

The Pennsylvania State University

The Graduate School

College of Education

**THE DEVELOPMENT AND INITIAL ASSESSMENT OF AN INSTRUMENT
FOR HUMAN CAPITAL PLANNING**

A Thesis in

Workforce Education and Development

By

Kenneth J Zula

© 2006 Kenneth J Zula

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

May 2007

The thesis of Kenneth J. Zula was reviewed and approved* by the following:

Thomas J. Chermack
Assistant Professor of Education
Thesis Advisor
Chair of Committee

Judith A. Kolb
Associate Professor of Education
Professor-in-Charge of Graduate Programs Workforce Education and
Development

William J. Rothwell
Professor of Education

Edgar P. Yoder
Professor of Agricultural and Extension Education

* Signatures are on file in the Graduate School

ABSTRACT

The shift in The United States economy from a manufacturing powerhouse to a service driven economy has placed a great emphasis on planning within organizations in order to remain competitive in a new global economy. The link between business strategy and successful implementation has been well documented in the literature. These links include human capital, however no empirical based measure for human capital planning has been identified or developed. This study examined the development and validation of an instrument for human capital planning as a strategic human resource management technique.

This study provided the preliminary exploratory factor analysis data utilizing a principal components analysis for the development and validation of an instrument for human capital planning from a national survey of 494 respondents. The six major factors identified from the exploratory factor analysis are: Leadership Driven Approach to Planning; Current Organizational Status; Systems for Measurement, Accountability, and Feedback; Organizational Learning and Buy-In; Integrating Organization Competency Models; and Human Resource Capabilities and Capacities. These six factors were expanded from the original five components; however there was a reduction of nine items.

The study developed the survey instrument through the utilization of a subject matter expert (SME) panel, assessed the content validity, reliability, factor loadings, and structure of the scale. Preliminary reliability and validity of the scale was determined. The findings reveal a valid and reliable scale can be developed to measure and assess human capital planning as a strategic human resource management technique.

Human capital and worker knowledge are essential elements for the success of any organization. The emerging global economy will force businesses and organizations to leverage, develop, and plan for human capital and knowledge as critical functions necessary for business survival. These critical functions will require links between business strategy and planning. This first generation instrument will assist in bridging the gap between business strategy and human capital implementation.

This study has revealed that an instrument for human capital planning as a strategic human resource management technique can be developed and validated through the utilization of an extensive literature review and the use of a subject matter expert panel. In addition, the usefulness of this instrument for human resource management and human resource development practitioners and researchers as a benchmark instrument and management development tool can be realized.

TABLE OF CONTENTS

	<u>Page</u>
List of Figures.....	vii
List of Tables.....	viii
Acknowledgements.....	ix
Chapter I. INTRODUCTION.....	1
Historical Perspectives.....	1
The Effects of War.....	1
Overview of Human Capital Planning.....	2
The Problem.....	3
The Significance of the Study.....	4
Research Questions.....	6
Scope.....	6
Limitations.....	7
Assumptions.....	8
Theoretical Framework.....	8
Theoretical Model of the Balanced Scorecard.....	10
Definition of Terms.....	12
Chapter II. REVIEW OF RELATED LITERATURE.....	14
The Emerging Human Capital Science.....	15
Types of Education and Training.....	21
The Theory of Human Capital.....	23
Strategic Approaches to Management and Measurement.....	28
Strategic Planning.....	28
Strategic Human Resource Management.....	30
The Balanced Scorecard.....	33
The Human Resource Scorecard.....	36
Human Capital Planning and Measurement.....	38
Human Capital Planning.....	39
Human Capital Measurement and Metrics.....	41
Chapter Summary.....	43
Chapter III. METHODOLOGY.....	45
The Problem.....	46
Research Questions.....	46
Research Study Design.....	47
Population.....	48
Sampling.....	48

Instrument Development.....	49
The Original Dimensions.....	50
SME Panel Procedures.....	50
Expert Panel and Subject Matter Experts.....	51
Validation of Questions.....	54
Pilot Testing.....	56
Data Collection.....	57
Human Subjects Compliance.....	58
Mode of Analysis.....	58
Reason for Using Exploratory Factor Analysis.....	59
Principal Components Analysis.....	60
Chapter IV. RESULTS.....	62
Description of the Sample.....	62
Data Analysis.....	67
Factor Analysis.....	67
Exploratory Factor Analysis.....	68
Research Questions.....	69
Research Question Two.....	69
Research Question Three.....	69
Summary.....	76
Chapter V. SUMMARY, DISCUSSION, AND RECOMMENDATIONS.....	78
Discussion of the Research Questions.....	78
Research Question One.....	78
Research Question Two.....	80
Research Question Three.....	81
Study Summary.....	82
Limitations of the Research.....	86
Recommendations for Future Research.....	88
REFERENCES.....	91
Appendix A. SUBJECT MATTER EXPERT PANEL DOCUMENTATION.....	100
Pre-Selection Letter.....	101
Participation Letter for The Delphi Technique.....	102
The SME Round One Questionnaire.....	103
The SME Round Two Questionnaire.....	105
The SME Round Three Questionnaire.....	111
Appendix B. SURVEY INSTRUMENT.....	115
Informed Consent.....	116
Survey Instrument.....	119

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Model of the Balanced Scorecard.....	11
2	Model of Human Capital Theory and the Associated Investments or Inputs and The Associated Returns on Investments.....	27
3	Model of Human Capital Planning.....	39
4	Modified Delphi Processes and Output.....	55
5	Six Factor Model for Human Capital Planning.....	84

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Definitions of the Theory of Human Capital by Leading Economic Scholars.....	25
2	Description of the Sample.....	64
3	Organization Classifications.....	65
4	Organization Planning.....	66
5	Rotated Component Matrix.....	69
6	Eigenvalues and Variance Explained.....	70
7	Correlation Matrix for the Six Components of Human Capital Planning.....	70
8	Component Means, Standard Deviations, Reliabilities, and Item Loadings for Human Capital Planning.....	73

ACKNOWLEDGEMENTS

The author wishes to recognize the support, guidance, and assistance provided him and gratefully acknowledges:

Dr. Thomas Chermack Thank you for allowing me to be your first! Not only did we forge a collegial relationship but also a friendship that I am confident will last a lifetime. I am grateful to have walked this journey with you.

Dr. Judith Kolb You provided me with many pieces of advice that I will never forget. However, on our first day of class – I vividly remember you telling the students to pick a topic that they love, can follow, and develop into a research agenda. Well, I took that advice and you will never know how right you are!

Dr. William Rothwell Thank you for your undying sense of humor! You always know how to lighten a heavy load. Also, I can never thank you enough for your help and assistance with strategic human resource management. You truly are an expert!

Dr. Edgar Yoder Thank you explaining statistics to me in a way that no one has ever been able to before. You truly have a gift! You should charge a penny for your thoughts – you would be a millionaire!

Dr. William Wallick and
Dr. Terri Freeman-Smith You were my silent inspiration and force behind the completion of this degree. I can never thank either of you enough for the words of encouragement and support.

Dr. Sonji Lee How do I ever thank you! You are one of the most compassionate, thoughtful, and helpful division chairpersons. You took a chance on me when I was only an ABD. To you, I am forever indebted!

The SME Panel I had promised to keep you anonymous and from that promise I will never wane! So, I thank each and every one of you for giving up a piece of your summer to help me! I would be nowhere without you!

Chapter I

INTRODUCTION

Historical Perspectives

In 1776, Adam Smith published *The Wealth of Nations*, which has been credited with formulating the original thoughts of the science of human capital. This original publication and its postulated thoughts lay dormant for nearly 175 years. On December 7, 1941, The United States of America entered World War II following the great Japanese attack on Pearl Harbor naval base on the island of Oahu in Hawaii. The United States remained at war until the Japanese surrender on September 2, 1945. Unprecedented growth in the economy and school enrollments followed the post war era. These simultaneous increases in school enrollments and increased income levels regenerated the initial thoughts in the science of human capital (Livingstone, 1997).

The Effects of War

The post World War II economies required a more highly skilled workforce than the previous pre-war era. It is this requirement that is believed to have regenerated the thoughts of Adam Smith. According to Baptiste (2001), the economies of pre World War II were primarily agricultural and industrial, which did not require highly skilled or highly trained workers. However, the high-technology economies that emerged after the war required much greater amounts of highly skilled workers. “And this technological advancement, provided the grounds for building a theory of human capital” (Baptiste, p. 186).

The end of World War II economic spike sparked a renewed interest in human beings as a source of capital. As the economy and income levels of people began to

surge, leading economists attempted to explain the gap in pre-war income levels to post-war levels. These inquiries lead researchers to identify education as the leading cause of the gap in income levels. Furthermore, these rise in income levels were related to the investments in people post-war. Large amounts of money were available for education, training, and development for the troops, who required additional training to work in the new and emerging technologically advanced industrial era.

Overview of Human Capital Planning

The surge of interest in human capital post war has lead to the development of two independent schools of thought regarding intangible assets or human capital. The first school of thought distinguishes between the acquired capacities of the human being that are classified as capital and the human - who is not (Fitzsimons, 1999). The second school of thought does not distinguish between capacities and the human being and actually believes that all human behavior can be classified as capital (Fitzsimons, 1999). This research study will focus on the later school of thought.

Human capital has remained in the forefront of leading economic theory for four decades. This forefront attention has provided the groundwork for additional developments such as the balanced scorecard (Kaplan & Norton, 1992,1993), human capital planning and measurements (Brush & Ruse, 2005; Huselid & Barnes, 2002; Weiss & Finn, 2005), and the human resource scorecard (B.E. Becker, Huselid, & Ulrich, 2001). The work of G.S. Becker (1993), which identified human capital as the investment in education and training to increase production and outputs influenced many scholars outside economics. Human capital theory has been utilized in schools of business, management, human resources, and education.

The balanced scorecard (BSC) developed by Kaplan and Norton (1992) utilizes the foundation of human capital theory, as an important factor, which needs to be planned and linked to business strategy and initiatives in order to gain competitive advantage. B. E. Becker, Huselid, and Ulrich (2001), further expanded upon the original work of Kaplan and Norton to create the human resource scorecard (HRSC). The HRSC provides a mechanism for HR to link to business strategy, objectives and to show value to the organization by determining the effect on the bottom line. A key theme to both the BSC and HRSC is the ability to plan and allocate human capital in the global economy (Huselid & Barnes, 2002; Kaplan & Norton, 2005) through the use of planning.

The Problem

The shift in The United States economy from a manufacturing powerhouse to a service driven economy has placed a great emphasis on planning to remain competitive in a new global economy. According to Gunn (2001), “the short explanation for the renewed interest in ...planning is that people have figured out that what got your organization here today won’t get it to where it needs to be tomorrow” (¶ 2). Much of the literature surrounding planning provides the framework for the allocation of both tangible and intangible resources. In addition, the literature indicates a greater need for intangible asset planning and in particular the planning and allocation of human capital. Although, the importance of planning human capital has been indicated, little research has been conducted to determine the readiness of organizations to embark on human capital planning. Also, the responsibility for human capital planning and the effectiveness of the planning has fallen on human resource professionals (B.E. Becker, et al., 2001). The importance of HR professionals to become and maintain strategic partnerships with other

sectors of the organization has become increasingly more important through the use of metrics that determine and measure their value on the bottom line, however, little has been provided to determine readiness to plan and measure effectiveness.

The concept of human capital planning has received increasing attention in the growing body of literature, yet little is known how to prepare or measure the effectiveness of such endeavors. Thus, despite this growing attention and explicit need for human capital planning in the literature, little empirical research has been conducted on its effectiveness since a theoretically derived measure is nonexistent.

The Significance of the Study

The purpose of this study is to develop and validate an instrument for human capital planning as a strategic human resource management tool. The literature has indicated the success of planning and linking multiple organizational units to the strategic direction of the organization (Gunn, 2001; Kaplan & Norton, 2005; Moutinho & Phillips, 2002) and the need for human capital planning (Brush & Ruse, 2005; Kazan, 2005; Weiss, 2005) as a result of strategic direction setting. Success and failure can be related to poor planning and linkage, and more importantly limited readiness to plan (Casella, 2002).

The contribution and significance of this study to business, HR professionals, consultants, and workplace learning and performance (WLP) professionals is vast. The gap between strategic best practice guidelines as indicated in the literature and actual practice in industry may be bridged through developing a tool or technique for human capital planning for organizational use. It is difficult to maintain competitive advantage without the proper competencies to compete in a global economy.

The business community will find significance in this study since research continues to document the success of strategic planning and implementation strategies such as the balanced scorecard [BSC] (Kaplan & Norton, 1992, 1993, 2005) and the human resource scorecard [HRSC] (B. E. Becker et al., 2001; Huselid & Barnes, 2005). A key to the scorecard is linking strategies to performance and implementation and many of these links focus on human capacities. In order to successfully link human capital or intangible assets to business strategies, the organization must be ready and have the skill sets available to successfully implement these initiatives such as the BSC or HRSC.

HR and WLP professionals will find this study significant and having great value. HR and WLP professionals are continuing to come under fire to begin to not only support the business but to show their value on the bottom line by linking HR and WLP initiatives with overall business strategies. In addition to showing value by linkage to business strategy, HR professionals are being asked to use metrics or measures to show their bottom line impact on business performance (B.E. Becker et al., 2001; Huselid & Barnes, 2005; Lawson & Hepp, 2005; Yeung, & Berman, 1997). Human capital planning will be a key competency for HR and WLP professionals.

The consultant community will find value in this study's findings as they look to continuously improve their skills. Consultants are called upon by business and industry to help in times of crisis or to fill a gap within organizations. Consultants will need to be competent in human capital planning upon being called to help successfully implement the linkage of business strategies to initiatives and objectives. Ultimately, consultants may be asked to develop and facilitate outcomes to "prove" their worth to the organization.

Research Questions

This study will seek answers to the following questions consistent with a research design from McLean, Yang, Kuo, Tolbert, and Larki (2005):

1. What are the underlying dimensions of human capital planning revealed in the literature?
2. Can a preliminary valid and reliable instrument for human capital planning be developed that reflects appropriate content from the initial dimensions identified in the literature and utilizing a Subject Matter Expert (SME) panel?
3. What are the reliability and validity verification data for a newly developed human capital-planning instrument?

Scope

The sample for this study was human resource management, human resource development, and other human resource professionals in US based organizations that had an interest and a willingness to participate in the development of an instrument for human capital planning as a strategic human resource management tool. These practitioners were based in organizations classified as both for-profit and not-for-profit. There were no governmental entities included in the study. Survey data was collected only from organizations that have implemented a strategic plan.

The selected practitioners were randomly sampled without regard to size, gross annual revenue, or industry. Industry sector, organizational age, or years of continuous operation was not used as exclusion criteria. However, according to Daft (1992), the organizations life cycle stage will effect whether they participate in planning, thus midlife

and mature organizations are more likely to participate in strategic and human capital planning than organizations in birth or youth stages.

This study did not examine data from outside the United States. Therefore, it will be difficult to generalize to the global business population. The instrument developed and validated from this research study may be applicable to only United States based companies. There are and is a unique set of challenges to human capital planning in the global environment. The instrument developed from this study and theoretical framework will be the only instrument utilized to gather data.

Limitations

The limitations of this study include organization age, geographic location, organizational classification, and strategic planning implementation. The first limitation of the study is the organization age. Organizations in later life-stages are more likely to have implemented some aspect of the planning process or have some basic knowledge of the planning process. The geographic location of this study has been limited to the United States due to time and resource allocations. Organizations from other nations may have exceptional qualifications to participate, however they were excluded because of their location. Another limitation was the exclusion of organizations classified as local, state, or federal government entities. These were excluded because much of the initial work on human capital planning has been completed in the government sector. The purpose of this study is to develop and validate an instrument for human capital planning as a strategic human resource management tool. The final limitation is the implementation of a strategic plan. Businesses that do not or have not implemented a strategic plan or direction will not be included in the data collection process. It is assumed that in order to

embark on the human capital planning process there has been some previous planning such as strategic and/or human capital.

Assumptions

Planning has impacted every sector of the economy. There are few organizations that do not partake in some form of planning. “Sudden developments, new challenges, and dynamic technologies have tilted the landscape, shifting the behavior of both competitors and customers” (Gunn, 2001, ¶ 2). These developments and changes have influenced most organizations to internalize the success of planning. Therefore, it shall be the assumption of this research study that the organizations surveyed have some planning knowledge. This inclusion criterion requires the organization to either have had or have an active planning process. An additional assumption of this study was that organizations understand the importance of the linkage between individual business unit strategy and the overall organization strategy direction. This individual business unit strategy may or may not include a human capital plan.

Theoretical Framework

Human capital theory may be viewed as one approach to the more general study of the economics of education and human behavior regarding acquired capacities through education, on-the-job training and other forms of knowledge. G.S. Becker (1993) has been credited with developing the theory of human capital. G.S. Becker defines human capital theory as a form of investment by individuals (and corporations) in education up to the point where the returns in extra income are equal to the costs of participating in the education. Returns are both private to the individual in the form of additional income and to the general society in the form of greater productivity provided by the education

(Nafukho, Hairston, and Brooks, 2004, p. 11). According to human capital theory, people are willing to absorb the cost of training in order to acquire additional skills, which will lead to greater income. This absorption does not necessarily mean paying the direct cost of training – it has been suggested that people are willing to tolerate lower wages to offset costs of training/education in order to acquire greater returns later.

According to G.S. Becker (1993), there are three specific types of education through which people acquire skills to gain greater income. These three specific types of education and their explanations are listed:

- 1) On-the-job Training – workers increase their productivity by learning new skills and perfecting old ones while on the job. Broken down into two micro levels of general and specific training (G.S. Becker, 1993, p.31).

General training – a transferable training from one organization to another.

General training is useful in many firms besides those providing it (p. 33). For example, the military provides much training to its enlisted members, which is very useful in private industry.

Specific training – a limited transferable training that increases productivity more in the firm providing it than anywhere else (p. 40).

- 2) Schooling – an institution, which specializes in the production of training many times for very specialized skills (p. 51).
- 3) Other knowledge – a form of training (often times self-studied) that increases the knowledge of the individual to make informed decisions. For example, an individual who knows the local competitive wages of firms thus could be able to pick to work for the highest paying firm (p. 53).

Thus, the types of education that are directly linked to human capital planning primarily include general and specific training. Interventions focused on increasing worker productivity and organization revenues are influenced by strategy direction and initiatives. Talent gaps in human capital during the strategy direction alignment are addressed through education and training suggested by G.S. Becker.

Although, the work of G.S. Becker and his associates focused primarily on the role of education in economics, the concept has been extended to other pertinent strategic tools such as the BSC and HRSC. The BSC is a defined *strategy map* to prepare organizations through the strategic readiness process (Kaplan & Norton, 2004). According to Kaplan and Norton (2004), the BSC strategy map consists of four perspectives that provide a framework for linking intangible assets to shareholder value (p. 54). These perspectives consist of the financial perspective, the customer perspective, the internal process perspective, and the learning and growth perspective. The most critical to human capital planning is the learning and growth perspective that details the role of intangible assets in the strategy map. The intangible assets of the organization consist of the human capital, the organization capital, and the information capital. Kaplan and Norton (2004) describe human capital as the skills, training, and knowledge contained in the organization (p. 55).

Theoretical Model of The Balanced Scorecard

One of the primary purposes of the scorecard approach to management is to link business units to corporate strategy and direction. According to Kaplan and Norton (1993), “the balanced scorecard is not a template that can be applied to businesses in general or even industry wide” (p. 135). The template must be adjusted to fit the uniqueness of the business and business units. “Business units devise customized

scorecards to fit their mission, strategy, technology, and culture since different... competitive environments require different scorecards” (p. 135). However unique the organization or business unit, the primary strategy map and scorecard remain the same.

The components of the scorecard will always highlight the four perspectives of: learning and growth, internal processes, customer, and financial. Corporate and business unit strategies will revolve and link to the perspectives to provide management and measurement. The links of the strategy map focus on the intangible assets (human capital) as the foundation of the scorecard and how these actually determine the performance of the remainder of the scorecard (Kaplan & Norton, 2004). Figure 1 illustrates the scorecard and linkages to strategy:

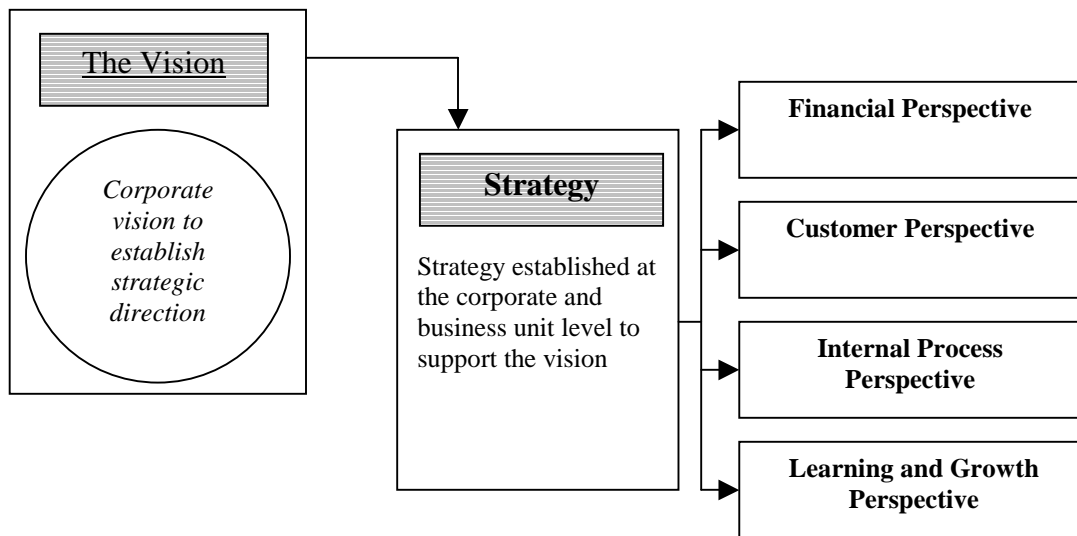


Figure 1. Model of the balanced scorecard.

From: “Putting the Balanced Scorecard to Work,” by R.S. Kaplan and D.P. Norton, 1992, September-October, *Harvard Business Review*. p. 135.

