73	I74	I75	I76	I77	I78	I79
S81	.01	.066	.008	.061	.052	.052	.206	.094
S82	.103	.103	.074	.029	-.046	.008	.022	.053
S83	.036	.208	.047	.036	.026	.111	.022	.026
S84	.049	.137	.153	.138	.062	.111	.211	-.013
S85	.03	.146	.139	.144	.078	.081	.174	.162
S86	.039	.151	.064	.119	.068	.11	.08	.142
S87	.092	.125	.12	.146	.051	.154	.235	.14
S88	-.022	.174	.099	.127	.015	.124	.206	.148
S89	.023	.136	.205	.105	.14	.05	.157	.119
S90	.018	.238	.163	.207	.164	.083	.155	.12
S91	.042	.152	.156	.19	.288	.09	.118	.091
S92	.013	.138	.105	.141	.077	.202	.206	.1
S93	.037	.102	.024	-.033	-.082	.04	.13	.036
S94	.027	.097	.061	.11	.008	.067	.171	.147

Correlation matrix

	S50	S51	S52	S53	S54	S55	S56	S57
S50	1							
S51	.488	1						
S52	.413	.379	1					
S53	.211	.241	.262	1				
S54	.264	.26	.404	.331	1			
S55	.341	.27	.352	.43	.488	1		
S56	.233	.201	.157	.242	.199	.198	1	
S57	.409	.356	.296	.24	.227	.178	.349	1
S58	.312	.361	.275	.397	.307	.329	.185	.316
S59	.316	.288	.337	.228	.247	.267	.14	.277
S60	.368	.371	.326	.284	.221	.299	.313	.425
S61	.323	.238	.3	.353	.234	.293	.351	.342
S62	.276	.318	.304	.304	.234	.313	.285	.367
S63	.114	.114	.079	.098	.043	.111	.292	.135
S64	.176	.213	.307	.207	.194	.254	.257	.265
S80	.229	.19	.2	.071	.14	.162	.203	.237

Sample Data

Correlation matrix

	S50	S51	S52	S53	S54	S55	S56	S57
S81	.166	.31	.225	.267	.282	.252	.197	.195
S82	.314	.249	.308	.404	.235	.309	.215	.35
S83	.25	.14	.223	.298	.151	.206	.26	.336
S84	.397	.249	.288	.273	.176	.296	.178	.378
S85	.293	.208	.266	.176	.272	.198	.227	.328
S86	.276	.246	.302	.349	.292	.325	.28	.418
S87	.421	.415	.399	.252	.274	.376	.208	.359
S88	.397	.321	.257	.14	.208	.215	.219	.423
S89	.331	.393	.303	.297	.285	.379	.251	.288
S90	.332	.302	.313	.178	.35	.299	.28	.277
S91	.243	.291	.218	.206	.244	.241	.276	.224
S92	.323	.313	.331	.19	.21	.217	.263	.344
S93	.353	.242	.23	.299	.22	.282	.329	.3
S94	.296	.371	.286	.165	.228	.31	.256	.32

Correlation matrix

	S58	S59	S60	S61	S62	S63	S64	S80
S58	1							
S59	.491	1						
S60	.408	.343	1					
S61	.31	.226	.465	1				
S62	.385	.339	.39	.449	1			
S63	.077	-.02	.202	.331	.183	1		
S64	.299	.194	.274	.393	.367	.235	1	
S80	.25	.19	.28	.278	.22	.287	.313	1

Sample Data

Correlation matrix

	S58	S59	S60	S61	S62	S63	S64	S80
S81	.297	.324	.247	.275	.295	.171	.204	.244
S82	.359	.206	.434	.356	.347	.271	.217	.232
S83	.223	.141	.326	.356	.327	.228	.286	.233
S84	.348	.289	.402	.334	.319	.191	.293	.29
S85	.244	.263	.269	.31	.287	.091	.309	.219
S86	.382	.343	.425	.363	.371	.132	.304	.184
S87	.345	.332	.427	.387	.334	.156	.327	.272
S88	.262	.329	.482	.309	.249	.16	.217	.298
S89	.423	.357	.434	.41	.433	.119	.236	.203
S90	.355	.339	.355	.337	.333	.062	.249	.283
S91	.304	.268	.292	.306	.34	.183	.212	.202
S92	.361	.256	.356	.365	.385	.266	.328	.296
S93	.337	.221	.332	.417	.358	.365	.346	.262
S94	.291	.262	.376	.384	.337	.177	.297	.225

Correlation matrix

	S81	S82	S83	S84	S85	S86	S87	S88
S81	1							
S82	.238	1						
S83	.17	.546	1					
S84	.275	.41	.383	1				
S85	.284	.271	.247	.419	1			
S86	.292	.508	.426	.345	.317	1		
S87	.215	.285	.28	.418	.312	.393	1	
S88	.193	.309	.257	.315	.394	.349	.531	1
S89	.352	.313	.281	.374	.301	.327	.431	.359
S90	.315	.196	.16	.336	.354	.289	.396	.348
S91	.242	.235	.197	.313	.286	.243	.333	.25
S92	.306	.21	.221	.337	.43	.225	.349	.375
S93	.226	.345	.257	.273	.265	.27	.364	.339
S94	.19	.34	.273	.334	.392	.23	.438	.445

Sample Data

Correlation matrix

	S89	S90	S91	S92	S93	S94
S89	1					
S90	.568	1				
S91	.533	.528	1			
S92	.449	.408	.414	1		
S93	.3	.296	.286	.426	1	
S94	.401	.291	.356	.491	.36	1

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
K1	.468							
K2	.054	.466						
K3	.033	.051	.402					
K4	.033	.309	.149	.473				
K5	-.007	.091	.122	-.109	.416			
K6	.021	.125	.071	-.123	.058	.507		
K7	.009	.088	-.059	.098	.038	.308	.512	
K8	.154	-.007	-.065	.165	.018	.026	.071	.506
K9	.053	-.073	.034	.017	.11	.077	.053	.156
K10	-.045	.095	.06	-.087	.114	-.023	.089	.079
K11	-.012	-.048	.022	.107	-.068	.193	-.007	-.008
K12	.105	.139	-.205	.005	.122	.054	.021	.038
K13	-.021	.051	.007	.009	.028	-.205	.144	-.059
K14	-.135	-.001	.059	.056	.053	-.003	-.044	.165
K15	-.01	-.022	.04	-.007	-.036	-.131	.21	-.09
K16	-.035	.055	-.124	-.007	-.058	.171	-.063	.127

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
K17	.107	.013	.136	.085	.078	.007	.034	.024
C18	-.073	.013	-.036	-.034	-.037	.042	.06	-.038
C19	.159	.005	.063	-.097	-.056	-.124	-.008	-.089
C20	-.089	.054	-.038	.019	.105	-.051	.077	.069
C21	.065	-.007	-.169	.089	.052	-.089	.012	-.065
C22	.108	-.01	-.008	.014	-.05	-.046	-.051	-.014
C23	-.012	.052	.029	-.067	.084	.062	-.068	.084
C24	.116	.022	-1.30E-4	-.055	-.102	.108	-.019	-.065
C25	.007	.038	-.109	-.105	.018	.07	.018	.033
C26	-.03	-.09	.035	-.016	-.046	-.019	-.028	-2.42E-4
C27	.057	-.091	-.022	.104	.08	.114	-.155	.033
C28	.026	.028	.045	.101	.096	-.124	.075	-.076
C29	-.043	.074	-.052	-.038	-.098	-.068	.013	-.132
C30	.118	.035	.005	.005	-.027	.128	-.098	.117
C31	-.062	-.07	.068	.013	-.065	-.048	.128	-.07
C32	-.126	.042	.04	.009	-.03	.028	-.013	-.012

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
C33	.021	-.063	.02	.083	-.014	.017	-.114	.017
C34	.048	-.006	-.122	.071	.031	.023	.11	-.002
I35	-.064	-.056	-.067	.045	-.01	.078	.038	-.144
I36	-.044	.005	.066	.009	-.011	.032	-.059	.071
I37	.116	.056	-.017	-.126	-.086	-.058	.192	-.044
I38	.023	.035	.007	-.049	-.026	-.026	-.043	.075
I39	-.134	.012	.051	.092	-.026	.13	-.247	-.05
I40	-.034	-.058	-.022	.055	.052	.065	-.123	.088
I41	.378	-.045	.024	.006	-.013	-.069	.106	.037
I42	-.076	.025	.063	-.053	-.089	-.004	.069	.01
I43	-.043	.191	-.085	-.071	-.089	-.169	.071	.114
I44	.102	-.028	.066	.03	.023	.089	-.009	-.122
I45	.082	.031	.034	-.041	.187	-.021	-.017	.112
I46	-.022	-.03	-.016	.071	.063	-.044	.034	-.129
I47	-.076	-.05	.135	.003	-.081	.01	.02	.062
I48	-.03	.012	.149	-.085	.006	-.058	.127	-.069

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
149	-.073	.019	-.037	.113	-.077	-.095	.111	-.071
165	-.027	.039	.159	-.132	-.024	.061	-.131	.137
166	.001	.004	.007	-.06	.064	-.058	.129	-.075
167	.045	-.139	-.012	.103	.088	-.094	.086	.038
168	-.037	.132	-.054	-.006	.043	-.088	.025	-.094
169	.038	-.074	.01	-.029	-.037	.166	-.126	.222
170	-.03	-.104	.117	-.058	.084	-.095	.165	.02
171	.042	-.081	-.072	.074	-.003	.071	.008	-.015
172	.005	.063	-.046	.114	.081	-.045	.039	-.157
173	.1	.046	-.144	.043	-.08	.155	-.063	.053
174	-.068	-.078	.026	-.089	-.008	-.108	-.018	.064
175	-.056	.125	-.065	-.071	-.09	-.04	.012	-.045
176	.018	-.028	-.011	.004	.112	-.045	.015	.112
177	-.056	.046	.015	-.088	.015	.07	.049	.054
178	.078	.05	.063	.023	.007	-.098	-.048	-.091
179	-.074	-.04	.032	.064	-.038	.065	-.047	-.095

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
S50	.065	.014	-.102	.027	.1	.022	-.055	-.006
S51	-.013	.011	-.05	.001	.04	.133	-.107	.042
S52	.015	.036	.047	-.061	-.029	.001	-.028	.008
S53	.041	-.002	.022	.092	.048	-.031	.042	-.185
S54	-.035	-.011	-.053	-.018	.015	-.082	.053	.015
S55	-.067	-.002	.021	.027	-.011	-.037	.067	-.085
S56	-.076	.058	-.088	-.125	.038	-.009	-.083	-.023
S57	.039	-.087	-.074	.079	-.023	-.04	.067	.004
S58	.055	.047	-.111	.023	-.067	.126	-.2	.109
S59	.081	-.192	.057	.099	.095	-.064	.064	-.109
S60	-.038	-.009	.004	-.074	.03	-.134	.113	-.015
S61	.014	-.047	.05	-.013	-.145	-.017	.041	.051
S62	.037	.058	-.042	.02	-.01	.011	.108	-.027
S63	.03	-.035	-.072	.139	-.047	.162	-.158	.019
S64	-.009	-.046	-.073	-.029	.172	.05	.003	.027
S80	-.075	-.044	.031	-.04	.02	.001	.066	.065

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K1	K2	K3	K4	K5	K6	K7	K8
S81	-.076	-.104	.076	.023	.018	-.06	.062	.113
S82	.015	.048	.065	-.108	-.044	-.081	-.018	.014
S83	-.013	.051	.108	.042	.014	-.075	-.106	-.062
S84	-.082	.057	-.039	.106	-.024	.055	.046	.088
S85	.111	-.119	-.016	.075	.04	.069	.111	-.13
S86	-.073	-.023	-.078	.001	.056	.153	-.079	.059
S87	-.072	.164	.182	-.22	-.077	-.059	.007	.095
S88	-.045	.057	-.077	.072	-.027	-.051	-.072	-.071
S89	-.045	-.075	.033	.131	.148	.139	-.097	.043
S90	.109	.014	.058	-.027	.019	-.158	.02	-.07
S91	-.007	.007	-.008	.026	.035	-.01	.029	.033
S92	-.065	-.056	.001	-.018	-.102	-.089	.094	-.102
S93	.044	.109	.029	-.031	-.095	-.086	-.032	.078
S94	-.068	-.066	.07	-.008	.004	.048	-.053	.066

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
K9	.484							
K10	.312	.56						
K11	-.109	.321	.56					
K12	-.084	.049	.211	.468				
K13	-.008	-.055	-.1	.104	.501			
K14	.026	-.018	-.016	.088	.227	.525		
K15	.137	-.006	.027	.04	-.029	.23	.625	
K16	-.01	-.006	3.928E-4	-.044	.011	.058	.326	.603

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
K17	.071	-.055	.121	.013	.255	-.008	.107	.265
C18	-.046	.037	.018	-.036	.136	-.107	.005	-.061
C19	3.257E-4	.063	.131	-.055	.193	-.016	-.061	.165
C20	-.026	.116	-.085	-.044	.04	-.116	-.063	-.035
C21	.06	.068	.012	-.086	.063	-.081	.048	-.148
C22	-.041	.078	-.044	-.002	-.034	.132	.094	.051
C23	-.028	.006	.065	.113	.015	.012	.069	.087
C24	-.091	.045	.039	-.089	.16	-.041	.163	.034
C25	-.003	.086	-.089	.009	-.078	.048	-.078	-.032
C26	.093	-.06	.037	.061	.021	.008	.023	.034
C27	.003	.015	.114	-.006	.07	-.079	.186	.009
C28	.041	-.063	-.071	.039	-.156	.082	-.076	.168
C29	.117	-.049	.089	-.059	-.076	.047	.098	-.079
C30	-.063	-.039	.035	.018	.025	.09	-.069	-.11
C31	.006	-.041	.029	-.009	-.081	.072	-.036	-.067
C32	-.032	-.004	.015	.089	.057	.036	-.091	-.024

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
C33	-.158	.16	-.155	.041	.028	-.155	.171	.14
C34	.009	-.091	-.026	.003	.04	.028	.059	-.035
I35	-.015	-.015	.021	.027	-.016	.07	-.008	-.072
I36	.009	-.007	.016	.026	-.006	-.014	.078	.069
I37	-.086	.047	-3.61E-4	.058	-.039	.052	.026	-.03
I38	-.047	.062	.069	.011	.07	-.121	-.135	.145
I39	.015	.001	-.156	.099	-.109	.032	.101	.103
I40	-.074	.019	-.011	-.045	.15	-.06	.081	-.089
I41	-.032	-.064	.059	-.053	-.134	.124	-.025	-.029
I42	.041	-.124	.024	.173	.095	.073	-.058	-.029
I43	-.013	.034	-.01	-.016	-.085	-.039	.001	.014
I44	.024	.013	.069	-.043	.026	.051	-.01	-.024
I45	-.024	.008	.074	-.047	-.002	.039	-.207	.145
I46	.06	-.059	-.03	.043	-.069	.003	.062	-.032
I47	.04	-.029	.08	-.016	.05	-.039	.041	.021
I48	.049	-.004	.065	.06	-.033	.135	-.029	.035

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
149	.077	-.05	.035	.046	.022	-.124	-.14	.049
165	.053	.026	-.067	-.028	.099	-.047	.007	.044
166	-.023	-.088	.05	-.075	.007	.044	.115	.035
167	-1.03E-4	.084	.225	-.024	.025	-.081	.046	.054
168	.031	.001	.039	-.062	.048	-.048	-.052	-.003
169	-.005	-.116	-.144	.139	.005	-.068	.101	-.017
170	.056	-.076	.001	.022	-.129	-.08	-.04	.096
171	-.114	.293	-.062	-.033	.101	-.021	.049	-.06
172	.036	-.124	-.005	-.028	-.027	-.04	-.043	-.026
173	-.135	.16	-.058	-.131	.024	.115	.045	-.169
174	.168	-.025	.17	.046	-.034	-.042	.019	-.12
175	.055	.046	-.05	-.009	.005	.173	.013	-.083
176	-.086	-.063	-.067	.052	-.028	-.048	-.096	.105
177	-.033	-.035	-.007	-.133	-.008	.023	-.051	.018
178	.061	-.007	-.052	.024	-.031	-.068	.078	-.018
179	-.009	.003	-.051	.002	-.071	-.036	.067	.108

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
S50	.029	-.002	-.054	-.086	-.08	.056	.021	-.115
S51	-.078	-1.28E-4	.03	-.067	.085	-.052	.081	-.074
S52	.003	-.133	.164	.02	.103	.006	-.12	.039
S53	.115	.04	-.024	-.044	-.031	.164	-.013	-.061
S54	-.041	.072	-.066	.018	.019	-.082	-.157	.073
S55	.073	-.022	-.091	-.025	-.061	-.013	-.084	.103
S56	.129	-.064	.119	.002	.076	-.126	-.022	-.016
S57	.029	-.066	.005	.087	-.132	.137	-.086	-.052
S58	-.043	.04	-.039	.01	-.036	.097	.061	-.137
S59	.115	.057	.015	.135	.044	-.032	-.033	.194
S60	-.095	-.116	.017	-.014	.111	-.144	-.037	.194
S61	.139	-.041	-.044	-.041	-.082	-.013	.001	-.033
S62	-.048	-.055	.03	-.011	.02	.006	-.048	-.056
S63	-.059	.12	-.212	.018	.012	-.032	-.058	-.163
S64	-.027	.11	-.068	.013	.088	-.052	.061	-.029
S80	.029	.014	.05	.095	.027	.026	-.051	-.054

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K9	K10	K11	K12	K13	K14	K15	K16
S81	.055	-.135	.045	.042	-.021	-.038	-.02	-.03
S82	-.024	.058	-.062	.098	-.137	-.022	-.023	-.015
S83	.116	-.116	.072	.088	-.027	.071	.081	.118
S84	-.101	.013	-.005	-.01	.112	-.068	.039	-.03
S85	-.043	.06	-.028	-.084	-.059	.101	.037	.002
S86	-.086	.028	-.017	.027	.069	-.109	-.003	.011
S87	-.043	.01	.059	.018	-.025	.077	.067	-.017
S88	.109	.019	-.009	-.069	.018	.042	.02	-.006
S89	-.107	.118	-.081	3.937E-4	.076	.046	.11	.019
S90	.066	-.08	.128	-.064	-.064	-.052	.007	.051
S91	-.076	-.044	-.087	-.071	-.079	.142	.031	-.068
S92	.067	.04	.062	-.004	-.069	.061	-.191	.07
S93	.028	.043	.054	.008	-.03	-.115	.11	.043
S94	-.108	.068	-.02	.001	.086	-.093	.052	.078

