

The Pennsylvania State University
The Graduate School
Department of Learning and Performance Systems

**IMPACTS OF LONG-TERM LEARNING INTERVENTIONS ON ORGANIZATIONAL
HUMAN CAPITAL AND PERFORMANCE IN THE KOREAN BUSINESS CONTEXT**

A Dissertation in
Workforce Education and Development

by
Taesung Kim

© 2014 Taesung Kim

Submitted in Partial Fulfillment
of the Requirements
for the Degree of Doctor of Philosophy

May 2014

The dissertation of Taesung Kim was reviewed and approved* by the following:

William J. Rothwell
Dissertation Advisor
Chair of Committee
Professor of Workforce Education and Development

David L. Passmore
Professor of Workforce Education and Development

Judith A. Kolb
Associate Professor of Workforce Education and Development

Edgar P. Yoder
Professor of Agricultural Extension Education

Kyle Peck
Director of Graduate Studies

*Signatures are on file in the Graduate School.

ABSTRACT

The purpose of this study was to examine the impacts of long-term learning interventions on organizational human capital and performance in the Korean business context. The long-term interventions were operationalized as employee and career development interventions based on the classification of workplace learning and performance (WLP); organizational human capital was defined as a subset of organizational intellectual capital focusing on employee potential to create organizational knowledge; and organizational performance involved a look at process and customer competencies based on the measures of balanced scorecard (BSC). A conceptual research framework derived from a review of relevant literature resulted in four research questions, which were examined through a statistical analysis of survey data from 473 sample corporations included in the Human Capital Corporate Panel (HCCP) 2009 data set (a data set collected and shared for research purposes in Korea). The research variables included two independent variables—employee development interventions (consisting of education funding programs, learning community program, and learning mileage program) and career development interventions (consisting of succession planning, career development planning, mentoring and coaching, and job rotation program); one mediating variable—organization-level human capital (consisting of employees' job capability, productivity, motivation, and retention); and two dependent variables—process competency (consisting of new product and service development, work process effectiveness, and product and service competitive advantage through cost reduction) and customer competency (consisting of prompt response to customer needs, product and service variety, new customer acquisition, loyal customer retention, and brand image). Statistical strategies included measurement testing through the factor analysis and reliability test, examination of the research questions with regard to predicting and mediating relationships between variables through the multiple regression analysis, and supplemental testing of the Sobel

test and effect size comparison. Results indicated that, controlling for the mediating variable, no statistically significant relationship was established between the two independent and two dependent variables, at the significance level of .05 ($\beta = .04, t = .88, p > .05$; $\beta = .08, t = 1.55, p > .05$; $\beta = .05, t = .95, p > .05$; $\beta = .05, t = .91, p > .05$). That is, the positive impacts of employee and career development interventions on organizational process and customer competencies were fully mediated by improved human capital. In conclusion, the current research suggested that human resource (HR) practitioners translate the effects of important interventions into managerial values, especially in the form of return on investment or business impacts; communicate learning interventions as organization-level job resources that help make employees engaged in their work and perform better; and collaborate in managing and developing human resources, especially talent, in organizations. Also, this research recommended that HR scholars conduct subsequent longitudinal or cross-sectional studies to make the scientific findings even more robust; concrete ROI studies that look at the relationship examined in this research from the perspective of economic outcomes; comparative studies of the effect sizes of multiple interventions and other organizational arrangements; and in-depth explorations into the two concepts of human resources and human capital in the workplace context.