The model of the balanced scorecard visually illustrates the linkage between corporate and/or business unit vision, strategy, and the BSC perspectives. The BSC perspectives represent the goals and objectives of the relationship between strategy and

tactical plan. Key to the BSC is the employee alignment process related to human capital in the learning and growth perspective. “Our experience indicates that human capital is greatly enhanced when these processes align employees and their development to the strategy” (Kaplan & Norton, 2005, p.60).

According to Kaplan and Norton (1992), the scorecard put strategy, not control at the center. It establishes goals but assumes that people will adopt whatever behaviors and take whatever actions are necessary to arrive at these goals (p. 79). The BSC is designed to align people to the vision. It provides a mechanism for employees to buy-into the vision of the company. Employees remain crucial to the success of the BSC.

Definition of Terms

Balanced scorecard (BSC) – A set of measures developed by Kaplan and Norton (1992) to give managers a fast and comprehensive view of the business. It provides the tools in four perspectives to align corporate and business unit strategy.

Human Capital – “the collective sum of the attributes, life experience, knowledge, inventiveness, energy, and enthusiasm that employees choose to invest in their work” (Weatherly, 2003, p. 1).

Human Capital Management (HCM) – “an approach to people management that treats it as a high level strategic issue and seeks to systemically to analyze, measure, and evaluate how people policies and practices create value” (Weiss & Finn, 2005, p. 34).

Human Capital Management Systems (HCMS) – “integrated measurement systems that focus on prediction and feedback of the firm’s people-related assets...It includes any efforts to design a measurement system that describes how human capital creates value in an organization” (Huselid & Barnes, 2002, p.4).

Human Capital Planning (HCP) – a critical business process utilized to impact the value that people offer the organization. Furthermore, HCP is utilized to “identify the human capital implications of corporate strategy and reshape HR services to better support the business” (Brush & Ruse, 2005, p. 49).

Human Capital Theory (HCT) – “investments made in educating the workforce and developing their skills among other services such as providing them with nourishment and maintaining their health would pay economic dividends for a country or organization (Hogendorn, 1996 as cited in Nafukho, Hairston, & Brooks, 2004, p. 10).

Human Resource Architecture – human resource strategic role that begins with the creation of the HR system, the HR function, and the strategic employee behaviors which relentlessly emphasizes and reinforces the implementation of the firms strategy (B.E. Becker, Huselid, and Ulrich, 2001, p. 1).

Human Resource Scorecard (HRSC) – built upon the original balanced scorecard approach to management measures, B.E. Becker, Huselid, and Ulrich (2001) designed a scorecard for the HR function to create value and competitive advantage through the leveraging of system function, and behaviors.

Metrics – relating to the art, process, or science of measuring (Merriam-Webster, 1993)

Strategy Map – according to Kaplan and Norton (2005), the strategy map provides the framework for linking intangible assets to shareholder value creation through the utilization of the BSC’s four perspectives (p. 54).

Strategic Planning – a process used to define the long-range goals and objectives that further the organization’s vision and mission (Gunn, 2001, ¶ 3).

Chapter II

REVIEW OF RELATED LITERATURE

The purpose of this study is to validate an instrument for human capital planning as a strategic human resource management tool. The literature has indicated the success of strategic planning in multiple types of organizations (Gunn, 2001; Kaplan & Norton, 2005; Moutinho & Phillips, 2002) and the need for human capital planning (Brush & Ruse, 2005; Kazan, 2005; Weiss, 2005) as a result of strategic planning. Success and failure can be related to poor planning and more importantly limited readiness to plan (Cascella, 2002).

Although, once considered a menial variable, today, human capital is recognized as an important factor affecting the success of organizations. As the United States economy continues to move from a manufacturing powerhouse to one of service delivery. It is becoming increasingly more important to study the effects of human capital return on investments (G.S. Becker 1993), the human capital planning process (Brush & Ruse, 2005), the alignment of human capital to business objectives and initiatives (Kaplan & Norton, 1992, 1993), the alignment of human resources to business initiatives (B.E. Becker, Huselid, & Ulrich, 2001), and the metrics and measurements associated with human capital and the allocation of resources to ensure the alignment with strategic business direction (Brush & Ruse, 2005; Weiss & Finn, 2005).

The success of human capital planning implementation is largely related to the planning process. According to Huselid and Barnes (2002), little academic work has been completed regarding human capital management systems. Practitioners are relatively light years ahead of the academic work in progress or already completed.

The Emerging Human Capital Science

The emergence of human capital thought began in 1776 when Adam Smith wrote *The Wealth of Nations*. His initial thoughts would later be formulated into the science of human capital (Fitzsimons, 1999). Smith postulated two primary foundations in *The Wealth of Nations*, which would become the principles for all later human capital frameworks (Sweetland, 1996). These two principle components are: (1) labor inputs are not merely quantitative. They quantitatively include the acquired and useful abilities of all inhabitants or members of the society as well as the state of the skill, dexterity, and judgment with which labor is applied, and (2) ability acquired through education, study, and apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in person (Sweetland, p. 343).

The growth of human capital and accounting for wealth through acquired knowledge from formal education, on-the-job training, and other informal means continued throughout the 1950's and 1960's. The analysis of training and development as investments in human capital was pioneered through the works of leading economic scholars such as: Becker, Denison, Fabricant, Mincer, and Schultz. (Nafukho et al., 2004; Sweetland, 1996). These scholars ventured away from the four main factors of the aggregate production model of physical capital, labor, land, and management instead to focus their attention on a residual factor called: human capital. These four main factors of production – called the economy growth accounting equations – never balanced (Nafukho et al.). There existed an unexamined variance in income levels, which Schultz in 1967 referred to as the residual factor. “It was the Nobel prize winner, Theodore Schultz who identified this residual factor as human capital” (Nafukho et al., p. 6).

In 1958, Jacob Mincer developed a model for examining the nature and causes of inequality in personal incomes – noting that contemporary research had emphasized the unequal facts rather than the statistical constructs behind the facts (Sweetland, 1996). Mincer defines “the theory of human capital as education and schooling that will prepare the labor force” (Nafukho et al., 2004). According to Sweetland, Mincer argued that education affected income. “Training and skill – human capital- importantly affected personal income dispersions. He further asserted that as with non-human capital, some industries have high capital ratios” (p. 345). In order to accommodate the types of training, formal and informal, Mincer’s model in 1958 incorporated years of education and years of work experience and worker age was used to surrogate work experience. Mincer’s model was designed to accommodate “the implications for income distribution of individual differences in investments in human capital have been derived in a theoretical model in which the process of investment is subject to free choice. The choice refers to training differing primarily in length of time that it requires” (Sweetland, p. 345).

In 1959, Solomon Fabricant studied the productivity of the United States from the period of 1889 to 1957 to determine the cause of the “gap” in statistical under explanations of income growth during this period. According to Sweetland (1996), Fabricant discovered that the methods and assumptions underlying productivity figures frequently promoted the underutilization of intangible assets (p. 346). This underutilization of intangible assets resulted in overestimated productivity outputs. These results prompted Fabricant to emphasize the importance of intangible capital – human capital (Sweetland, p. 346). Fabricant (1959 as cited in Sweetland) stated, “in an

important sense, society's intangible capital includes all improvements in basic science, technology, business administration, and education and training, that aid in production – whether these result from deliberate individual or collective investments for economic gain or are incidental by-products of efforts to each other goals (p. 22).

Denison attempted to explain the economic growth in the United States by using the aggregate production model and followed economic tradition and began with land, labor, and tangible inputs (Sweetland, 1996). Denison adjusted the traditional economic indexes used by economists to account for education levels effects on wage rates, thus “explaining a significant portion of unexplained economic growth” (Sweetland, p. 349). According to Sweetland, Denison was able to describe the residual – that portion of economic growth, which was unexplained by traditional economic inputs (p. 349). He had successfully explained the relationship between education and knowledge...his estimates suggested that human capital investment accounted for 43% of the national income growth (p. 350). Ultimately following the completion of his work, Denison defined human capital theory as “a form of education that contributes to economic growth by attributing a proportion of economic growth not explained by increases in capital, labor and productive land to improvements arising from increased educational levels in the labor force” (Nafukho et al., 2004, p. 11).

Continuing to work on Denison's explanation of the residual factor or gap, Schultz asserted that knowledge was a contributing factor; but he directly associated knowledge with schooling and the research function of the educational establishment (Sweetland, 1996). In 1961, Schultz asserted that “the fundamental principle that underpins human capital theory is the belief that peoples' learning capacities are

comparable to other resources involved in the production of goods and services and when the resource is effectively utilized, the results are profitable for both the individual and the society at large” (Nafukho et al., 2004, p. 6). Schultz has been credited with inaugurating “the human investment revolution in economic thought” (Baptiste, 2001, p. 187). According to Baptiste, Schultz argued that much of what is commonly labeled consumption is really human capital investment (p. 6). This investment includes direct expenditures on education, health, and internal migration; earnings foregone by mature students attending school and by workers acquiring on-the-job training; the use of leisure time to improve skills and knowledge; and so on – all of which constitute measures aimed at improving the quality of human effort and, ultimately workers’ productivity (p. 6). Schultz defined human capital theory as “the knowledge and skills that people acquire through education and training as being a form of capital, and this capital is a product of deliberate investment that yields returns” (Nafukho et al., p. 11). In 1961, Schultz wrote, “Although it is obvious that people acquire useful skills and knowledge, it is not so obvious that these skills and knowledge are a form of capital, or that this capital is in substantial part a product of deliberate investment” (Nafukho et al., p. 1). Schultz called the body of knowledge that sought to describe, explain, and validate this phenomenon “human capital theory” (as cited in Baptiste, 2001).

Leading economic theorists such as Denison, Fabricant, Mincer, and Schultz began to revitalize human capital theory after a long hibernation from the publication of *The Wealth of Nations*. Early on these theorists emphasized that investments in human capital were a major contributor to economic growth (G.S. Becker, 1992). According to G.S. Becker (1992), human capital analysis starts with the assumption that individuals

decide their education, training, medical care, and other additions to knowledge and health by weighing the benefits and costs (p. 43). “Benefits include cultural and other non-monetary gains along with improvement in earnings and occupations, while costs usually depend mainly on the foregone value of time spent on these investments” (G.S. Becker, 1992, p. 43).

Gary S. Becker began his inquiry into human capital in the 1950’s with his study that tried to determine the differences in income of college graduates in the United States. According to G.S. Becker (1993), schooling, training courses, medical care, and lectures on personal improvement are all capital too because these “improve health, raise earnings, or add to a person’s appreciation of literature over his or her lifetime” (p. 16). Thus, Becker argued that these are investments in capital – human capital. Becker notes that the idea of human capital was very controversial in early years, as he noted “It may seem odd now, but I hesitated a while before I decided to call my book *Human Capital* - and even hedged the risk by using a long subtitle” (p. 16). People were upset by the term human capital because it addressed people more like slaves or machines (G.S. Becker). It was unconceivable to approach schooling and education as an investment rather than a cultural process.

G.S. Becker’s (1992) initial work on human capital began with an effort to calculate both private and social rates of return to men, women, blacks, and other groups from investments in different levels of education (p. 43). Becker defines the theory of human capital “as a form of investment by individuals in education up to the point where the returns in extra income are equal to the costs of participating in education. Returns are both private to the individual in the form of additional income and to the general society

in the form of greater productivity provided by the educated” (Nafukho et al., 2004, p. 11). “Education and training are the most important investments in human capital”(G.S. Becker, 1993, p. 17). The earnings of the more educated and highly trained are almost always well above average (G.S. Becker, 1993).

In a study by Murphy and Welch (1989), the monetary gains from a college education rose sharply to the highest level during the 1980’s as in the past fifty years. Earnings of high school graduates over high school dropouts also increased drastically (as cited in G.S. Becker, 1993). The negativism previously associated with human capital theory has disappeared and been replaced with a concern for the education and training system in the United States. G.S. Becker (1996/1993) notes, “talk about overeducated Americans has vanished, and it has been replaced by concern once more about whether the United States provides adequate quality and quantity of education and other training” (p. 17).

The original aim of the G.S. Becker study was to calculate the return on investment (ROI) on college and high school education in the United States economy; however, Becker quickly realized that much more needed to be studied to fully calculate the ROI. G.S. Becker (1993) expanded his typical definition of education beyond high school and college to include on-the-job training, formal and specific training, general schooling, and other knowledge. These types of education and training required a full explanation before the ROI could be properly calculated. Because all individuals benefited from education and training with higher income (G.S. Becker, 1993).

Types of Education and Training

According to G.S. Becker (1993), there are three types of training or knowledge, which are directly related to rate of return and human capital. G.S. Becker specified these trainings or knowledge as investments in human capital. These three types of training or knowledge (G.S. Becker, 1993) are: (1) on-the-job training- “learning new skills and perfecting old ones while on the job. Broken down into two types of training. [p. 31]; (1a) general training- those skills which are “useful in many firms besides those providing it” [p. 33]; (1b) specific training- “training that has no effect on the productivity of trainees that would be useful in other firms [p. 40]; (2) schooling- “an institution specializing in the production of training, as distinct from a firm that offers training in conjunction with the production of goods” [p. 51]; and (3) other knowledge- any other information which a person obtains to increase their command of their economic situation.

On-the-job training is intended to improve old skills and provide new skills while employed by a firm. These skills are either transferable or specific. On-the-job training is provided by a firm and utilized to increase the outputs of the firm and to increase the income of the individual. This type of training is valued through the time and effort of the trainees, the “teaching provided by others, and the equipment and materials used. These are costs that are incurred from reducing current production in order to increase future production (G.S. Becker, 1993). On-the-training time periods can vary greatly as more time is spent on an “intern than a machine operator” (G.S. Becker, p. 31).

General training provides transferable skills to the worker. These types of skills are rarely costly to the firm – most of the trainees bare the cost of general training and reap the benefits of the returns. Employees pay for the general on-the-job training by

receiving wages below what they could receive elsewhere. For example, a machinist trained in the military receives lower wages than we would in the competitive labor market; however he finds his skill has value in steel or aircraft firms, and a doctor in residency at one hospital finds his skills are highly transferable to other hospitals or private practice in the future. Most general on-the-job training presumably increases the future marginal productivity of the workers in the firm providing the training and in other firms (G.S. Becker, 1993, p. 34).

Specific training refers to training provided by a firm that has limited transferability and only increases productivity within the contextual setting. For example, when a firm hires new employees- many times, they are orientated to the culture, specific policies and procedures, and other processes to familiar the new employee with their organization. This is type of training is specific because the knowledge acquired raises productivity in the firm providing the knowledge than in other firms. Some specific training may not be useful in a single firm nor in most firms, but in a set of firms defined by a product, type of work, or geographical location (G.S. Becker, 1993). For example, French legal training would not be very beneficial in the United States, but it would be very useful in France (G.S. Becker).

School training (schooling) is completed off the job and at an institution that specializes in either one skill or multiple skills. Schools are often substitutions for on-the-job training at a firm. This is evidence by the shift in training programs from the firm to the school such as legal apprenticeships to law school, and on-the-job engineering experience to engineering schools (G.S. Becker, 1993). Most training programs develop on-the-job and than transfer to formal institutions because industry usually sees the value

of the training much before schools. Most schooling costs are absorbed by the student in order to reap the benefits of the returns later from higher wages from specialized skill sets.

According to G.S. Becker (1993), workers have the ability to acquire “other knowledge” from many sources. Other knowledge has the same ability to increase worker wages as on-the-job training, specific and general training, as well as schooling. Information about the prices charged by different sellers would enable a person to buy from the cheapest, thereby raising his command over resources; information about the wages offered by different firms would enable him to work for the firm paying the highest wage (p. 53).

Gary S. Becker (1992) claims, “One of the most influential theoretical concepts in human capital analysis is the distinction between general and specific training or knowledge” (p. 44). The distinction helps explain why workers with highly specific skills are less likely to quit their jobs and are the last to be laid off during business downturns. It also explains why most promotions are made from within a firm rather than through hiring (G.S. Becker, p. 44). Becker has established the rationale for firms to provide highly specific training to their workers. This type of training reaps benefits for the firm through higher productivity and for the worker through higher wages.

The Theory of Human Capital

“The economic of education certainly has a long and distinguished history” (Machin & Vignoles, 2004, p. 3). The original work and initial thoughts of human capital began with British economists William Petty and Adam Smith however; American economist Gary S. Becker (1964) is credited with completing extensive work and

formulating the theory of human capital (HCT) through the publication of his work. “It is Gary Becker who is generally considered the founding father of the economics of education as a distinct research field” (Machin & Vignoles, 2004, p. 3).

Human capital theory suggests that education, training and development, and other knowledge have a positive impact on productivity and wages. The theory further distinguishes between on-the-job training to include general and firm-specific training. It also assumes that employees are willing to accept the cost of general training in return for higher wages whereas the employer in return for higher productivity and lack of transferability bears firm-specific training costs.

“Human capital theory suggests that individuals and society derive economic benefits from investments in people” (Sweetland, 1996, p. 341). The theory of human capital has created a uniform and generally applicable analytical framework for studying not only the return on education but also on calculating a return of investment for on-the-job training, schooling, and “other knowledge” (G.S. Becker, 1992, ¶ 5). The recent rediscovery of human capital theory can be linked to the global economy. According to Fitzsimons (1999), the reformulation of human capital theory can be correlated to significant stress on education and training as a key to participation in the new global economy.

Human capital theory has emerged through history, but the definitions have remained relatively close in comparison to the original. Most human capital theorists have focused on the investments in types of education and the return on those investments impact on the intangible asset of human capital and society in general. Thus, table 1 details the historical developments of the definitions of human capital theory.

Table 1
Defintions of the Theory of Human Capital by Leading Economic Scolars

Author	Year	Definition
Shultz, T. W.	1961	Defines the theory of human capital as the knowledge and skills that people acquire through education and training as being a form of capital, and that this capital is a product of deliberate investment that yields returns.
Mincer, J.	1962	Defines the theory of human capital as education and schooling that will prepare the labor force.
Denison, E.F.	1962	Defines the theory of human capital as a form of education that contributes to economic growth by attributing a proportion of economic growth not explained by increases in capital, labor and productive land to improvements arising from increased educational levels in the labor force
Becker, G.S.	1964	Defines the theory of human capital as a form of investment by individuals in education up to the point where the returns in extra income are equal to the costs of participating in education. Returns are both private to the individual in the form of additional income and to the general society in the form of greater productivity provided by the educated.
Bowman, M.J.	1968	Defines the theory of human capital as a form of investment and argues that expenditures on social services, health and education are analogous to investment in physical capital.
Blaug, M.	1976	Defines human capital as the idea that people spend on themselves in diverse ways, by purchasing education and training not for the sake of present enjoyments, but for the sake of future pecuniary and non-pecuniary returns. Individuals and governments incur both direct and indirect costs and that there exist a link between investment in education and individuals' lifetime earnings.
Psacharopoulos, G. & Woodhall,	1985	Define human capital as investing in both formal and informal education and training which provides and enhances individual productivity by providing knowledge, skills, and attitudes and motivation necessary for economic and social development.
Romer, P.M.	1986	Defines human capital in the form of a "new growth theory" which regards knowledge creation as endogenous responding to market incentives such as improved profit opportunities or better education. This definition includes technology and uses this theory to explain the pace of technological change currently taking place in the world.

Table 1

Defintions of the Theory of Human Capital by Leading Economic Scolars (continued)

Author	Year	Definition
Becker, G.S., Murphy, K.M. & Tamura, R.	1990	Defines human capital in the form of the fertility model and argues that there is a correlation between family size and the decision to invest in human capital. Therefore, societies with small families have invested in human capital and have benefited from more economic growth.
Cohn, E. & Geske, T.E.	1990	Define human capital as an investment in education and training that has both private and social returns. Examples of educational benefits include increased capacity to earn income. Thus, schooling and training increase one's productivity and as such increase one's chances, in a free market, to obtain higher wages and certainly increase the contribution to the social product. Also, an individual, who obtains more schooling, general education in particular, is more flexible in adapting to new job opportunities, thus providing a "hedge" against unemployment.
Becker, G.S.	1993	Defines the theory of human capital in terms of investment in an individual's education and training which is similar to business investments in equipment. Becker looks at the economic effects of investment in education on employment and earnings, and shows how the theory measures the incentive for such investment. The human capital approach also allows for determining the costs and returns from college and high school education. He shows that there is a relationship between investment in education and on-the-job experience, age, and earnings.
Bontis, N.	1996	Defines human capital theory in terms of expenditures made by individuals and governments by purchasing education and training as an investment. This investment is expected to yield future pecuniary and non-pecuniary returns.
Fitz-Enz, J.	1996	Defines human capital as the traits one brings to the job: intelligence, fulfilling work energy, a generally positive attitude, reliability, and commitment. One's ability to learn: aptitude, imagination, creativity, and what is often called "street smarts" savvy (how to get things done). One's motivation to share information and knowledge: team spirit and goal orientation.
David, P. & Lopez, J.	2001	Define human capital as acquired human capabilities, which are durable traits, yielding some positive effects upon performance in socially valued activities

Note. From "Human Capital Theory: Implications for Human Resource Development," by F.M. Nafukho, N.Hairston and C. Brooks, 2004, In *Human Resource Development International*, Vol. 7(4), p. 545-551.