Partials in off-diagonals and Squared Multiple R in diagonal

	K17	C18	C19	C20	C21	C22	C23	C24
K17	.577							
C18	.065	.57						
C19	-.114	-.029	.469					
C20	.013	-.004	.036	.457				
C21	.028	-.29	-.077	-.237	.557			
C22	-.105	.076	-.072	-.085	-.231	.529		
C23	-.055	.313	.111	.063	.134	.155	.518	
C24	-.088	-.081	-.129	.041	.017	-.098	.096	.461
C25	.159	.279	.135	.044	.028	.27	-.068	.135
C26	-.023	-.029	.023	.208	-.124	-.09	.104	.028
C27	-.121	.034	.014	.079	.001	.041	-.112	-.093
C28	.054	.049	.008	-.001	.02	-.067	.081	.08
C29	.11	.023	.101	.047	.043	.056	.006	.065
C30	.065	.006	.125	-.035	-.108	.062	.047	.036
C31	.03	.023	-.042	.047	.061	.034	.086	-.059
C32	.046	.044	.079	.086	.192	.134	-.107	.153

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K17	C18	C19	C20	C21	C22	C23	C24
C33	.071	.001	-.042	.058	.031	.023	-.088	-.024
C34	-.002	.075	.071	.147	.084	-.004	-.002	-.022
I35	.074	.015	.178	.128	.036	.022	.048	.059
I36	.002	.076	.074	.016	.152	.049	-.162	-.05
I37	-.01	-.077	-.01	.098	.034	-.047	.076	-.28
I38	-.052	-.093	-.068	-.068	.079	-.006	-.088	-.04
I39	-.011	.145	.033	.073	.108	-.168	-3.88E-4	.026
I40	-.002	.093	-.067	-.14	-3.60E-4	-.115	-.06	.052
I41	-.041	.01	-.138	.063	-.017	-.018	.078	-.067
I42	-.005	.11	-.013	.026	.06	-.003	-.026	.016
I43	-.021	-.021	.017	-.121	-.07	.029	.02	-.022
I44	.034	-.047	-.051	.109	-.041	.078	-.087	.015
I45	-.104	.128	-.127	-.033	.065	-.019	-.073	.12
I46	-.036	-.011	-.002	.021	-.048	.005	-.002	.022
I47	.006	-.038	.063	.048	.044	.063	-.033	-.11
I48	-.046	-.079	-.069	-.02	-.053	-.065	-.037	-.044

Partials in off-diagonals and Squared Multiple R in diagonal

	K17	C18	C19	C20	C21	C22	C23	C24
I49	.097	-.084	-.005	.012	.002	.197	.129	.061
I65	-.055	.052	-.111	-.052	.098	.023	-.016	-.021
I66	-.029	-.087	.02	-.015	-.11	.01	.079	-.027
I67	-.011	.101	-.033	-.073	.019	.087	-.087	-.004
I68	-.035	-.084	-.055	-.057	-.055	.007	.092	.095
I69	-.041	.05	.112	.06	.057	-.118	-.039	-.104
I70	.054	-.033	-.053	.095	.04	.024	.067	.129
I71	.076	-.103	-.06	-.036	-.185	-.033	-.017	-.144
I72	-.027	-.151	-.027	-.019	-.068	.078	.076	.085
I73	.075	-.022	.096	-.007	-.208	-.028	.05	-.045
I74	-.057	.162	.003	-.076	-.018	.03	.002	.022
I75	.049	-.086	.012	.002	.028	.006	.007	.125
I76	.233	.141	.038	-.019	.155	.155	-.147	.046
I77	.015	.06	.004	-.049	.038	.003	.017	-.014
I78	.006	-.037	.115	-.06	-.04	-.094	-.048	.046
I79	-.056	-.064	.004	.103	.003	-.006	.072	-.028

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	K17	C18	C19	C20	C21	C22	C23	C24
S50	.045	.062	.025	.031	-.041	-.069	.082	.201
S51	-.027	-.031	.041	-.03	-.032	-.002	-.004	.009
S52	-.064	.042	-.091	.063	.126	-.019	-.075	-.03
S53	-.06	.052	.098	.029	-.098	-.083	-.052	.227
S54	.061	-.088	-.099	-.114	.014	.044	.065	.066
S55	.02	-7.93E-5	.127	.085	.052	.036	.026	-.006
S56	.156	.016	.018	-.03	-.05	.023	-.08	.091
S57	.002	.02	.064	.032	-.065	-.066	.039	-.049
S58	.04	4.964E-6	.057	.045	-.115	-.046	.084	-.028
S59	-.117	.091	-.103	.047	-.046	-.043	-.135	.039
S60	.011	-.066	.002	-.018	.081	.007	.131	-.064
S61	.032	.119	-.017	-.057	-.024	.034	.056	-.021
S62	.04	-.132	-.062	-.08	-.021	-.071	.223	-.028
S63	.083	-.067	.127	-.031	-.066	-.141	.155	-.062
S64	.002	-.044	.153	-.122	-.059	-.083	-.051	-.037
S80	.021	.004	-.033	-.098	-.09	-.033	-.046	.064

Partials in off-diagonals and Squared Multiple R in diagonal

	K17	C18	C19	C20	C21	C22	C23	C24
S81	-.024	.083	-.025	.013	.158	.124	-.039	-.085
S82	.079	.054	.055	.005	.036	.117	-.072	.045
S83	-.1	.033	-.088	.21	.082	-.061	-.111	.062
S84	-.019	-.034	.043	-.119	.013	.075	.053	.05
S85	-.074	.054	.017	-.005	.026	-.103	.008	-.03
S86	.033	-.012	-.038	-.044	.057	.088	.016	-.2
S87	.025	.075	-.058	-.081	.083	.065	-.253	-.047
S88	.006	-.06	.058	-.015	-.094	-.066	.046	.067
S89	-.019	.009	.144	.065	.025	-.021	-.089	.036
S90	.031	-.073	-.062	.039	-.024	.065	.031	-.075
S91	-.08	.008	-.063	-.01	-.034	-.102	.132	-.025
S92	.03	.09	.061	-.011	.108	.21	-.073	.26
S93	-.074	.093	-.139	.05	.075	-.004	-.071	-.086
S94	-.059	-.112	-.137	.034	-.01	-.126	.041	-.124

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	C25	C26	C27	C28	C29	C30	C31	C32
C25	.544							
C26	.103	.424						
C27	.078	-.016	.38					
C28	-.017	.062	.133	.435				
C29	.076	-.02	-.046	.144	.519			
C30	.03	.113	.084	-.013	.233	.606		
C31	-.059	.026	.055	-.043	.059	.14	.361	
C32	-.097	.065	.114	.058	.088	.071	-.015	.394

Partials in off-diagonals and Squared Multiple R in diagonal

	C25	C26	C27	C28	C29	C30	C31	C32
C33	-.108	-.028	.053	.06	.115	-.045	.158	.147
C34	.008	.039	.082	.065	.061	-.182	-.069	.026
I35	-.065	-.088	-.006	.052	-.118	.089	-.053	-.063
I36	-.034	.082	-.076	.018	.079	-.057	.002	-.016
I37	.04	.063	.038	.133	-.126	.05	-.017	.058
I38	-.017	.106	-.066	.037	.139	-.102	.033	.028
I39	.029	-.087	.005	-.185	.127	.066	.012	-.056
I40	.06	.04	-.045	.11	-.033	.026	.076	-.033
I41	-.048	-.046	.048	-.055	.109	.025	-.101	.04
I42	-.09	-.046	.043	-.121	-.067	.001	-.029	.029
I43	-.051	-.002	.03	.027	.045	.107	-.05	-.004
I44	.01	.061	.047	.005	.061	-.181	.115	-.008
I45	-.083	.121	.031	-.065	.118	-.024	.006	-.008
I46	.014	-.121	.003	.058	-.026	.101	-.028	.054
I47	.069	.059	-.038	.106	-.074	.071	.007	-.078
I48	.071	-.071	-.029	-.018	-.019	.045	.079	-.069

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	C25	C26	C27	C28	C29	C30	C31	C32
149	-.059	.018	.025	-.048	-.102	-.008	.053	-.046
165	-.04	.083	.073	-.005	.116	-.168	-.105	.05
166	.077	.012	.016	.127	-.043	.029	-.076	.091
167	.006	.113	-.114	.033	-.011	-.071	.068	.043
168	.02	.053	-.032	-.028	.046	.15	-.019	-.11
169	.092	-.089	-.111	.058	-.007	.036	.082	-.012
170	.032	.119	.01	-.107	.014	-.076	.031	.043
171	-.079	.092	.033	.014	.207	-.081	-.046	.009
172	.073	-.06	.006	-.039	-.031	.019	-.014	-.031
173	-.08	.012	.058	.082	.065	-.17	.013	.108
174	.046	-.096	.039	.009	-.072	.011	-.055	-.013
175	.054	.02	.018	.056	-.106	.066	-.059	.012
176	-.168	-.049	.013	-.105	.081	.077	.081	-.127
177	-.049	.073	-.016	-.033	-.061	.088	.063	-.067
178	.04	-.006	.052	-.061	-.01	-.002	.058	.023
179	.11	-.096	-.023	.007	-.045	.063	.058	-.014

Partials in off-diagonals and Squared Multiple R in diagonal

	C25	C26	C27	C28	C29	C30	C31	C32
S50	-.002	.034	.054	-.014	.038	-.079	.007	.02
S51	-.12	.04	-.073	.049	-.1	.07	.088	-.058
S52	.06	.02	.027	-.026	.075	-.058	.077	.01
S53	.045	-.051	.022	-.127	-.059	-.022	.057	-.004
S54	-.093	.122	.09	-.028	.064	-.052	-.088	.016
S55	.056	-.12	-.108	.042	-.103	.187	-.01	-.131
S56	.041	-.035	-.073	-.009	-.144	.126	.153	-.148
S57	-.02	-.073	-.103	.049	.061	-.086	-.13	.06
S58	-.07	-.003	.015	.065	.025	-.117	-.002	.054
S59	.035	-.165	-.117	.054	.019	.094	.066	.094
S60	.05	-.129	.117	.001	.019	.096	.029	-.004
S61	-.098	-.014	.083	.02	-.053	-.085	-.083	.046
S62	-.026	.091	.073	-.111	.015	-.033	-.037	-.022
S63	-.024	-.021	-.015	.066	-.003	-.073	-.056	.066
S64	.075	-.081	-.029	.052	.007	.022	.051	-.066
S80	.031	-.046	-.089	-.033	-.008	-.016	.161	.002

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	C25	C26	C27	C28	C29	C30	C31	C32
S81	.025	.031	.088	-.053	.041	.054	-.136	-.038
S82	-.149	.025	.062	.062	-.109	.064	.003	.078
S83	.093	-.004	.027	-.068	-.016	.041	-.04	-.062
S84	-.037	.043	-.077	-.116	-.023	-.1	.045	-.007
S85	.025	.021	-.009	.07	.052	.062	-.1	.084
S86	-.009	.059	-.019	.093	.183	.02	-.031	-.058
S87	.015	.096	-.01	-.027	.046	.004	-.092	4.163E-4
S88	.06	-.045	.047	-.061	-.161	.085	.038	-.132
S89	-.088	-.023	-.079	-.062	.006	-.093	-.014	.067
S90	.105	-.065	-.1	.04	-.156	.178	-.016	.023
S91	.06	-.008	.092	-.039	.169	-.145	-.019	.024
S92	-.154	.09	.162	.059	-.033	.02	.065	-.186
S93	.01	.125	-.058	-.032	.043	.012	-.018	.064
S94	.155	-.018	-.067	-.066	.198	.046	.004	.053

Partials in off-diagonals and Squared Multiple R in diagonal

	C33	C34	I35	I36	I37	I38	I39	I40
C33	.528							
C34	.18	.395						
I35	.159	-.031	.625					
I36	-.106	.041	.278	.537				
I37	.095	-.186	.161	.081	.606			
I38	-.118	.048	.279	-.133	.037	.603		
I39	-.083	.059	-.074	-.023	.242	.156	.633	
I40	-.023	.019	.096	.079	.19	.007	-.013	.513
I41	.069	-.018	.08	2.580E-4	-.102	.038	.109	.097
I42	.046	-.112	.062	.114	-.057	.061	.051	.093
I43	.019	-.06	-.013	.117	.006	-.006	.062	.07
I44	-.02	.005	-.055	.003	-.07	.143	.131	.177
I45	.094	.001	.035	-.038	.028	-.028	-.044	-.017
I46	-.044	.029	.006	-.014	.069	.106	-.002	.089
I47	.025	.013	-.127	.033	-.053	.079	.118	.027
I48	.077	-.017	-.069	.027	-.029	.01	.029	.097

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	C33	C34	I35	I36	I37	I38	I39	I40
I49	.035	-.033	.012	-.004	-.064	.058	.071	.097
I65	.014	.067	.239	-.081	.023	-.206	.07	-.018
I66	-.053	-.17	-.134	.136	.043	.163	-.002	.02
I67	-.102	.024	.13	-.098	.039	.005	.084	.027
I68	.085	.059	-.096	.076	.163	-.019	-.057	-.06
I69	.008	-.016	.101	-.024	-.027	-.065	-.216	-.055
I70	-.034	-.026	.045	-.061	.042	-.05	.062	.007
I71	-.071	.044	.081	-.115	-.186	-.067	.117	.113
I72	-.046	.101	.052	.127	.128	.03	.054	-.044
I73	-.065	.006	-.04	.106	.029	.024	-3.92E-4	-.005
I74	.181	-.026	.023	.076	.01	.115	.123	-.006
I75	.015	-.02	-.018	.065	-.053	.04	.06	.012
I76	-.026	-.031	-.012	.027	.099	-.047	.036	-.006
I77	.071	.05	-.026	.007	.051	.033	.022	-.078
I78	.021	.092	.053	-.013	.009	.002	.019	-.146
I79	-.138	.088	.029	-.058	.032	.07	-.111	.225

Partials in off-diagonals and Squared Multiple R in diagonal

	C33	C34	I35	I36	I37	I38	I39	I40
S50	-.061	-.07	-.036	.114	.123	.132	-.068	-.024
S51	.128	.044	-.053	-.103	.092	.05	.037	-.225
S52	.17	-.013	.088	-.025	.046	-.206	-.075	-.037
S53	.041	.031	-.18	.139	.112	.366	-.079	.018
S54	-.017	-.012	.183	-.084	.058	-.16	.109	-.009
S55	.068	.068	-.191	.074	.022	.104	-.044	.054
S56	.01	.073	.039	.014	.034	-.096	-.055	-.043
S57	.011	-.004	-.117	.066	.026	.008	-.013	.071
S58	.024	-.079	-.067	.097	-.017	-.047	-.016	-.079
S59	-.039	.037	.06	-.053	-.084	.091	.057	.105
S60	-.15	.007	.029	.079	-.043	-.048	.002	.034
S61	-.017	-.041	.1	.096	-.114	.039	.102	.067
S62	.116	-.028	-.003	-.046	-.007	-.014	-.048	-.103
S63	.011	.063	.019	.037	-.082	.019	.009	-.055
S64	-.024	-.031	.035	-.062	.037	.046	.01	-.109
S80	-.041	.005	-.03	.126	.082	.001	.008	-.012

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	C33	C34	I35	I36	I37	I38	I39	I40
S81	.011	-.112	.063	.037	.002	.005	.049	.057
S82	-.009	.007	.038	.006	-.094	-.009	.029	.062
S83	.02	-.008	.105	-.059	-.08	.047	-.048	.057
S84	.07	-.002	-.042	-.085	.048	-.049	.061	-.052
S85	-.087	-.03	-.122	.032	-.045	.078	.009	-.053
S86	-.063	-.043	.003	-.146	-.027	-.067	-.056	-.008
S87	.011	.042	.055	-.032	-.052	.008	.049	.039
S88	.049	.059	-.047	-.043	.087	.031	-.095	-.039
S89	-.14	-.059	-.083	-.143	.072	-.032	-.033	-.032
S90	.073	.135	.035	-.085	-.059	.034	.082	.032
S91	.01	-.031	.038	.067	.057	.042	-.056	-.011
S92	.028	.013	-.035	-.02	.027	.018	.082	.076
S93	-.052	-.009	-.017	.014	.011	-.102	-.003	.048
S94	-.159	.089	.085	-.04	.002	-.086	-.094	-.018

Partials in off-diagonals and Squared Multiple R in diagonal

	I41	I42	I43	I44	I45	I46	I47	I48
I41	.617							
I42	-.008	.604						
I43	-.009	-.122	.581					
I44	-.098	.107	.403	.583				
I45	-.014	.069	-.001	.069	.531			
I46	.052	.084	.088	-.081	.174	.522		
I47	.071	.108	.065	-.102	.102	.128	.558	
I48	-.015	-.084	-.116	-.058	.055	.068	-.004	.498

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	I41	I42	I43	I44	I45	I46	I47	I48
I49	.093	-.013	.034	.074	-.008	.003	.071	.199
I65	.03	-.029	.09	.03	-.022	.111	.042	.143
I66	.082	-.04	-.069	-.029	.036	-.071	-.035	-.152
I67	-.119	.037	.031	-.028	-.037	.042	-.085	.015
I68	.177	.201	-.09	.12	.006	-.026	.005	.034
I69	.013	-.026	.083	.088	.171	.029	-.012	.045
I70	-.093	.076	.076	-.004	-.038	.065	.065	.052
I71	-.072	.109	-.04	-.072	.041	.039	-.079	-.067
I72	.013	.143	.105	-.053	.143	-.01	.008	.005
I73	.121	-.017	-.137	.033	.033	.089	.052	.065
I74	-.067	.027	.058	.067	-.051	-.137	.158	-.012
I75	.124	-.072	-.107	.056	.054	.074	.058	-.022
I76	-.065	-.093	-.073	.058	-.074	.042	.061	.009
I77	.004	.016	-.017	.017	-.01	.165	-.041	.064
I78	.013	.111	.198	-.05	.119	-.033	.065	.153
I79	.162	.137	.068	-.127	.091	-.145	-.079	-.023