TABLE OF CONTENTS

List of Figures	vii
List of Tables	viii
Acknowledgments.....	ix
Chapter 1 Introduction	1
Statement of the Problem	2
Purpose of the Research	4
Research Questions	5
Conceptual Research Framework	6
Chapter 2 Review of the Related Literature.....	9
Theoretical Background.....	9
Theoretical Progress of HRD	10
Human Capital in the Workplace	14
Performance in the Workplace	16
Organizational Performance in Relation to Learning Interventions and Human Capital	18
Learning Interventions and Organizational Performance.....	19
Human Capital and Organizational Performance.....	22
Learning Interventions, Human Capital, and Organizational Performance	23
Chapter Summary	24
Chapter 3 Methodology	25
Research Design.....	26
Instrumentation	27
Data Set	27
Population and Sample.....	28
Measures	30
Analysis.....	33
Measurement Testing	33
Examination of Research Questions.....	34
Chapter Summary	37
Chapter 4 Results	39
Results of Measurement Testing.....	39
Factor Analysis.....	41
Reliability Analysis.....	42
Results for Research Questions.....	42
Correlation and Collinearity Analyses	42
Predicting and Mediating Relationships.....	44

Sobel Test.....	49
Chapter 5 Summary, Discussion, and Recommendations	51
Summary	51
Discussion	53
Implications.....	53
Limitations	57
Recommendations.....	58
Recommendations for Practice.....	58
Recommendations for Future Research	61
References.....	66
Appendix Measures for the Research Variables	76

LIST OF FIGURES

Figure 1-1. Conceptual Research Framework.....7

Figure 4-1. Revised Research Frameworks44

Figure 4-2. Research Frameworks Examined.....49

Figure 5-1. Expanded Diagram Interpreted57

Figure 5-2. Potential Research Framework.....64

LIST OF TABLES

Table 2-1. Comparison of Learning Interventions	20
Table 3-1. Research Procedure	25
Table 3-2. Survey Target Population by Industry and Corporate Size	29
Table 3-3. Sample by Industry and Corporate Size	30
Table 4-1. Descriptive Statistics and Inter-Item Correlations for the Research Variables ($n = 469$).....	40
Table 4-2. Factor Loadings of the Mediating and Dependent Variables	41
Table 4-3. Correlations and Reliabilities of the Research Variables	43
Table 4-4. Regression Coefficients for the Research Variables	45
Table 4-5. Effect Sizes	48
Table 4-6. Sobel Test Results	50

ACKNOWLEDGMENTS

It has been a long voyage to the culmination of my doctoral pursuits since I determined to engage in this process. I know this invaluable opportunity has been made successful by all of the incredible people who have been there to guide, support, and inspire me.

First, I would like to express my sincere gratitude to my doctoral committee members: Dr. William Rothwell, Dr. David Passmore, Dr. Judith Kolb, and Dr. Edgar Yoder. I am humbled by their great wisdom and grateful for their generosity in helping me to grow. I am fully certain that the lessons they have provided to me will be always remembered on my way forward and I will strive to lead by their example.

I would also like to extend my friendly respect to all colleagues and staff members in the Workforce Education and Development Program at the Pennsylvania State University. It was my privilege to learn from and work with them in a thought-provoking and homelike environment.

My utmost appreciation should go to my family members. I am sincerely grateful that even when far apart, my parents and parents-in-law have always been there and prayed for me. I am inspired by the strength and resilience of my proud son, Gangin Kim, and all that he has shown me throughout this journey, and cannot describe enough how blessed and cheered up I feel by the heavenly smile of my adorable little son, Woon Kim. Above all, with all my heart, I must express my deepest love and respect for my beloved wife, Hyejin Kim. This accomplishment has been made possible by her sheer inspiration and tremendous sacrifice, which I will always appreciate.

Chapter 1

Introduction

“Human resources are ultimately the only business resource with the creativity and adaptive power to sustain and renew an organization’s success despite changing market conditions” (Torraco & Swanson, 1995, p. 13) because competent employees are a source of ideas for innovation and enhanced productivity (McLagan, 1989) and readily prepared for external changes (Rothwell & Kazanas, 2003). Advocating this assertion, the resource-based view (RBV) of strategic management identifies internal knowledge and capabilities that are valuable, unique, not perfectly imitable by competitors, and not substituted equivalently as fundamental organizational resources for sustained competitive advantage (Barney, 1991; Barney, Wright, & Ketchen, 2001; Leonard-Barton, 1992). *Human capital* theory also values employees’ capabilities and skills as core organizational competencies (Garavan, 2007; Lepak & Snell, 1999) and assumes that their knowledge, skills, and abilities (KSAs) have a direct effect on organizational performance (Buller & McEvoy, 2012). As articulated in the definition of human capital—“such quality components as skill, knowledge, and similar attributes that affect particular human capabilities to do productive work” (Schultz, 1961, p. 8), an organization’s human capital is a seminal factor in its long-term performance and success.