The definitions of human capital theory all encompass similar important themes and embody the following: investing in acquired education/schooling, on-the-job training and development, and other knowledge have a positive impact on productivity, and wages. There are numerous methods to improve human capital, which range from formal education to on-the-job learning or firm-provided training (Machin & Vignoles, 2004, p. 4). Human capital theory can be used to explain investments in schooling, firm provided training, vocational and technical education and qualifications, and the benefits of informal on-the-job learning (Machin & Vignoles, 2004). Human capital theory can be capsulated into a model to describe the investments or inputs in relation to the output. The model of human capital theory is shown in figure 2 below:

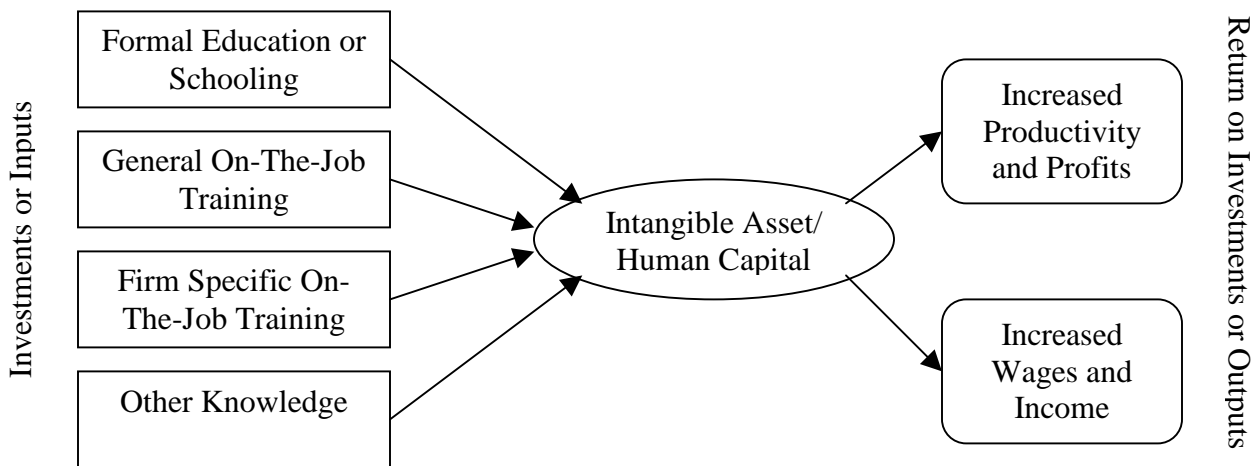


Figure 2. Model of human capital theory and the associated investments or inputs and the associated return on investment or outputs.

The economics of education and the theory of human capital have been monumental developments in the field of economics; however their impact has not been limited to the study of economics or education. Human capital theory has been applied to many strategic management techniques including by Kaplan and Norton (1992) in the

balanced scorecard (BSC) approach to management. B. E. Becker, Huselid, and Ulrich (2001) have borrowed from Kaplan and Norton applying the same approach to the human resource scorecard [HRSC]. The far-reaching effects of the study of human capital have also greatly impacted on strategic planning, thus resulting in the identified need to plan for the development and alignment of human capital to sustain a competitive advantage.

Strategic Approaches to Management and Measurement

Human capital and intangible asset alignment to organizational mission, vision, goals and objectives begins with the strategic planning process. Further, the validation of the alignment can be assured with the balanced scorecard approach (Kaplan & Norton, 1992, 1993, 2005), and the human resource scorecard (B.E. Becker, Huselid, and Ulrich, 2001). The scorecard approach to strategy management and measurement many times includes the utilization of human capital planning (Brush & Ruse, 2005).

Strategic Planning

According to Hitt, Ireland, and Hoskisson (2005), strategy is an integrated and coordinated set of commitments and actions designed to exploit core competencies and gain competitive advantage (p. 7). Competitive advantage is achieved through the exploitation of the firm core competency. In a service industry and manufacturing, the people of the firm develop most core competency. The intent of a firm to capitalize on their core competency is to achieve competitive advantage in the market and to earn above average returns on their investment (Hitt et al., 2005).

The identification of a strategy to capitalize on the firms' core competency and to earn above average returns is many times achieved through strategic planning. According to Gunn (2001), strategic planning defines long-range goals and objectives that further

the organizations mission and vision – provides a solid framework for identifying needed resources in equipment, capital, and personnel. The strategic plan is a set of management decisions about what the organization will do to be successful (¶ 3).

According to Chermack, Lynham, and Ruona (2001), there are three overarching schools of thought regarding the approach to strategic management and planning. These strategic management and planning schools of thought include: the rationalist, the evolutionist, and the processural (Chermack et al., 2001, p. 12).

Strategic planning conducted under the assumptions of the rationalist school believe that “there is indeed one best solution” (Chermack et al., 2001, p. 12). The strategist or strategic team is thus charged with developing the best solution or finding the one best or closest answer. (Chermack et al.). Strategists and organizations that subscribe to the rationalist school of thought believe that only an elite few within the organization convene and formulate the strategic plan annually (Chermack et al.).

According to Mintzberg (1990 as cited in Chermack et al., 2001), the evolutionary school focuses on the past and retrospect. It believes that systems (organizations) can develop a memory of successful previous strategies (Chermack et al.). In this regard, the unsuccessful and successful strategies are filtered are only successful strategies are utilized to drive success.

“The processural school asserts that, although it is not possible to deliver optimal strategies through rational thinking alone, organizations members can instill and create processes within organizations that make it a more adaptive, whole system, capable of learning from mistakes” (Chermack et al., 2001). The processural school believes that alternative futures are possible through the utilization of change management concepts

(Chermack et al.). Van der Heijden (1997, 2000 as cited in Chermack et al.) suggests that the Processural School views the organization as a living organism.

Strategic Human Resource Management (SHRM)

According to Rothwell, Prescott, and Taylor (1998), “knowledge capital has emerged as the one and only competitive resource for organizations and HR practitioners are experts in dealing with that resource, the HR function has the potential to become the single most important leadership role in organizational settings today and in the future” (p. xv). Most significantly, HR practitioners must recognize the strategic importance of recognizing the key importance of human beings, and of knowledge capital in creating exemplary service and innovations (p. xv). The future of HR practitioners depends on their ability to align human and knowledge capital to essential business strategies. Strategic human resource management is the long-term allocation and planning of human and knowledge capital to align with key business strategy.

A 1996 research study sponsored by the US-based Society for Human Resource Management identified six key workforce and workplace trends facing HR managers (Rothwell and Kolb, 1999, p. 44). The six trends in future HR management centered on changes in technology, globalization, cost containment, speed in market change, knowledge capital, and change (p. 44). The most important trend for this literature analysis is knowledge capital.

Knowledge capital is the collective economic value of an organizations’ workforce, which includes the institutional memory, talent pool, and creativity (Rothwell, Prescott, and Taylor 1998). Institutional memory is defined as the collective memory of the workforce regarding the past experiences of the organization (p. 180). The talent pool

is the available workforce to meet the current and future organizational challenges and strategies (p. 180). Creativity is the positioning of the workforce within the organization to solve past, present, and future problems (p. 180).

The increased demand in the competitive marketplace for knowledge capital and workers has led to a new consequence for human resource practitioners - the need for more and new training, development, and education of employees. According to Rothwell et al. (1998), the demand for the knowledge worker and knowledge capital will lead to a changing landscape for human resource development professionals, as well. Employees will require education on the competitive marketplace, business strategy, and their role on influencing the firm's financial performance (p. 183).

Strategic planning serves as the guide for the establishment of long-term plans and the objectives for achieving these plans for businesses. One key to the success of these plans is human resource planning. According to Rothwell and Sredl (2000), human resource planning (HRP) "is an integration of all HR activities with overall strategic plans. HRP also involves the coordination of hiring, promotion, training, and other diverse activities" (p. 241). HRP consists of translating organizational plans at various levels into HR plans that guide the long-term acquisition, use, and development of intellectual capital and knowledge assets (p. 242).

A strategic HRP is long-term in nature and integrated with the business strategy. Rothwell and Sredl developed a model for human resource planning to include: the integration of HRP and strategic planning, analysis of future HR demands and supplies, analysis of the environmental trends which will affect the HR supply chain, comparison of HR demands and anticipated supplies, action to match HR demand and supplies, and

evaluation of the plans and results (p. 242). These key initiatives identified for the HRP process are strategic (long-term) and will integrate with the business strategies. These HRP initiatives will assist the HR practitioner with narrowing the gaps between present human capital supply and the forecasted human capital demand (p. 253).

In order for HRM to succeed, “what is needed is a more systematic and strategic aligning of people, and their creative abilities, to the organization’s competitive objectives” (Rao & Rothwell, 2005, p. 112). This requirement of aligning human capital to business strategy will require organization development (OD) integration with HR practice (p. 112). HR practitioners will need to become well versed in OD practice including the systemic and humanistic approaches to effecting change within organizational or group settings (p. 112).

Rao and Rothwell (2005) suggest the use of HR/HRD frameworks to accomplish the integration of strategy, human and knowledge capital, and organization development. There are five HR/HRD frameworks recommended by Rao and Rothwell to accomplish this integration. These are as follows: a) Pareek and Rao Framework, b) The Strategic HR Framework Approach, c) The Integrative Framework, d) Human Capital Appraisal Approach, and e) the HRD Score Card Approach (p. 113). All of these approaches have similar features, which include a “systems-driven approach that emphasizes HRD systems or subsystems or tools, the attempt to link HR practices with business goals, recognize the importance of HR professionals, and recognize the importance of HRD (p. 117).

It is critically important for the HR practitioner to link the human and knowledge capital of the firm to business strategy. The practice of HR is changing. It is moving from

organizational support to taking an active role in the strategic processes of business.

According to Rothwell and Sullivan (2005), “a major change has been a movement away from activities or techniques and toward a greater focus on results and on demonstrated, measurable achievements (p. 34). One major force for human resource practitioners to achieve these measurable results is through the use of frameworks and in particular, through the use of the balance scorecard.

The Balanced Scorecard

Kaplan and Norton developed a strategic tool called the balanced scorecard approach to management and performance measurement in 1992 following the completion of a research study on 12 companies. According to Kaplan and Norton (1992), the balanced scorecard is “a set of measures that provides a fast but comprehensive view of the company” (p. 71). The BSC emerged out of the need for effective accounting procedures since “traditional financial accounting” which was developed in the industrial era did not provide an accurate picture on organizational health. (Kaplan & Norton, 1992). Traditional financial performance measurement methods worked well in the industrial era, however “they are out of step with the skills and competencies that companies are trying to master today” (Kaplan & Norton, 1992, p. 71). The BSC incorporates financial measures already in place and builds in operational measures such as customer satisfaction, internal processes, and the organization’s innovative and improvement activities. Operational measures should be drivers of future financial performance (p. 71).

“Today’s managers recognize the impact that measures have on performance” (Kaplan & Norton, 1993, p. 1). Management may recognize the need and impact that

measures or metrics have on performance but rarely have these been translated to strategy. The BSC provides a basic framework for management and leadership to translate metrics into strategy by using four perspectives in such critical areas as: product, process, customer, and market development (Kaplan & Norton, 1993). Kaplan and Norton have broken down these four perspectives (1992, 1993) to include broad performance measures such as: financial perspective, internal business perspective, customer perspective, and innovation and learning perspective. The innovation and learning perspective has since been renamed the learning and growth perspective (Kaplan & Norton, 2005).

The customer perspective focuses on how the customer sees or perceives the organization. Customer perspective on organization performance becomes an important measure. Customer concerns tend to fall into four categories: time, quality, performance, and service (Kaplan & Norton, 1992, p. 73). According to the BSC approach to management (Kaplan & Norton, 1992), how a company is performing should and must become a top priority for leaders.

The internal business perspective focuses on what must occur internal to the business to satisfy customer needs and expectations. According to Kaplan and Norton (1992), excellent customer performance derives from processes, decisions, and actions occurring throughout the organization (p. 74). Management must concentrate their attention on those internal components of the operation that drive customer satisfaction. “The internal measures for the balanced scorecard should stem from the business processes that have the greatest impact on customer satisfaction – factors that affect cycle time, quality, employee skills, and productivity” (Kaplan & Norton, 1993, p. 75). The

internal business perspective of the BSC provides the point of view necessary for the management and leaders to determine areas for strategic development.

The financial perspective of the BSC provides the “bottom-line” view of the contributions of the BSC. According to Kaplan and Norton (1993), this piece of the BSC shows how we look to our shareholders. Financial performance measures indicate whether the company’s strategy, implementation, and execution are contributing to bottom-line improvement (Kaplan & Norton, 1993, p. 77). The typical financial goals of the BSC are centered on profitability, growth, and shareholder value (p. 77).

The learning and growth perspective (redefined from the innovation and learning perspective by Kaplan and Norton in 2005) define the role of the organizations intangible assets and the role, which they play in strategy and the linkage to other internal processes. Kaplan and Norton (2005) state the following:

The learning and growth perspective, ...identifies the intangible assets that are most important to strategy. The objectives in this perspective identify which jobs (the human capital), which systems (the information capital), and what kind of climate (the organization capital) are required to support the value-creating internal processes. These intangible assets must be integrated and aligned with the critical internal processes. (p. 54)

“Employees’ skills, IT systems, and organizational cultures are worth far more than tangible assets” (Kaplan & Norton, 2005, p. 52). Although, financial and other tangible assets are important to strategic success – it’s the intangible assets that are hard for competitors to imitate, thus these (intangible assets) are the most powerful source of competitive advantage (Kaplan & Norton, 2005). Intangible assets such as human capital

rarely create a source of competitive advantage alone. Human capital is the skills, talent, and knowledge or know-how of the organization's employees or strategic competencies (Gribbs, 2005; Kaplan & Norton, 2005). An organization cannot put a price tag on an intangible asset such as human capital "because value can be derived only in the context of strategy. What the company can measure, however, is whether its workforce is properly trained and motivated to pursue a particular goal" (Kaplan & Norton, 2005, p. 54). According to Kaplan and Norton, the measurement and close alignment of intangible assets with the organizations strategic goals is referred to as strategic readiness (p. 54).

The Human Resource Scorecard

Building upon the BSC framework of Kaplan and Norton (1992), B.E. Becker, Huselid, and Ulrich introduced the human resource scorecard (HRSC) in 2001. According B.E. Becker et al., human resource's (HR) emerging strategic potential hinges on the increasingly central role of intangible assets and intellectual capital in today's economy (p. 7). The importance of aligning HR management and measurement with strategy of the organization is as important as aligning the people. The benefits of HR as an asset are usually only recognized once aligned with another intangible asset such as the organization's strategy implementation (B.E. Becker et al., p. 7).

As the United States continues to shift from a manufacturing powerhouse to a service driven economy, there will continue to be an increasing reliance on human capital as a source of competitive advantage, which have led firms to develop measurement systems to help to manage resources (Huselid & Barnes, 2002, p. 2). According to Huselid and Barnes (2002), the HR scorecard is an additional resource in the development of a human capital measurement system (HCMS). "When designed and

implemented effectively, HCMS are integrated measurement systems that focus on predication and feedback of the firm's people-related assets (Huselid & Barnes, p. 4). HCMS are those measurement systems, which attempt to describe how human capital creates value for the organization.

Huselid and Barnes (2002) state, "while it may be that all firms can benefit from an HCMS...most firms do a relatively poor job of developing their own internal human capital measurement systems...these systems can be time-consuming and expensive to develop" (p. 7). Thus, Huselid and Barnes (2002) suggest the following dimensions will influence the development of a successful human capital measurement system:

1. HCMS are more likely to be developed in turbulent economic and product-market environments.
2. HCMS are more likely to be developed in knowledge intensive (as opposed to capital-intensive) business and industry.
3. HCMS are more likely to be developed in firms with differentiation or focus strategies.
4. Firms with complex product lines are more likely to develop an HCMS.
5. Firms facing a tight labor market for their core jobs are more likely to develop an HCMS.
6. HCMS based on clear conceptual models of the firm's value chain will be relatively more effective in eliciting desired employee behaviors.
7. Measurement systems work better when those affected by them are involved in their development.

8. Measurement systems are more effective when the feedback and learning are used to adjust the system.
9. Measurement cycles that are matched to the cycle of the underlying metric work better.
10. Firms with more divisionalized and fragmented structures will be more likely to develop an HCMS.
11. When the cycle time for new products is long, firms will be more likely to develop an HCMS.
12. Measures that are reliable and construct valid will be relatively more effective in eliciting desired employee behaviors.
13. Measurement systems with specific, difficult (but obtainable) goals will be more effective than those without such attributes.

According to Fitz-enz (n.d.), people and knowledge will be the critical factor of the future. The primary determinant of success for the future will be human capital management and the successful alignment of this human capital and knowledge to the business (Fitz-enz, n.d.). The alignment of human capital to business strategy can be assisted and successful with the implementation of a scorecard. Scorecards can assist HR professionals to move away from traditional metrics and implement measures of human capital by aligning work to the business strategy, applying the science of research to the art of HR, and linking HR to the firm's performance (B.E. Becker et al., 2001, p. 205).

Human Capital Planning and Measurement

The emergence of human capital planning as a key to strategic success followed the shift in the economy of the United States. The United States workforce requires a

higher skill set including technology based skills. These changes have led to a growing need for human capital planning and measurements to determine their effectiveness.

Human Capital Planning

Human capital planning (HCP) is a critical business process because of its transformational impact on the value the function delivers to the business (Brush & Ruse, 2005, p. 49). HCP is used to identify the human capital needs of goals and objectives tied to the business strategy. According to Brush and Ruse, one of the most critical elements of HCP is “business linkage which requires HR professionals across the function to draw a clear and direct connection between the strategies of the corporation’s business...and the human capital implications of those strategies” (p. 51).

In order to successfully link the HCP process with business strategy, Brush and Ruse (2005) suggest the following four major elements: (a) determine the type of talent required to execute strategy; (b) determine the number of people required over the term of the critical business initiatives; (c) identify and prioritize talent gaps and determine the best approach for closing the gaps; and (d) identify the actions necessary to align the talent with the business. Figure 3 describes the cyclical process of HCP.

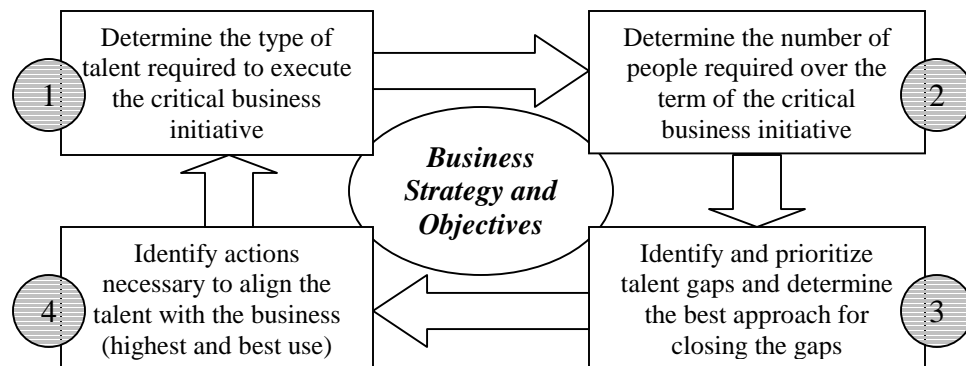


Figure 3. Model of human capital planning.

From: “Driving Strategic Success Through Human Capital Planning: How Corning Links Business and HR Strategy to Improve the Value and Impact of its HR Function,” by M.C. Brush & D.H. Ruse, 2005, *Human Resource Planning*, 28, p. 53.

In order to ensure the success of HCP, one must determine the type of talent required to execute the critical business initiatives. This is critical at the division and enterprise level of the business in order to properly execute the objective. Without the proper skill sets and talent, the objective or initiative may fail. This step provides valuable insight into the direction of the business and the specific actions necessary to realize its strategy (Brush & Ruse, 2005). According to Brush and Ruse, this initial step provides the foundation for enabling HR professionals to understand the business of the business and the broadest function of establishing HR as the business partner (p. 53).

Once the appropriate talent has been determined to execute initiatives, it is necessary to determine the proper number of people to execute the strategy (Brush & Ruse, 2005). This stage requires the estimation of talent as well as people or a variation of workforce planning. “Workforce planning is a process by which a business ensures that the right people are in the right place and at the right time...”(Kazan, 2005, p. 289). In addition, workforce planning ensures that the workforce talent gaps of today and the human capital needs of tomorrow are identified, addressed, and accounted for before they appear (Kazan, 2005, p. 289) and influence the success of the business initiative.

Described by Brush and Ruse (2005) as the incorporation of two key components that differentiate this stage from typical workforce planning are:

The number of people needed is estimated by segment, not an aggregate basis or by the level as traditional workforce planning processes have often done....and determining the number requirements by segment provides HR and the line the opportunity to model various scenarios based on business dynamics....and estimating the number of people by talent segment (p. 54)

After the talent needs have been identified, it becomes necessary to determine the “where we are” versus the “where we need to be” or the gap. This gap in talent to execute strategy is critical to correct in order to achieve the business strategy. Without properly trained people to execute the initiative or objective the strategy will fail. According to Brush and Ruse (2005), the decision to “*build or buy*” talent must be made at this time. In order to build talent, time must not be of the essence. When time is of the essence it may be most appropriate to buy talent or to seek it from outside the firm. Build talent is appropriate when time is not immediate and the firm has the ability to build the internal talent necessary to execute the objective or initiative.

Finally, it is crucial to determine the actions necessary to align the talent with the business (Brush & Ruse, 2005, p. 57). It is necessary to have the appropriate processes and practices to acquire, develop, and maintain the employee capability required to achieve desired business results and critical business initiatives (Brush & Ruse). It is also critical at this stage to have established the critical accountability standards necessary for employees to understand their continued role in the initiatives. In addition, the measures of HCP successes are in place and gauged ready for data in order to make the appropriate adjustments (B.E. Becker et al., 2001).

Human Capital Measurements and Metrics

“What gets measured gets managed” (Weatherly, 2003, p. 4). Managing human resource practices and processes strategically is a method to gain competitive advantage by utilizing the organizations greatest assets: its people (Lawson & Hepp, 2005). Important to managing the human capital of the organization is the measurement or metrics utilized to gauge the success of this endeavor. If the measurement or metric is

inappropriate or measures the wrong thing it is useless. According to Kaplan and Norton (1992, p. 71), “What you measure is what you get” thus, implying the necessity for the right measures.

The indication of successful measures in HR and ultimately human capital are grouped into three categories: “(a) building critical organizational capabilities; (b) improvement in employee and shareholder satisfaction; and (c) new clusters of HR measures...should be developed to capture and drive the impact of HR on business performance” (Yeung & Berman, 1997, p. 321). These categories emerge from the balanced scorecard approach to management (Kaplan & Norton, 1992). The balanced scorecard approach defines what it takes for a business to succeed (Yeung & Berman, 1997).

Managers and leaders widely recognize that human capital management and measurement is critical to the fundamental success of the business (Weiss & Finn, 2005, p. 35). Leaders want measures that are more strategic and those that report on the critical initiatives of the business. In a recent study, Weiss and Finn (2005) conducted on managers requested human capital measures resulted in the following: (a) employee motivation; (b) leadership team capability; and (c) employee competency and employee training and development (p. 35). In addition, managers requested that HR continue to report basic metrics such as total compensation, turnover, retention, time to hire, and terminations.