Partials in off-diagonals and Squared Multiple R in diagonal

	I41	I42	I43	I44	I45	I46	I47	I48
S50	.064	-.074	-.077	.087	.007	-.044	.103	.168
S51	-.008	.085	.092	.033	-.029	.12	-.028	2.958E-4
S52	-.135	-.161	.096	.045	-.098	.074	.016	-.041
S53	.024	-.023	-.011	-.118	-.064	-.055	.043	-.121
S54	.086	.084	.04	.037	-.017	-.005	.07	.151
S55	.077	.015	-.032	-.091	.151	-.022	-.093	.004
S56	.342	-.026	-.012	.12	.057	.045	-.006	.045
S57	-.08	.077	.032	-.08	.07	-.09	.011	-.078
S58	-.093	-.061	-.077	.074	.114	.105	.145	.003
S59	-.019	.067	.165	-.144	-.027	-.2	-.024	-.069
S60	.079	-.103	-.06	.137	.09	-.08	.067	.024
S61	-.136	-.115	-.022	-.11	.032	.159	-.102	.123
S62	-.105	.064	.076	.061	-.026	-.04	-.069	.042
S63	-.003	.025	.082	.035	.037	.018	.11	.296
S64	.142	.098	-.022	.059	.054	.016	-.009	.005
S80	.022	-.112	-.039	-.087	.07	-.071	.031	-.105

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	I41	I42	I43	I44	I45	I46	I47	I48
S81	-.114	-.157	-.084	.093	.07	-.08	-.031	.028
S82	.082	.05	-.061	-.044	-.016	.009	-.031	.024
S83	.011	-.009	.164	-.103	.006	-.106	-.058	-.034
S84	-.003	.007	.037	.036	-.08	.034	.037	.023
S85	-.112	-.05	-.009	-.047	-.038	.014	.016	-.102
S86	.056	.029	-.094	.086	-.117	.087	.118	-.034
S87	.018	-.018	-.067	-.024	-.005	.04	-.145	-.166
S88	.07	.112	.035	.078	.021	.09	-.069	.065
S89	.105	.086	.036	.09	-.062	.053	.033	.029
S90	-.022	.149	.12	-.081	.03	-.129	-.076	-.065
S91	-.052	-.079	.08	-.118	.054	-.045	.001	.143
S92	.054	-.002	-.168	.028	-.18	.024	-.038	-.082
S93	-.088	-.057	-.095	.042	-.011	.004	-.077	-.072
S94	-.006	.013	.059	-.027	-.016	.056	.115	-.026

Partials in off-diagonals and Squared Multiple R in diagonal

	I49	I65	I66	I67	I68	I69	I70	I71
I49	.52							
I65	.161	.542						
I66	.119	.201	.522					
I67	.012	.012	-.015	.565				
I68	.029	.055	.005	.308	.558			
I69	.083	-.067	.113	-.008	.173	.608		
I70	-.038	.05	-.067	-.038	.004	.15	.548	
I71	-.066	.026	.088	.017	.149	.148	.098	.613
I72	-.104	.083	-.104	.128	-.108	.072	.071	.147
I73	.015	.015	-.028	.031	.034	.024	.148	-.183
I74	.06	-.004	.032	-.062	.055	.079	-.062	.156
I75	-.029	-.059	-.009	.06	-.067	.102	.063	.156
I76	-.011	-.008	.146	-.063	.03	.039	.143	-.03
I77	.021	.051	.071	.005	-.076	-.088	-.134	.045
I78	.057	.011	.068	.078	-.122	-.013	.012	.103
I79	-.009	.064	-.015	.032	.008	-.063	.013	.013

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	I49	I65	I66	I67	I68	I69	I70	I71
S50	.044	.017	.004	.036	-.089	-.053	-.069	.141
S51	.099	-.012	.055	-.042	-.078	.009	-.01	.025
S52	.085	-.033	.099	-.044	.01	-.1	-.029	.051
S53	.099	.18	-.052	.002	-.05	.114	.045	.16
S54	-.213	-.146	.125	-.037	-.075	.109	.034	-.026
S55	-.061	.099	.026	.065	-.14	-.068	.038	.117
S56	-.074	-.04	.054	.013	-.14	-.078	.014	.052
S57	.05	.066	-.051	.053	.035	-.027	-.015	.03
S58	.059	-.002	.035	.144	-.032	-.098	.099	.002
S59	-.062	-.028	-.044	-.154	.074	.024	.023	-.09
S60	-.067	-.012	-.133	-.029	.006	-.081	-.078	.05
S61	-.047	-.098	.09	-.07	.128	-.06	-.055	-.001
S62	-.069	.101	-.028	.037	-.07	-.028	-.008	-.031
S63	-.075	-.024	.122	.182	.061	-.111	.04	-.086
S64	.116	.038	-.025	.024	-.059	-.002	-.1	-.046
S80	.046	.187	-.016	-.125	.011	-.188	.006	.138

Partials in off-diagonals and Squared Multiple R in diagonal

	I49	I65	I66	I67	I68	I69	I70	I71
S81	-.018	-.026	.109	-.061	.062	-.013	.005	.031
S82	-.029	-.115	.037	.201	-.08	.09	.036	.068
S83	-.046	-.033	.007	-.09	.271	-.055	.003	-.122
S84	-.046	.001	.091	-.002	-.03	.257	-.008	-.04
S85	.165	.087	-.175	-.081	.009	.073	2.748E-4	-.061
S86	.024	.002	-.074	-.076	.073	-.009	-.011	-.016
S87	.055	-.111	.029	.076	.043	.117	2.488E-4	-.125
S88	-.068	.025	.091	.088	-.155	.033	.072	.062
S89	-.013	-.065	-.053	-.053	.075	.029	.048	-.069
S90	-.053	.106	-.029	-.006	.04	.031	-.04	-.05
S91	.148	-.118	-.054	-.012	-.046	-.07	.062	.076
S92	-.178	.017	.111	.051	-.025	.189	-.047	-.052
S93	.13	-.086	-.001	-.103	.031	.024	.026	-.006
S94	.063	.035	-.01	-.024	.025	-.006	-.031	-.047

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	I72	I73	I74	I75	I76	I77	I78	I79
I72	.616							
I73	.251	.622						
I74	.061	.146	.689					
I75	.077	-.025	.193	.639				
I76	.012	.09	-.026	.244	.65			
I77	.046	.04	.135	.139	.128	.577		
I78	-.067	.023	-.002	.035	.064	.181	.582	
I79	-.019	.156	.128	.036	.107	.049	.141	.543

Partials in off-diagonals and Squared Multiple R in diagonal

	I72	I73	I74	I75	I76	I77	I78	I79
S50	-.025	-.172	.088	-.053	.025	-.058	-.036	-.01
S51	-.022	-.043	-.004	.041	-4.12E-4	-.029	-.198	.186
S52	.108	.168	.005	.044	-.099	-.012	.017	-.021
S53	-.006	-.045	.03	-.082	.057	-.063	-.062	-.08
S54	-.096	.039	-.03	-.016	-.045	.105	-.006	-.01
S55	-.073	.061	.109	-.09	.117	-.23	.004	-.096
S56	.017	.016	-.021	-.11	.016	-.101	-.006	.014
S57	.004	-.063	.007	.011	-.029	.086	.081	-.031
S58	.073	-.231	-.036	-.08	.044	.028	.004	.162
S59	-.029	.14	-.081	.104	-.021	.139	.025	-.121
S60	-.085	.116	.069	.022	-.058	.021	.034	-.098
S61	.035	-.008	-.129	.1	-.073	-.042	-6.14E-5	.089
S62	-.088	.087	.043	.088	.042	-.023	-.018	.052
S63	-.073	-.115	.038	.014	.112	.069	-.127	.011
S64	.011	-.048	.015	.059	.005	-.109	-.108	-.018
S80	.071	.029	-.047	.04	-.121	-.053	.03	-.013

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	I72	I73	I74	I75	I76	I77	I78	I79
S81	.032	.044	-.176	.016	-.107	-.022	.187	.049
S82	.077	-.073	-.011	-.063	-.068	-.019	-.084	.008
S83	-.067	.21	-.042	-.032	.052	.17	-.072	-.117
S84	-.036	.043	-.003	.013	-.062	.012	.087	-.086
S85	.036	-.048	.108	-.009	.085	-.051	.024	.12
S86	.028	-.025	-.052	.068	-.029	.055	.033	.084
S87	.127	-.057	-.065	-.047	-.052	.069	.103	.057
S88	-.174	.095	-.012	-.033	.022	-.055	-.03	-.013
S89	.041	-.099	.202	-.103	.017	-.026	.022	.014
S90	-.139	.193	-.05	.13	.012	-.024	-.079	-.082
S91	-.025	-.055	.063	.013	.221	-.066	-.074	-.047
S92	.003	.016	-.073	-.031	-.062	.117	.093	-.033
S93	.106	.083	-.03	-.078	-.1	.056	.109	-.012
S94	.008	-.015	-.024	.078	-.046	-.03	.045	.017

Partials in off-diagonals and Squared Multiple R in diagonal

	S50	S51	S52	S53	S54	S55	S56	S57
S50	.607							
S51	.264	.592						
S52	.16	.075	.585					
S53	-.206	.068	.069	.641				
S54	.015	.012	.176	.173	.548			
S55	.103	-.02	.105	.089	.283	.608		
S56	.004	-.022	-.021	.111	.004	-.083	.548	
S57	.089	.147	.031	-.022	.067	-.098	.229	.54
S58	-.066	.031	-.062	.142	.102	.033	-.009	-.035
S59	.136	.029	.131	-.046	-.041	-.002	.007	-.026
S60	-.015	.137	-.004	.085	-.054	-.02	.001	.095
S61	.069	-.053	.05	.15	-.011	-.027	.093	.009
S62	-.006	-.014	-.047	.058	-.072	.097	.068	.083
S63	-.107	-.005	.034	-.025	-.078	.024	.153	-.079
S64	-.138	-.033	.178	-.049	.005	.013	-.053	.026
S80	-.032	.039	-.034	-.163	.06	-.001	-.023	-.035

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	S50	S51	S52	S53	S54	S55	S56	S57
S81	-.09	.229	-.06	.112	.05	.021	.049	-.044
S82	.047	-.001	.146	.117	-.046	1.941E-7	-.097	.006
S83	.097	-.017	-.047	.046	.003	.008	.056	.08
S84	.189	-.13	-.032	.038	-.14	.093	-.017	.105
S85	-.002	-.05	.034	-.09	.185	-.078	.131	-.018
S86	.006	-.066	.019	.146	.018	.1	.033	.132
S87	.113	.139	.091	.03	-.004	.15	-.03	-.009
S88	.072	-.065	-.019	-.074	-.012	-.112	-.126	.16
S89	-.036	.032	.062	-.034	-.026	.117	.018	-.033
S90	.126	-.037	.041	-.034	.113	-.052	.026	-.009
S91	-.115	.057	-.046	-.014	.021	-.073	.133	-.043
S92	.03	.008	.104	-.04	-.095	-.025	-.046	.103
S93	.15	-.003	-.134	.118	.043	.065	.1	-.005
S94	-.056	.151	-.035	-.051	.009	.137	.071	.006

Partials in off-diagonals and Squared Multiple R in diagonal

	S58	S59	S60	S61	S62	S63	S64	S80
S58	.608							
S59	.348	.593						
S60	.15	.01	.631					
S61	-.035	-.019	.161	.621				
S62	.044	.145	.02	.148	.541			
S63	-.158	-.005	.029	.079	-.047	.563		
S64	.108	-.029	-.04	.153	.11	.005	.501	
S80	.055	-.002	.028	2.359E-4	-.004	.174	.084	.479

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	S58	S59	S60	S61	S62	S63	S64	S80
S81	-.018	.138	-.059	-.046	.052	.108	.036	.055
S82	.059	-.06	.15	-.063	.104	.109	-.088	.079
S83	.043	-.168	-.03	.046	.064	.046	.141	.11
S84	.06	.047	.101	.037	-.085	.042	.038	.097
S85	-.048	-.008	-.06	.033	.022	-.04	.073	-.001
S86	.018	.115	.012	.079	.04	-.036	.017	-.022
S87	.033	.003	.073	.025	.063	.116	.065	.042
S88	-.066	.122	.197	-.029	-.108	.001	-.07	.124
S89	.035	.004	.09	.176	.095	-.068	-.109	-.014
S90	.13	-.081	-.018	.071	-.027	-.061	-.001	.133
S91	-.045	.078	-.025	-.053	.008	-.001	.015	-.002
S92	.152	-.074	.022	-.053	.106	.168	.082	.087
S93	.053	.015	.005	.038	.069	.261	.184	-.016
S94	-.023	.034	-.029	.127	.018	-.057	.018	-.064

Partials in off-diagonals and Squared Multiple R in diagonal

	S81	S82	S83	S84	S85	S86	S87	S88
S81	.486							
S82	.039	.654						
S83	-.021	.284	.628					
S84	.066	.105	.128	.596				
S85	.092	.092	.038	.215	.535			
S86	.049	.217	.138	-.015	.025	.609		
S87	-.109	-.173	-.031	.088	1.969E-4	.115	.658	
S88	.024	.039	-.004	-.111	.186	.105	.263	.599
S89	.133	.02	.056	-.044	-.075	-.034	.058	.024
S90	.076	-.042	-.165	.05	.082	.029	.034	2.049E-5
S91	-.042	.091	.001	.071	-.048	.043	.098	-.024
S92	.039	-.189	-.01	-.017	.152	-.015	-.105	.007
S93	-.065	.073	-.066	-.066	-.025	-.026	-.023	.099
S94	-.078	.191	.025	.021	.062	-.202	.076	.154

Sample Data

Partials in off-diagonals and Squared Multiple R in diagonal

	S89	S90	S91	S92	S93	S94
S89	.677					
S90	.276	.635				
S91	.191	.268	.6			
S92	.148	.045	.188	.689		
S93	-.015	.059	.04	.133	.551	
S94	.02	-.068	.053	.282	.016	.578

Measures of Variable Sampling Adequacy

Total matrix sampling adequacy: .797

K1	.551	K17	.808	C33	.62
K2	.674	C18	.727	C34	.636
K3	.652	C19	.631	I35	.811
K4	.601	C20	.598	I36	.832
K5	.586	C21	.602	I37	.819
K6	.513	C22	.672	I38	.814
K7	.576	C23	.633	I39	.847
K8	.627	C24	.464	I40	.833
K9	.65	C25	.697	I41	.788
K10	.618	C26	.677	I42	.851
K11	.673	C27	.62	I43	.792
K12	.722	C28	.653	I44	.781
K13	.557	C29	.744	I45	.839
K14	.707	C30	.767	I46	.871
K15	.736	C31	.586	I47	.892
K16	.722	C32	.573	I48	.691

Bartlett Test of Sphericity- DF: 4464 Chi Square: 13292.85 P: •

Sample Data

Measures of Variable Sampling Adequacy

I49	.809	S50	.835	S81	.804
I65	.79	S51	.837	S82	.84
I66	.833	S52	.835	S83	.791
I67	.779	S53	.785	S84	.882
I68	.762	S54	.795	S85	.843
I69	.784	S55	.809	S86	.876
I70	.862	S56	.785	S87	.865
I71	.76	S57	.884	S88	.851
I72	.865	S58	.846	S89	.875
I73	.816	S59	.778	S90	.846
I74	.885	S60	.882	S91	.847
I75	.899	S61	.872	S92	.812
I76	.825	S62	.89	S93	.856
I77	.874	S63	.659	S94	.854
I78	.876	S64	.84		
I79	.841	S80	.808		

Eigenvalues and Proportion of Original Variance

	Magnitude	Variance Prop.
Value 1	12.319	.131
Value 2	6.697	.071
Value 3	3.298	.035
Value 4	2.303	.024
Value 5	2.125	.023
Value 6	1.818	.019
Value 7	1.662	.018
Value 8	1.541	.016
Value 9	1.36	.014

Sample Data

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
K1	-.018	-.013	-.138	-.041	-.023	.162	-.204	-.004
K2	-.046	-.074	-.118	.113	.022	.145	-.146	-.152
K3	-.057	-.051	.036	.014	.087	.107	.194	-.077
K4	-.043	-.045	.009	.194	.14	.159	-.116	-.193
K5	-.017	-.023	-.096	.107	.017	.299	.107	.127
K6	.005	-.063	-.191	.021	-.117	.098	.094	.052
K7	-.034	-.087	-.135	.119	.033	.138	.08	-.085
K8	-.047	-.012	-.192	-.019	.011	.293	.058	.023
K9	-.051	-.049	-.06	.135	-.025	.093	.345	-.062
K10	-.035	-.056	-.136	.254	-.122	-.031	.288	.026
K11	-.059	-.059	-.158	.166	-.183	-.122	.02	-.092
K12	-.04	-.072	-.169	.173	-.087	.133	-.149	.026
K13	-.03	-.052	-.088	.144	.126	-.017	-.066	-.124
K14	-.073	-.061	-.175	-.058	.124	.049	.031	-.163
K15	-.081	-.101	-.155	.076	.258	-.065	.108	-.238
K16	-.084	-.064	-.209	-.001	.267	.028	.025	-.104

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
K17	-.087	-.114	-.179	.016	.175	.145	-.018	-.16
C18	-.077	-.055	-.245	-.062	-.098	-.181	.061	.073
C19	-.061	-.023	-.133	-.063	-.006	-.156	-.064	.011
C20	-.019	-.064	-.107	.121	.057	-.041	-.032	.218
C21	.025	.04	.264	.089	.146	.052	-.082	-.132
C22	-.042	-.071	-.242	-.145	.003	-.143	-.017	.035
C23	-.054	-.021	-.23	-.093	-.096	-.037	.004	-.004
C24	-.041	-.01	-.019	.119	.071	-.149	.046	-.019
C25	-.05	-.041	-.268	-.139	-.096	-.146	.11	.097
C26	-.046	-.063	-.102	.12	-.043	-.165	.075	.096
C27	-.045	-.053	-.056	.022	.098	-.145	-.073	-.017
C28	-.045	-.058	-.092	.021	.099	-.092	-.171	-.052
C29	-.102	-.05	-.075	.019	.126	-.162	-.054	.014
C30	-.099	-.018	-.198	-.251	-.072	-.017	-.181	.07
C31	-.032	-.052	.03	-.071	.038	-.055	.021	-.028
C32	-.006	-.043	.003	.203	.172	-.15	-.154	.043