Looking specifically at human capital in the organization, human resource development (HRD) has been devoted to mobilizing people’s KSAs and increasingly been recognized by managers as a facilitator of the organization’s long-term performance, such as innovations and customer services (Russ-Eft & Preskill, 2005). In addition, Garavan (2007) posited, with the statement that “HRD is best achieved through a strategic approach” (p. 11), that *Strategic HRD*

(SHRD) can better contribute to an organization's sustainability and long-term growth by enabling it to capitalize on knowledge among people internal and external to it. In other words, HRD practices aligned with organizational strategies will more positively affect an organization's long-term performance through improved human capital (Davenport, Prusak & Wilson, 2003).

Furthermore, as the HRD paradigm advanced, the learning-centered performance-driven concept of *Workplace Learning and Performance* (WLP), defined as "the integrated use of learning and other interventions for the purpose of improving individual and organizational performance" (Rothwell & Sredl, 2000, p. 5), gained ground. WLP identifies workplace learning as a means to nurture people's capacity (i.e., knowledge capital, intellectual capital) in the workplace setting and places a heavy emphasis on performance over effort, stating that "no effort—regardless of how intense it may be—is a substitute for results" (Rothwell & Sredl, 2000, p. 7). WLP assumes that learning interventions should contribute to performance improvement through stimulating human capital and that organizational investments in various learning and development interventions, if designed deliberately, should yield long-lasting positive outcomes in people and organizations, going beyond merely satisfying short-term task requirements (Rothwell, Sanders, & Soper, 1999).

All these understandings prompted an empirical investigation in the current research on the prescribed assertions and relational assumptions surrounding learning interventions, increased human capital, and organizational performance improvement, specifically rendering two major issues presented below.

Statement of the Problem

The current research addressed two major problems surrounding the notions of WLP learning interventions, human capital, and organizational long-term performance.

The first issue was empirical support for and/or debate about evolving theories relevant to learning and performance in the workplace setting. Although remarkable prescriptive conceptualizations such as WLP draw on deep insights into professional experiences and proven processes, and thereby are somewhat taken for granted by the field professionals as a reference in fulfilling their roles, these should be verified or contradicted by critical-minded empirical research for further robustness. In particular, empirical research to confirm the plausibility of a presumed link from learning interventions to organizational performance with special recognition of human capital between them needs to be undertaken. In fact, while intangible assets, such as human capital, and their influence on organizational performance are recognized as being important by many, less empirical research has been conducted on such relationships as positive influences of interventions on human capital and performance improvement in the organization (Cho & McLean, 2000). Zula and Chermack (2007) went further, stating that “HRD academicians have virtually ignored human capital theory” (p. 246). From the perspective of human capital theory, this form of research can also be regarded as an evaluation of return on investment (ROI) in far-sighted learning interventions with the outcome being improved long-term organizational performance, just as Becker (1993) attempted to calculate ROI in secondary and post-secondary education with an outcome being the U.S. economy.

The subsequent problem is that many studies have focused on micro relationships between various individual programs and their effectiveness rather than on macro relationships between configurations or clusters of multiple programs and organizational performance. However, because the systems or combinations of multiple practices have different and usually bigger effects on outcomes than the sum of the effects of individual practices (Delery & Doty, 1996; Ichniowski, Shaw, & Prennushi, 1997), WLP professionals need to be informed of the configurational perspective in order to systematically establish and align an array of programs and activities with a strategic focus, rather than playing it by ear when selecting individual

programs. In business organizations, any domains with inarticulate business outcomes could be questioned, challenged, and abandoned at any time. Long-term learning interventions such as employee development and career development are especially likely domains to be revisited and suspended during business downturns or cost reductions due to their seemingly less urgent nature. Therefore, an empirical investigation into whether or not and how the domains of long-term learning interventions influence sustainable organizational performance would provide the profession with a convincing perspective on WLP's strategic contributions to the organization.