Human capital and human resource metrics and measurements of the future are geared in a strategic direction. These measures must align with the critical business initiatives to be valued by the organization. The impact of human resource practices must

be measured based upon strategic results, either directly or indirectly based organizational strategy or organizational capabilities (Cabrera & Cabrera, 2003). A firm's human capital is believed to meet all the requirements of a strategic asset...because it is scarce, valuable, non-substitutable, and hard to imitate (Cabrera & Cabrera, p. 49).

Chapter Summary

Human capital theory has led to a variety of techniques applicable to business: the balanced scorecard (Kaplan & Norton, 1992, 1993), the HR scorecard (B.E. Becker et al., 2001), and the development of measurements to align human capital with business objectives. Human capital theory has been utilized to value intangible assets such as human resources as a mechanism to gain competitive advantage. According to Barney (1991), the firm's resources include all assets, capabilities, organizational processes, firm attributes, and information knowledge, etc. controlled by the firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (p. 101). These resources have been categorized into three major categories: physical capital resources, human capital resources, and organizational capital resources (p.101).

Three major conclusions are drawn from a comprehensive review of the literature regarding intangible assets and human capital. First, human capital will become increasingly more important in the global economy. Second, the alignment of human capital to the strategic business objectives is necessary to drive success and to gain competitive advantage, and third, human resource professionals are primarily responsible for linking human capital to business strategy and for providing the metrics and measures necessary to the organization to validate this success.

However, little academic research has been completed on the success or failure of human capital planning. In addition, little is known about the preparedness of organizations or HR professionals to engage in such a new venture. Yet, the literature has clearly indicated the success of human capital alignment to strategic direction and the importance of such alignment for the continued success of the organization. Lawler, Levenson, and Boudreau (2005) claim, “if HR wants to play a strategic role in organizations it needs to develop its ability to measure how human capital decisions affect the business and how business decisions affect human capital (p. 27).

Chapter III

METHODOLOGY

This chapter describes the study population and sample, the survey instrument development and validation processes, the method used to collect the data, the response rate, and the analysis and treatment of the data. Scale or instrument development methodology was employed in this study since an appropriate instrument to measure human capital planning has not been previously developed. According to DeVellis (2003), when it is necessary to quantify a particular phenomenon before tackling the primary research objective, and “off-the-shelf” measurement tools are either inappropriate or unavailable, then the development of an instrument is the only remaining option (p. 1).

The purpose of this study was to develop and validate an instrument for human capital planning to be utilized as a strategic human resource management tool. The literature has indicated the success of planning and linking multiple organizational units to the strategic direction of the organization (Gunn, 2001; Kaplan & Norton, 2005; Moutinho & Phillips, 2002) and the need for human capital planning (Brush & Ruse, 2005; Kazan, 2005; Weiss, 2005) as a result of strategic direction setting. Success and failure can be related to poor planning and linkage, and more importantly limited readiness to plan (Casella, 2002).

The contribution and significance of this study to business, HR professionals, consultants, and workplace learning and performance (WLP) professionals is vast. The gap between strategic best practice guidelines as indicated in the literature and actual practice in industry may be bridged through determining an organization’s ability to plan

human capital. It is difficult to maintain competitive advantage without people possessing proper competencies to compete in a global economy.

The Problem

The shift in The United States economy from a manufacturing powerhouse to a service driven economy has placed a great emphasis on planning to remain competitive in a new global economy. According to Gunn (2001), “the short explanation for the renewed interest in ...planning is that people have figured out that what got your organization here today won’t get it to where it needs to be tomorrow” (¶ 2). Much of the literature surrounding planning provides the framework for the allocation of both tangible and intangible resources. In addition, the literature indicates a greater need for intangible asset planning and in particular the planning and allocation of human capital. The concept of human capital planning has received increasing attention in the growing body of literature, yet little is known how to prepare or measure the effectiveness of such endeavors. Thus, despite this growing attention and explicit need for human capital planning documented in the literature, little empirical research has been conducted on its effectiveness since a theoretically derived measure is nonexistent.

Research Questions

This study sought answers to the following questions based upon an established study design and pattern of questioning from Mclean et al.,

RQ1: What are the underlying dimensions of human capital planning revealed in the literature?

RQ2: Can a preliminary reliable and valid instrument for human capital planning be developed that reflects appropriate content from the initial dimensions

identified in the literature and utilizing a Subject Matter Expert (SME) panel?

RQ3: What are the reliability and validity verification data for a newly developed human capital-planning instrument?

Research Study Design

The design of this research utilized scale development principles and practices along with exploratory factor analysis and principal components analysis methods. The design of the scale followed procedures established by Hinkin (2005) for item generation, item wording, and number of items, item scaling, and content validity assessment. “The most important idea...is that scales should be evaluated and refined before they are used to collect data from the sample population” (Hinkin, 2005, p. 164).

A subject matter expert panel technique was utilized to generate the items, item wording, and to establish content validity. The utilization of subject matter expert panels to generate items and establish content validity for scale development has been well documented in the literature (Hinkin, 2005; McLean, Yang, Kuo, Tolbert, & Larkin, 2005; Yang, 2005). In addition to the utilization of a SME panel, the research employed the process of deductive scale development. “Deductive scale development requires the use of a classification schema or typology ... based upon a thorough review of the literature” (Hinkin, 2005, p. 164). The literature review revealed four elements of best practices in human capital planning in order to link the process to business strategy which included (a) determine the type of talent required to execute strategy; (b) determine the number of people required over the term of the critical business initiatives; (c) identify

and prioritize talent gaps and determine the best approach for closing the gaps; and (d) identify the actions necessary to align the talent with the business (Brush & Ruse, 2005).

Population

The population for this study was human resource management practitioners, human resource development, and other human resource executives and specialists employed within US based organizations. According to the Bureau of Labor Statistics [BLS](2006), there were 820,000 jobs filled in human resources, training, and labor relations and specialists in 2004. Of these positions, 80 % of employees were employed in the private sector while government and private consulting accounted for the remaining 20%. This resulted in a total population of 656,000. The practitioners in this study were from both for-profit and not-for-profit organizations. There were no governmental entities included in the study.

Sampling

The random sample for this study was generated from multiple professional society membership lists and an HR practitioner information database. Narrowing of the sample occurred through stratification of the practitioners/organizations data by geographic location in the United States (Northeast, South, Midwest, and West). “Stratifying the sample produces more precise population estimates than a simple random design” (Sturgis, 2004, p.1). The detailed analysis of the sample resulted in 4,816 available contact e-mail addresses for HR practitioners, executives, specialists, and training and development specialists throughout the United States. This calculated large sample was based upon previous Internet research achieving a response rate of 7% to 76% (Sheehan & Hoy, 1999; Simsek & Veiga, 2001). In order to achieve a 95%

confidence with .05-confidence level, a minimum of 384 respondents was required (Krueger, 2001).

The sample for this study was selected randomly utilizing a random numbers table (Passmore & Baker, 2005). However, the entire sample was stratified by geographic location according to categorizes established by the US census regions and divisions of the United States (U.S. Department of Commerce, Economic, and Statistics Administration: U.S. Census Bureau, n.d.). If one randomly selects study participants from a population, there is no guarantee of representation of characteristics – stratification insures representation of the population (Cresswell, 1994).

Overall, the sampling procedures resulted in 4,816 viable study participants. All participants were emailed a link to the study survey with 606 e-mails returned for inaccurate addressing, thus resulting in an accessible sample of 4,210. There were 494 respondents who completed at least a partial survey and there were no eliminated surveys. The 494 respondents represented an 11.7% response rate, which is within normal range. Although, Dillman (2000) found response rates of mailed surveys to average 74%, response rates for internet surveys have ranged as low as 7% to as high as 76% (Sheehan & Hoy, 1999; Simsek & Veiga, 2001). Thus, the response rate of 11.7% is consistent with previous studies utilizing the Internet and e-mail based surveys. In addition, the number of respondents was adequate to complete exploratory factor analysis based upon the 1:10 response ratio per item (Schwab, 1980; Stevens, 2002).

Instrument Development

The survey instrument for this research study was developed as a result of this inquiry. The survey was constructed from the literature review and the use of subject

matter experts. The review of the literature established the four dimensions of the scale, and the subject matter experts were solicited to participate in a modified Delphi technique approach to establish the items for each dimension.

The Original Dimensions

The review of the literature established the original dimensions for the scale. The indicators of success for human capital planning process have been based upon four dimensions. These four dimensions according to Brush and Ruse are: a) determine the type of talent required to execute the business initiative, b) determine the number of people required over the term of the initiative, c) identify and prioritize talent gaps and determine the best approach for sealing these gaps, and d) identify actions necessary to align talent (p. 53). These HCP design dimensions were utilized in the initial phrase of the scale development through the subject matter expert panel.

The Subject Matter Expert (SME) Panel Procedures

The objective of most Delphi applications is the reliable and creative exploration of ideas or the production of suitable information for decision-making (Gunaydin, 2005). The Delphi Method is based on a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback (Adler & Ziglio as cited in Gunaydin, 2005). While this study did not use a true Delphi technique, it did employ a panel of subject matter experts to generate and refine the items that eventually led to the instrument that is the focus of this study. The technique used in this portion of the study involved the use of subject matter experts, who never met face-to-face to solicit input, reach consensus, or forecast based on a series of prescribed procedures.

The instrument developed from this study consisted of two parts. Part one consisted of questions to gather the demographic data. This general information gathering section captured basic demographic information about the organization. This section included questions about the organization employee base size, geographic location, organization age, strategic planning and human capital planning engagement, annual gross revenue, organizational classification, and industry. These data are necessary to determine future correlations between the variables.

Part two of the survey was developed based upon the original HCP dimensions proposed by Brush and Ruse. The questionnaire employed a Likert item response scale. Likert-type scales are the most commonly used scales in survey research (Hinkin, 2005, p. 166). This survey employed a five point Likert scale with responses as follows: 4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree, and 0=Does Not Apply. According to Hinkin (2005), respondents must have an option to opt out of responding to a question if it does not apply to their situation (p. 167). Thus, it is suggested that a five or seven-point Likert-type scale be utilized in survey research. The ability for a participant to opt-out can be accomplished by utilizing the 5- to 7- point Likert-scale by utilizing the mid-point.

Expert Panel and Subject Matter Experts

An expert panel was formed to establish the questionnaire items and to establish content and face validity. In addition to determining the content and face validity, the expert panel was requested to judge the instrument for wording, format, and clarity. According to E.P. Yoder (personal communication, December 5, 2005), it was recommended that the panel consist of 5 to 7 subject matter experts (SMEs).

Furthermore, the panel of SMEs must consist of “the right people” (E.P.Yoder, personal communication, December 5, 2005).

In determining and soliciting members of the expert panel or the right people, the following criteria for selection of SMEs applied:

1. must have at least five years of practitioner or research experience in planning,
2. must currently hold a graduate degree in business, management, human resources, human resource development, or leadership,
3. must have participated or facilitated an organization’s strategic planning process in the last five years,
4. must be able to demonstrate the role of intangible assets in organizations,
and
5. must be currently holding or have held a leadership role in an organization which managed human capital.

These criteria were the basis for selecting SMEs for the process to establish questionnaire items and content and face validity. The emphasis on planning, intangible asset management, leadership, and practitioner or research experience provided the depth of knowledge necessary to develop an instrument to determine and assess human capital planning as a strategic human resource management technique.

The finalized SME panel consisted of seven members with varied and diverse backgrounds. Each member met or exceeded the established criteria for participation in the SME panel. Although, seven members constituted the initial panel to create the items, only five completed the entire process. Two panel members had to cease participation in the process at either the mid-point or later due to personal or employment reasons.

The facilitation process of the SME panel was coordinated and handled by the researcher. The researcher acted as the facilitator and coordinator. The SME panel followed a modified Delphi technique utilizing a three-stage questionnaire development process. According to Dunham (1998), the Delphi technique involves the following processes: a) identify the issue and solicit ideas, b) have participants conduct individual brainstorming to generate as many ideas regarding the issue, c) create and send the second questionnaire generated from responses to the first, d) the third questionnaire is developed from the second, and so forth until, e) the SMEs reach consensus or resolution.

This research study utilized a modified Delphi procedure as outlined by Dunham (1998). The SME panel for item development began with the researcher requesting the SMEs develop ideas for items or measures for the following question: “What action, process, or preparation can an organization take to prepare for human capital planning as a strategic human resource management initiative or metric?” via electronic mail. The SMEs were requested to limit initial responses to one brief sentence or phrase. According to Dunham (1998), the limiting of initial responses will assist in the further development of thought processes and provide SMEs the ability to evaluate and justify responses later in the process. The researcher requested that the initial round of brainstorming be completed within 7 days. The first round of the SME panel resulted in 102 responses and potential items for the instrument. These items were reduced to 56 by the researcher through eliminating any redundancy and combining items.

The researcher compiled the recommendations for items and ideas with each dimension for HCP. The compiled list was forwarded back to the SMEs for further refinement. In addition, the researcher provided the necessary space for the SMEs to

justify and evaluate the initial thoughts, comment on the strength and weakness of each item for addressing the issue and to add new ideas or items. All additional changes were requested returned within 7 days in order to expedite the process. The second round of SME feedback resulted in several changes to wording, elimination of items, the addition of project management phases instead of the original indicators, and the reflection of action in the research question to solicit ideas. The revised question was: “What actions, processes, or preparations can an organization take to implement human capital planning as a strategic human resource management initiative or metric?”.

The researcher continued the process of list compilation until no new ideas, thoughts, or justifications emerged and the SMEs reached consensus or resolution. The SME panel final survey instrument contained five phased dimensions based upon the theoretical framework of project management. The original four dimensions identified by Brush and Ruse (2005) in the literature were incorporated into the project management phases to establish the actions and definitions associated with these new dimensions. A sample of all correspondence sent to SMEs is available in appendix A.

Validation of Questions

The final process for the SME panel was to evaluate the items of the survey for clarity of meaning, and their relevance to human capital planning. The final communication with the SME panel described the purpose of the study, its value for strategic human resource management and planning, and the finalized survey questions/items within the appropriate dimension.

For each item in the survey instrument, the SME panel was requested to identify the clarity of the items, and the content validity of the item. The SME panel was asked to

determine if the item “fit” into the dimension, was the item easily understood, was the item associated with and important to human capital planning and strategic human resource management. The SME panel was asked to revise any item that was not clear, provide comments for improvements to the items, and provide any further comments and revisions, as they felt necessary to improve the instrument.

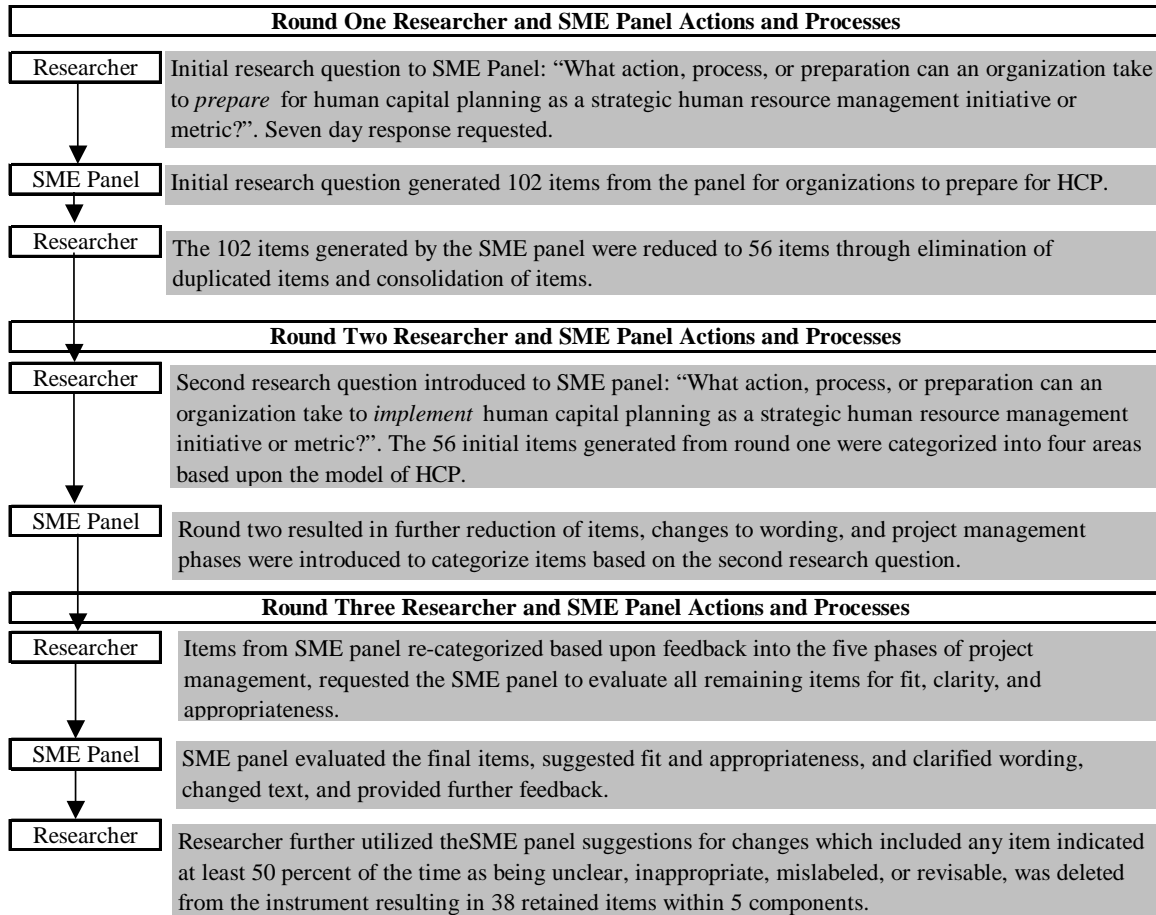


Figure 4. The Modified Delphi Three Round Process and Output

The SME panel was given the opportunity to make suggestions for additional items, new ideas, or items to delete. Any item documented more than 50 percent of the time by the SME panel as being unclear, inappropriate, mislabeled, or revisable was deleted from the instrument. In addition, many of the SME panel members identified continued redundancy among items and suggested some items were misplaced within the

dimensions of the survey. This exercise resulted in the finalized instrument with 38 items with a 5-point Likert response scale. (Appendix B).

Pilot Testing

The survey instrument created from the process with SMEs was pilot tested. Pilot testing occurred with both sections of the questionnaire because the survey contained all original content. In addition to the section developed by the SMEs, the questionnaire contained a section to collect demographic information from participant organizations. Demographic collection questions included: What is the age of the organization?; What is the annual revenue of the organization?; In what geographic region of the United States is the organization located?; How many people are employed by the organization?; In what industry sector is the organization?; Does the organization participate in a strategic or human capital planning process?; and What is the annual gross revenue of the organization?.

In order to determine appropriate question content, response time, and statistical analysis, a pilot study was conducted with participants outside the original study but having the same characteristics of the study sample. According to McMillan (1996) a pilot study to determine correlations should contain a minimum of 30 people (as cited in Farmer and Rojewski, 2001). This pilot study included a convenience sample based upon availability.

The pilot study consisted of 100 solicited participants from the Northeastern Pennsylvania Chapter of the Society for Human Resource Management (NEPA-SHRM). There were 31 respondents to the pilot test, which represented a 32% response rate over a period of 21 days. There was no follow-up with non-respondents as the initial solicitation

resulted in an adequate response rate. Their responses were collected and entered into the Statistical Package for the Social Sciences (SPSS) software version 14.0 data analysis system. A Cronbach's alpha coefficient was computed to determine the internal consistency (reliability) of the instrument. The overall goal of computing Cronbach's alpha is to provide evidence of the reliability of the values obtained from the instrument and to identify individual items that might affect the overall reliability of the instrument (Smith, 2006). The Cronbach's alpha coefficient for the 38 items in the pilot study was equal to .91. This is much above the recommended .70 (Nunnally, 1970).

Data Collection

The administration procedures of this survey were adapted from Creswell (1994). The adaptation from the Creswell procedures was necessary as this research study utilized an online survey and solicitation notices via e-mail with a total response of 494 respondents. Creswell suggests a 3-phase mail survey collection technique that requires a maximum of six weeks. In this study, an initial brief e-mail was sent to the identified participants introducing the research and the researcher. Included were the instructions for survey completion, the link to the survey instrument URL, and the procedure to obtain survey results, which resulted in 254 (51%) respondents. A second e-mail after seven days reminding participants to complete the survey and requesting the survey completion was mailed to the identified non-responders at the participating organizations. This follow-up e-mail reminder resulted in 145 (29%) respondents. After three weeks, an additional e-mail was sent to participants once again requesting their assistance in the completion of the survey resulting in an additional 95 (20 %) respondents. A final e-mail (Creswell, 1994) was mailed to thank the participants for their participation in the study.

Included in this e-mail were additional instructions for the participants to obtain the results of the research if they so desire. Following this process, the administration time period covered a total of four weeks (Cresswell, 1994). A sample of all correspondence sent to participants is found in Appendix B.

The Use of Human Participants Compliance

Survey administration occurred with no special reward including monetary rewards for the completion of the survey. At the time of administration, participants received the informed consent as required for human participants by the Pennsylvania State University, Institutional Review Board (IRB) and were instructed that the completion of the survey implied consent. The participants received assurance of confidentiality and anonymity to the extent possible via electronic survey collection because there were no encryption safeguards in place with the survey collection web host. Appendices A and B contain both the informed consent for the SME panel participants and the survey participants.

Mode of Analysis

The Statistical Package for the Social Sciences version 14.0 (SPSS 14.0) was utilized for analyzing the data. The completed survey administration resulted in 494 respondents with a completed survey response rate of 11.7%. This response rate is consistent with prior research. Previous e-mail and Internet survey research has indicated acceptable response rates as low as 7% and as high as 76% (Sheehan & Hoy, 1999; Simsek & Viega, 2001). For the purposes of this research, the number of respondents proved more than viable to conduct exploratory factor analysis.