Sample Data

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
C33	-.032	-.084	.065	.115	.263	-.022	-.173	-.01
C34	-.025	-.059	.018	.154	.124	-.055	-.074	-.073
I35	-.111	-.158	.107	.057	-.088	-.05	-.183	-.017
I36	-.102	-.149	.078	.005	-.053	-.049	-.043	-.102
I37	-.119	-.121	.068	-.067	-.035	-.019	-.084	.04
I38	-.134	-.071	.157	.068	-.074	-.058	.005	.036
I39	-.138	-.125	.137	-.059	.028	-.066	.134	-.015
I40	-.107	-.133	.083	.014	-.117	-.017	-.047	-.016
I41	-.126	-.034	-.037	-.154	-.134	.153	-.209	-.053
I42	-.116	-.15	.082	.103	-.116	.041	-.073	.08
I43	-.12	-.073	.09	-.015	.078	-.053	-.024	.019
I44	-.108	-.093	.07	.088	.028	-.101	.05	-.008
I45	-.122	-.089	.065	.027	-.054	.181	-.013	.144
I46	-.133	-.095	.11	-.058	-.055	.071	-.051	-.008
I47	-.138	-.127	.031	-.106	.008	.05	.066	.05
I48	-.065	-.056	.12	-.095	-.064	.217	.143	-.164

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
I49	-.116	-.077	.074	-.013	-.039	-.013	.066	-.104
I65	-.102	-.123	.103	.045	.014	-.022	.146	-.063
I66	-.13	-.026	-.028	-.088	.018	-.071	.053	-.036
I67	-.088	-.111	.004	.226	-.194	-.067	.019	-.076
I68	-.099	-.097	-.038	.124	-.18	.035	-.105	-.06
I69	-.125	-.049	-.03	-.013	.048	.104	-.058	.202
I70	-.104	-.117	.047	.031	.108	.143	.148	.247
I71	-.1	-.114	.027	.18	-.048	-.021	.107	.202
I72	-.12	-.169	.121	.051	-.089	.002	-.079	.097
I73	-.145	-.112	-.011	-.084	-.034	.019	-.131	-.031
I74	-.154	-.153	.072	-.051	-.05	-.115	.093	.079
I75	-.151	-.146	.041	-.136	.041	1.402E-4	.012	-.018
I76	-.112	-.135	.02	-.254	.166	.174	.001	.015
I77	-.125	-.123	.081	-.158	-.001	-.067	-.008	-.125
I78	-.141	-.093	.119	-.063	.093	-.048	.085	-.054
I79	-.123	-.11	.042	-.143	-.103	-.033	-.015	.036

Sample Data

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
S50	-.133	.127	.008	.046	.002	-.101	.036	.031
S51	-.119	.132	.064	-.02	.048	-.062	-.018	.094
S52	-.118	.124	.051	.078	.111	-.14	-.128	.067
S53	-.13	.068	.045	.171	-.002	.023	.027	.188
S54	-.113	.094	.058	-.016	.103	.072	-.058	.25
S55	-.114	.133	-.003	.019	.095	.11	.028	.221
S56	-.102	.108	-.032	-.095	-.165	.102	-.025	-.055
S57	-.13	.133	.003	.052	-.099	-.035	-.094	-.029
S58	-.148	.109	-.046	.074	.066	.004	.055	.134
S59	-.12	.105	-.035	.04	.159	-.007	.01	.1
S60	-.142	.164	-.024	-.017	-.004	-.029	-.102	-.092
S61	-.127	.174	.043	.016	-.092	.028	.037	-.152
S62	-.12	.164	.003	.072	.016	.059	-.008	-.046
S63	-.073	.068	.096	.001	-.197	.087	.033	-.224
S64	-.104	.128	-.025	.026	-.11	.056	.01	-.091
S80	-.089	.105	-.001	.021	-.119	.018	.122	-.129

Eigenvectors

	Vector 1	Vector 2	Vector 3	Vector 4	Vector 5	Vector 6	Vector 7	Vector 8
S81	-.101	.112	.032	-.021	.043	.032	.077	.076
S82	-.128	.134	-.022	.174	-.11	.045	-.168	.066
S83	-.115	.106	-.042	.113	-.082	.071	-.162	-.114
S84	-.141	.125	-.019	.067	.049	.03	.008	-.075
S85	-.118	.129	-.027	-.061	.019	-.08	.052	-.011
S86	-.135	.135	-.088	.024	-.062	.072	-.155	.094
S87	-.153	.14	.009	.015	.041	-.045	-.007	-.047
S88	-.134	.134	-.028	-.032	-.022	-.06	.021	-.079
S89	-.15	.151	.004	-.007	.125	.079	.1	.043
S90	-.143	.123	-.034	-.11	.112	.03	.021	.017
S91	-.126	.115	.028	-.126	.119	.081	.083	-.013
S92	-.136	.148	.005	-.065	.015	-.208	.103	-.132
S93	-.113	.156	.008	.083	-.098	-.043	.081	-.065
S94	-.128	.148	.01	-.031	-.002	-.064	.057	-.034

Sample Data

Eigenvectors

	Vector 9
K1	.057
K2	-.092
K3	.023
K4	-.053
K5	.043
K6	-.069
K7	.026
K8	-.129
K9	.137
K10	2.652E-5
K11	-.196
K12	-.21
K13	-.073
K14	-.07
K15	.02
K16	.031

Eigenvectors

	Vector 9
K17	.065
C18	.05
C19	.064
C20	.192
C21	.023
C22	-.041
C23	.036
C24	.081
C25	.108
C26	.127
C27	.105
C28	.233
C29	.11
C30	-.056
C31	-.083
C32	.043

Sample Data

Eigenvectors

	Vector 9
C33	.042
C34	.182
I35	.109
I36	.139
I37	.019
I38	-.055
I39	-.068
I40	.028
I41	.107
I42	-.22
I43	-.212
I44	-.221
I45	.007
I46	.085
I47	-.044
I48	.118

Eigenvectors

	Vector 9
I49	-.088
I65	.098
I66	.11
I67	-.021
I68	-.034
I69	-.071
I70	.098
I71	.015
I72	.044
I73	.105
I74	-.13
I75	-.024
I76	.039
I77	-.065
I78	-.028
I79	-.005

Sample Data

Eigenvectors

	Vector 9
S50	-.039
S51	-.181
S52	.028
S53	.157
S54	.139
S55	.175
S56	.128
S57	-.111
S58	-.072
S59	-.141
S60	-.061
S61	.187
S62	-.034
S63	.19
S64	.027
S80	-.003

Eigenvectors

	Vector 9
S81	.013
S82	.069
S83	.078
S84	-.133
S85	.02
S86	-.02
S87	-.119
S88	-.097
S89	-.131
S90	-.06
S91	.019
S92	.068
S93	.141
S94	.016

Sample Data

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	.065	-.034	.25	-.062	-.033	.218	-.263	-.005
K2	.16	-.192	.214	.172	.032	.196	-.189	-.189
K3	.201	-.133	-.065	.021	.126	.144	.251	-.096
K4	.151	-.117	-.016	.294	.203	.215	-.15	-.239
K5	.058	-.059	.175	.163	.024	.404	.138	.157
K6	-.017	-.162	.347	.032	-.171	.133	.121	.064
K7	.12	-.225	.245	.18	.049	.187	.103	-.106
K8	.166	-.031	.349	-.028	.016	.395	.075	.028
K9	.18	-.126	.108	.205	-.036	.125	.445	-.077
K10	.122	-.146	.248	.386	-.178	-.042	.372	.032
K11	.208	-.153	.287	.252	-.267	-.164	.026	-.114
K12	.142	-.186	.308	.263	-.126	.18	-.192	.032
K13	.105	-.135	.159	.219	.183	-.022	-.086	-.154
K14	.256	-.157	.319	-.087	.181	.067	.04	-.202
K15	.283	-.263	.281	.116	.376	-.087	.139	-.296
K16	.295	-.164	.38	-.002	.389	.038	.032	-.129

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	.306	-.294	.326	.024	.256	.195	-.023	-.199
C18	.27	-.143	.446	-.094	-.143	-.244	.079	.09
C19	.215	-.06	.241	-.096	-.008	-.211	-.082	.014
C20	.068	-.166	.195	.184	.084	-.055	-.041	.27
C21	-.087	.103	-.48	.135	.213	.07	-.105	-.164
C22	.148	-.185	.439	-.22	.005	-.193	-.021	.043
C23	.191	-.055	.418	-.142	-.14	-.05	.005	-.005
C24	.145	-.025	.034	.18	.103	-.202	.059	-.023
C25	.174	-.107	.486	-.212	-.14	-.197	.142	.121
C26	.162	-.162	.186	.181	-.063	-.222	.097	.119
C27	.157	-.137	.102	.034	.142	-.196	-.094	-.021
C28	.159	-.15	.167	.032	.144	-.124	-.221	-.064
C29	.358	-.13	.136	.028	.183	-.219	-.069	.017
C30	.346	-.046	.36	-.381	-.105	-.023	-.233	.087
C31	.112	-.134	-.055	-.108	.056	-.074	.028	-.035
C32	.02	-.11	-.005	.309	.25	-.202	-.199	.054

Sample Data

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	.112	-.218	-.118	.174	.384	-.029	-.223	-.013
C34	.088	-.152	-.032	.233	.18	-.075	-.095	-.09
I35	.391	-.41	-.194	.087	-.128	-.067	-.236	-.021
I36	.358	-.386	-.141	.008	-.077	-.066	-.055	-.126
I37	.418	-.313	-.124	-.102	-.051	-.025	-.109	.05
I38	.471	-.183	-.285	.103	-.108	-.078	.007	.045
I39	.485	-.323	-.249	-.089	.041	-.088	.173	-.018
I40	.377	-.344	-.151	.022	-.17	-.023	-.06	-.019
I41	.441	-.088	.067	-.234	-.195	.206	-.269	-.066
I42	.407	-.389	-.148	.156	-.168	.055	-.094	.1
I43	.422	-.189	-.163	-.022	.114	-.071	-.031	.024
I44	.379	-.241	-.127	.134	.041	-.136	.065	-.01
I45	.429	-.231	-.117	.041	-.078	.244	-.016	.179
I46	.468	-.247	-.2	-.087	-.08	.095	-.066	-.01
I47	.483	-.33	-.056	-.161	.012	.067	.086	.062
I48	.228	-.146	-.218	-.144	-.093	.293	.185	-.204

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
I49	.407	-.199	-.135	-.019	-.056	-.018	.086	-.13
I65	.356	-.318	-.187	.068	.02	-.029	.188	-.078
I66	.456	-.068	.051	-.134	.027	-.095	.068	-.044
I67	.308	-.288	-.008	.343	-.282	-.09	.024	-.094
I68	.347	-.25	.069	.188	-.262	.048	-.136	-.075
I69	.438	-.128	.054	-.019	.07	.141	-.075	.251
I70	.366	-.302	-.085	.047	.157	.193	.19	.307
I71	.353	-.295	-.049	.273	-.07	-.029	.138	.251
I72	.423	-.437	-.22	.077	-.13	.002	-.102	.12
I73	.508	-.289	.02	-.128	-.05	.026	-.169	-.038
I74	.542	-.396	-.13	-.077	-.072	-.154	.12	.098
I75	.531	-.377	-.075	-.206	.06	1.891E-4	.016	-.022
I76	.394	-.349	-.037	-.386	.243	.234	.002	.019
I77	.438	-.319	-.148	-.24	-.002	-.09	-.01	-.155
I78	.496	-.241	-.217	-.096	.135	-.065	.11	-.067
I79	.431	-.284	-.077	-.217	-.151	-.044	-.019	.044

Sample Data

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	.112	-.218	-.118	.174	.384	-.029	-.223	-.013
C34	.088	-.152	-.032	.233	.18	-.075	-.095	-.09
I35	.391	-.41	-.194	.087	-.128	-.067	-.236	-.021
I36	.358	-.386	-.141	.008	-.077	-.066	-.055	-.126
I37	.418	-.313	-.124	-.102	-.051	-.025	-.109	.05
I38	.471	-.183	-.285	.103	-.108	-.078	.007	.045
I39	.485	-.323	-.249	-.089	.041	-.088	.173	-.018
I40	.377	-.344	-.151	.022	-.17	-.023	-.06	-.019
I41	.441	-.088	.067	-.234	-.195	.206	-.269	-.066
I42	.407	-.389	-.148	.156	-.168	.055	-.094	.1
I43	.422	-.189	-.163	-.022	.114	-.071	-.031	.024
I44	.379	-.241	-.127	.134	.041	-.136	.065	-.01
I45	.429	-.231	-.117	.041	-.078	.244	-.016	.179
I46	.468	-.247	-.2	-.087	-.08	.095	-.066	-.01
I47	.483	-.33	-.056	-.161	.012	.067	.086	.062
I48	.228	-.146	-.218	-.144	-.093	.293	.185	-.204

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
I49	.407	-.199	-.135	-.019	-.056	-.018	.086	-.13
I65	.356	-.318	-.187	.068	.02	-.029	.188	-.078
I66	.456	-.068	.051	-.134	.027	-.095	.068	-.044
I67	.308	-.288	-.008	.343	-.282	-.09	.024	-.094
I68	.347	-.25	.069	.188	-.262	.048	-.136	-.075
I69	.438	-.128	.054	-.019	.07	.141	-.075	.251
I70	.366	-.302	-.085	.047	.157	.193	.19	.307
I71	.353	-.295	-.049	.273	-.07	-.029	.138	.251
I72	.423	-.437	-.22	.077	-.13	.002	-.102	.12
I73	.508	-.289	.02	-.128	-.05	.026	-.169	-.038
I74	.542	-.396	-.13	-.077	-.072	-.154	.12	.098
I75	.531	-.377	-.075	-.206	.06	1.891E-4	.016	-.022
I76	.394	-.349	-.037	-.386	.243	.234	.002	.019
I77	.438	-.319	-.148	-.24	-.002	-.09	-.01	-.155
I78	.496	-.241	-.217	-.096	.135	-.065	.11	-.067
I79	.431	-.284	-.077	-.217	-.151	-.044	-.019	.044

Sample Data

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.465	.329	-.014	.07	.003	-.136	.047	.039
S51	.418	.341	-.116	-.031	.069	-.084	-.023	.117
S52	.416	.32	-.092	.118	.161	-.189	-.165	.083
S53	.455	.177	-.082	.259	-.003	.031	.035	.234
S54	.396	.244	-.105	-.024	.15	.097	-.075	.31
S55	.4	.343	.005	.029	.139	.148	.036	.275
S56	.357	.279	.058	-.144	-.241	.138	-.032	-.068
S57	.458	.345	-.006	.078	-.145	-.047	-.121	-.036
S58	.52	.283	.084	.112	.096	.005	.071	.167
S59	.421	.271	.063	.061	.232	-.009	.013	.124
S60	.5	.424	.043	-.026	-.007	-.039	-.131	-.114
S61	.446	.449	-.077	.024	-.134	.037	.048	-.188
S62	.421	.426	-.006	.11	.024	.08	-.01	-.057
S63	.256	.177	-.174	.002	-.288	.117	.043	-.279
S64	.364	.332	.046	.04	-.16	.075	.012	-.113
S80	.313	.272	.001	.032	-.173	.024	.157	-.161

Unrotated Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.354	.291	-.058	-.033	.062	.043	.1	.095
S82	.45	.346	.04	.263	-.161	.061	-.216	.082
S83	.404	.275	.075	.172	-.119	.096	-.209	-.142
S84	.496	.324	.034	.102	.071	.04	.01	-.093
S85	.415	.333	.049	-.093	.028	-.108	.066	-.014
S86	.475	.348	.159	.036	-.09	.097	-.199	.117
S87	.537	.363	-.017	.023	.06	-.06	-.009	-.058
S88	.471	.346	.051	-.049	-.032	-.081	.027	-.098
S89	.526	.392	-.006	-.01	.182	.106	.129	.053
S90	.502	.319	.062	-.168	.164	.041	.028	.021
S91	.444	.299	-.051	-.191	.174	.11	.107	-.016
S92	.478	.384	-.008	-.098	.022	-.28	.133	-.164
S93	.396	.405	-.015	.126	-.143	-.058	.104	-.081
S94	.449	.384	-.018	-.048	-.003	-.087	.074	-.042

Sample Data

Unrotated Factor Matrix

	Factor 9
K1	.067
K2	-.107
K3	.026
K4	-.062
K5	.05
K6	-.081
K7	.03
K8	-.15
K9	.16
K10	3.093E-5
K11	-.229
K12	-.245
K13	-.085
K14	-.081
K15	.024
K16	.036

Unrotated Factor Matrix

	Factor 9
K17	.076
C18	.058
C19	.075
C20	.223
C21	.027
C22	-.048
C23	.042
C24	.095
C25	.126
C26	.148
C27	.123
C28	.272
C29	.128
C30	-.065
C31	-.097
C32	.05

Sample Data

Unrotated Factor Matrix

	Factor 9
C33	.049
C34	.213
I35	.128
I36	.162
I37	.023
I38	-.064
I39	-.079
I40	.033
I41	.124
I42	-.257
I43	-.247
I44	-.258
I45	.008
I46	.099
I47	-.052
I48	.138

Unrotated Factor Matrix

	Factor 9
I49	-.102
I65	.114
I66	.128
I67	-.025
I68	-.04
I69	-.083
I70	.114
I71	.017
I72	.051
I73	.123
I74	-.151
I75	-.028
I76	.046
I77	-.075
I78	-.032
I79	-.006

Sample Data

Unrotated Factor Matrix

	Factor 9
S50	-.045
S51	-.211
S52	.033
S53	.183
S54	.162
S55	.204
S56	.149
S57	-.129
S58	-.084
S59	-.164
S60	-.071
S61	.218
S62	-.04
S63	.221
S64	.032
S80	-.003

Unrotated Factor Matrix

	Factor 9
S81	.016
S82	.08
S83	.091
S84	-.155
S85	.024
S86	-.023
S87	-.139
S88	-.113
S89	-.152
S90	-.07
S91	.022
S92	.079
S93	.164
S94	.018

Sample Data

Communality Summary

	SMC	Final Estimate		SMC	Final Estimate
K1	.468	.194	K17	.577	.436
K2	.466	.26	C18	.57	.399
K3	.402	.172	C19	.469	.174
K4	.473	.294	C20	.457	.239
K5	.416	.274	C21	.557	.356
K6	.507	.22	C22	.529	.339
K7	.512	.218	C23	.518	.258
K8	.506	.337	C24	.461	.12
K9	.484	.348	C25	.544	.432
K10	.56	.419	C26	.424	.219
K11	.56	.376	C27	.38	.138
K12	.468	.365	C28	.435	.24
K13	.501	.175	C29	.519	.267
K14	.525	.286	C30	.606	.474
K15	.625	.497	C31	.361	.065
K16	.603	.43	C32	.394	.256