In a nutshell, this research recognized both a need for an empirical approach to evolving theories pertinent to human resources and organizational performance and a need for a comprehensive perspective on the WLP field in strategizing learning interventions on the basis of an investigated configurational relationship among relevant factors.

Purpose of the Research

The purpose of the current research was to examine the structural relationship between an organization's strategic investments in learning interventions and the expected outcomes of improvements in its human capital and performance. This research empirically examined in business organizations whether two clusters of long-term learning interventions (employee development, career development) enhance these organizations' human capital and, in turn, long-term performance (process competency, customer competency), where the factors were operationalized based on the definitions of:

- employee development—"a long-term learning intervention that is usually focused on stimulating new ideas ... for developing an organization or group through individual development" (Rothwell & Sredl, 2000, p. 11);

- career development—a long-term learning intervention “providing direction and purpose for an individual’s career, while at the same time ensuring that an organization has an appropriate supply of human resources to meet present and future demands” (Rothwell & Sredl, 2000, p. 12);
- human capital—“skill, knowledge, and similar attributes that affect particular human capabilities to do productive work” (Schultz, 1961, p. 8); and
- long-term performance—indicated by “customer satisfaction, internal process ... — operational measures that are the drivers of future financial performance” (Kaplan & Norton, 1992, p. 71).

Specifically, this research intended to examine:

- the relationship of the learning interventions to improvement of organizational long-term performance,
- the relationship of the learning interventions to improvement of organizational human capital,
- the relationship of organizational human capital to improvement of organizational long-term performance, and
- whether organizational human capital mediates the relationship between the learning interventions and organizational long-term performance in the Korean business context.

Research Questions

Four major questions were asked to achieve the aforementioned research purpose.

In particular, the study was designed to answer these research questions and thereby determine whether the directional relationship starting from two independent variables (learning interventions) through a mediating variable (organizational human capital) to two dependent variables (organizational long-term performance) is positive and statistically significant in the Korean business context. For this, the following research questions were developed:

RQ 1. Do the two types of learning interventions have a positive relationship with organizational (a) process competency and (b) customer competency?

RQ 2. Do the two types of learning interventions have a positive relationship with human capital in organizations?

RQ 3. Does human capital in organizations have a positive relationship with organizational (a) process competency and (b) customer competency?

In addition, in order to examine whether organizational human capital mediates the relationship between learning interventions and organizational long-term performance, the following research question was established:

RQ 4. How do the relationships between the two types of learning interventions and organizational (a) process competency and (b) customer competency change when human capital in organizations is controlled for?

Conceptual Research Framework

The conceptual framework for this research was established based on the relevant literature review and is illustrated in Figure 1–1.