Reason for Using Exploratory Factor Analysis

Survey validation was completed in three steps. This study reproduced a similar process utilized by Adams, Perkins, Dubson, Finkelstein, and Wieman (2004). First, a subject matter expert panel completed the modified Delphi process to establish the items for the four dimensions of HCP and to confirm clarity and meaning of the statements and items. Second the survey was pilot tested and finally a factor analysis was performed to create and verify existing categories of statements.

“There are several situations in which factor analysis demonstrates its superior analytic capability that no other statistical technique can match. One situation... in which factor analysis is widely used involves the development and validation of an instrument or an assessment tool to measure an abstract concept with either theoretical or practical interest” (Yang, 2005, p. 182). Since, the primary purpose of this study was to develop and validate an instrument for human capital planning as a strategic human resource management tool, it has been determined that exploratory factor analysis (EFA) is an appropriate statistical mode of analysis.

Factor analysis is a data reduction technique. Factor analysis involves a family of statistical procedures “for removing the redundancy from a set of correlated variables and representing the variables with a smaller set of derived variables” (Kachigan, 1991, p. 237). The resulting “derived” variables are referred to as the factors. Factor analysis procedures can be thought of as removing the duplicated information from a set of variables, or, it may be thought of as the process to group similar variables (Kachigan, 1991, p. 237).

Principal Component Analysis

The two primary factorial analytic techniques are: common factor analysis and principal component analysis (Thompson, 2004, p. 57). The principal components method of exploratory factor analysis was utilized for this study. Principal component method of factor analysis is appropriate with a first generation instrument when one is trying to establish factors (Sax, Bryant, & Harper, 2005; Kelloway, 1995). According to Yang (2005), PCA is used when the research purpose is data reduction and the main interest is to reduce the information in many measured variables into a smaller set of components. The primary purpose of this research was to develop and validate an instrument for human capital planning involving data reduction from many variables grouped logically with a priori knowledge to a few reliable and valid components. Thus, the researcher selected principal component analysis (PCA) as the most appropriate method of analysis for the data obtained.

In addition to the selection of PCA as the most appropriate method of data analysis, the researcher chose Varimax as the factor rotation method. Yang (2005) states, “ the purpose of factor rotation is to improve the psychometric properties (reliability and validity) and substantive meanings of the extracted factors” (p. 192). Varimax rotation is the most commonly utilized rotation in PCA. It is primarily used for data reduction. Since, the primary purpose of this research is to provide the reliability and validity data for a first generation instrument – Varimax was the most appropriate choice.

Factor analysis procedures are often utilized for identification of underlying factors, screening of variables, summarizing data, sampling variables, and clustering objects. These procedures all represent the underlying reduction of data in order to

establish smaller factors, establish variables which are highly correlated to one another, and to establish the ability to extract factors from data to account for variance. However, the primary purpose of factor analysis is to help the investigator determine the number of latent variables that underlie a set of items (DeVellis, 2003) in a scale or survey.

Chapter IV

RESULTS

The purpose of this study was to develop and validate an instrument for human capital planning as a strategic human resource management tool. The literature has indicated the success of planning and linking multiple organizational units to the strategic direction of the organization (Gunn, 2001; Kaplan & Norton, 2005; Moutinho & Phillips, 2002) and the need for human capital planning (Brush & Ruse, 2005; Kazan, 2005; Weiss, 2005) as a result of strategic direction setting. Success and failure can be related to poor planning and linkage, and more importantly limited readiness to plan (Casella, 2002).

The Description of the Sample

The sample for this study was derived from both professional membership lists and a database of United States human resource management practitioners. The sample for this study was selected randomly utilizing a random numbers table. The entire population was stratified by geographic location according to categories established by the US census regions and divisions of the United States (U.S. Department of Commerce, Economic, and Statistics Administration: U.S. Census Bureau, n.d.). Random sampling occurred utilizing the random number method (Passmore & Baker, 2005).

The sampling procedures resulted in 4,816 viable study participants, however 606 e-mails were returned for incomplete or inaccurate addressing, which resulted in 4,210 accessible participants. All participants were emailed a link to the study survey. There were 494 respondents who completed at least a partial survey. There were no eliminated surveys. The 494 respondents represented an 11.7% response rate, which is within the

range consistent with previous Internet research (Sheehan & Hoy, 1999; Simsek & Viega, 2001).

In order to address non-response error, non-respondents were classified as those potential participants that did not respond to the first survey post after three e-mail reminders. The non-respondent population numbered 3,716. Following the recommendations of Dooley and Lindner (2003), and Miller and Smith (1983), the researcher conducted a “double-dip” sampling procedure to determine if there was any significant difference between respondents and non-respondents. Dooley and Linder (2003) suggest a random sample of 20 non-respondents is adequate to compare mean responses of these two groups. Following this procedure, the researcher solicited an additional random sample of non-respondents to obtain an adequate sample for comparison. This resulted in 48 original non-respondents participating in the survey.

Two-Sample Hotelling’s T_2 was used to test the hypothesis that there was no difference between the values for of the six dimensions of human capital planning between the respondent and non-respondent groups (Kachigan, 1991; Lopes, 2006). The results of the T_2 analysis indicate that there was no significant difference between the scores for the six original dimensions of human capital planning for the respondent and non-respondent groups ($T_2 = 3.10$, $F(12, 530) = 2.70$, $p = .161$). These results indicate further analysis of the non-respondent data was not required. The remainder of this chapter provides detailed analysis of the results from the respondent data pertaining to the research questions of this study. The respondent data ($n=494$) are presented in-depth.

The data obtained from the respondents in the study was analyzed. The respondent population represented 183 (37 %) companies from the northeast, and 140

(28.3%) from the western portion of the United States. In addition, 73 % of participants have between 101 – 10,000 full-time equivalent (FTE) employees with 50.6% of those respondents having annual revenues between \$11 million and \$500 million. Table 2 contains greater details regarding the organization demographics.

In addition to the collection of organization demographics, five questions on the survey requested information from participants pertaining to organizational classification and planning participation. There were 494 respondents to these questions on the survey. Overall, 425 participants (86%) classified their organization as for-profit, and only 69 (14%) classified their organization as not-for-profit. Further, 70% (346) classified their company as providing a service while 30% classified their company as a manufacturer of products. Table 3 provides detailed item responses for questions pertaining to organization classification.

The survey contained two qualifying questions pertaining to organizational participation in planning and the type of planning. If a participant responded no to this question on the survey– there were no further data collected from this participant. This qualifying question was utilized to collect data only from organizations, which participated in some type of planning. This survey qualifier resulted in less than the 494 total responses to all other questions on the survey, other than the demographic, classification, and planning questions portion of the survey.

Overall, 98 % (483) participants indicated some type of active planning process within their organizations. Only 2 % (11) indicated no active planning within the organization and 35 % (168) of participants indicated active strategic planning while 65% indicated an active strategic and human capital planning process within the organization.

There were 4 (.8%) respondents, which indicated participating in human capital planning only. Table 4 contains total and percentage response rates for these items on the survey.

Table 2

Description of the Respondents

Demographic Variable	<i>n</i>	%
Organization Age		
0 - 5 years	39	7.9
6 - 10 years	92	18.6
11 - 15 years	36	7.3
16 - 20 years	37	7.5
20 + years	290	58.7
Total	494	100
Number of Full-Time Equivalents (All Locations)		
100 or less	88	17.8
101 - 500	150	30.4
501 - 1000	65	13.2
1001 - 10,000	144	29.1
10,001 +	47	9.5
Total	494	100
Geographic Location *		
Northeast	183	37.0
Midwest	96	19.4
South	75	15.3
West	140	28.3
Total	494	100
Annual Revenue (Rounded to Millions)		
Less than \$1 million	24	4.9
\$1 million - \$10 million	64	13.0
\$11 million - \$50 million	107	21.7
\$51 million - \$500 million	143	28.9
\$501 million - \$1 billion	52	10.5
\$1 billion - \$10 billion	83	16.8
\$11 billion - \$50 billion	15	3.0
\$51 billion +	6	1.2
Total	494	100

Note. * NORTHEAST= Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, Pennsylvania. MIDWEST=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Wisconsin, South Dakota. SOUTH= Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia. WEST= Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Wyoming, Washington

The sample size was adequate for statistical analysis. It is adequate or acceptable to obtain at least 10 respondents per item contained within the instrument in order to complete a factor analysis (Fabrigar, Wegner, MacCallum, and Strahan, 1999). In order to statistically determine if an adequate sample size existed for a factor analysis on these data, Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy was computed. Field (2004) suggested, “KMO values greater than 0.5 are acceptable, and values below this should lead you to collect more data” (p. 6). The KMO value for the data in this study was .939. According to Field (2004), “values between 0.5 and 0.7 are mediocre, values between 0.8 and 0.9 are great, and values above 0.9 are superb” (p. 6). Thus, the researcher concluded the partial correlations between factors were relatively small based on a KMO value of .939, which would contribute to a “good” factor analysis with this sample size.

Table 3
Organization Classifications

Characteristic	<i>n</i>	%
For Profit	425	86.0
Not-for-Profit	69	14.0
Total	425	100
Service	346	70.1
Manufacturing	148	29.9
Total	494	100
Public	221	44.7
Private	273	55.3
Total	494	100

Table 4
Organization Planning

Characteristic	<i>n</i>	%
Participation		
Yes	483	97.8
No	11	2.2
Total	494	100
Planning Type		
Strategic	168	34.8
Human Capital	4	.8
Both	311	64.4
Total	483	100

Data Analysis

This segment details the statistical methods utilized to analyze the data resulting from the survey. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) v. 14.0 software.

Factor Analysis

According to Salkind (2004), “factor analysis is a technique based on how well various items are related to one another and form clusters or factors” (p. 300). The overall goal of factor analysis is to represent those things that are related to one another by a general name, such as a factor (p. 300). The names, which are ultimately assigned to factors, are representative of the contents or items contained within each factor. Also, these factor names should represent the relationship of the items.

In order to identify the underlying latent variables or factors present within the survey, exploratory factor analysis was used. Smith (2006) states that exploratory factor analysis requires the researcher to forge decisions about the data “including the

following: type of extraction, type of rotation, number of factors to retain, acceptable value of factor loading, and factor scores that may be used for further analysis” (p. 75).

The factor analysis completed included only the 38 items on the survey related to human capital planning. The analysis did not include any of the demographic data collected from the research. Demographic data collected will be utilized at a future time for future analysis.

Exploratory Factor Analysis

When reliability and validity of an instrument is being examined, factor analysis is the most appropriate method to exam the data (Yang, 2005). Once the determination to utilize factor analysis as the primary means of examination is finalized, there are three choices to consider. The first choice is between using confirmatory factor analysis and exploratory factor analysis. For this study, exploratory factor analysis (EFA) was most appropriate. Since, the attempt of this study was “to discover a set of a small number of latent constructs (i.e.: factors or components) for a given number of larger observed variables” (Yang, 2005, p. 182).

The next major consideration is the decision to utilize principal components analysis or common factor analysis. The principal components method of exploratory factor analysis was utilized for this study. Principal component method of factor analysis is appropriate with a first generation instrument when one is trying to establish factors (Sax, Bryant, & Harper, 2005; Kelloway, 1995).

The final consideration is the decision to utilize a type of rotation. The rotation selected was Varimax. The Varimax rotation was selected as an alternative to Promax because the total explained variance for these data did not differ. The Varimax rotation

total explained variance was 57.83 % with 8 components and the Promax rotation total explained variance was also 57.83% with 8 components identified. In addition, Varimax is an appropriate rotation for initial data analysis of first generation instruments (E. Yoder, personal communication, September 7, 2006).

Research Question Two and Three Results

RQ2: Can a preliminary reliable and valid instrument for human capital planning be developed that reflects appropriate content from the initial dimensions identified in the literature and utilizing a Subject Matter Expert (SME) panel?

RQ3: What are the reliability and validity verification data for a newly developed human capital-planning instrument?

The second and third research questions address the reliability and validity of the instrument developed to measure human capital planning. A total item test of reliability (Cronbach's alpha) was conducted for the 38 Likert response scale items with the overall reliability value of .94 for all 38 components. This value is relatively high for a first generation instrument and much higher than the recommended .70 value by Nunnally (1970) and O'Rourke, Hatcher, and Stepanski (2005) for strong reliability.

Principal component analysis (PCA) on the human capital planning instrument (HCPI) revealed eight components (Table 5). These eight components resulted in 58% of the total variance explained (Table 6). The 38 items sorted into eight components with 30 items retained. There were 8 items not included from the instrument based on the .50 loading criterion utilized by the researcher. The .50 loading was selected for this research based on the desired strength of the components (Sax, 1997). According to Sax, .40 factor loading is appropriate for first generation surveys. However, the desire of the researcher

to develop the components strength led to the utilization of the .50 factor loading.

Further investigation of the excluded items revealed that they were either very similar to other items or did not fit logically with the other factors.

Table 5.
Rotated Component Matrix. ^a

	Component							
	1	2	3	4	5	6	7	8
Planning(Q01)	.58							
Planning(Q02)								.70
Planning(Q03)								.52
Planning(Q04)								
Planning(Q05)	.55							
Planning(Q06)	.74							
Planning(Q07)	.71							
Planning(Q08)	.65							
Planning(Q09)								
Planning(Q10)								
Planning(Q11)							.50	
Planning(Q12)								
Planning(Q13)					.60			
Planning(Q14)					.57			
Planning(Q15)								
Analyzing(Q16)		.54						
Analyzing(Q17)								
Analyzing(Q18)						.56		
Analyzing(Q19)					.62			
Analyzing(Q20)		.68						
Analyzing(Q21)		.57						
Analyzing(Q22)					.51			
Analyzing(Q23)					.54			
Organizing(Q24)						.60		
Organizing(Q25)						.58		
Organizing(Q26)		.60						
Organizing(Q27)						.64		
Directing(Q28)				.70				
Directing(Q29)				.51				
Directing(Q30)				.51				
Directing(Q31)								
Monitoring(Q32)				.67				
Monitoring(Q33)			.75					
Monitoring(Q34)			.75					
Monitoring(Q35)			.62					
Monitoring(Q36)			.55					
Monitoring(Q37)								
Monitoring(Q38)				.52				

Note: Extraction method: Prinicipal component analysis. Rotation method: Varimax with Kaiser Normalization

^a *Rotation converged in 12 iterations.*

Table 6.
Eigenvalues and Variance Explained

Component	# of Items	Initial Eigenvalues			Rotation
		Total	% of Variance	Cumulative %	Total
1	5	12.53	32.96	32.96	3.41
2	4	1.91	5.02	37.98	3.36
3	4	1.63	4.28	42.26	3.12
4	5	1.43	3.75	46.01	2.88
5	5	1.30	3.43	49.44	2.85
6	4	1.11	2.93	52.37	2.61
7	1	1.07	2.81	55.18	1.95
8	2	1.00	2.64	57.83	1.85

Note: Extraction method: Principal component analysis.

The seventh and eighth components were eliminated from the final factor analysis results because these only contained one and two items. A single or double item component is too minimal to provide an adequate measure or reliable feedback to respondents. According to Mclean, Yang, Kuo, Tolbert, and Larkin (2005), an item with three or less items does not contain enough measures to provide respondents with enough feedback. The elimination of the seventh component resulted in 27 items being retained in six components. Component means, standard deviations, reliabilities, and variance explained are presented in Table 7. The remaining components were easily labeled within the framework of the original phases created by the SME panel with an additional component label added to the instrument. In order to eliminate any confusion between the original instrument and the revised instrument; the component labels have been revised and/or changed.

Table 7
Correlation Matrix for the Six Components of Human Capital Planning

Component	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Leadership Driven Approach to Planning	3.51	.39	(.76)					
2. Current Organizational Status	3.45	.39	.46	(.70)				
3. Systems for Measurement, Accountability, and Feedback	3.21	.43	.50	.53	(.80)			
4. Organizational Learning and Buy-In	3.02	.46	.41	.50	.57	(.77)		
5. Intergrating Organizational Competency Models	3.21	.43	.50	.56	.53	.55	(.76)	
6. Human Resource Capacities and Capabilities	3.09	.46	.44	.57	.56	.58	.59	(.73)

The first factor consisted of five items, which has been labeled *leadership driven approach to planning* (32.96% of the variance) because it represented the initial leadership engagement in the planning process. Sample items included “The organizations’ leadership and employees must become well versed in the human capital planning process” and “It is important to establish executive participation in the strategic human capital planning process”. The retained items (planning q1, q5, q6, q7, and q8) from the original scale are all from the planning dimension. Cronbach’s alpha was .76, with $M = 3.51$, and $SD = .39$ for factor 1. Details of the component means, standard deviations, reliabilities, and item loadings are presented in Table 8.

The second factor consisted of four items, which has been labeled *current organizational status* (5.02% of the variance) because it represented the internal and external environment of the organization. Sample items included “It is critical to adjust and procure human resources (staff) to fit the operational and tactical requirements of the business strategy”, “It is important to assess the external labor market to source talent for the business”, and “It is important to assess the internal capability to develop and train talent”. The retained items for factor two from the original scale include: analyzing q16, q20, q21, and organizing q26. Cronbach’s alpha was .70, with $M = 3.45$, and $SD = .39$ for factor 2 (see Table 8).

The third factor consisted of four items, which has been labeled *systems for measurement, accountability, and feedback* (4.28% of the variance) because it described the systems necessary to gauge success and failure based upon the desired outcomes of the HCP process. Sample items included “It is important to ensure to develop and install monitoring and measuring process for intended and unintended consequences of the

action and for continuous feedback”, “It is important to establish ways to track and evaluate the results of the human capital effort and to compare them regularly and systematically to the measurable goals and objectives of the business strategy”, and “It is important for the organization to have a clear policy to encourage and recognize employees for their contribution to organizational productivity and success”. The retained items for factor three from the original scale include: monitoring q33, q34, q35, and 36. Cronbach’s alpha was .80, with $M = 3.21$, and $SD = .43$ for factor 3 (see Table 7).

The fourth factor consisted of five items, which has been labeled *organizational learning and buy-in* (3.75% of the variance) because it described the organizations’ learning strategies necessary to succeed in the human capital planning process which involves both leadership and employees. Sample items included “Leaders should initiate and promote the notion of a learning organization paradigm as a strategy to get employee buy-in and ownership in the human capital planning process”, “It is important to ensure that the learning strategies of the organization are at the behavioral level of competency models and performance”, and “It is important to identify critical metrics of performance at various stages of implementing the strategies (initiation, roll-out, execution, refinement and improvement, adjustment, and termination)”. The retained items for factor four from the original scale include: directing q28, q29, q30, and monitoring q32, and q38. Cronbach’s alpha was .77, with $M = 3.02$, and $SD = .46$ for factor 4 (see Table 8).

The fifth factor consisted of five items, which has been labeled *integrated organizational competency models* (3.43% of the variance) because it described the necessity for the organization to develop, and integrate competency models into performance management systems for all employees. Sample items included “It is

important to ensure that the organization’s performance management system is integrated with the competency models and/or job descriptions”, “It is important to establish methods to assess employees’ current competencies against the requirements for future competencies at a higher level of responsibility”, and “It is important for the organization to update and ensure accuracy of all job descriptions”. The retained items for factor five from the original scale include: planning q13, q14, and analyzing q19, q22, and q23. Cronbach’s alpha was .76, with $M = 3.21$, and $SD = .43$ for factor 5 (see Table 8).

Table 8
Component Means, Standard Deviations, Reliabilities, Variance, and Item Loadings for the Human Capital Planning Instrument (HCPI).

<i>Factors and Items</i>	<i>M</i>	<i>SD</i>	<i>α</i>	<i>Item Loading</i>	<i>Variance Explained</i>
Factor 1 - Leadership Driven Approach to Planning	3.51	.39	.76		32.96%
The organizations' leadership and employees must become well versed in the human capital planning process.				.58	
The organization must establish clear goals and objectives to guide the human capital planning effort.				.55	
It is important to establish leadership buy-in for strategic human capital planning.				.74	
It is important to make a clear business case for the implementation of human capital planning including clarifying what human capital planning means to the organization.				.71	
It is important to establish executive participation in the strategic human capital planning process.				.65	
Factor 2 - Current Organizational Status	3.45	.39	.70		5.02%
It is important to ensure that the organization current strategies and strategic plan are clearly articulated.				.54	
It is important to assess the internal capability to develop and train talent.				.68	
It is important to assess the external labor market to source talent for the business.				.57	
It is critical to adjust and procure human resources (staff) to fit the operational and tactical requirements of the business strategy.				.60	
Factor 3 - Systems for Measurement, Accountability and Feedback	3.21	.43	.80		4.28%
It is important to identify critical metrics of performance at various stages of implementing the strategies (initiation, roll-out, execution, refinement and improvement, adjustment, and termination).				.75	
It is important to ensure to develop and install monitoring and measuring process for intended and unintended consequences of the action and for continuous feedback.				.75	
It is important to establish a measurement system to track individual employee progression and to source talent as needed.				.62	
It is important to establish ways to track and evaluate the results of the human capital effort and to compare them regularly and systematically to the measurable goals and objectives of the business strategy.				.55	

Table 8. *Continued*

<i>Factors and Items</i>	<i>M</i>	<i>SD</i>	<i>α</i>	<i>Item Loading</i>	<i>Variance Explained</i>
Factor 4 - Organizational Learning and Buy-In	3.02	.46	.77		3.75%
Leaders should initiate and promote the notion of a learning organization paradigm as a strategy to get employee buy-in and ownership in the human capital planning process.				.70	
It is important to ensure that the learning strategies of the organization are to behavioral level of competency models and performance.				.51	
It is important to establish organizational learning practices that encourage employees to engage in lifelong learning and contribute to organizational strategies.				.58	
It is important to establish individual development plans to narrow the gaps through systematic, planned training and development, action				.67	
It is important to identify critical metrics of performance at various stages				.52	
Factor 5 - Integrating Organization Competency Models	3.21	.43	.76		3.43%
It is important for the organization to develop current competency models for all employees/groups targeted.				.60	
It is important for the organization to update and ensure accuracy of all job descriptions.				.57	
It is important to create future-oriented competency models that are aligned with the organizations strategic plan to realize and implement the organizational strategies in the future.				.62	
It is important to establish methods to assess employee's current competencies against the requirements for future competencies at a higher level of responsibility.				.51	
It is important to ensure that the organization's performance management system is integrated with the competency models and/or job descriptions.				.54	
Factor 6 - Human Resource Capacities and Capabilities	3.09	.46	.73		2.93%
It is important to adjust non-human systems (technical, infrastructure, processes, and organization design) to fit operational and tactical requirements of strategy and human resources.				.56	
It is important to examine the human capital supply stream to determine locations/sources for future human capital (ie: universities, technical colleges, and other organizations).				.60	
It is important to determine the current and future scope/quality of human capital accurately and precisely required for the organization.				.58	
It is important to adjust operational and tactical levels of strategy to fit probable and potential talent (adjust strategy to fit capabilities of human capital).				.64	

Note. Response scale for the HCPI (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree, 0 = not applicable).