Communality Summary

	SMC	Final Estimate		SMC	Final Estimate
C33	.528	.305	149	.52	.261
C34	.395	.187	165	.542	.324
135	.625	.459	166	.522	.266
136	.537	.353	167	.565	.393
137	.606	.317	168	.558	.319
138	.603	.371	169	.608	.311
139	.633	.456	170	.548	.44
140	.513	.318	171	.613	.376
141	.617	.434	172	.616	.469
142	.604	.48	173	.622	.406
143	.581	.321	174	.689	.55
144	.583	.327	175	.639	.478
145	.531	.351	176	.65	.544
146	.522	.357	177	.577	.411
147	.558	.39	178	.582	.4
148	.498	.33	179	.543	.347

Sample Data

Communality Summary

	SMC	Final Estimate		SMC	Final Estimate
S50	.607	.354	S81	.486	.239
S51	.592	.376	S82	.654	.482
S52	.585	.394	S83	.628	.369
S53	.641	.402	S84	.596	.402
S54	.548	.388	S85	.535	.312
S55	.608	.438	S86	.609	.445
S56	.548	.334	S87	.658	.451
S57	.54	.39	S88	.599	.377
S58	.608	.419	S89	.677	.517
S59	.593	.355	S90	.635	.421
S60	.631	.469	S91	.6	.38
S61	.621	.512	S92	.689	.516
S62	.541	.382	S93	.551	.405
S63	.563	.352	S94	.578	.367
S64	.501	.291			
S80	.479	.254			

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	-.001	-.033	.15	.06	-.005	.228	-.263	.147
K2	-.012	.101	.019	.244	.064	.417	-.094	.019
K3	.051	.219	-.073	-.123	-.033	.194	.245	.046
K4	.045	.094	-.266	.153	.164	.401	-.016	.014
K5	-.009	-.037	.003	.049	-.126	.259	.141	.407
K6	-.128	-.03	.289	.179	-.166	.176	.108	.131
K7	-.069	.074	.093	.117	.049	.363	.183	.119
K8	.094	.001	.178	.054	-.254	.419	.001	.229
K9	.038	.104	.066	.015	-.015	.174	.514	.137
K10	.002	.019	.184	.321	.03	.09	.507	.126
K11	.064	.112	.259	.483	.021	.126	.149	-.135
K12	-.015	.06	.124	.454	-.028	.316	-.1	.155
K13	.008	.033	-.007	.147	.218	.303	.028	-.06
K14	.082	.143	.235	-.053	.041	.435	.027	-.086
K15	.046	.177	.152	-.075	.327	.493	.24	-.145
K16	.109	.105	.241	-.14	.25	.503	.062	.027

Sample Data

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	.01	.211	.176	-.049	.178	.561	.034	.073
C18	.082	.123	.589	.098	.105	.037	.091	.008
C19	.104	.099	.339	.011	.178	.024	-.062	-.05
C20	-.076	.011	.181	.056	.299	.009	.06	.32
C21	.023	.013	-.562	-.111	.11	-.048	-.05	-.096
C22	-.026	.09	.534	-.01	.068	.14	-.07	-.066
C23	.082	.033	.47	.061	-.019	.135	-.018	.006
C24	.099	.047	.036	.041	.273	-4.33E-4	.167	-.028
C25	.029	.042	.645	-.03	.03	.015	.096	.039
C26	.002	.097	.258	.146	.252	-.052	.214	.1
C27	.017	.118	.139	-.022	.314	.06	-.014	-.032
C28	-.006	.086	.163	-.035	.397	.129	-.108	.024
C29	.165	.229	.208	-.037	.362	.096	.011	.011
C30	.185	.2	.508	-.016	-.073	.119	-.348	.017
C31	-.009	.202	.033	-.055	-.003	.027	-.006	-.101
C32	-.036	-.004	-.103	.12	.448	.038	-.031	.039

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	-.056	.175	-.212	-.045	.396	.186	-.109	.062
C34	-.04	.08	-.102	.024	.38	.106	.066	.034
I35	-.035	.56	-.017	.194	.254	-.018	-.098	.054
I36	-.039	.514	.032	.059	.198	.044	.045	-.031
I37	.056	.532	.082	.029	.089	.013	-.094	.061
I38	.201	.523	-.096	.162	.072	-.096	.074	.032
I39	.116	.633	-.004	-.062	.032	.015	.161	-.05
I40	.006	.52	.033	.158	.074	-.008	.01	.031
I41	.201	.357	.186	.025	-.064	.141	-.297	.096
I42	.019	.563	-.04	.36	-.027	.063	-.027	.112
I43	.183	.467	-.045	.048	.046	.081	-.04	-.048
I44	.127	.436	-.036	.183	.078	.069	.12	-.077
I45	.118	.459	-.025	.092	-.052	.086	-.006	.322
I46	.127	.544	-.014	-.006	.036	.036	-.048	.099
I47	.095	.573	.138	-.059	-.038	.128	.037	.099
I48	.025	.341	-.131	-.157	-.201	.124	.141	.019

Sample Data

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
149	.148	.454	-.004	.067	-.021	.089	.102	-.097
165	.021	.476	-.044	-.024	.131	.053	.26	.019
166	.259	.332	.214	-.112	.118	.06	.066	-.014
167	.02	.339	.039	.447	.127	.032	.215	-.007
168	.06	.335	.096	.385	.051	.128	-.009	.05
169	.212	.343	.112	.038	.012	.134	-.102	.298
170	.032	.425	.009	-.122	.065	.097	.184	.433
171	.044	.384	.05	.223	.141	-.031	.247	.29
172	-.03	.619	-.014	.174	.137	-.04	-.013	.173
173	.125	.513	.186	.017	.139	.14	-.136	.068
174	.105	.684	.161	.084	.026	-.023	.116	4.618E-4
175	.096	.642	.145	-.094	.048	.155	-.018	.007
176	.005	.53	.108	-.359	-.044	.29	-.132	.134
177	.075	.59	.09	-.073	.016	.084	-.044	-.184
178	.182	.564	-.028	-.123	.094	.082	.104	-.058
179	.079	.541	.195	.003	-.035	-.03	-.059	.012

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.569	.097	.049	.048	.07	-.069	.065	-.006
S51	.551	.125	-.043	-.003	-.039	-.088	-.081	-.004
S52	.53	.068	-.062	.006	.283	-.092	-.1	.029
S53	.435	.152	-.05	.086	.185	-.091	.133	.34
S54	.432	.124	-.037	-.169	.109	-.087	-.106	.354
S55	.505	.011	.008	-.169	.076	-.024	.011	.383
S56	.41	.07	.137	-.008	-.147	-.014	-.072	.053
S57	.569	.092	.018	.208	-.023	-.031	-.094	-.045
S58	.579	.108	.078	.044	.048	.063	.072	.183
S59	.513	.063	.015	-.028	.065	.119	-.012	.102
S60	.653	.053	.045	.046	.02	.058	-.135	-.095
S61	.607	.027	-.04	-.032	.006	-.046	.084	-.038
S62	.602	-.012	-.079	.052	-.011	.076	.007	.037
S63	.27	.125	-.106	.04	-.095	-.053	.09	-.089
S64	.479	.014	.036	.094	-.081	.033	.028	-.007
S80	.408	.043	.025	.071	-.128	.006	.162	-.088

Sample Data

Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.451	.074	-.011	-.112	-.037	-.032	.051	.112
S82	.549	.013	-.016	.285	.119	-.027	-.1	.207
S83	.466	.023	-.013	.21	.097	.12	-.103	.044
S84	.596	.091	-.033	.083	-.005	.165	.024	-.026
S85	.525	.061	.133	-.097	.024	-.032	.029	-.047
S86	.568	.029	.135	.147	-.006	.057	-.196	.185
S87	.649	.131	3.443E-4	.032	.018	.055	-.017	-.069
S88	.583	.094	.099	.029	-.042	.033	-3.60E-4	-.123
S89	.662	.1	-.036	-.105	-.085	.133	.056	.093
S90	.58	.128	.1	-.178	-.039	.121	-.067	.03
S91	.515	.142	.001	-.278	-.072	.097	.002	.045
S92	.61	.092	.135	-.132	.112	-.095	.127	-.235
S93	.554	-.012	.019	.06	.05	-.098	.167	.002
S94	.586	.071	.059	-.065	.006	-.052	.05	-.054

Orthogonal Transformation Solution-Varimax

	Factor 9
K1	.156
K2	.054
K3	.017
K4	.033
K5	.038
K6	-.004
K7	.061
K8	-.022
K9	.133
K10	-.015
K11	-.05
K12	-.075
K13	-.092
K14	-.039
K15	-.086
K16	-.098

Sample Data

Orthogonal Transformation Solution-Varimax

	Factor 9
K17	.067
C18	-.01
C19	.008
C20	-.033
C21	.031
C22	-.111
C23	.086
C24	-.039
C25	.029
C26	-.008
C27	-.02
C28	.135
C29	-.048
C30	.016
C31	-.096
C32	-.16

Orthogonal Transformation Solution-Varimax

	Factor 9
C33	-.133
C34	.078
I35	.171
I36	.197
I37	.043
I38	-.011
I39	-.086
I40	.121
I41	.332
I42	-.114
I43	-.229
I44	-.232
I45	.052
I46	.173
I47	-.037
I48	.309

Sample Data

Orthogonal Transformation Solution-Varimax

	Factor 9
149	.017
165	.08
166	.092
167	.115
168	.155
169	-.129
170	-.09
171	-.095
172	.063
173	.176
174	-.151
175	-.014
176	.001
177	.019
178	-.059
179	.063

Orthogonal Transformation Solution-Varimax

	Factor 9
S50	-.046
S51	-.197
S52	-.079
S53	.062
S54	-.01
S55	.04
S56	.336
S57	.044
S58	-.139
S59	-.242
S60	.067
S61	.36
S62	.058
S63	.471
S64	.208
S80	.173

Orthogonal Transformation Solution-Varimax

	Factor 9
S81	-.015
S82	.176
S83	.266
S84	-.045
S85	.022
S86	.073
S87	-.058
S88	.006
S89	-.141
S90	-.067
S91	.017
S92	.08
S93	.233
S94	.055

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	-.017	-.063	.153	.049	-.024	.224	-.261	.138
K2	-.05	.075	.009	.236	.035	.415	-.082	-.011
K3	.014	.213	-.096	-.122	-.031	.187	.24	.026
K4	.022	.076	-.28	.138	.139	.403	.002	-.022
K5	-.028	-.064	.004	.047	-.134	.246	.131	.396
K6	-.15	-.044	.295	.193	-.17	.173	.1	.129
K7	-.111	.049	.086	.115	.043	.358	.191	.094
K8	.075	-.047	.169	.061	-.275	.412	-.02	.212
K9	-3.89E-4	.075	.051	.021	.001	.167	.519	.113
K10	-.027	-.014	.186	.334	.039	.078	.516	.11
K11	.032	.079	.255	.495	.003	.119	.162	-.154
K12	-.049	.031	.126	.454	-.067	.303	-.097	.136
K13	-.012	.009	-.011	.139	.205	.301	.043	-.082
K14	.041	.099	.216	-.053	.031	.431	.025	-.111
K15	-.007	.13	.131	-.083	.329	.486	.256	-.181
K16	.065	.04	.226	-.152	.245	.488	.065	.001

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	-.059	.164	.156	-.064	.164	.549	.042	.037
C18	.036	.07	.588	.102	.108	.012	.09	.007
C19	.075	.06	.336	.004	.177	.007	-.057	-.052
C20	-.11	-.012	.196	.039	.303	-.021	.069	.324
C21	.048	.051	-.571	-.125	.107	-.033	-.038	-.105
C22	-.064	.058	.535	-.004	.067	.125	-.076	-.062
C23	.053	-.018	.467	.065	-.021	.125	-.021	.001
C24	.085	.021	.034	.033	.279	-.012	.182	-.037
C25	-.008	-.008	.648	-.022	.044	-.004	.089	.046
C26	-.037	.07	.263	.14	.26	-.076	.226	.097
C27	-.015	.098	.137	-.036	.315	.045	-4.37E-4	-.039
C28	-.046	.056	.163	-.06	.396	.115	-.084	.011
C29	.115	.184	.197	-.056	.358	.066	.022	-.002
C30	.143	.149	.497	-.019	-.097	.095	-.366	.017
C31	-.035	.215	.021	-.052	-.007	.021	-.012	-.103
C32	-.046	-.011	-.091	.1	.443	.023	-.007	.035

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	-.091	.182	-.216	-.071	.383	.169	-.093	.048
C34	-.07	.072	-.104	.002	.382	.097	.093	.017
I35	-.134	.578	-.04	.169	.228	-.05	-.08	.032
I36	-.133	.527	.005	.042	.187	.022	.061	-.056
I37	-.031	.538	.055	.015	.067	-.02	-.097	.047
I38	.133	.525	-.126	.152	.048	-.131	.073	.014
I39	.028	.647	-.044	-.065	.02	-.017	.151	-.068
I40	-.081	.534	.008	.148	.053	-.035	.016	.012
I41	.136	.32	.158	.007	-.095	.12	-.3	.073
I42	-.069	.582	-.064	.356	-.07	.027	-.032	.093
I43	.126	.466	-.074	.044	.017	.052	-.052	-.062
I44	.069	.437	-.061	.184	.055	.042	.117	-.095
I45	.039	.45	-.05	.079	-.082	.046	-.019	.304
I46	.041	.543	-.048	-.023	.013	.005	-.05	.077
I47	.002	.569	.103	-.064	-.058	.092	.02	.083
I48	-.026	.356	-.166	-.16	-.203	.126	.135	-.005

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
149	.085	.451	-.038	.066	-.039	.071	.1	-.121
165	-.059	.484	-.074	-.032	.13	.031	.267	-.005
166	.203	.287	.186	-.122	.114	.034	.064	-.031
167	-.048	.332	.024	.444	.108	.013	.236	-.035
168	-.009	.317	.079	.377	.02	.108	.004	.022
169	.153	.307	.094	.026	-.019	.09	-.121	.288
170	-.05	.419	-.01	-.136	.057	.049	.167	.425
171	-.031	.375	.039	.215	.128	-.076	.247	.279
172	-.136	.642	-.039	.156	.111	-.082	-.009	.157
173	.03	.489	.155	-.003	.114	.107	-.132	.044
174	.002	.692	.125	.083	.005	-.066	.102	-.013
175	-.008	.64	.105	-.104	.027	.12	-.029	-.014
176	-.087	.535	.072	-.372	-.06	.262	-.156	.12
177	-.01	.603	.051	-.078	-.001	.065	-.05	-.204
178	.104	.561	-.068	-.132	.081	.052	.097	-.08
179	-.006	.545	.166	-.002	-.053	-.061	-.069	.002

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.577	.016	.029	.042	.057	-.094	.06	-.02
S51	.568	.066	-.064	-.005	-.062	-.114	-.1	-.009
S52	.541	-.005	-.075	-.016	.266	-.122	-.095	.019
S53	.413	.083	-.063	.065	.172	-.134	.135	.325
S54	.423	.064	-.049	-.192	.095	-.129	-.121	.354
S55	.509	-.075	-.003	-.188	.068	-.061	-.003	.377
S56	.406	.003	.116	-.014	-.159	-.022	-.076	.036
S57	.58	.014	-.003	.202	-.053	-.049	-.095	-.064
S58	.575	.014	.059	.037	.028	.025	.057	.168
S59	.521	-.017	-.002	-.034	.044	.089	-.028	.09
S60	.67	-.043	.019	.036	-.006	.044	-.137	-.118
S61	.623	-.061	-.069	-.044	.002	-.052	.092	-.066
S62	.626	-.102	-.101	.043	-.031	.062	.004	.013
S63	.261	.097	-.133	.033	-.098	-.044	.104	-.117
S64	.49	-.062	.016	.091	-.096	.027	.028	-.03
S80	.417	-.015	.002	.076	-.133	.005	.161	-.11

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.458	.013	-.029	-.117	-.045	-.054	.037	.104
S82	.554	-.081	-.026	.264	.088	-.056	-.09	.185
S83	.466	-.062	-.031	.191	.07	.109	-.087	.012
S84	.604	.002	-.061	.078	-.031	.148	.018	-.055
S85	.534	-.018	.112	-.101	.019	-.05	.021	-.058
S86	.572	-.071	.121	.133	-.039	.027	-.203	.169
S87	.658	.042	-.029	.026	-.005	.034	-.025	-.091
S88	.593	.011	.072	.028	-.06	.019	-.008	-.142
S89	.675	.007	-.066	-.108	-.106	.107	.032	.074
S90	.581	.041	.071	-.185	-.056	.097	-.088	.015
S91	.515	.073	-.031	-.285	-.08	.079	-.018	.03
S92	.622	.006	.107	-.136	.117	-.107	.129	-.252
S93	.57	-.099	4.406E-5	.052	.048	-.11	.176	-.02
S94	.599	-.011	.034	-.07	-.001	-.069	.044	-.069

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
K1	.146
K2	.055
K3	.027
K4	.042
K5	.034
K6	-.008
K7	.07
K8	-.028
K9	.147
K10	-.01
K11	-.054
K12	-.088
K13	-.084
K14	-.03
K15	-.062
K16	-.087

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
K17	.077
C18	-.019
C19	.002
C20	-.041
C21	.043
C22	-.116
C23	.079
C24	-.034
C25	.022
C26	-.011
C27	-.018
C28	.137
C29	-.051
C30	-.007
C31	-.095
C32	-.158

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
C33	-.128
C34	.087
I35	.158
I36	.195
I37	.028
I38	-.026
I39	-.09
I40	.109
I41	.311
I42	-.135
I43	-.239
I44	-.238
I45	.031
I46	.16
I47	-.049
I48	.315

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
149	.014
165	.084
166	.087
167	.109
168	.142
169	-.153
170	-.102
171	-.11
172	.045
173	.161
174	-.166
175	-.023
176	-.004
177	.015
178	-.06
179	.047

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
S50	-.059
S51	-.216
S52	-.094
S53	.043
S54	-.033
S55	.021
S56	.321
S57	.024
S58	-.158
S59	-.255
S60	.053
S61	.354
S62	.048
S63	.472
S64	.198
S80	.171