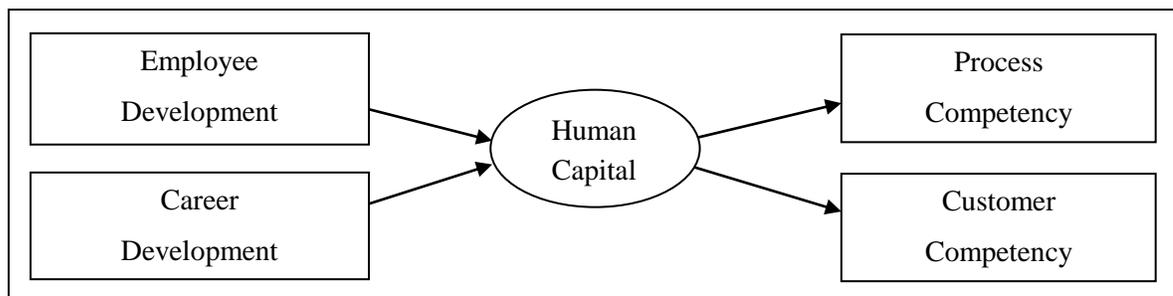


Figure 1-1. Conceptual Research Framework

Fundamentally, the establishment of the current research framework stemmed from recognition of human capital theory and the notion of a resource-based view (RBV) in which human resources are considered an intangible capital composed of unique knowledge, skills, and attitudes (KSAs) in place to ensure a competitive advantage (Wang, Hutchins, & Garavan, 2009) and should be developed through investment in learning and development interventions (Nafukho, Hairston & Brooks, 2004).

Structurally, the research framework referred to Boswell's (2006) line of sight (LOS) framework and Buller and McEvoy (2012)'s research model. Both argue that employees' KSA (i.e., human capital) are key to achieving positive organizational performance and that strategically arranged human resource management (HRM) practices are a critical motivator in leading employees' KSA to the organization's strategic goals. Referring to the HRM research assertions and models for the establishment of the current research framework is an integrated and multidisciplinary approach to having a coherent understanding of the structural dynamics of HR-related interventions.

In addition, this research was based on the argument that "[T]here is a good deal of consensus in the strategic HR literature that combinations, or configurations, of HR practices are more likely to lead organizational-level outcomes ... than individual practices used in isolation" (Youndt & Snell, 2004, p. 339). That is, based both on an understanding that specific intervention

programs will vary in each organization and on the argument that the configurational perspective better informs strategic planning and alignment of interventions (Delery & Doty, 1996; Ichniowski et al., 1997), the current research framework took the configurational approach to establishing the independent variables of long-term learning interventions (i.e., employee development, career development) comprised of multiple programs and activities to examine the relationship with the other variables.

Chapter 2

Review of the Related Literature

The current research was designed to examine the structural relationship between long-term learning interventions and expected outcomes of improvements in organizational human capital and performance. Research assets are outlined through a review of the extant literature on each of the constructs and the relationships among them as demonstrated in the conceptual framework in chapter 1. The literature review consists of three parts: (a) theoretical backgrounds of the variables constituting the conceptual framework of the current research, (b) the reviewed relationship among WLP learning interventions, human capital, and organizational long-term performance, and (c) a chapter summary. The first part introduces major concepts of SHRD, WLP, human capital theory, and organizational long-term performance; the second part reviews literature on the relationships among the constructs of WLP learning interventions, human capital, and performance; and the third part summarizes the chapter.

Theoretical Background

This section contains an introduction to the major concepts of SHRD, WLP, human capital, and long-term performance in the workplace context to help with theoretical understandings and operational definitions for the current research.

Theoretical Progress of HRD

Beyond the notion that HRD has been regarded as a practice to enhance employees' satisfaction and job capacity (Schneider & Bowen, 1985), the more performance-centered strategic shift in the HRD field emerged in the 1990s. The shift pushed and was pushed by the advent of advanced notions over HRD, two of which are strategic HRD (SHRD) and workplace learning and performance (WLP). This section introduces the major concepts of SHRD and WLP that inform this research.

Strategic human resource development

In the article, "Strategic human resource development", Garavan (1991) proposed nine key characteristics of SHRD. The proposed prescriptive characteristics of SHRD stressed the role of HRD as a solution provider to many business issues and a learning manager for long-term business strategies as follows:

- Integration with organizational missions and goals: SHRD should be integrated into business planning, contribute to the organizational mission and goals, and be regarded as a strategic lever for implementation of organizational business strategies.
- Top management support: SHRD should be able to secure active support and acknowledgment from top management as an important contributing force.
- Environmental scanning: SHRD should keep scanning the external environment and be able to analyze opportunities and threats within it.
- HRD plans and policies: SHRD should formulate its plans and policies to ensure legitimate and strategic implementations just as the organization does on a whole business scale.