The sixth factor consisted of four items, which has been labeled *human resource capacities and capabilities* (2.93% of the variance) because this factor described the human resource supply chain, the talent management capabilities of the organization, and the capacity to adjust non-human systems to meet human resource needs. Sample items included “It is important to adjust non-human systems (technical, infrastructure,

processes, and organization design) to fit operational and tactical requirements of strategy and human resources”, “It is important to examine the human capital supply stream to determine locations/sources for future human capital (ie: universities, technical colleges, and other organizations)”, and “It is important to adjust operational and tactical levels of strategy to fit probable and potential talent (adjust strategy to fit capabilities of human capital)”. The retained items for factor six from the original scale include: analyzing q18, organizing q24, q25, and q27. Cronbach’s alpha was .73, with $M = 3.09$, and $SD = .46$ for factor 6 (see Table 8).

Summary

This chapter presented the findings of an exploratory factor analysis with a first generation instrument to guide in the human capital planning process within organizations. The exploratory factor analysis of the data resulted in six factors or components being identified:

Factor One: Leadership Driven Approach to Planning

Factor Two: Current Organizational Status

Factor Three: Systems for Measurement, Accountability, and Feedback

Factor Four: Organizational Learning and Buy-In

Factor Five: Integrating Organization Competency Models

Factor Six: Human Resource Capabilities and Capacities

The original data were reduced from 38 items within five components to 27 items within six components. The factor analysis grouping of the eight components did not produce reliable components in totality. Two of the components were eliminated from the analysis because these did not produce either a reliable factor or the item did not fit

cognitively. Factor seven resulted in only one item grouped within the component thus it was eliminated because one item within a component does not produce viable feedback from respondents nor does it produce a reliable measure. Factor eight had to be eliminated from the analysis because it produced a two-item component. According to McLean et al. (2005), a component or factor with three or less items is not an appropriate measure to determine respondent feedback. In addition, Cronbach's alpha for the two items contained within the eighth component was a disappointing .56. This score is below the recommended .70 (Nunnally, 1970).

It was not necessary to adjust any of the six factors for cognitive fit. All items loaded in the six components fit cognitively, logically, and produced reliable results. Cronbach's alpha for the overall revised scale was .86 with individual scales ranging from .70 to .80, which is equal to or above the recommended .70. Thus, it appears from the exploratory factor analysis data that this first generation instrument is reliable and can produce results to assist in the human capital planning process.

Chapter V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

The purpose of this study was to develop and validate an instrument to assist organizations to engage in the human capital planning process as a strategic human resource management technique. The findings were gathered utilizing a first generation instrument developed from both an extensive review of the literature and a subject matter expert (SME) panel. This chapter is organized into three sections. The first section is a discussion of the results related to the three research questions, the second section is a summary of the study, and the final section provides and details the recommendations for future study.

The results of this study indicate that an initial instrument for human capital planning can be developed and validated from the literature and in coordination with the assistance of a subject matter expert panel. The SME panel established content validity of the first generation instrument through an exhaustive review process, which involved item generation and validation in three rounds of a modified Delphi technique. The pilot study revealed a Cronbach's alpha of .91 for the 38 items on the instrument. The exploratory factor analysis revised survey instrument revealed an overall Cronbach's alpha coefficient score of .86 with individual scales ranging from .70 to .80, which is equal to or above the recommended .70.

Discussion of the Research Questions

Research Question 1

What are the underlying dimensions of human capital planning revealed in the literature?

The review of the literature established the original dimensions for the scale. The indicators of success for human capital planning process have been based upon four dimensions. These four dimensions according to Brush and Ruse (2005) are: a) determine the type of talent required to execute the business initiative, b) determine the number of people required over the term of the initiative, c) identify and prioritize talent gaps and determine the best approach for sealing these gaps, d) identify actions necessary to align talent (p. 53). These HCP design dimensions were utilized in the initial and second phase of the scale development through the SME panel.

Even though, the initial four dimensions were identified through the in-depth review of the literature, these four dimensions (determine the type of talent required to execute the business initiative; determine the number of people required over the term of the initiative; identify and prioritize talent gaps and determine the best approach for sealing these gaps; identify actions necessary to align talent) were not retained as dimensions in the final instrument. The SME panel suggested the phases of project management (planning, analyzing, organizing, directing, and monitoring) and developed the items for the instrument within these phases. The initial dimensions identified from Brush and Ruse (2005) were converted to the descriptions for the phases and the items.

The findings indicate that the literature did reveal the critical and initial phases of human capital planning. Although, the original phases were not retained as component or factor titles in the completed survey instrument; these did establish the basis for item development with the SME panel. These four phases identified by Brush and Ruse ultimately became the definitions the phases for human capital planning in the final instrument.

Research Question 2

Can a preliminary reliable and valid instrument for human capital planning be developed that reflects appropriate content from the initial dimensions identified in the literature and utilizing a Subject Matter Expert (SME) panel?

The initial instrument was developed from both the review of the literature and the utilization of a subject matter expert panel. The SME panel utilized in the instrument design and creation resulted in five dimensions and thirty-eight items for human capital planning. These dimensions and items created the survey, which was utilized, in the pilot study to determine initial validity and reliability.

The five dimensions resulted in a cognitive and logical fit of items within the following phases:

PHASE 1: PLANNING - The initial completion of the data collection, and the determination of the processes and program plan necessary to execute human capital planning.

PHASE 2: ANALYZING - The analysis of the type of talent necessary to align with the business strategies, and vision.

PHASE 3: ORGANIZING - The determination of the staffing levels required over the term of the business initiative/strategy.

PHASE 4: DIRECTING - The identification and prioritization of talent gaps and determination of the best approach to close the gap(s).

PHASE 5: MONITORING - The determination, development, and implementation of appropriate monitoring and measurement systems.

The completed survey instrument was developed from not only the review of the literature but through the use of subject matter experts. The SME participants provided all necessary feedback to establish content validity in the instrument. The Cronbach's Alpha coefficient for the 38 items in the pilot study was .91. This alpha score is much higher than the recommended .70 (Nunnally, 1970).

Research Question 3

What is the reliability and validity verification data for a newly developed human capital-planning instrument?

The original data was reduced from 38 items within five components to 27 items within six components. The factor analysis grouping of the eight components did not produce reliable components in totality. Two of the components had to be eliminated from the analysis because these did not produce either a reliable factor or the item did not fit cognitively. Factor seven resulted in only one item grouped within the component thus it was eliminated because one item within a component does not produce viable feedback from respondents nor does it produce a reliable measure. Factor eight had to be eliminated from the analysis because it produced a two-item component. According to McLean et al. (2005), a component or factor with three or less items is not an appropriate measure to determine respondent feedback. In addition, Cronbach's alpha for the two items contained within the eighth component was a disappointing .56. This score is below the recommended .70 (Nunnally, 1970).

It was not necessary to adjust any of the six factors for cognitive fit. All items loaded in the six components fit cognitively, logically, and produced reliable results. Cronbach's alpha for the overall revised scale was .86 with individual scales ranging

from .70 to .80, which is equal to or above the recommended .70. Thus, it appears from the exploratory factor analysis data that this first generation instrument is reliable and can produce results to assist in the human capital planning process.

Summary

The literature has indicated the success of planning and linking multiple organizational units to the strategic direction of the organization (Gunn, 2001; Kaplan & Norton, 2005; Moutinho & Phillips, 2002) and the need for human capital planning (Brush & Ruse, 2005; Kazan, 2005; Weiss, 2005) as a result of strategic direction setting. In order to assist in the process of planning, and in particular, the process of human capital planning, this research study was designed to develop and validate an instrument for human capital planning as a strategic human resource management tool.

This study has presented the initial results that address the reliability and validity of the instrument designed to assist in the human capital planning process. Based on the review of the relevant literature and the evidence of this study, it can be concluded that human capital planning is a multidimensional construct. In other words, the exploratory factor analysis revealed six factors with multiple items to assist in HCP. Although, the factors have been expanded from the original five dimensions utilized in the initial survey, the items have been reduced from 38 to 27 items.

The preliminary content validity of the instrument was established through the utilization of a subject matter expert panel. The methodology to utilize a SME panel to establish content validity has been well documented in the literature (Holton & Burnett, 2005). However, content validity is the minimal validity necessary for acceptable

research. The instrument developed for this research study has demonstrated moderate validity.

The preliminary reliability data for the human capital planning instrument is quite promising, even though the instrument is in the early stages of development. The reliability data from both the pilot study and the exploratory factor analysis have been acceptable. Cronbach's alpha coefficient for the pilot study was an overall .91 for the 38 items. The overall Cronbach's alpha coefficient for the exploratory factor analysis or the revised scale was .86 with individual scales ranging from .70 to .80, which is equal to or above the recommended .70. Thus, it appears from the exploratory factor analysis data that this first generation instrument is reliable and can produce results to assist in the human capital planning process.

The purpose of this research was to develop and validate an instrument for human capital planning as a strategic human resource management tool. The literature review identified the initial best practices guidelines from Brush and Ruse, which were extracted to become the dimensions of the subject matter expert panel brainstorming. These dimensions were later replaced with the five phases of project management in order to facilitate a practitioner-based measure or a pre-planning type checklist. In addition, the literature revealed the importance of human capital planning, and the strategy linkages necessary for success. However, there is no empirical measurement or instrument available to determine the process or procedure required to be successful in human capital planning.

The instrument was designed to provide the information to answer the research questions. In addition to the extensive literature review, input on the development of the

items was sought through a subject matter expert panel. This panel established the items in a modified Delphi technique process over three rounds. The subject matter experts utilizing the original instrument validated the study. The Cronbach's alpha coefficient for the 38 items in the pilot study was .91.

The sample was selected from a professional society membership list and human resource database. The survey included all regions of the United States. The sampling procedures resulted in 4,210 viable study participants. All participants were emailed a link to the study survey. There were 494 respondents who completed at least a partial survey. There were no eliminated surveys. The 494 respondents represented an 11.7% response rate, which is consistent with previous Internet research. However, the "double dip" procedure non-response error as suggested by Dooley and Lindner (2003), and Miller and Smith (1983) was utilized to compare the response means of respondents to non-respondents. Dooley and Linder (2003) suggest a random sample of 20 non-respondents is adequate to compare mean responses of these two groups. Following this procedure, the researcher solicited an additional 100 non-respondents to obtain an adequate sample for comparison. This resulted in 48 non-respondents participating in the survey.

Two-Sample Hotelling's T_2 was used to test the hypothesis that there was no difference between the measures of the six dimensions of human capital planning between the respondent and non-respondent groups (Kachigan, 1991; Lopes, 2006). The T_2 analysis results indicate that there was no significant difference between the six original dimensions of human capital planning for the respondent and non-respondent groups ($T_2 = 3.10$, $F(12, 530) = 2.70$, $p = .161$). Thus, no further analysis was required.

The data obtained in the study was analyzed. The respondent population had 183 (37 %) companies from the northeast, and 140 (28.3%) from the western portion of the United States. In addition, 73 % of participants have between 101 – 10,000 employees with 50.6% of those respondents having annual revenue between \$11 million and \$500 million.

Data analysis included an exploratory factor analysis to determine the latent factors contained in the instrument. This analysis revealed six factors with 27 items retained from the original survey. The exploratory factor analysis of the data resulted in six factors or components being identified as displayed in figure 4:

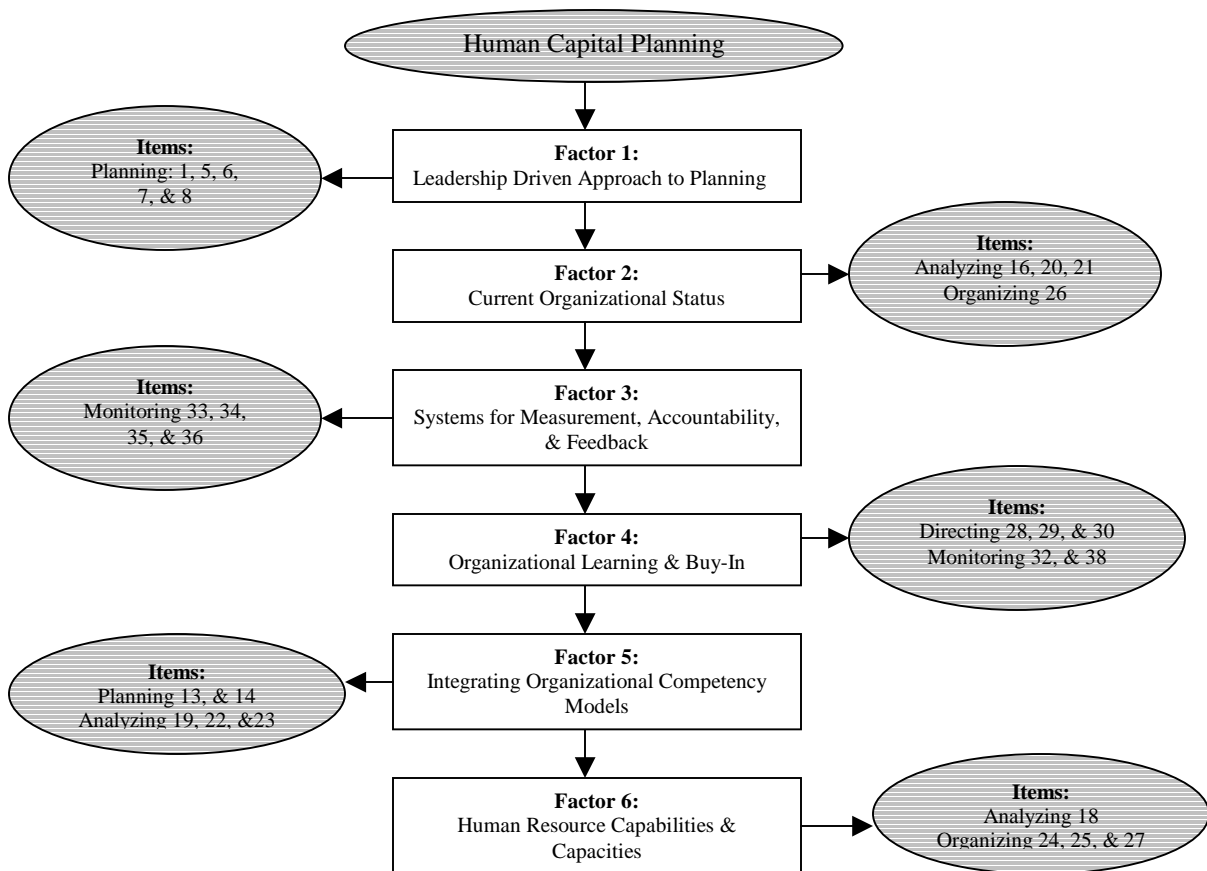


Figure 5. Six Factor Model for Human Capital Planning

The factor analysis grouping of the eight components did not produce reliable components in totality. Two of the components had to be eliminated from the analysis because these did not produce either a reliable factor or the item did not fit cognitively. Factor seven resulted in only one item grouped within the component thus it was eliminated because one item within a component does not produce viable feedback from respondents nor does it produce a reliable measure. Factor eight had to be eliminated from the analysis because it produced a two-item component. According to McLean et al. (2005), a component or factor with three or less items is not an appropriate measure to determine respondent feedback. In addition, Cronbach's alpha for the two items contained within the eighth component was a disappointing .56. This score is below the recommended .70 (Nunnally, 1970).

Limitations of the Research

There were multiple limitations that may have affected the study. The study utilized a random stratified sample from a professional society membership list, which was intended to produce more precise population estimates, however, nearly 40% of respondents were from the northeast portion of the United States. In addition, the majority of respondents (70%) reported their company as providing a service. This lack of diversity in both sector and geographic location may have influenced the results. Also, there were no organizations from outside the United States of America included in this study. This is a limitation since organizations outside the United States have had great success implementing human capital, and knowledge capital planning by linking to business strategy.

Furthermore, the utilization of a membership list from a professional society for sampling purposes is a limitation to research. A professional society membership list includes only dues paying members. This introduces coverage error because the sample was drawn from a list, which precludes portions of the total population from selection (Dooley & Lindner, 2003). The utilization of the national professional society for human resource managers and professionals in the United States has introduced coverage error for this research. It cannot be assumed the total population was sampled because not every possible associate of this population is currently a dues paying member, thus people may have been deselected from the sample.

In addition, the item wording contained in the final instrument may introduce leading questions. The term “important” was added to the final instrument in order to provide clarification and continuity among the items within the components. However, the utilization of the term important can be leading in terms of respondents answering these questions. The results indicate that the term had limited impact on any component or factor beyond the first. However, it is significant enough to note as a potential limitation.

Another limitation to this study is the lack of adjustment for correlation attenuation. The correction for attenuation is a statistical procedure to rid a correlation coefficient from the weakening effect of measurement error. How well the variables are measured affects the correlation of the variables. The correction for attenuation in this study would tell us what the correlation would be if it could measure the variables with perfect reliability (Jensen, 1998).

A final limitation was the exclusion of organizations classified as local, state, or federal government entities. These were excluded because much of the initial work on human capital planning has been completed in the government sector. This sector and qualifying participants may have a great deal of information to offer the planning process.

Recommendations for Future Research

The opportunity for HRM and WLP/HRD researchers and practitioners to continue to develop and build upon this study is tremendous. The ability to develop the theoretical framework and foundation for human capital planning for both practitioners and researchers is vast. This study only began to delve below the surface of human capital planning as a strategic human resource management technique.

The WLP/HRD and HRM researcher has the opportunity to continue to build upon this instrument to confirm validity and reliability. This study involved the development of a first generation instrument for human capital planning and in such has only examined the data utilizing exploratory factor analysis. There is an opportunity for future research to confirm these findings and the goodness of fit through the continued utilization of this instrument and analyzing the data with confirmatory factor analysis.

Researchers have the opportunity to expand the population sample utilized for this study. One of the limitations and potential for future research is the expansion of the population sample. Since, this study only utilized data from organizations within the continental United States. It would behoove a researcher to utilize a global population sample. As globalization continues and organizations continue to grow within the global marketplace, it will become increasingly more important for this instrument to adapt to global planning requirements. The requirements of a global workforce are much different

and the planning process associated with a global workforce is unlike the confines of the United States. This will most likely require adjustments to the instrument components and items.

Although listed as a limitation to the study, additional research with this instrument should be conducted utilizing and/or incorporating a government sample. It would be recommended that the sample include those entities listed as local, state, and federal government. As mentioned earlier, much of the work on human capital planning has been conducted in this sector. The entities have contributed greatly to the study of HCP and could potentially contribute significantly to the furtherance of this research.

In addition to the future researcher recommendations, there are additional practitioner based recommendations as well. It is suggested that this instrument be field-tested. The developed and validated instrument for human capital planning lends itself to a pre-planning checklist for practitioners to establish a baseline for developing the planning processes of the organization. This instrument has been developed from an extensive review of the literature and from subject matter experts in order to create a benchmark for best practice guidelines. However, the “real-test” of any instrument is in the workplace and applied within an actual organizational setting.

An excellent method to field-test this instrument would be through the utilization of a quasi-experimental research design. The HRD/WLP practitioner, scholarly practitioner, or consultant community may wish to apply this instrument to separate groups of corporations in order to determine in effectiveness. The quasi-experimental design should include a control and non-control group or company. The control group organization would utilize the instrument developed from this research during their

planning process. The non-control group would plan and develop business strategies and objectives without the use of this instrument. A final evaluation of the outcomes of the planning process for both groups could be analyzed utilizing appropriate statistical methodology to determine if the control organization has had greater success than the non-control group in the planning process through the evaluation of outcomes.

Since, the instrument is based upon best practice guidelines, WLP/HRD practitioners can utilize this tool as a training device for management development activities. This instrument can easily identify the strengths and weaknesses of an organization in relation to the planning process. Practitioners can utilize this instrument to build upon strengths and correct weaknesses. The tool will be an excellent diagnostic tool for managerial personnel and organizational deficiencies.

References:

- Adams, W.K., Perkins, K.K., Dubson, M., Finkelstein, N.D., and Wieman, C.E. (2004, August). *The design and validation of the Colorado Learning Attitudes about Science (CLASS) survey*. Paper presented at the meeting of Physics Education and Research Conference (PERC), Sacramento, CA.
- Baptiste, I. (2001). Educating lone wolves: Pedagogical implications of human capital theory. *Adult Education Quarterly*. 51(3), 184-201.
- Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99-120.
- Becker, B.E., Huselid, M.A., & Ulrich, D. (2001). *The HR scorecard: Linking people, strategy, and performance*. Boston: Harvard Business School Press.
- Becker, G.S. (1992). Nobel lecture: The economic way of looking at life. *Journal of Political Economy*. 101, 385-409.
- Becker, G.S. (1993). *Human capital: A theoretical and empirical analysis with special reference to education*. (3rd ed.). Chicago: The University of Chicago Press.
- Brna, M. J. (2005). *Service delivery best-practices at Pennsylvania school-based workforce development centers*. Unpublished doctoral dissertation, The Pennsylvania State University, University Park.
- Brush, M.C. & Ruse, D.H. (2005). Driving strategic success through human capital planning: How Corning links business and HR strategy to improve the value and impact of its HR function. *Human Resource Planning*, 28, 49-60.
- Cabrera, E.F. & Cabrera, A. (2003). Strategic human resource evaluation. *Human Resource Planning*. 26(1), 41-50.