Oblique Solution Primary Pattern Matrix-Orthotran/Varimax

	Factor 9
S81	-.026
S82	.151
S83	.253
S84	-.054
S85	.013
S86	.046
S87	-.071
S88	-.005
S89	-.153
S90	-.08
S91	.011
S92	.08
S93	.226
S94	.046

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	-.016	-.059	.15	.048	-.024	.22	-.258	.135
K2	-.047	.071	.009	.234	.034	.407	-.081	-.011
K3	.013	.2	-.095	-.121	-.03	.183	.237	.026
K4	.021	.071	-.276	.136	.137	.395	.002	-.022
K5	-.026	-.06	.004	.046	-.132	.241	.129	.389
K6	-.143	-.041	.291	.191	-.167	.17	.099	.127
K7	-.105	.046	.084	.113	.042	.351	.189	.092
K8	.071	-.044	.167	.06	-.27	.403	-.019	.209
K9	-3.68E-4	.07	.051	.021	.001	.164	.513	.111
K10	-.025	-.013	.183	.33	.038	.076	.51	.108
K11	.031	.075	.251	.49	.003	.117	.16	-.152
K12	-.046	.029	.125	.449	-.065	.297	-.096	.133
K13	-.011	.009	-.011	.138	.202	.295	.043	-.08
K14	.039	.093	.213	-.052	.031	.422	.024	-.109
K15	-.007	.123	.129	-.082	.324	.477	.253	-.178
K16	.061	.038	.222	-.15	.241	.478	.064	.001

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	-.056	.154	.154	-.063	.161	.538	.041	.036
C18	.034	.065	.579	.101	.106	.012	.089	.007
C19	.071	.056	.331	.004	.174	.007	-.057	-.052
C20	-.105	-.012	.193	.039	.298	-.02	.068	.319
C21	.046	.048	-.563	-.124	.105	-.032	-.037	-.103
C22	-.061	.054	.527	-.004	.066	.123	-.076	-.061
C23	.05	-.017	.46	.064	-.021	.122	-.02	.001
C24	.081	.02	.033	.032	.274	-.012	.18	-.037
C25	-.007	-.007	.639	-.022	.043	-.004	.088	.045
C26	-.035	.066	.259	.139	.255	-.075	.224	.095
C27	-.014	.092	.135	-.036	.31	.044	-4.32E-4	-.039
C28	-.043	.052	.161	-.059	.389	.113	-.083	.011
C29	.109	.173	.194	-.055	.352	.065	.022	-.002
C30	.136	.14	.49	-.019	-.095	.093	-.362	.017
C31	-.033	.202	.021	-.052	-.007	.021	-.012	-.101
C32	-.044	-.01	-.09	.099	.435	.022	-.007	.034

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	-.087	.172	-.213	-.071	.376	.165	-.092	.048
C34	-.066	.068	-.102	.002	.375	.095	.092	.017
I35	-.127	.543	-.039	.168	.224	-.049	-.079	.031
I36	-.126	.496	.005	.042	.184	.022	.06	-.055
I37	-.029	.506	.055	.015	.066	-.02	-.096	.046
I38	.126	.494	-.124	.151	.047	-.128	.073	.013
I39	.026	.608	-.044	-.064	.019	-.017	.149	-.067
I40	-.077	.502	.007	.146	.052	-.034	.016	.012
I41	.128	.301	.156	.007	-.094	.117	-.297	.072
I42	-.065	.547	-.063	.352	-.068	.027	-.032	.091
I43	.12	.438	-.073	.044	.017	.051	-.052	-.061
I44	.065	.411	-.06	.182	.054	.042	.115	-.093
I45	.037	.424	-.049	.078	-.08	.045	-.019	.3
I46	.039	.511	-.047	-.023	.013	.005	-.05	.075
I47	.002	.535	.102	-.063	-.057	.091	.02	.081
I48	-.025	.334	-.163	-.158	-.199	.124	.134	-.005

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
149	.081	.424	-.038	.066	-.038	.07	.099	-.119
165	-.056	.456	-.073	-.032	.127	.03	.264	-.005
166	.193	.27	.184	-.121	.112	.034	.063	-.031
167	-.045	.312	.024	.44	.106	.013	.233	-.034
168	-.008	.298	.078	.373	.02	.106	.004	.022
169	.145	.289	.093	.026	-.019	.088	-.119	.284
170	-.048	.394	-.01	-.134	.056	.048	.165	.418
171	-.029	.353	.039	.213	.126	-.074	.244	.274
172	-.129	.604	-.038	.155	.109	-.08	-.009	.154
173	.028	.46	.153	-.003	.112	.105	-.131	.043
174	.002	.651	.124	.083	.005	-.065	.101	-.013
175	-.008	.601	.104	-.103	.027	.118	-.029	-.014
176	-.082	.503	.071	-.368	-.059	.257	-.154	.118
177	-.009	.567	.05	-.077	-.001	.064	-.05	-.2
178	.099	.528	-.067	-.131	.08	.051	.096	-.079
179	-.006	.512	.164	-.002	-.052	-.06	-.069	.002

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.546	.015	.028	.042	.056	-.092	.059	-.019
S51	.538	.062	-.063	-.005	-.061	-.112	-.099	-.009
S52	.512	-.004	-.074	-.016	.262	-.12	-.094	.018
S53	.392	.078	-.062	.065	.169	-.131	.133	.32
S54	.401	.06	-.048	-.19	.094	-.127	-.12	.348
S55	.483	-.07	-.003	-.187	.067	-.06	-.003	.371
S56	.384	.003	.115	-.014	-.156	-.022	-.075	.036
S57	.549	.013	-.003	.2	-.052	-.048	-.094	-.063
S58	.545	.013	.058	.036	.027	.025	.057	.165
S59	.493	-.016	-.002	-.034	.043	.088	-.028	.089
S60	.635	-.041	.019	.036	-.006	.043	-.136	-.116
S61	.59	-.058	-.068	-.044	.001	-.051	.091	-.065
S62	.593	-.096	-.099	.043	-.031	.061	.004	.013
S63	.247	.091	-.131	.033	-.096	-.043	.103	-.115
S64	.464	-.058	.015	.09	-.094	.026	.028	-.029
S80	.395	-.014	.002	.075	-.13	.005	.159	-.108

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.434	.012	-.029	-.116	-.044	-.053	.037	.103
S82	.525	-.076	-.025	.261	.086	-.055	-.089	.182
S83	.441	-.058	-.03	.189	.069	.107	-.087	.011
S84	.572	.002	-.06	.077	-.031	.145	.017	-.054
S85	.507	-.017	.11	-.1	.019	-.049	.021	-.057
S86	.542	-.067	.12	.132	-.039	.027	-.201	.167
S87	.623	.04	-.029	.026	-.005	.033	-.024	-.09
S88	.562	.01	.071	.028	-.059	.019	-.008	-.14
S89	.64	.006	-.065	-.107	-.104	.105	.032	.072
S90	.551	.039	.07	-.183	-.055	.095	-.087	.015
S91	.488	.068	-.03	-.282	-.079	.077	-.018	.029
S92	.59	.005	.105	-.135	.115	-.105	.128	-.248
S93	.541	-.093	4.343E-5	.052	.047	-.107	.174	-.019
S94	.568	-.01	.034	-.07	-.001	-.067	.043	-.068

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
K1	.144
K2	.055
K3	.027
K4	.042
K5	.033
K6	-.008
K7	.069
K8	-.028
K9	.145
K10	-.01
K11	-.054
K12	-.088
K13	-.083
K14	-.03
K15	-.061
K16	-.086

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
K17	.076
C18	-.019
C19	.002
C20	-.041
C21	.042
C22	-.114
C23	.078
C24	-.034
C25	.021
C26	-.011
C27	-.018
C28	.135
C29	-.051
C30	-.007
C31	-.094
C32	-.157

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
C33	-.127
C34	.087
I35	.156
I36	.193
I37	.027
I38	-.025
I39	-.089
I40	.108
I41	.308
I42	-.133
I43	-.237
I44	-.235
I45	.031
I46	.158
I47	-.048
I48	.312

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
149	.014
165	.083
166	.086
167	.108
168	.141
169	-.151
170	-.101
171	-.109
172	.044
173	.16
174	-.164
175	-.023
176	-.004
177	.015
178	-.059
179	.047

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
S50	-.059
S51	-.214
S52	-.093
S53	.042
S54	-.033
S55	.02
S56	.318
S57	.024
S58	-.156
S59	-.252
S60	.052
S61	.351
S62	.047
S63	.468
S64	.196
S80	.169

Oblique Solution Reference Structure-Orthotran/Varimax

	Factor 9
S81	-.026
S82	.15
S83	.251
S84	-.053
S85	.013
S86	.045
S87	-.07
S88	-.005
S89	-.152
S90	-.079
S91	.011
S92	.079
S93	.224
S94	.045

Primary Intercorrelations-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Factor 1	1							
Factor 2	.295	1						
Factor 3	.101	.135	1					
Factor 4	.034	.035	-.026	1				
Factor 5	.073	.084	-.021	.104	1			
Factor 6	.097	.131	.057	.021	.068	1		
Factor 7	.024	.026	.028	-.06	-.105	-.004	1	
Factor 8	.084	.08	-.021	.053	.039	.121	.033	1
Factor 9	.055	.047	.031	.049	-.01	-.036	-.069	.068

Primary Intercorrelations-Orthotran/Varimax

	Factor 9
Factor 9	1

Variable Complexity-Orthotran/Varimax

	Orthogonal	Oblique
K1	4.165	4.187
K2	1.998	1.86
K3	3.903	3.929
K4	2.686	2.485
K5	2.303	2.355
K6	4.66	4.736
K7	2.501	2.537
K8	2.915	2.94
K9	1.692	1.566
K10	2.251	2.21
K11	2.353	2.248
K12	2.501	2.47
K13	2.726	2.704
K14	2.074	1.85
K15	3.273	3.231
K16	2.57	2.392

	Orthogonal	Oblique
K17	1.839	1.687
C18	1.318	1.221
C19	2.1	1.841
C20	2.895	3.107
C21	1.264	1.306
C22	1.408	1.378
C23	1.359	1.285
C24	2.228	2.114
C25	1.078	1.062
C26	4.288	4.202
C27	1.845	1.715
C28	2.19	2.065
C29	3.153	2.61
C30	2.665	2.451
C31	2.278	2.146
C32	1.596	1.511

Variable Complexity-Orthotran/Varimax

	Orthogonal	Oblique
C33	3.196	3.366
C34	1.638	1.712
135	2.013	1.897
136	1.712	1.776
137	1.244	1.152
138	1.773	1.656
139	1.283	1.212
140	1.365	1.328
141	4.781	4.468
142	1.953	1.963
143	1.999	1.862
144	2.609	2.445
145	2.21	2.002
146	1.434	1.269
147	1.404	1.234
148	4.228	4.261

	Orthogonal	Oblique
149	1.576	1.472
165	1.868	1.918
166	3.689	3.944
167	2.772	2.81
168	2.863	2.569
169	3.916	3.82
170	2.791	2.741
171	3.998	4.078
172	1.478	1.469
173	2.268	1.889
174	1.368	1.284
175	1.337	1.195
176	2.851	2.818
177	1.377	1.321
178	1.558	1.42
179	1.379	1.285

Variable Complexity-Orthotran/Varimax

	Orthogonal	Oblique
S50	1.192	1.139
S51	1.502	1.536
S52	1.825	1.78
S53	3.142	3.071
S54	2.906	3.05
S55	2.198	2.296
S56	2.673	2.561
S57	1.422	1.369
S58	1.541	1.397
S59	1.731	1.631
S60	1.206	1.188
S61	1.717	1.75
S62	1.111	1.155
S63	2.235	2.288
S64	1.555	1.549
S80	2.178	2.172

	Orthogonal	Oblique
S81	1.372	1.324
S82	2.308	2.095
S83	2.495	2.283
S84	1.272	1.219
S85	1.27	1.216
S86	1.837	1.751
S87	1.145	1.087
S88	1.229	1.176
S89	1.386	1.319
S90	1.542	1.424
S91	1.874	1.744
S92	1.864	1.803
S93	1.677	1.722
S94	1.144	1.112
Average	2.155	2.088

Proportionate Variance Contributions

	Orthogonal	Oblique		
	Direct	Direct	Joint	Total
Factor 1	.282	.252	-.016	.235
Factor 2	.25	.216	.028	.244
Factor 3	.096	.083	-.003	.08
Factor 4	.067	.059	.017	.076
Factor 5	.065	.056	-.019	.037
Factor 6	.081	.068	.073	.141
Factor 7	.054	.05	.006	.056
Factor 8	.055	.047	.027	.074
Factor 9	.051	.045	.012	.056

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	-.005	-.015	.018	.011	.004	.04	-.061	.03
K2	-.01	-.013	-.033	.069	-.01	.13	-.037	-.016
K3	-.008	.015	-.021	-.038	-.022	.046	.062	.003
K4	.005	-.012	-.107	.044	.038	.148	-.014	-.036
K5	-.005	-.033	-.01	.007	-.049	.067	.048	.13
K6	-.015	-.013	.046	.041	-.056	.034	.047	.036
K7	-.012	-.014	-.002	.027	-.021	.084	.042	.021
K8	.002	-.029	.01	.025	-.12	.131	-.008	.081
K9	-.007	-.022	.005	-.022	-.027	.053	.186	.048
K10	-.009	-.029	.047	.112	-.011	.007	.224	.044
K11	.011	-.01	.064	.168	-.03	.019	.046	-.086
K12	-.003	-.031	.008	.167	-.058	.103	-.076	.039
K13	.005	-.015	-.014	.025	.06	.056	.018	-.034
K14	.004	-.013	.018	-.018	-.016	.114	.009	-.055
K15	-.001	-.032	.014	-.082	.166	.2	.136	-.142
K16	-.003	-.038	.061	-.059	.081	.138	.003	-.013

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	-.021	-.027	-.02	-.026	.038	.207	.017	-.011
C18	-.01	-.033	.179	.028	.046	-.042	.027	.003
C19	-.003	-.013	.057	-.002	.054	-.006	-.024	-.02
C20	-.02	-.028	.05	-.007	.115	-.036	.02	.101
C21	.009	.017	-.164	-.022	.057	.028	-.031	-.041
C22	-.017	-.004	.122	-.002	4.266E-4	.01	-.042	-.036
C23	-.001	-.014	.104	.003	-.013	.009	-.001	-.007
C24	.004	-.022	-2.53E-4	.023	.05	-.002	.022	-.003
C25	-.007	-.031	.232	-.04	.033	-.063	.048	.022
C26	-.014	-.004	.058	.02	.082	-.056	.066	.035
C27	-.01	-.006	.013	-.016	.077	-.006	-.015	.006
C28	-.019	-.01	.029	-.044	.139	.014	-.025	.006
C29	.004	-.002	.031	-.023	.128	-.025	.01	-.009
C30	.007	.007	.189	-.003	-.051	.006	-.19	-.006
C31	-.001	.022	-.001	-.003	-.011	.002	.006	-.028
C32	-.001	-.018	-.018	.006	.171	-.006	-2.12E-4	-.002

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	-.006	.002	-.076	-.032	.128	.038	-.062	.019
C34	-.014	-.018	-.018	-.003	.115	.023	.008	.011
135	-.048	.084	-.019	.046	.103	-.057	-.058	.013
136	-.026	.051	-.006	-.01	.048	-.013	.019	-.034
137	-.017	.049	.015	.011	-.005	-.021	-.063	.015
138	.011	.061	-.039	.045	-.002	-.046	.012	-.015
139	-.01	.116	-.037	-.036	-.034	-.046	.072	-.05
140	-.028	.072	-.018	.035	-.003	-.027	-.005	-.012
141	-.022	.035	.037	-.009	-.051	.048	-.154	.039
142	-.022	.101	-.049	.166	-.088	.002	-.044	.011
143	.019	.063	-.033	.023	-.019	.007	-.04	-.052
144	.006	.05	-.022	.065	-.002	.002	.023	-.042
145	-.008	.049	-.027	.004	-.043	.01	-.003	.11
146	-.026	.072	-.029	-.018	-.004	-.02	-.025	.026
147	-.015	.066	.008	-.037	-.045	.006	.013	.017
148	-.022	.06	-.068	-.062	-.088	.062	.065	-.016

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
149	.009	.048	-.016	.012	-.019	.016	.042	-.068
165	-.009	.049	-.026	-.029	.027	.003	.101	-.024
166	.002	.018	.038	-.028	.026	-.015	.019	-.003
167	-.02	.032	-.012	.148	.007	-.011	.075	-.034
168	-.015	.022	-.006	.106	.009	.017	-.003	-.007
169	-.002	.025	.009	.01	-.048	.001	-.066	.104
170	-.026	.043	-.006	-.081	.005	-.035	.092	.204
171	-.008	.011	.018	.054	.025	-.054	.068	.108
172	-.047	.091	-.027	.045	.034	-.065	-.023	.072
173	-.02	.035	.051	-.008	.043	.015	-.093	.003
174	-.02	.149	.04	.032	-.044	-.096	.046	-.044
175	-.014	.081	.013	-.043	-.001	.018	-.016	-.032
176	-.041	.105	-4.14E-4	-.208	-.066	.098	-.091	.051
177	-.019	.086	-.004	-.032	-.021	.015	-.013	-.099
178	.001	.08	-.038	-.065	.018	-.002	.035	-.044
179	-.018	.067	.037	-.01	-.033	-.058	-.024	-.007

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.053	-.009	.02	.018	.028	-.042	.022	-.008
S51	.072	.014	-.014	.013	-.036	-.041	-.039	-.004
S52	.057	-.01	-.027	-.005	.11	-.03	-.044	-.004
S53	.024	-.007	-.021	.002	.088	-.067	.061	.136
S54	.042	-.014	.002	-.085	.056	-.062	-.04	.148
S55	.045	-.041	-.007	-.093	.052	-.046	.02	.184
S56	.03	-.003	.02	-.01	-.045	-.02	-.005	.002
S57	.063	-.01	-.003	.082	-.026	-.009	-.053	-.027
S58	.063	-.02	.03	.024	-.01	-.013	-.002	.069
S59	.065	-.022	-.032	-.01	.003	.028	-.005	.031
S60	.081	-.022	-.014	.031	-.003	.033	-.067	-.079
S61	.073	-.028	-.015	-.032	.021	-.015	.067	-.046
S62	.065	-.036	-.034	.028	-.016	.045	.002	-.004
S63	.011	.004	-.028	.008	-.022	.008	.037	-.049
S64	.042	-.02	-.006	.028	-.042	.019	.007	-.014
S80	.03	.004	-.012	.017	-.052	.018	.065	-.05