- Line manager commitment and involvement: SHRD should induce enthusiastic involvement from line managers who are generally in a position of direct contact and advice to employees.
- Existence of complementary HRM activities: SHRD should be coherent and work together with human resource management (HRM).
- Expanded trainer role: SHRD should take a role as not only a reactive trainer or provider but also a proactive consultant or innovator.
- Recognition of culture: SHRD should consider the organizational strategy-culture match and intervene to maintain and change corporate culture.
- Emphasis on evaluation: SHRD should evaluate its activities in terms of, for example, suitability, feasibility, and acceptability (Johnson & Scholes, 1988).

In a similar vein, Torraco and Swanson (1995) argued that HRD should play a role not only in supporting the business strategy but also in shaping it in organizations. They stated that “although the role HRD serves in support of strategy is necessary and important to operational success, HRD can offer even greater strategic value to organizations” (p. 15). They also emphasized that in order for HRD to add strategic value to an organization it should be performance-based and contribute directly to important business goals.

In about a decade of discourse on SHRD, McCracken and Wallace (2000) further elaborated on Garavan’s nine characteristics. In using the term *internal fit*, McCracken and Wallace indicated that all nine interlinked characteristics should be integrated in the same manner as the HRD and corporate strategies should be. They also made a strong argument that SHRD aims at making learning institutional and thereby building learning culture in the organization. In conclusion, asserting that “SHRD should have a much more proactive and influential role” (p. 286), they proposed a tri-level model of SHRD in which SHRD comes after the concepts of

training and HRD. This model was based on Garavan's nine SHRD characteristics but considered those as holding a relatively weak linkage with an organizational learning culture. Rather, proposing nine enhanced SHRD characteristics, this model stressed a more strategic change focus committed to developing a strong learning culture for organizations.

Later, building on the extant literature on SHRD, including his own, Garavan (2007) proposed a model of SHRD consisting of multi-level interactions "between context, HRD processes, stakeholder satisfaction, and characteristics of the HRD profession" (p. 11). Simultaneously, the model emphasizes the importance of vertical alignment and horizontal integration in SHRD because it sees the organization as open systems in which many important factors are intertwined and interplay. In addition, integrating the RBV and human capital theory as well as the previously suggested nine SHRD characteristics, the model assumes that SHRD contributes to developing organizational knowledge and skills that lead to enhanced long-term performance. In other words, this model suggests that there should be a positive relationship between SHRD practices and organizational human capital, which leads an organization toward long-term performance improvement. However, a need for an empirical investigation of the relationship remains due to the importance of having deeper insight into the process through which SHRD practices influence organizational performance, which the prescriptive SHRD model made less explicit.

Workplace learning and performance

WLP, the other paradigm-shifting term for HRD, was found to be the practitioners' most preferred name for the profession (Galagan, 2003) and implies "the paradigm shift in the field once formerly referred to as Human Resource Development (HRD) or Training or Training and Development" (Rothwell & Sredl, 2000, p. 1). One major shift is from the training- and

development-centered approach to the integrated approach of learning and other interventions; the other is a shift from implementing practices of planned learning programs to a systematic process for human performance improvement in the workplace. Including and connoting these two shifts, the important features of WLP (Rothwell et al., 1999, pp. 9–11) are as follows:

- Definition: The integrated use of learning and other interventions for the purpose of improving individual and organizational performance using a systematic process of analyzing and responding to individual, group, and organizational needs.
- Human nature: People want to learn, develop, and achieve their potential.
- Goals: The major goals are building knowledge capital within the organization and improving human performance.
- Nature of learning in organizations: Continuous learning is an important organizational strategy because it builds the intellectual capital that is crucial to individual and organizational performance.
- Governing model: The human performance improvement (HPI) process model.
- Learning interventions: Training, employee education, employee development, career development, and organization development.