- Cascella, V. (2002). Effective strategic planning. *Quality Progress*. 35(11), 62-68.
- Chermack, T.J., Lynham, S.A., & Ruona, W.E.A. (2001, Summer). A review of scenario planning literature. *Futures Research Quarterly*. ,7-31.
- Cribb, G. (2005, August). *Human resource development: Impacting on all four perspectives of the balanced scorecard*. Paper presented at the meeting of the World Library and Information Congress: 71st IFLA General Conference and Council, Oslo, Norway.
- Cresswell, J.W. (1994) *Research design: Qualitative and quantitative approaches*. Sage Publications, Thousand Oaks.
- Daft, R.L. (1992). *Organizational theory and design*. St. Paul, MN: West Publishing.
- Dillman, D.A. (2000). *Mail and internet surveys: The tailored design method* (2nd Ed.). New York: John Wiley & Sons.
- United States Department of Labor. Bureau of Labor Statistics. (2006) Labor Force. *Occupational Outlook Quarterly*. Summer 2006.
- DeVillis, R.F. (2003). *Scale development: Theory and applications*. Thousand Oaks, CA: Sage Publications.
- Dooley, L.M. & Lindner, J.R. (2003). The handling of non-response error. *Human Resource Development Quarterly*. 14(1), 99-110.
- Dunham, R.B. (1998). *Organizational behavior: The Delphi technique*. Retrieved January 7, 2006 from University of Wisconsin, School of Business Web site: <http://instruction.bus.wisc.edu/obdemo/readings/delphi.htm>

- Fabrigar, L., Wegener, D.T., MacCallum, R.C., & Strahan, E.J. (2005). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272-299.
- Farmer, E. I. & Rojewski, J.W. (2001) *Research pathways: Writing, professional papers, theses, and dissertations in workforce education*. New York: University Press of America, Inc.
- Field, A. (2004). *Research methods II factor analysis on SPSS*. Retrieved September 4, 2006 from The University of Sussex, Brighton, United Kingdom web site: www.sussex.ac.uk/Users/andyf/factor.pdf.
- Fitz-enz, J. (n.d.). Knowledge capital: How knowledge-based enterprises really get build. *Drake Business Review*, 1(1), 11-19.
- Fitzsimmons, P. (1999). *Human capital theory and education*. In J.W. Guthrie (Ed.), *The Encyclopedia of Education*.(2nd ed.) (pp.224-228). London: MacMillan Press.
- Gunn, R. A. (2001). *An organization that doesn't plan its future isn't likely to have one*. Retrieved December 1, 2005, from <http://www.strategic-futures.com/articles/sratpln/stratpln.html>.
- Gunaydan, M.H. (n.d.). *The Delphi method*. Retrieved from Izmir Institute of Technology, School of Business, Istanbul, Turkey Web site: <http://www.iyte.edu.tr/~muratgunaydin/delphi.htm>
- Hinkin, T.R. (2005). Scale development principles and practices. In R.A. Swanson & E.F. Holton (Eds.), *Research in organizations: Foundations and methods of inquiry*. (pp.161-179). San Francisco: Berrett-Koehler Publishers, Inc.

- Hitt, M.A., Ireland, D.R., & Hoskisson, R.E. (2005). *Strategic management: Competitiveness and globalization*. (6th ed.). Mason, OH: Thomson South-Western.
- Holton, E.F. & Burnett, M.F. (2005). The basics of quantitative research. In R.A. Swanson & E.F. Holton (Eds.), *Research in organizations: Foundations and methods of inquiry*. (pp.29-44). San Francisco: Berrett-Koehler Publishers, Inc.
- Huselid, M.A. & Barnes, J.E. (2002). *Human capital management systems as a source of competitive advantage*. Unpublished Manuscript, Rutgers University, School of Management and Labor Relations, Department of Human Resource Management.
- Jensen, A.R. (1998). *The g factor*. Boston, MA: Praeger Publications.
- Kachigan, S.K. (1991). *Multivariate statistical analysis: A conceptual introduction* (2nd ed.). New York: Radius Press.
- Kaplan, R.S. & Norton, D.P. (2005, February). Measuring the strategic readiness of intangible assets. *Harvard Business Review*. 52-63.
- Kaplan, R.S. & Norton, D.P. (2005). The office of strategy management. *Strategic Finance*. 87(4), pp. 8,10,59,60.
- Kaplan, R.S. & Norton, D.P. (1992, January-February). The balanced scorecard – measures that drive performance. *Harvard Business Review*. 71-79.
- Kaplan, R.S. & Norton, D.P. (1993, September-October). Putting the balanced scorecard to work. *Harvard Business Review*. 134- 142.
- Kazan, H. (2005). A study of factors affecting production and workforce planning. *Journal of American Academy of Business*, 7, 288- 296.

- Kelloway, K.E. (1995). Structural equation modeling in perspective. *Journal of Organizational Behavior*. 16, 215-224.
- Krueger, P.E. (2001). Determining appropriate sample size. In E.I. Farmer & J.W. Rojewski (Eds.), *Research pathways: Writing professional papers, thesis, and dissertations in workforce education*. (p. 247-258). New York: University Press of America, Inc.
- Lawler, E.E., Levenson, A., & Boudreau, J.W. (2005). HR Metrics and analytics: Use and impact. *Human Resource Planning*. 27-35.
- Lawson, T.E. & Hepp, R.L. (2005). Measuring the performance impact of human resource initiatives. *Human Resource Planning*. 36-44.
- Lopes, T.P. (2006). *Differences in dimensions of career motivation between international and domestic graduate students by age and gender*. Unpublished Doctoral Dissertation. The Pennsylvania State University, University Park.
- Machin, S. & Vignoles, A. (2004). *What's the good of education?* New Jersey: Princeton University Press.
- Mason, R., Lind, D. and Marchal, W. (1994) *Statistics: An introduction*. (4th ed.). New York, NY: Harcourt Brace College Publishers.
- McLean, G.N., Yang, B., Kuo, C., Tolbert, A., & Larki, C. (2005). *Development and initial validation of an instrument measuring managerial coaching skill*. *Human Resource Development Quarterly*, 16(2), 157-178.
- Miller, L.E. & Smith, K.L. (1983). Handling nonresponse issues. *Journal of Extension*. 41, 45-50.

- Merriam-Webster's collegiate dictionary*. (10th ed.). (1993). Springfield, MA: Merriam-Webster.
- Mountinho, L. & Phillips, P.A. (2002). The impact of strategic planning on the competitiveness, performance and effectiveness of bank branches: a neutral network analysis. *The International Journal of Bank Marketing*, 20(2/3), 102-110.
- Nafukho, F.M., Hairston, N.R., & Brooks, K. (2004a). *Determining the link between human capital theory and human resource development*. In *Public Policy Working Paper Series: Vol 3(2)*. Fayetteville, Arkansas: The University of Arkansas.
- Nafukho, F.M., Hairston, N.R., & Brooks, K. (2004b). Human capital theory: Implications for human resource development. *Human Resource Development International*, 7(4), 545-551.
- Nunnally, J.C. (1970). *Introduction to psychological measure* (2nd ed.). New York: McGraw-Hill.
- O'Rourke, N., Hatcher, L., & Stepinski, E. (2005). *A step-by-step approach to using SAS for univariate and multivariate statistics*. (2nd ed.). Cary, NC: SAS Institute.
- Passmore, D. L. & Baker, R.M. (2005). Sampling strategies and power analysis. In R.A. Swanson & E.F. Holton (Eds.), *Research in organizations: Foundations and methods of inquiry*. (pp. 45-56). San Francisco: Berrett-Koehler Publishers, Inc.
- Ross, J. (2004). *Ways of approaching research: Quantitative design*. Retrieved January 6, 2006 from University of Luton Web site <http://www.fortunecity.com/greenfield/grizzly/432/rra2.htm>

- Rao, T.V. & Rothwell, W.J. (2000). Using the HRD audit to build convergence between HRM and OD. In W.J. Rothwell & R. Sullivan (Eds.), *Practicing organization development: A guide for consultants* (2nd ed., pp. 106-134). San Francisco: CA: Pfeiffer.
- Rothwell, W. J. & Kolb, J. A. (1999). Major workforce and workplace trends influencing the training and development field in the USA. *International Journal of Training and Development*, 3(1), 44-53.
- Rothwell, W.J., Prescott, R.K., & Taylor, M.W. (1999). *Strategic human resource leader*. Palo Alto, CA: Davies-Black Publishing.
- Rothwell, W.J. & Sullivan, R. (Eds.). (2005). *Practicing organization development: A guide for consultants* (2nd ed.). San Francisco: CA: Pfeiffer.
- Rothwell, W. J. & Sredl, H.J. (2000). *The ASTD reference guide to workplace learning and performance: Present and future roles and competencies* (3 rd., Vols. 1-2). Amherst, MA: HRD Press, Inc.
- Sax, G. (1997). *Principles of educational and psychological measurement and evaluation*. London: Wadsworth.
- Sax, L.J., Bryant, A.N., & Harper, C.E. (2005). The differential effects of student-faculty interaction on college outcomes for women and men. *Journal of College Student Development*. 46(6), 642-659.
- Salkind, N.J. (2004). *Statistics for people who think they hate statistics*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

- Sheehan, J.B. & Hoy, M.G. (1999). Using e-mail to survey Internet users in the United States: Methodology and assessment. *Journal of Computer Mediated Communication*. 4(3).
- Schwab, D. P. (1980). Construct validity in organizational behavior. In B.M. Staw & L.L. Cummings (Eds.), *Research in organizational behavior* (Vol 2, pp. 3-43). Greenwich, CT: JAI.
- Simsek, Z. & Veiga, J.F. (2001). A primer on Internet organizational surveys. *Organizational Research Methods*. 4(3), 218-235.
- Smith, M.E. (2006). *Informing the customer service training process: Building on subject matter expert knowledge and experience*. Unpublished doctoral dissertation. The University of Minnesota, Minneapolis.
- Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Erlbaum.
- Sweetland, S.R. (1996). Human capital theory: Foundations of a field of inquiry. *Review of Educational Research*. 66(3), 341-359.
- Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington, DC: American Psychological Association.
- Trochim, W.M.K. (2005). *Research methods: The concise knowledge base*. Cincinnati, OH: Atomic Dog Publishing.
- United States Department of Commerce, Economics, and Statistics Administration, United States Census Bureau. (n.d.). *Census regions and divisions of the United States*. Washington, DC: US Government Printing Office.

- Weatherly, L.A. (2003, March). Human capital- the elusive asset. *HRMagazine*. 48(3), s1-s9.
- Weiss, D.S. & Finn, R. (2005). HR metrics that count: Aligning human capital management to business results. *Human Resource Planning*, 28, 33-38.
- Yang, B. (2005). Factor analysis methods. In R.A. Swanson & E.F. Holton, (Eds.), *Research in organizations: Foundations and methods of inquiry*. (pp. 181-199). San Francisco: Berrett-Koehler Publishers, Inc.
- Yeung, A.K. & Berman, B. (1997). Adding value through human resources: Reorienting human resource management to drive business performance. *Human Resource Management (1986-1998)*, 36(3), p. 321-335.

APPENDIX A

SUBJECT MATTER EXPERT (SME) PANEL DOCUMENTATION

1. PRE-SELECTION E-MAIL(S)
2. PARTICPATION LETTER IN SME PANEL
3. REQUEST FOR COMPLETION OF DELPHI TECHNIQUES ROUND ONE
4. REQUEST FOR COMPLETION OF DELPHI TECHNIQUES ROUND TWO
5. REQUEST FOR COMPLETION OF DELPHI TECHNIQUES ROUND THREE

Pre-Selection Letter

[date]

Dear _____:

I am writing this letter as a request for your assistance in a research study. I am a graduate student pursuing my Doctor of Philosophy degree in Human Resource Development at The Pennsylvania State University, University Park Campus. Currently, I am working on completing my dissertation on “The Development and Validation of an Instrument for Human Capital Planning as a Strategic Human Resource Management Tool”.

The reason for my solicitation is to request your assistance in a Subject Matter Expert Panel to develop the survey items for four dimensions of Human Capital Planning (HCP). You have been identified as a subject matter expert on planning, human capital, or intangible asset planning. Thus, I would like to engage you in my study.

The SME Panel, which is based on a modified Delphi technique, can take approximately 5 or 6 hours of your time, however this will be spread over a several week period. It will require you to complete internal or self-brainstorming to develop some initial items or indicators of success for human capital planning. The process can last up to three rounds. We would continue until no further new ideas are generating regarded human capital planning. You will not have to travel to meetings, participate in conference calls, or be available at any specific time. The Delphi technique can be completed totally by electronic mail, regular mail, or fax.

Participation in the study is completely voluntary and you may withdrawal from participation at any time during the process. Identification will remain completely anonymous except to my dissertation advisor and myself, and all information collected will remain completely confidential to the extent permitted by the Internet. There are no code identifiers or any other markings that will link you to any information provided.

My dissertation advisor and advisor for this project is Dr. Thomas J. Chermack. Questions about this project can be directed to him via e-mail at: tjc18@psu.edu or via telephone at (814) 863-5795.

This project has been reviewed and approved by The Pennsylvania State University, Human Subjects Committee. Questions concerning your rights can be directed to the Vice-President for Research, Office of Regulatory Compliance, 212 Kern Building, University Park, PA 16802-3301 or via telephone at (814) 863-1775.

I request that you indicate your intentions within seven days of this contact.

Thank you for your time and consideration of my request for assistance,
Ken Zula, Ph.D. Student

Participation Letter for the Delphi Technique

[date]

Dear _____:

A few days ago, you received an e-mail detailing a research project, which I am completing as part of the completion of my Doctor of Philosophy degree in Workforce Education and Development at The Pennsylvania State University. As you are aware, I have selected to develop and validate an instrument for Human Capital Planning.

I requested your assistance because you are considered an expert in planning, human capital, and human resources, or human resource development. As such I am now requesting that you participate in a modified Delphi technique process to develop the initial items for the following four dimensions of human capital planning: a) determine the type of talent required to execute the business initiative, b) determine the number of people required over the term of the initiative, c) identify and prioritize talent gaps and determine the best approach for sealing these gaps, d) identify actions necessary to align talent.

Please indicate your intent to either participate or decline participation in the reply line or body of this e-mail and return it as soon as possible but within seven business days. I will contact you with detailed instructions to begin the first round of item development once I receive your return reply.

Once again, I must thank you for your participation and cooperation in this project.

Sincerely,

Ken Zula, Ph.D. Student
Penn State University

Human Capital Planning Questionnaire 1

[date]

Dear _____:

Thank you agreeing to participate in my research study regarding human capital planning. Please find enclosed the first round questionnaire, which will develop your and other experts' initial thoughts on human capital planning in organizations. I request that you complete the enclosed questionnaire in seven days and return it to me via email at: kjz117@psu.edu, fax at (570) XXX-XXXX, or via mail at: 801 SR 292 East, Tunkhannock, PA 18657.

The purpose of this questionnaire is to elicit your ideas regarding the following issue:

What actions, processes, or preparations can an organization take to prepare for human capital planning as a strategic human resource management initiative or metric?

Please engage in individual brainstorming in order to generate as many ideas for each of the four dimensions of human capital planning (HCP) as possible. Please list each idea in a brief, concise manner and email, fax, or mail your response(s) to me. Your ideas need not be fully developed. In fact, it is preferable to have each idea expressed in one brief sentence or phrase. No attempt should be made to evaluate or justify these ideas at this point in time. Your ideas will be anonymously included in the next questionnaire.

HCP Dimension: *What can the organization do to determine the type of talent required to execute the business initiative?*

- | | | |
|----------|----------|----------|
| Idea #1: | Idea #4: | Idea #7: |
| Idea #2: | Idea #5: | Idea #8: |
| Idea #3: | Idea #6: | Idea #9: |

HCP Dimension: *What can the organization do to determine the number of people required over the term of the initiative?*

- | | | |
|----------|----------|----------|
| Idea #1: | Idea #4: | Idea #7: |
| Idea #2: | Idea #5: | Idea #8: |
| Idea #3: | Idea #6: | Idea #9: |

HCP Dimension: *What can the organization do to identify and prioritize talent gaps and determine the best approach for sealing these gaps?*

Idea #1:

Idea #4:

Idea #7:

Idea #2:

Idea #5:

Idea #8:

Idea #3:

Idea #6:

Idea #9:

HCP Dimension: *What can the organization do to identify actions necessary to align talent?*

Idea #1:

Idea #4:

Idea #7:

Idea #2:

Idea #5:

Idea #8:

Idea #3:

Idea #6:

Idea #9:

Human Capital Planning Questionnaire 2

[date]

Dear _____:

Thank you once again for agreeing to participate in my research study. Please find enclosed the second round questionnaire, which will develop your and other experts' continuing thoughts and ideas on "The Development and Validation of an Instrument for Human Capital Planning as a Strategic Human Resource Management Tool".

I request that you complete the enclosed questionnaire in seven days and return it to me via email at: kjz117@psu.edu, fax at (570) 945-8006, or via mail at: Ken Zula, 801 SR 292 East, Tunkhannock, PA 18657.

The purpose of this questionnaire is to report all of the ideas sent in response to the first questionnaire and to solicit new ideas for dealing with the issue: "What actions, processes, or preparations can an organization take to prepare for human capital planning as a strategic human resource management initiative or metric?"

Here is what I have done:

I have organized the responses, deleted the duplicates, and developed the potential indicators. In this round of the questionnaire, I am asking: (1) Is my organization scheme correct, are the indicators appropriate, and do the responses "fit" with the individual indicator? (2) Is there any clarification necessary for each indicator? and if so - please identify the clarification for the response or responses, and (3) what are the strengths and weaknesses of each potential indicator or category? In other words, are these indicators or categories strong enough or are these too weak for the "average" human resource management/ human resource development professional to understand and begin the process of HCP?

Please refine and clarify ideas or the created potential indicator categories already received by clarifying them where desired and by listing the strengths and weaknesses you associate with each category. Please list any new ideas at the bottom of the questionnaire and comment on each new idea's strengths and weaknesses for addressing the issue. Your ideas will be anonymously included in the next and final question.

Potential Indicator #1: Determine the initial process and prior planning necessary to execute HCP.

1. Become well versed in the process to be followed.
2. Identify existing sources of relevant employment and workforce data.
3. Collect and compile employment and workforce data where it is currently
4. Make the business case for doing human capital planning.
5. Assess costs to implement strategy (HCP component).

6. Develop and install communications/feedback processes to inform workers, management, and stakeholders of progress and results of strategy.
7. Leadership buy-in on the value of investing in human capital.
8. Career planning program should be established within the organization.
9. Career management plan for every employee in the organization.
10. Organizational mission should reflect the value of knowledge workers in the organization.
11. Provide employees with extant data on the importance of human capital as a competitive advantage strategy.
12. Get a clear business reason to do it and clarify what Human Capital means to the organization.
13. Establish executive buy-in for strategic HC planning.
14. Establish executive participation for strategic HC planning.
15. Assess organizational management capacity for supporting current and future HC.
16. Examine HRD related capacity for supporting and maintaining current & future HC.
17. Determine the role of the organizational finance/investment management structure in supporting HC efforts.
18. Set-up transparent and well supported HRD employee support system for HC development.
19. Seek and obtain executive buy-in for system wide HC efforts.
20. Adapt a continuous improvement orientation.
21. Work to become a recognized industry-wide "employer of choice".
22. Eliminate unnecessary layers and bureaucracy organization-wide.
23. Ensure HC planning and implementation aligned with customer needs.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #2: Determine the type of talent required to execute the critical business initiative.

1. Ensure that existing job descriptions are up-to-date and accurate.
2. Benchmark with other firms in same industry.
3. Monitor external environment for changes that affect strategy and adjust if necessary (monitor for intended and unintended consequences).
4. Monitor internal environment for changes that affect strategy and adjust if necessary (monitor for intended and unintended consequences).
5. Get clear goals and measurable objectives to guide the effort.
6. Create current competency models for all groups targeted to participate in the effort.

7. Finds ways to avoid common misperceptions about human capital--such as the view that education alone qualifies people.
8. Organizations can offer HCP as a department/formal structure.
9. Determine, where necessary, the internal capacity to transform the current workforce.
10. Explore recruitment, hiring and retention practices and determine current and desired performance.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #3: Determine the number of people required over the term of the critical business initiative.

1. Assess environmental capacity to source talent (external labor market).
2. Assess internal capacity for required talent (internal labor market).
3. Assess internal/external capability to develop and/or train talent required.
4. Adjust operational and tactical levels of strategy to fit probable talent capacity (adjust strategy to fit capabilities).
5. Adjust and procure human resources (staff) to fit operational and tactical requirements of strategy.
6. Get the scope (number of jobs in the organization to include) clear.
7. Design a strong HCP system.
8. Examine HC "pipeline" to determine locations/sources for future HC (universities, technical colleges, other organizations, etc.).

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #4: Identify actions necessary to align the talent with the business.

1. Ensure that the organization's business strategy and current strategic plan is clearly articulated.
2. Decompose the strategy to the tactical and operational levels of performance.
3. Carefully analyze, assess, and document the human (talent & capacity) and non-human performance (systems) requirements at the strategy's operational level.
4. Adjust non-human systems (technical, infrastructure, processes, and org. design) to fit operational and tactical requirements of strategy and human resources.
5. Check that the organization's performance management system is integrated with the competency models. If not, integrate it with the models.
6. Create future-oriented competency models for all groups that are aligned with the organization's strategic plans so that it is clear what kind of people will be needed to realize/implement the organizational strategic plan in the future.

7. Establish and implement ways to assess potential such as assessment centers, 360-degree assessments, etc. so that a way exists to compare an individual's current competencies to requirements for future competencies at a higher level of responsibility.
8. Organizations hire qualified individuals.
9. Individuals develop good performance standards for HCP.
10. Explore current work environment (machines/tools, knowledge, environment, people, etc.) assess alignment with estimated capacity current and future.
11. Assess current value of HRD/HC support to organization and align (resources and leadership) with strategic plan.
12. Determine and align current and future states for HC development.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #5: Identify and prioritize talent gaps and determine the best approach for closing the gaps.