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.033	.007	-.005	-.031	-.025	-.016	.024	.032
S82	.075	-.053	-.011	.094	.064	-.047	-.046	.079
S83	.041	-.032	-.038	.064	.027	.036	-.02	-.011
S84	.08	-.016	-.035	.039	-.039	.072	.006	-.048
S85	.048	-.02	.025	-.022	.006	-.012	.009	-.009
S86	.061	-.036	.038	.06	-.036	-.003	-.105	.074
S87	.096	-.004	-.031	.025	-.02	.019	-.004	-.072
S88	.065	-.001	.009	.008	-.022	.001	.013	-.077
S89	.105	-.025	-.042	-.035	-.09	.064	.012	.049
S90	.062	-.01	-.004	-.067	-.028	.029	-.03	.011
S91	.041	-.001	-.012	-.086	-.032	.034	-.002	.009
S92	.102	-.018	.071	-.087	.124	-.067	.117	-.174
S93	.057	-.026	-.007	.017	.015	-.038	.072	-.006
S94	.052	-.003	-.001	-.019	-.017	-.016	.018	-.02

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
K1	.031
K2	.023
K3	.011
K4	.023
K5	.031
K6	.005
K7	.014
K8	-.012
K9	.07
K10	-.004
K11	-.034
K12	-.043
K13	-.005
K14	-.012
K15	.002
K16	-.03

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
K17	.054
C18	-.012
C19	.013
C20	-.009
C21	.023
C22	-.056
C23	.018
C24	.001
C25	.025
C26	-.002
C27	-.006
C28	.061
C29	-.01
C30	-.027
C31	-.019
C32	-.049

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
C33	-.034
C34	.042
I35	.08
I36	.08
I37	.027
I38	-.027
I39	-.063
I40	.022
I41	.178
I42	-.095
I43	-.099
I44	-.093
I45	.002
I46	.06
I47	-.007
I48	.124

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
149	.004
165	.043
166	.029
167	.046
168	.046
169	-.072
170	-.045
171	-.042
172	.026
173	.078
174	-.118
175	-.02
176	.009
177	.007
178	-.029
179	.015

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
S50	-.042
S51	-.116
S52	-.059
S53	.005
S54	-.018
S55	.029
S56	.099
S57	-.002
S58	-.094
S59	-.115
S60	.002
S61	.219
S62	.004
S63	.193
S64	.049
S80	.042

Factor Score Weights for Oblique Transformation Solution-Orthotran/Varimax

	Factor 9
S81	-.014
S82	.074
S83	.098
S84	-.054
S85	.006
S86	-.011
S87	-.058
S88	-.019
S89	-.134
S90	-.035
S91	.011
S92	.057
S93	.098
S94	-.009

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K1	-.003	-.01	.017	.014	.008	.041	-.062	.032
K2	-.007	-.008	-.031	.071	-.001	.126	-.041	-.008
K3	-.004	.015	-.017	-.04	-.024	.045	.063	.006
K4	.006	-.007	-.103	.049	.046	.143	-.021	-.024
K5	-.002	-.025	-.011	.008	-.048	.07	.051	.133
K6	-.012	-.009	.045	.037	-.056	.034	.049	.038
K7	-.009	-.009	-4.81E-4	.026	-.019	.083	.042	.026
K8	.004	-.021	.011	.021	-.113	.13	-.001	.085
K9	-.002	-.014	.008	-.026	-.036	.051	.186	.054
K10	-.005	-.02	.045	.105	-.017	.008	.222	.048
K11	.011	-.005	.064	.161	-.025	.016	.043	-.082
K12	-.002	-.023	.005	.166	-.042	.104	-.076	.044
K13	.006	-.01	-.014	.027	.061	.055	.013	-.029
K14	.005	-.006	.021	-.02	-.015	.109	.009	-.05
K15	.005	-.015	.02	-.079	.157	.193	.125	-.128
K16	.002	-.023	.061	-.056	.08	.138	.001	-.008

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
K17	-.014	-.015	-.016	-.022	.04	.203	.012	.001
C18	-.006	-.021	.174	.026	.041	-.037	.026	-.002
C19	-.001	-.008	.055	2.361E-4	.053	-.006	-.027	-.021
C20	-.014	-.02	.044	-.001	.112	-.027	.016	.098
C21	.005	.009	-.161	-.016	.06	.024	-.038	-.035
C22	-.014	-.001	.12	-.005	3.132E-4	.011	-.039	-.04
C23	.002	-.007	.103	.001	-.015	.01	2.710E-4	-.007
C24	.003	-.019	-.002	.024	.049	-.002	.018	-.002
C25	1.194E-4	-.016	.228	-.043	.022	-.057	.05	.015
C26	-.009	-5.24E-5	.054	.022	.077	-.051	.062	.033
C27	-.008	-.004	.011	-.012	.076	-.004	-.018	.005
C28	-.012	-.003	.027	-.035	.136	.016	-.034	.009
C29	.008	.004	.029	-.018	.125	-.021	.005	-.01
C30	.012	.016	.187	-.003	-.043	.011	-.183	-.012
C31	-2.34E-4	.02	3.948E-4	-.004	-.01	.002	.007	-.028
C32	-1.77E-4	-.013	-.022	.013	.17	-.001	-.009	-.001

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
C33	-.005	.002	-.077	-.023	.131	.042	-.067	.021
C34	-.01	-.012	-.02	.004	.114	.024	-4.08E-4	.015
I35	-.032	.078	-.019	.056	.107	-.052	-.068	.016
I36	-.016	.048	-.003	-.007	.045	-.014	.013	-.03
I37	-.009	.046	.016	.014	-.001	-.018	-.063	.015
I38	.016	.056	-.036	.045	.002	-.043	.012	-.014
I39	-.002	.102	-.03	-.041	-.037	-.044	.077	-.051
I40	-.019	.064	-.016	.036	-.001	-.025	-.007	-.01
I41	-.009	.039	.04	-.002	-.043	.048	-.156	.044
I42	-.013	.09	-.047	.163	-.072	.007	-.04	.013
I43	.02	.057	-.03	.021	-.012	.009	-.036	-.052
I44	.009	.046	-.02	.061	.003	.005	.024	-.041
I45	.001	.048	-.025	.006	-.039	.017	.002	.111
I46	-.015	.066	-.026	-.014	-.002	-.018	-.026	.027
I47	-.005	.062	.013	-.038	-.045	.008	.018	.017
I48	-.013	.054	-.059	-.064	-.091	.055	.066	-.008

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
149	.013	.045	-.011	.009	-.019	.013	.042	-.064
165	-.001	.047	-.021	-.029	.022	.003	.098	-.019
166	.008	.021	.039	-.027	.023	-.013	.018	-.003
167	-.012	.031	-.011	.147	.01	-.012	.068	-.028
168	-.008	.023	-.006	.108	.015	.018	-.008	-.002
169	.002	.024	.007	.011	-.041	.009	-.058	.1
170	-.014	.043	-.007	-.078	3.257E-4	-.021	.1	.2
171	-.002	.014	.015	.055	.025	-.045	.069	.106
172	-.032	.082	-.027	.05	.039	-.056	-.025	.071
173	-.008	.039	.052	-.002	.047	.018	-.097	.005
174	-.006	.135	.045	.025	-.043	-.088	.054	-.049
175	-.004	.077	.018	-.043	.001	.02	-.013	-.031
176	-.025	.099	.008	-.205	-.065	.101	-.08	.051
177	-.011	.078	.003	-.034	-.021	.012	-.013	-.097
178	.008	.074	-.032	-.065	.016	-.001	.037	-.043
179	-.01	.061	.039	-.011	-.033	-.055	-.021	-.009

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S50	.05	-.002	.019	.017	.027	-.038	.022	-.009
S51	.065	.015	-.013	.01	-.031	-.036	-.032	-.008
S52	.053	-.004	-.028	.001	.113	-.025	-.048	-.005
S53	.029	.001	-.025	.009	.086	-.056	.058	.135
S54	.043	-.006	-.002	-.078	.055	-.05	-.037	.142
S55	.045	-.029	-.011	-.085	.048	-.036	.023	.181
S56	.03	.002	.022	-.01	-.046	-.021	-.005	.003
S57	.059	-.003	-.002	.081	-.018	-.009	-.054	-.025
S58	.06	-.009	.028	.023	-.007	-.005	.004	.066
S59	.059	-.014	-.032	-.011	.006	.032	.001	.03
S60	.073	-.013	-.011	.031	.003	.03	-.069	-.075
S61	.071	-.015	-.009	-.028	.014	-.021	.058	-.037
S62	.059	-.026	-.032	.028	-.013	.043	.002	.001
S63	.013	.006	-.023	.01	-.024	6.860E-5	.029	-.04
S64	.039	-.013	-.003	.027	-.04	.017	.006	-.01
S80	.029	.007	-.007	.013	-.053	.013	.065	-.046

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
S81	.032	.01	-.003	-.032	-.026	-.013	.028	.031
S82	.073	-.036	-.015	.102	.07	-.041	-.054	.082
S83	.039	-.022	-.037	.069	.031	.033	-.028	-.003
S84	.074	-.006	-.03	.036	-.033	.07	.008	-.042
S85	.045	-.012	.026	-.022	.004	-.011	.009	-.009
S86	.058	-.023	.035	.063	-.027	.002	-.102	.072
S87	.088	.004	-.027	.022	-.015	.018	-.002	-.068
S88	.06	.005	.013	.005	-.021	-.001	.014	-.075
S89	.095	-.014	-.038	-.04	-.086	.068	.024	.049
S90	.058	-.003	-.001	-.067	-.027	.03	-.025	.01
S91	.04	.005	-.007	-.086	-.033	.034	.003	.01
S92	.097	-.003	.077	-.087	.109	-.071	.109	-.172
S93	.054	-.017	-.005	.019	.012	-.039	.066	-.002
S94	.048	.001	.001	-.02	-.018	-.016	.02	-.02

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
K1	.033
K2	.022
K3	.007
K4	.018
K5	.032
K6	.005
K7	.012
K8	-.01
K9	.064
K10	-.007
K11	-.034
K12	-.037
K13	-.008
K14	-.016
K15	-.014
K16	-.035

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
K17	.046
C18	-.01
C19	.013
C20	-.006
C21	.019
C22	-.055
C23	.019
C24	1.790E-4
C25	.027
C26	-.001
C27	-.006
C28	.059
C29	-.011
C30	-.018
C31	-.02
C32	-.051

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
C33	-.035
C34	.04
I35	.084
I36	.078
I37	.031
I38	-.025
I39	-.065
I40	.024
I41	.184
I42	-.088
I43	-.098
I44	-.092
I45	.007
I46	.061
I47	-.006
I48	.119

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
149	.001
165	.039
166	.029
167	.046
168	.047
169	-.065
170	-.042
171	-.038
172	.031
173	.081
174	-.115
175	-.02
176	.008
177	.005
178	-.032
179	.018

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
S50	-.041
S51	-.112
S52	-.057
S53	.008
S54	-.012
S55	.033
S56	.101
S57	.002
S58	-.089
S59	-.114
S60	.003
S61	.215
S62	.004
S63	.189
S64	.049
S80	.04

Factor Score Weights for Orthogonal Transformation Solution-Varimax

	Factor 9
S81	-.013
S82	.081
S83	.098
S84	-.055
S85	.006
S86	-.003
S87	-.058
S88	-.02
S89	-.132
S90	-.034
S91	.01
S92	.049
S93	.097
S94	-.009

Appendix E

The International Consortium for Executive Development Research — Membership List

CORPORATE MEMBERSHIP

Alcatel Alsthom

AT&T

British Airways

British Petroleum

The Broken Hill Proprietary Co., Ltd.

Burroughs Wellcome

Daimler-Benz AG

Eastman Kodak Company

Eisai Company, Ltd.

Electricité de France/Gaz de France

EXXON Corporation

FIAT Group

Fidelity Investments

Ford Motor Company

Heineken Internationaal Beheer BV

Hewlett Packard

Hoffmann-La Roche

IBM Corporation

KONE Corporation

L'ORÉAL

Merck & Co.

National Australia Bank

National Westminster Bank

Nippon Mining Co., Ltd.
(Nikko Kyodo Co., Ltd.)

Philip Morris Companies, Inc.

Ssangyong Business Group

Unilever

Westpac Banking Corporation

MEMBER INSTITUTIONS

Columbia University
Graduate School of Business

Cornell University
Johnson School of Management

Cranfield School of Management

Groupe CPA, Paris

Harvard University
Harvard Business School

Hitotsubashi University
Institute of Business Research

IESE
Instituto de Estudios Superiores de la Empresa

INSEAD

Keio University
Graduate School of Business Administration

London Business School

Massachusetts Institute of Technology
The Alfred P. Sloan School of Management

Northwestern University
Kellogg School of Business

The Pennsylvania State University
Smeal College of Business Administration

Università Bocconi

University of Hong Kong Business School

University of Michigan
School of Business Administration

University of North Carolina
Chapel Hill
The Kenan-Flagler Business School

University of Pennsylvania
Wharton School

University of Southern California
School of Business Administration

University of Virginia
The Darden Graduate School of Business Administration

Appendix F

Challenges and Capabilities Profile

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section I

Based on 25 companies:

	Rating Avgc	% of Pop.
A. Identifying the "next generation" of leaders: 1, 1, 1, 3, 1, 1	1.33	24%
B. Identifying international leadership potential: 2, X*, 3, 1, 1	2.00	20%
C. Managing a world class "high potential" system: 1, 2, 4, 5, 2	2.80	20%
D. Developing a global executive resources capability: 1, 1, 2, 4	2.00	16%
E. Improving initiatives in executive resources planning: 1	1.00	4%
F. Developing a contemporary career management capability: 4, 5, 4	4.33	12%
G. Acquiring senior executives to achieve strategic objectives: 3, 5	4.00	8%
H. Transforming the mindset of current senior executives: 1, 2, 2, 1, 4, 3, X	2.29	28%
I. Identifying future competency requirements: 4, 4, 4, 3, 4, 3, 3, 3	3.50	32%
J. Developing an international mindset in our company: X, X, 3, 2	2.75	16%
K. Using assignments as a strategic source of learning: 4, 4, 3	3.67	12%
L. Improving coaching and mentioning capabilities: 5	5.00	4%
M. Integrating executive development with business strategies: 5, 4, 5, 2, 4, 2, 5**, X, 2	3.56	36%
N. Using executive education more strategically: 2, 5, 5, 5**, 4	4.20	20%
O. Managing diversity for global competitiveness: 4, 5	4.50	8%
P. Managing cultural change: 5, 2, 2, 3, 5, 1	3.00	24%
Q. Managing strategic change: 1, 1, 1, 2	1.25	16%
R. Managing strategic alliances: 4, X	3.50	8%
S. Implementing globalization strategies: 5, X, 1, 1**	2.50	16%
T. Managing merger & acquisition integration: 3, 2	2.50	8%
U. Managing large scale transformation: 4, 3, 3, X, 2	3.00	20%
V. Creating a "learning organization": 3, 2, 5, 3, 3, 5, X, 1	3.13	32%

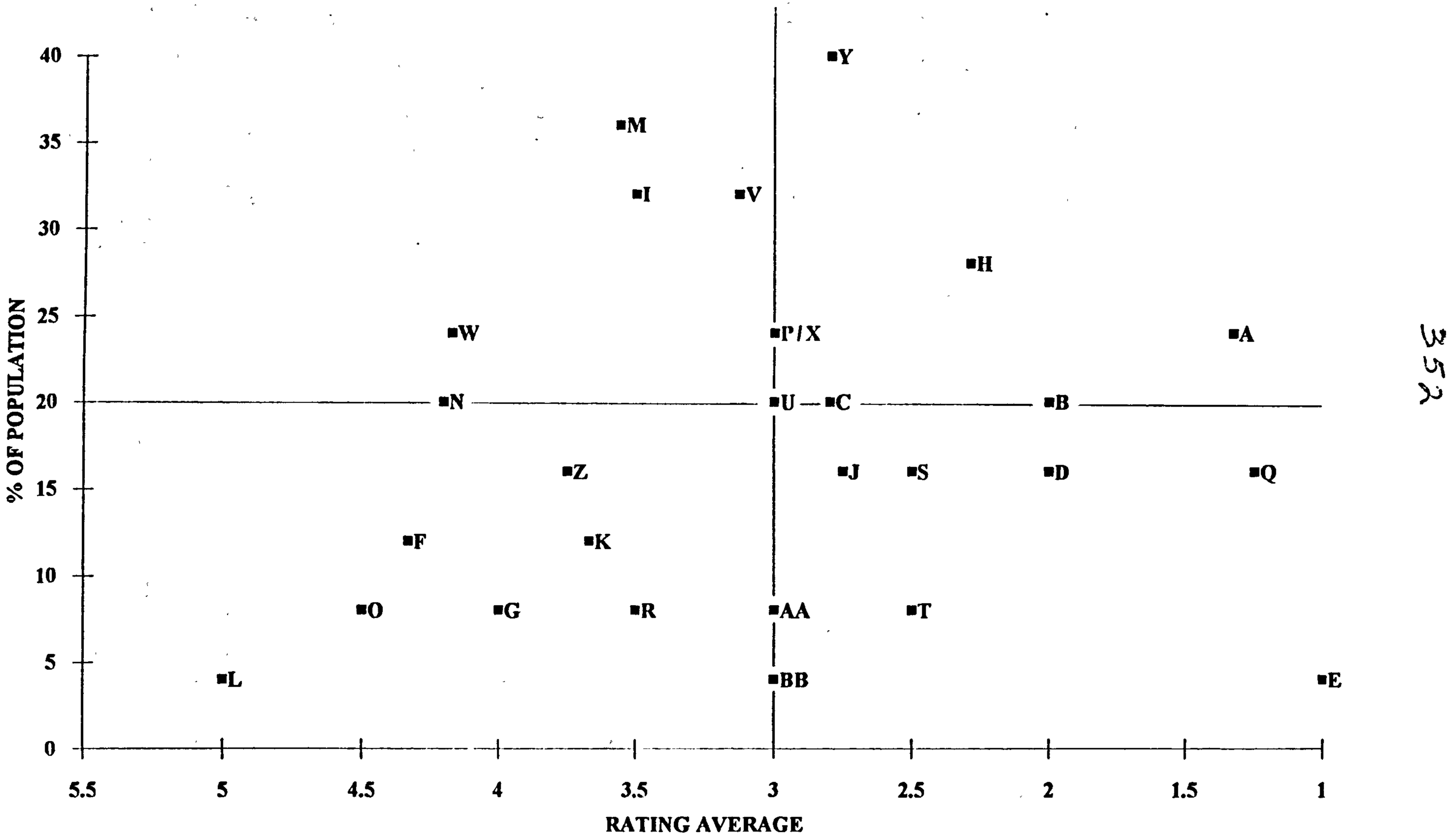
Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section I, continued

	Rating Avge	% of Pop.
W. Managing a "network" organization: 5, X, 5, 4, X, 5	4.17	24%
X. Developing a "leaner", more flexible firm: 1, 5, 4, 2, 2, 4	3.00	24%
Y. Balancing decentralization/coordination: 2, 3, 4, 3, 2, X, 3, 1**, 2, 5	2.80	40%
Z. Exploring new approaches to executive learning: 5, 5, 1, 4	3.75	16%
AA. Communicating strategies worldwide: 3, 3	3.00	8%
BB. Managing transnational project teams: X	3.00	4%

*, "X" is the way Mr. Logan of IBM and Mr. Woriescheck of Daimler-Benz answered, these could be made into a "3" as an average of their 5 "Xs" each. Mr. Réale used 3 "Xs" to indicate the priorities, which were counted as "3s" also.

** Mr. Findley of Wellcome rated 2 areas with the same ratings, thus rating 7 areas total, with 2 "1s", and 2 "5s".

AREAS OF GREATEST IMPORTANCE TO COMPANIES



Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section II

Based on 29 responses, 25 companies, 3 business schools:

Linda Glass, Exxon Corporation:
• Integration and operation of a single Executive Development process across multiple, complex business activities.
• Streamlining Executive Development administrative activities through computer technology.
• Administration of a potential assessment process.

Dick Walsh, Ellen Heller, Fidelity Investments:
• We are a "learning organization".
• Our entrepreneurial approach to business - a complex organization structure with lots of "independent" business units.
• Our ability to quickly react in a quality way to changing business conditions.

Warren Brown, Broken Hill Proprietary Co., Ltd.:
• In-house management education
• Identification of future skill requirements
• Dual career ladders

Barbara Baill, Hewlett-Packard:
• Future competencies for executives
• Accelerated development for moving women and minorities into senior management positions.

Gordon Wheaton, National Australia Bank:
• Action learning strategies for senior managers
• Assessment and development centers for pre-management through senior management
• Managerial competencies: Integration into development and performance strategies

Dominique Banier, Jean-François Raux, Christian Fontanel EDF/GDF:
• Managing a network organization (exchange of ideas and information through an electronic mail box)
• Managing large scale transformation (the Institut du Management concept)

Urpo Kauranne, Kone Corporation:
• In-house executive education

Paul Phillips, NatWest Bank:
• Identifying future competency requirements

Harry Kwanhi Lie, Ssangyong Business Group:
• Creating a "learning organization": Development of long range program of executive training within country as well as outside of the country, namely, USA, Japan, and European countries.
• Managing cultural change: Development and establishment of corporate culture and implementing the program to penetrate into all employees.
• Improving coaching and mentoring capabilities through "Behavior Modeling for Productivity Technique" and "Business Development System."

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section II, continued

Mary Anne Williams, Eastman Kodak:
• New work systems - particularly in manufacturing - including innovations in supporting HR practices.
• Using internal, global benchmarks ("Kodak Class") to stimulate changes and leverage learning, prior to or as addition to external benchmarking.
• Developing and launching new products and platforms globally, using global matrix teams.

Clive Dilloway, British Petroleum:
• Upward feedback
• Personal development planning

Jim Sheegog, Burroughs Wellcome:
• Coordination of executive development across Europe and the US
• Building competency profile for future executive leadership

Robert Logan, IBM:
• Implement our executive program

Carole Whittle, British Airways:
• Implementing culture change
• Developing career management capability and executive resource plan

David Findley, Wellcome:
• Managing the "development pipeline" of new products in communication...
• Transnational teams - at least we are seen to be ahead of the game!!
• Use of Executive Education for strategic change

Michelle Sloane, Westpac:
• Succession Planning: Adopting a wholistic approach that integrates corporate executive development, competencies, annual executive resource reviews; resulting in preparation of "plans" that reflect the strategic direction of the business
• Strategic HR: Analysis of levels of work (using Elliott Jacques; Gillian Hayes Manual and relationships to organiation structure and effectiveness.

Vittorio Tesio, Fiat:
• Developing a "leaner" more flexible firm
• Identifying future competency requirements
• Identifying the "next generation" of leaders

Don Kuhn, AT&T:
• Diagnostic program for high potential middle managers regarding their performance against defined leadership dimensions
• Executive Education (internal and university offerings) for high potential managers, linked to career plans.

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section II, continued

Juan Roure, IESE:
• Developing other Business Schools (South America, Eastern & Central Europe)
• Customer Orientation through Alumni Development & Maintenance
• Action Learning in Executive Development Programs

Gerd Woriescheck, Daimler-Benz:
• The "Corporate-Seminar" - A project-based seminar for top executives, which represents a new approach to executive learning.
• A data-based worldwide system, supporting potential appraisal gathering.

Timothy Sullivan, Philip Morris:
• Development of a comprehensive executive human resources information system. (Internal candidate slating; tracking development plans/action).
• Focus on senior executive "high potential" development/identification.

John Turner, Ford Motor Company
• Use of systems thinking in product development and organization design, simulations to teach systems thinking principles and tools.
• Organized product program team to team learning process

Bernard Sarphati, Heineken N.V.
• Managing cultural change
• Managing transnational project teams

David Jones, Unilever
• Globalization
• Managing H-P (high potential) system
• Executive Resource Planning

François Vachey, Raoul Bastianetto, L'ORÉAL
• Developing Corporate Culture
• Executive Education

Yves Réale, Alcatel Alsthom
• Development of corporate high potentials
• Creating a corporate culture after a merger and acquisition

Joe Thomas, Cornell
• Educational programs for manufacturing organizations, using crossfunctional resources, involving other colleges at the university.

Hiroyuki Mitsui, Eisai Co, Ltd.
Recently, the conventional criteria for corporate activities, such as sales, profits, employment, quality, and cost, are losing ground. Instead of them, new criteria have been needed. These new criteria will be expressed in terms of goals, values, dreams, and so on. Eisai defines a new criterion as "HHC (Human Health Care)". In other words, Eisai's credo is to "be a human health care company which, under any medical care systems, will contribute significantly to the well-being of people worldwide". Eisai recognizes this credo as "knowledge creation". The process of creating "knowledge" involves four steps:

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section II, continued

Hiroyuki Mitsui, Eisai Co, Ltd., cont.

- First Step
  Launching a "knowledge" concept and message by the CEO
- Second Step
  Nurturing a certain number of "knowledge" managers who thoroughly understand the "knowledge" concept and message developed by the CEO through highly intensive training programs.
- Third Step
  Attempting to materialize "knowledge" on the employee level company-wide under the leadership of nurtured "knowledge" managers.
- Final Step
  Modifying "knowledge", thereby creating additional (new) knowledge.

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section III

Based on 29 responses, 25 companies, 3 business schools:

Linda Glass, Exxon Corporation;

Early Career High Potential Identification

The purpose of this project is to identify creative methods for identifying and developing high potential candidates early in their career. The need for this research is driven by the fact that many corporations today are faced with limited developmental opportunities for shorter, high potential employees. This is largely the result of a demographic shift where employees in their mid-40's and early 50's are essentially blocking the key developmental opportunities for the near future, unless otherwise creative methods are employed to overcome this problem. This issue is further complicated by a shift to less hierarchical organizations.

The project should take a cross-industry, global look at corporations to identify and understand the best practices for dealing with this challenge. The scope of the project should also address the level of risk that progressive organizations have been willing to accept in giving early-career employees increasing levels of responsibilities to test their potential and facilitate development. The expected outcome should include: (1) a summary of the issue and its implications for business if not dealt with in an effective and timely manner, and (2) summary conclusions regarding the most effective course of action based on best practices across industries.

Dick Walsh, Ellen Heller, Fidelity Investments:

Project 1: A research project (s) that reflects [our] key priorities listed in Section II:

- We are a "learning organization".
- Our entrepreneurial approach to business - a complex organization structure with lots of "independent" business units.
- Our ability to quickly react in a quality way to changing business conditions.

Warren Brown, Broken Hill Proprietary Co., Ltd.;

Project 1: The relationship between cross-business and cross-function experience and success as a general manager. Deliverances: Specific data supporting the need for such experience to be an effective manager, including the link between the experience and the skill (competency) being developed.

Project 2: Measuring the effectiveness of General Management programs in terms of positive behavioral change and increased effectiveness. Deliverances: Quantitive and qualitative data on specific cases, and, a methodology for measuring outcomes.

Gordon Wheaton, National Australia Bank;

Project 1: Cost benefit measurement of executive development (leadership, strategic prospective, etc.)

- What is most effective, has sustained impact on behavior?
- How do we measure this most effectively?
- How do we quantify in terms of dollar impact on the bottom-line of business?

Project 2: Creating a framework for global learning & inculturation among senior managers within a transnational group

- How do we go about it, sustain the impact of learning, create ongoing influence within work settings, etc.?

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section III, continued

Gordon Wheaton, National Australia Bank, cont.:
Project 3: Translating executive development strategies into the creation of a learning organization (transferring learning).
- How to move from a "critical few" into influencing a "corporate whole" to consistently "create its future"?

Dominique Banier, Jean-François Raux, Christian Fontanel, EDF/GDF:
Project 1: In order to adapt itself to a fast moving environment and to face multidimensional challenges, the firm can no longer define and implement strategies through a centralized process. Instead the strategic planning must involve all levels of the organization. How is this achieved? What are the roles and the inter-relations of the various levels in defining strategies and in implementing them?
Project 2: Nature and procedures of control in the frame of reactive management
Project 3: What are the new roles and missions of staff units in decentralized organizations?

Urpo Kauranne, Kone Corporation:
Project 1: Development of leadership (people management) capabilities
- Various approaches and their efficiency
- Development in a systemwide scale
- Leadership development and culture change

Paul Phillips, NatWest Bank:
Project 1: Routes to the top: Preparation for top executive responsibilities
(Our thinking is not developed at this time, beyond a general view that the paths which potential top executives take on their way up through the organization are critical to the ultimate success or failure of these executives.)
Project 2: Self Development: Is it an essential element in the sustained development of executives?
What evidence is there to indicate the successful use of self-development as a key part of the overall development program of top executives? To what extend should it be structured by the organization, and what enabling structures or enhancers are necessary?

Harry Kwanhi Lie, Ssangyong Business Group:
Project 1: Corporate culture through strategic Human Resources Management Policy
How the organization approached the strategic HRM decision in a turbulent manpower environment; how that strategic approach was operationalized; how operationalization affected all spheres of management and labor; and what the results to date of the strategic HRM policy have been. Further, the case analysis look at organizational culture at a suitable company and how that culture has been forged to support and reinforce the strategic approach at that company.
Project 2: Comparative study on HRM between West and East
The approach of Human Resources Management and operational methods may be studied. Relationship between innovation and adaptation be investigated. What is the strategic policy on HRM of a specific company in East and West respectively? What are the convergences and culturalists views on HRM? How to apply implicit knowledge together with explicit know-how? What is best policy and methodology on HRM in East and West? How to adopt and apply the best know-how on the learning organization?

Challenges and Capabilities Profiles Consolidation
ICEDR Forum/Barcelona, as of 10/29/92, Section III, continued

Mary Anne Williams, Eastman Kodak:
Project 1: The real (vs. 'popular') advantages of globalizing the top management team and the Board of Directors. i.e. Is it enough to have a diverse, global management cadre running operations, without forcibly diversifying the top corporate group? What is the experience of Coca-Cola, ABB, etc., compared to executive groups that are totally homogeneous in Japan, most U.S. firms, Fiat, etc.?
Subset: Is there significant difference in the performance/competitiveness of companies with a homogeneous top level group who have worked to achieve a "global mindset", compared to companies with real cultural diversity at the top?
Types of products:
From in-depth study of companies with and without diverse ('global') corporate leadership and/or Boards:

- report regarding the positive and negative trade offs of each configuration vis a vis performance
- cases documenting the CEO's role in achieving a globalized top management cadre: focus on changes to HR practices and challenges to corporate traditions. Focus on models where success was achieved rapidly.
- descriptions of the emerging role of Executive Education in companies where globalization has occurred at the highest levels.

From in-depth study of companies who have chosen not to forcibly globalize senior leadership, identify those making the most progress at achieving at least a 'global mindset'.

- summaries and comparisons of development processes being successfully employed to change mindsets.
- descriptions of the role of Executive Education in changing the mindset of current senior executives.

Clive Dilloway, British Petroleum:
Project 1: What development processes are needed to assist both mature recruits and females returning from career breaks to adjust quickly to the culture of an organization and become valued contributors?
Project 2: What methods have been successfully employed to engage the interest of middle-aged staff (e.g. late 40's) in a personal development program of change and growth?

Diane Goldsmith, Wharton:
Project 1: Maximizing and assessing the organizational learning value of senior management programs.

Jim Sheegog, Burroughs Wellcome:
Project 1: Developing mindset of current senior executives. Present leaders are products of outdated development approaches. The research should establish consequences of continuing the promotion of such out-of-date tactics as move at all costs, expatriation without re-entry plans, etc.

Challenges and Capabilities Profiles Consolidation
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Carole Whittle, British Airways:
Project 1: Resourcing and managing transnational merger and acquisition integration
Deliverables:
- A managerial profile of suitable experiences and competencies
- Best practice: Team selection and team building activities
- Development issues
- Ways to extract learning and development opportunities from mergers and acquisition activities
- Process for monitoring the integration and recording it for the future use/reference

David Findley, Wellcome:
Project 1: Managing corporate coordination in a decentralized organization
Project 2: Developing skills in managing strategic alliances - especially the management and cultural change issues. A White Paper issue, but of increasing importance.

Michelle Sloane, Westpac:
Project 1: Framework for Identification of Future Leaders
- Leadership models
- Succession planning that reflects corporate strategy, long and short term
- Identification of critical competencies/capabilities
Project 2: Executive Success in 2000 and Beyond
- Re-definition of "success" to account for flatter structures, fewer promotion opportunites, work/family balance
- life "balance": how to create/engender importance/value of personal development/growth and its relationship to the creation of "healthy" organizations
- strategies for creating/building the different valves within our definition of successful leaders

Vittorio Tesio, Fiat:
Project 1: Performance Appraisal of Teams
Scope: To evaluate work done by a group of people
How is this possible preserving the motivation of the individual group members
Product: A new methodology to be applied in coherence with individual performance appraisal

Don Kuhn, AT&T:
Project 1: Triggering the Development of Current Executives
Theoretical model tested against approaches being taken by a number of companies. Areas to be covered:
- Competency analysis and feedback
- Prescriptive approaches; coaching, education, internal or external assignments, etc.
- Measures of success
- Impact on the organization

Challenges and Capabilities Profiles Consolidation
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Don Kuhn, AT&T, cont.:
Project 2: Managing Executive Development in Large, Complex Global Organizations
Research models being used by firms with a business unit and/or regional structure-- to identify and develop managers for future leadership positions.
Questions to be answered:
- At what stage do high potential managers become a corporate concern?
- What "buy-in" exists across fairly autonomous units?
- What are the diversity issues which might have to be dealt with?

Project 3: Methodologies to Effeciently Define Leadership Competencies Needed for the Future
Best practices to reveal approaches now being used.
Questions to be answered:
- How is the data used for the development of current managers?
- How does analysis of current competencies shape business strategy?
- How long are competency analyses valid?
- How does changing competencies impact development planning?

Juan Roure, IESE:
Project 1: Developing the International Managerial Dimension
Project 2: Effectiveness on Managing a Network Organization

Gerd Woriescheck, Daimler-Benz:
Project 1: Cultural diversity as background of management tools in HRD. Mutual interaction, necessity of individual or corporate approach?
Project 2: Executive education/learning - In-house programs versus business schools.

Timothy Sullivan, Philip Morris:
Project 1: How can we accelerate the development process to prepare broad, seasoned international business general managers from among highest potential candidates?
Project 2: What are the competencies required for a successful global executive? Are there behaviors that are especially critical to managing across boundaries and cultures? Identify executives who have been successful, and describe their profiles and development history.
Project 3: What behaviors or characteristics distinguish high performers/high potentials early on in their careers? How can we identify these individuals early and plan their development to include the appropriate experiences/education.

David Jones, Unilever
Project 1: Identification of Managerial Competencies
Initial review—"state of the art" including generic competencies, competency spikes, specific competencies for different managerial levels, changes in competencies brought about by technology, IT, competition differences in different cultures.
Use of competency definitions in recruitment, training, promotion
Literature survey and interviews of about 10 companies.

François Vachey, Raoul Bastianetto, L'ORÉAL
Project 1: Corporate Culture and National Cultures
Identification of actual or potential conflicts. How companies handle these conflicts.

Challenges and Capabilities Profiles Consolidation
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Yves Réale, Alçatel Alsthom
Project 1: Linking performance management & MBO with network organizations

Joe Thomas, Cornell
Project 1: What kind of training and/or organizational change makes TQM (or related programs) effective? How can organizations train for "re-engineering". Research should be based in 2-4 companies (member or not) that have re-engineering programs.
Project 2: What experimental and educational background, including executive education, best prepares individuals for global business management? Research should be based in 2-4 companies with global operations.

Hiroyuki Mitsui, Eisai Co., Ltd.
Project 1: Eisai is now in the third stage of "knowledge" creation (see section II). In the second stage, we formulated and implemented a strategy (i.e. highly intensive training programs) for nurturing "knowledge" managers. Similarly, in the third step, we are implementing another strategy (e.g. various HHC (Human Health Care) projects set up in branches, factories, laboratories, and headquarters) for realizing "knowledge" on the employee level company-wide. As I described before, Eisai adopts a "process strategy" which consists of strategy formulation and implementation at every stage. I would like to further investigate this "process strategy" through ICEDR.