1. Identify gaps in talent and capacity according to the requirements of the strategy at the operational level.
2. Identify gaps in talent and capacity according to the requirements of the strategy at the tactical or mid-management level.
3. A clear policy to reward employees who take additional training and education programs.
4. A clear policy to reward employees for the curiosity and interest in learning.
5. Establish organizational learning practices that encourage employees to engage in lifelong learning.
6. Leaders should initiate and promote the notion of learning organization paradigm as a strategy to get employee buy-in and ownership in human capital planning process.
7. Identify gaps between where individuals currently are and where they need to be to qualify for promotion to higher levels.
8. Establish individual development plans to narrow the gaps through systematic, planned training and development, leadership development, and action learning.
9. Assess capacity for managing diversity and take appropriate action to support an inclusive environment.
10. Examine incentive system to support individual and group HC development.
11. Develop clear performance system with clear expectations.
12. Drive out employee fear or other barriers to creativity and productivity.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #6: Determine the type and level of planning necessary to execute HCP.

1. Establish a planning team.
2. Inform stakeholders of planned process and expectations for their involvement.
3. Establish clear timelines, outputs, and responsibilities.
4. Research and select an appropriate planning approach.
5. Talk frequently and promote to organization leaders of the need for data driven HR planning.
6. Begin scenario planning.
7. Find ways to capture, distill, and transmit institutional memory in practical ways as experienced workers retire.
8. Determine anticipated capacity needs based on HC strategic plan.
9. Establish a stakeholder (internal & external) review of assessment materials.
10. Establish a stakeholder perspective regarding current and future HC needs.
11. Where the culture and context allow, use scenario planning and/or other strategic approaches to develop action plan.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

Potential Indicator #7: Determine and develop appropriate measurement and monitoring systems.

1. Identify critical metrics of performance at various stages of implementation of strategy (initiation, roll-out, execution, refinement, adjustment, termination).
2. Develop and install monitoring and measuring process for intended and unintended consequences of action.
3. Develop and install monitoring and measuring process for continuous feedback.
4. Establish an annual report, which includes a section on knowledge assets that the organization is endowed with..
5. Put in place a system that encourages and recognizes employees for their contribution to organizational productivity and success.
6. Make sure that the competency models are measurable.
7. Establish a means to keep track of how individuals are progressing and to source talent as needed by the organization.
8. Establish ways to track and evaluate the results of the Human Capital effort and compare them regularly and systematically to the measurable goals/objectives.
9. Organizations require accurate measures for HCP systems.

Your clarification (if any): _____

Strengths: _____

Weaknesses: _____

My new ideas (if any):

#1 _____

• Strengths:

• Weaknesses:

#2 _____

• Strengths:

• Weaknesses:

#3 _____

• Strengths:

• Weaknesses:

#4 _____

• Strengths:

• Weaknesses:

#5 _____

• Strengths:

• Weaknesses:

#6 _____

• Strengths:

• Weaknesses:

#7 _____

• Strengths:

• Weaknesses:

Human Capital Planning Questionnaire 3

[date]

Dear _____:

Thank you once again for agreeing to participate in my research study. Please find enclosed the third round questionnaire, which will develop your and other experts' continuing thoughts and ideas on "The Development and Validation of an Instrument for Human Capital Planning as a Strategic Human Resource Management Tool".

I request that you complete the enclosed questionnaire in seven days and return it to me via email at: kjz117@psu.edu, fax at (570) 945-8006, or via mail at: Ken Zula, 801 SR 292 East, Tunkhannock, PA 18657.

The purpose of this questionnaire is to report all of the ideas sent in response to the second questionnaire and to solicit your input into the ranking of the items with each indicator for the research question:

"What actions, processes, or preparations can an organization take to implement human capital planning as a strategic human resource management initiative or metric?"

Here is what I have completed to date:

- 1) I changed the wording of the research question – it now indicates action with the term "implement"
- 2) I have organized the responses, deleted the duplicates (from the original 102 to 56), combined 2 of the original 7 indicators, and changed the "indicators" to "phases" of project management based upon the excellent feedback from all SME's.

In this round of the questionnaire, I am asking:

- (1) Is my organization scheme correct, are the phases appropriate, and do the responses "fit" with the phase? Do the items really measure what they are intended to measure?
- (2) Is there any clarification necessary for each phase? And if so - please identify the clarification for the response or responses, and
- (3) Rank the responses in order of importance from highest to lowest with "1" indicating lowest?

PHASE 1: PLANNING

Complete the initial data collection, and determine the initial processes and program plan necessary to execute Human Capital Planning.

- _____ Become well versed in the process to be followed.
- _____ Identify existing sources of relevant employment and workforce data.
- _____ Make the business case for human capital planning
- _____ Assess costs to implement strategy (HCP component).
- _____ Develop and install communications/feedback processes to inform workers, management, and stakeholders of progress and results of strategy.
- _____ Organizational mission should reflect the value of knowledge workers in the organization
- _____ Provide employees with data on the importance of human capital as a competitive advantage strategy
- _____ Get a clear business reason to do it and clarify what Human Capital means to the organization
- _____ Establish executive and leadership buy-in for strategic HC planning
- _____ Establish executive participation in strategic HC planning
- _____ Assess organizational management capacity for supporting current and future HC
- _____ Examine HRD related capacity for supporting and maintaining current & future HC
- _____ Determine the role of the organizational finance/investment management structure in supporting HC efforts
- _____ Set-up a well supported HRD system for HC development
- _____ Adapt a continuous improvement orientation
- _____ Work to become a recognized industry-wide "employer of choice"
- _____ Eliminate unnecessary layers and bureaucracy organization-wide
- _____ Ensure that existing job descriptions are up-to-date and accurate
- _____ Benchmark (talent, performance, and profit) with other firms in same industry
- _____ Monitor external environment for changes that affect strategy and adjust if necessary (monitor for intended and unintended consequences).
- _____ Monitor internal environment for changes that affect strategy and adjust if necessary (monitor for intended and unintended consequences).
- _____ Get clear goals and measurable objectives to guide the effort
- _____ Create current competency models for all groups targeted to participate in the effort
- _____ Finds ways to avoid common misperceptions about human capital--such as the view that education alone qualifies people
- _____ Organizations can offer HCP as a department/formal structure
- _____ Determine, where necessary, the internal capacity to transform the current workforce
- _____ Explore recruitment, hiring and retention practices and determine current and desired performance

Your clarification – if any: (Please indicate items to delete, items you feel strongly that must be retained, items which fit elsewhere, etc..)

PHASE #2: ORGANIZING

Identify actions necessary to align the talent with the business.

- _____ Ensure that the organization's business strategy and current strategic plan is clearly articulated
- _____ Decompose the strategy to the tactical and operational levels of performance.
- _____ Carefully analyze, assess, and document the human (talent & capacity) and non-human performance (systems) requirements at the strategy's operational level.
- _____ Adjust non-human systems (technical, infrastructure, processes, and org. design) to fit operational and tactical requirements of strategy and human resources.
- _____ Check that the organization's performance management system is integrated with the competency models and job descriptions.
- _____ Create future-oriented competency models for all groups that are aligned with the organization's strategic plans so that it is clear what kind of people will be needed to realize/implement the organizational strategic plan in the future.
- _____ Establish and implement ways to assess potential such as assessment centers, 360-degree assessments, etc. so that a way exists to compare an individual's current competencies to requirements for future competencies at a higher level of responsibility

Your clarification – if any: (Please indicate items to delete, items you feel strongly that must be retained, items which fit elsewhere, etc..)

PHASE #3: STAFFING

Determine the staffing levels necessary and the type of talent required over the term of the critical business initiative.

- _____ Assess environmental capacity to source talent (external labor market).
- _____ Assess internal capacity for required talent (internal labor market).
- _____ Assess internal/external capability to develop and/or train talent required.
- _____ Adjust operational and tactical levels of strategy to fit probable talent capacity (adjust strategy to fit capabilities).
- _____ Adjust and procure human resources (staff) to fit operational and tactical requirements of strategy.
- _____ Obtain the scope of people (quality) accurately and precisely.
- _____ Examine HC "pipeline" to determine locations/sources for future HC (universities, technical colleges, other organizations, etc.).

Your clarification – if any: (Please indicate items to delete, items you feel strongly that must be retained, items which fit elsewhere, etc..)

PHASE #4: DIRECTING

Identify and prioritize talent gaps and determine the best approach for closing the gaps.

- _____ Identify gaps in talent and capacity according to the requirements of the strategy at the operational level.
- _____ Identify gaps in talent and capacity according to the requirements of the strategy at the tactical or mid-management level.
- _____ A clear policy to reward employees who take additional training and education programs and for their curiosity and interest in learning.
- _____ Establish organizational learning practices that encourage employees to engage in lifelong learning.
- _____ Leaders should initiate and promote the notion of learning organization paradigm as a strategy to get employee buy-in and ownership in human capital planning process.
- _____ Identify gaps between where individuals currently are and where they need to be to qualify for promotion to higher levels.
- _____ Establish individual development plans to narrow the gaps through systematic, planned training and development, leadership development, action learning and other efforts.
- _____ Ensure that the learning strategies of the organization are tied to the behavioral level of the competency models.

Your clarification – if any: (Please indicate items to delete, items you feel strongly that must be retained, items which fit elsewhere, etc..)

PHASE #5: MONITORING

Determine and develop appropriate measurement and monitoring systems.

- _____ Identify critical metrics of performance at various stages of implementation of strategy (initiation, roll-out, execution, refinement and improvement, adjustment, termination). gaps in talent and capacity according to the requirements of the strategy at the operational level.
- _____ Develop and install monitoring and measuring process for intended and unintended consequences of action and for continuous feedback.
- _____ Establish an annual report, which includes a section on the organizational knowledge assets.
- _____ Put in place a system that encourages and recognizes employees for their contribution to organizational productivity and success.
- _____ Make sure that the competency models are measurable.
- _____ Establish a means to keep track of how individuals are progressing and to source talent as needed by the organization.
- _____ Establish ways to track and evaluate the results of the Human Capital effort and compare them regularly and systematically to the measurable goals/objectives for the program.

Your clarification – if any: (Please indicate items to delete, items you feel strongly that must be retained, items which fit elsewhere, etc..)

APPENDIX B

SURVEY INSTRUMENT

1. ELECTRONIC INFORMED CONSENT AND INVITATION TO PARTICPATE
2. SECOND E-MAIL REMINDER
3. THIRD E-MAIL REMINDER
4. SURVEY INSTRUMENT

Informed Consent and Invitation E-Mail

[DATE]

Greetings!

My name is Ken Zula. I am writing this letter as a request for your assistance in a research study. I am a graduate student pursuing my Doctor of Philosophy degree in Workforce Education and Development with a concentration in Human Resource Development (HRD) at The Pennsylvania State University, University Park Campus. Currently, I am working on completing my dissertation on “The Development and Validation of an Instrument for Human Capital Planning as a Strategic Human Resource Management Tool” under the direction and advisorship of Dr. Thomas Chermack.

The purpose of my study is to examine human capital and intangible assets. As the United States economy continues to move from a manufacturing powerhouse to a service driven economy, the importance of worker knowledge, knowledge assets, and human capital will become increasingly more important. As such, I am studying the possibility of establishing best practice guidelines for human capital planning. In particular, I am studying the establishment of guidelines that effect strategic human resource management.

Participation in the study is completely voluntary and you may withdraw from participation at any time during the process. Identification will remain completely anonymous, and all information collected will remain completely confidential. There are no code identifiers or any other markings that will link you to any information provided. All participants voluntarily agree to participate by completing this survey.

Again, my dissertation advisor and advisor for this project is Dr. Thomas J. Chermack. Questions about this project can be directed to him via e-mail at: tjc18@psu.edu or via telephone at (814) 863-5795.

This project has been reviewed and approved by The Pennsylvania State University, Human Subjects Committee. Questions concerning your rights can be directed to the Vice-President for Research, Office of Regulatory Compliance, 212 Kern Building, University Park, PA 16802-3301 or via telephone at (814) 863-1775.

You may contact me (the principal investigator) with any questions or comments at: Keystone College, Attn: Ken Zula, Ph.D. Cand. (ABD), SPHR, Assistant Professor of Business, Harris Hall 200B, 1 College Green, La Plume, PA 18440 or via telephone at: 570-945-8243. You may also contact me via e-mail: kjz117@psu.edu.

Thank you for completing my survey and assisting with the completion of my Ph.D. I truly appreciate the time and effort that you have put into the completion of this document.

Note: If you do not wish to be included in any further e-mails please click the remove link. [\[RemoveLink\]](#)

Sincerely,
Ken Zula, Ph. D. Cand.(ABD), SPHR
Graduate Student
The Pennsylvania State University

Second E-Mail Reminder

[DATE]

Dear [FirstName] [LastName],

As an HR Practitioner, Training and Development Expert, HR Legal Expert, or Business Executive, I am writing this letter as a request and reminder for your assistance and help in a research study. I am a graduate student pursuing my Doctor of Philosophy degree in Workforce education and Development with a concentration in Human Resource Development (HRD) at The Pennsylvania State University, University Park Campus. Currently, I am working on completing my dissertation on “The Establishment of Best Practice Guidelines for Human Capital Planning for Strategic Human Resource Management”.

The reason for my solicitation is to request your assistance in the completion of a survey for Human Capital Planning (HCP). You have been identified as an HR Practitioner with potential expertise in planning, human capital, or intangible asset planning. Thus, I would like to engage you in my study.

The survey completion will take approximately 15 minutes of your time.

Here is the link to the survey:

[SurveyLink]

Thank you for your participation,

Ken Zula, Ph.D. Cand.
The Pennsylvania State University
Department of Learning and Performance Systems

Note: If you do not wish to be included in any further e-mails please click the remove link. [RemoveLink]

Third E-Mail Reminder

[DATE]

Dear [FirstName] [LastName],

As an HR Practitioner, Training and Development Expert, HR Legal Expert, or Business Executive, I am writing this letter as a request and reminder for your assistance and help in a research study. I only need 60 more responses to conduct a valid statistical analysis. I am a graduate student pursuing my Doctor of Philosophy degree in Workforce Education and Development with a concentration in Human Resource Development (HRD) at The Pennsylvania State University, University Park Campus. Currently, I am working on completing my dissertation on “The Establishment of Best Practice Guidelines for Human Capital Planning for Strategic Human Resource Management”.

The reason for my solicitation is to request your assistance in the completion of a survey for Human Capital Planning (HCP). You have been identified as an HR Practitioner with potential expertise in planning, human capital, or intangible asset planning. Thus, I would like to engage you in my study.

The survey completion will take approximately 15 minutes of your time.

Here is the link to the survey:

[SurveyLink]

Thank you for your participation,

Ken Zula, Ph.D. Cand.
The Pennsylvania State University
Department of Learning and Performance Systems

Note: If you do not wish to be included in any further e-mails please click the remove link. [RemoveLink]

Human Capital Planning Survey Instrument

Organization Demographic Data

(Please mark all that apply)

<i>Organizational Age</i>	0 – 5 years	5 – 10 years	10 – 15 years	15 – 20 years	20 + years
<i>Total Employees:</i>	Less than 100	100 – 500	500 – 1,000	1,000 – 10,000	10,000 +
<i>Geographic Location:</i>	Northeast	Midwest	South	West	
<i>Organizational Planning:</i> Does your organization participate in planning?	Yes		No		
	If yes, what type of planning?		Strategic	Human Capital	Both
<i>Annual Revenue:</i>	\$1 million - \$10 million	\$11 million to \$50 million	\$51,000,000 to \$500 million	\$51 + billion	\$501 million to \$1 billion
	\$1 billion to \$10 billion	\$11 billion to \$50 billion			
<i>Organization Classification:</i>	For-Profit	Non-Profit	Service	Manufacturing	Private Public

Human Capital Planning involves the recruitment, selection, allocation, and retention of human talent (intellectual and knowledge resources) including the training and education of these resources, which are linked to critical business strategies, and goals and objectives.

Please respond to each item by circling the number which best describes your opinion.

PHASE 1: PLANNING	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
The initial completion of the data collection, and the determination of the processes and program plan necessary to execute human capital planning.					
1. The organization's leadership and employees must become well versed in the human capital planning process.	4	3	2	1	0
2. It is important to benchmark (talent, performance, and profit) with other firms in the same industry.	4	3	2	1	0
3. It is important to identify existing sources of relevant employment and workforce data.	4	3	2	1	0
4. It is important to assess the costs to implement human capital planning.	4	3	2	1	0
5. The organization must establish clear goals and objectives to guide the human capital planning effort.	4	3	2	1	0
6. It is important to establish leadership buy-in for strategic human capital planning.	4	3	2	1	0
7. It is important to make a clear business case for the implementation of human capital planning including clarifying what human capital planning means to the organization.	4	3	2	1	0
8. It is important to establish executive participation in the strategic human capital planning process.	4	3	2	1	0
9. It is important to assess the organizational management capacity for supporting current and future human capital.	4	3	2	1	0
10. The organizations mission statement and actions should reflect the value of knowledge workers.	4	3	2	1	0
11. It is important to examine the organizations human resource development (HRD) related capacity for supporting and maintaining current and future human capital.	4	3	2	1	0

<u>PHASE 1: PLANNING CONTINUED</u> The initial completion of the data collection, and the determination of the processes and program plan necessary to execute human capital planning.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
12. It is important to develop a well-supported HRD/training and development system for human capital.	4	3	2	1	0
13. It is important for the organization to develop current competency models for all employees/groups targeted.	4	3	2	1	0
14. It is important for the organization to update and ensure accuracy of all job descriptions.	4	3	2	1	0
15. It is important for the organization to explore recruitment, hiring, and retention practices and determine the current and desired performance.	4	3	2	1	0

<u>PHASE 2: ANALYZING</u> The analysis of the type of talent necessary to align with the business strategies, and vision.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
16. It is important to ensure that the organization current strategies and strategic plan are clearly articulated.	4	3	2	1	0
17. It is important to carefully analyze, assess, and document the human (talent & capacity) and non-human (systems) requirements are at the operational level of the strategy.	4	3	2	1	0
18. It is important to adjust non-human systems (technical, infrastructure, processes, and organization design) to fit operational and tactical requirements of strategy and human resources.	4	3	2	1	0
19. It is important to create future-oriented competency models that are aligned with the organizations strategic plan to realize and implement the organizational strategies in the future.	4	3	2	1	0
20. It is important to assess the internal capability to develop and train talent.	4	3	2	1	0
21. It is important to assess the external labor market to source talent for the business.	4	3	2	1	0
22. It is important to establish methods to assess employee's current competencies against the requirements for future competencies at a higher level of responsibility.	4	3	2	1	0
23. It is important to ensure that the organization's performance management system is integrated with the competency models and/or job descriptions.	4	3	2	1	0

<u>PHASE 3: ORGANIZING</u> The determination of the staffing levels required over the term of the business initiative/strategy.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
24. It is important to examine the human capital supply stream to determine locations/sources for future human capital (ie: universities, technical colleges, and other organizations).	4	3	2	1	0
25. It is important to determine the current and future scope/quality of human capital accurately and precisely required for the organization.	4	3	2	1	0
26. It is critical to adjust and procure human resources (staff) to fit the operational and tactical requirements of the business strategy.	4	3	2	1	0
27. It is important to adjust operational and tactical levels of strategy to fit probable and potential talent (adjust strategy to fit capabilities of human capital).	4	3	2	1	0

<u>PHASE 4: DIRECTING</u> The identification and prioritization of talent gaps and determination of the best approach to close the gap(s).	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
28. Leaders should initiate and promote the notion of a learning organization paradigm as a strategy to get employee buy-in and ownership in the human capital planning process.	4	3	2	1	0
29. It is important to ensure that the learning strategies of the organization are to behavioral level of competency models and performance.	4	3	2	1	0
30. It is important to establish organizational learning practices that encourage employees to engage in lifelong learning and contribute to organizational strategies.	4	3	2	1	0
31. It is important to establish individual development plans to narrow the gaps through systematic, planned training and development, action learning, and other efforts.	4	3	2	1	0
32. It is important for the organization to have a clear policy to reward employees who take additional training and education programs and for their curiosity and interest in learning.	4	3	2	1	0

<u>PHASE 5: MONITORING</u> The determination, development, and implementation of appropriate monitoring and measurement systems.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
33. It is important to identify critical metrics of performance at various stages of implementing the strategies (initiation, roll-out, execution, refinement and improvement, adjustment, and termination).	4	3	2	1	0
34. It is important to ensure to develop and install monitoring and measuring process for intended and unintended consequences of the action and for continuous feedback.	4	3	2	1	0
35. It is important to establish a measurement system to track individual employee progression and to source talent as needed.	4	3	2	1	0
36. It is important to establish ways to track and evaluate the results of the human capital effort and to compare them regularly and systematically to the measurable goals and objectives of the business strategy.	4	3	2	1	0
37. It is important for the organization to have a clear policy to encourage and recognize employees for their contribution to organizational productivity and success.	4	3	2	1	0
38. It is important for the organization to establish an annual report, which includes the knowledge assets that the organization is endowed with.	4	3	2	1	0

Kenneth J Zula
Curriculum Vita

Education

Doctor of Philosophy, Workforce Education & Development

The Pennsylvania State University, Thesis Defended December 5, 2006

Master of Science – Organizational Management

College Misericordia, 1998

Bachelor of Science – Behavioral Sciences (Cum Laude)

College Misericordia, 1996

Teaching Experience – Partial Listing

Introduction to Human Resource Management

Strategic Management

Organizational Behavior

Supervision and Leadership

Dynamics of Leadership Application

Research Methods in Business

Professional Affiliations

Member, American Society for Training and Development, since 2004

ASTD Certification Exam Item Writer, 2005

Member, Academy of Human Resource Development, since 2004

Member, Society for Human Resource Management, since 1998

Senior Professional in Human Resource Management Certification (SPHR), since 2003

Member, Academy of Management

Professional Experience

Assistant Professor of Business – Keystone College, LaPlume, PA 18440

January 16, 2006 to present

Executive Director – The Wyoming Valley AIDS Council, Inc.

Kingston, PA 18704

October 2006 – present

Vice-President of Human Resources – The Children’s Service Center of Wyoming Valley, Inc,

Wilkes-Barre, PA 18702

October 1998 to January 2006

Consulting Experience

Human Resource Management Consultant

The Children’s Service Center of Wyoming Valley, Inc.

January 2006 to October 2006

Management Consultant

The Wyoming Valley AIDS Council

July 2006 to October 2006

Presentations

The History of Human Resource Development. K. Zula (2004). Poster presented at The Pennsylvania State University, College of Education-Spring 2004.

Non-Traditional Career Choice for Females. K. Zula (2005). Poster presented at The Pennsylvania State University, College of Education-Spring 2005.