In WLP, workplace learning is referred to as a process involving the pursuit of change and improvement in workplace performance by acquiring knowledge, skills, or attitudes. If a problem or opportunity is found in the process from learning to performance, appropriate interventions should be instituted to solve the problem or seize the opportunity (Rothwell & Sredl, 2000). Depending on the identified problem or opportunity, the appropriate actions can involve intervening in environmental, physical, or managerial capital; human knowledge and intellectual capital; or both. Therefore, management and WLP professionals are the main players who should work together to enact organizational interventions to optimize environmental capital

and assume a fundamental responsibility for learning interventions to activate, develop, and energize human capital. Put differently, in order to achieve desired workplace performance, employees should receive environmental supports in terms of expectations and feedback, tools and resources, and consequences and incentives from management while at the same time being equipped properly with skills and knowledge, capacity, and motives and attitudes through learning interventions (Binder, 1998; Gilbert, 1996). In this vein, WLP professionals are required to act as both a business partner who works together with management on the basis of a long-term relationship and a learning strategist who leverages learning and performance interventions in support of the organization's strategic direction and long-term business success (Davis, Naughton, & Rothwell, 2004).

Human Capital in the Workplace

WLP is a multidisciplinary field that has been influenced by economics, education, psychology, and others (Rothwell & Sredl, 2000). Economics has provided the field with many theoretical ideas, including the concept of human capital (Nafukho, Hairston & Brooks, 2004).

Human capital theory

Many economic studies in the 1960s had difficulty accounting for U.S. economic growth via traditionally constituted factors of production (i.e., physical capital, labor, land, management) (Denison, 1962; Schultz, 1961). In the course of attempts to investigate unveiled contributing factors, the theory of human capital emerged in which people are considered another significant form of capital (Becker, 1993; Schultz, 1961). Human capital theory expanded the view on people from the traditional notion of labor for physical exertion to recognition of them as an asset

that can and should be capitalized upon for economic gains to individuals and society. The fundamental belief of human capital theory is that human capacity for learning and idea creation is as important as other factors involved in the process of production (Lucas, 1988; Naisbitt, 1983) and that people as a human resource reserve capabilities and potential that are readily there to contribute to the process (Harbison, 1973).

Human capital theory argues that “individuals and society derive economic benefits from investments in people” (Sweetland, 1996, p. 341) via education, expecting returns to be equal to or greater than the investment. Returns refer to additional income for individuals and to greater productivity for society as a result of education (Becker, 1964). Thus, human knowledge and skill secured through investment in education is posited as a predominant determinant of productive superiority and that “in so far as expenditures to enhance such capabilities also increase the value productivity of human effort (labor), they will yield a positive rate of return” (Schultz, 1961, p. 8).

Organizational human capital

More specifically in the organizational context, human capital is regarded as a subset of organizational intellectual capital. It has been argued that intellectual capital is a key to organizational success in the knowledge-based economy and consists of human capital, organizational or structural capital, and customer or social capital (Bontis, 1996; Evinsson & Malone, 1997; Stewart, 1997). According to these classifications that share basic ideas in common, organizational human capital refers to KSAs that belong to individual employees in the organization; organizational or structural capital refers to the infrastructure and processes that organizations have established; and customer or social capital refers to relationships that organizations have developed with customers.

Although the literatures placed the three components of intellectual capital on the same level of typology, they all believe that organizations cannot create organizational knowledge assets in the same manner that people can (Argyris & Schon, 1978). In other words, both the structural and customer capital of the organization can be nurtured only through the function of its human capital (i.e., employees' KSAs), indicating that human capital precedes the others in essence. As employees learn and grow, the organization will become more effective in its processes and with its customers.

It is therefore rational to believe that, in order to comprehensively fortify organizational intellectual competencies, organizations should first begin by *buying* (staffing and compensating) or *making* (developing) human capital (Youndt & Snell, 2004).

Performance in the Workplace

The business world is becoming increasingly complex and fast-moving in this knowledge-based environment. As such, the term organizational performance seems to have been defined and revisited in many ways.

Organizational performance

In general, performance is regarded as resultant outcomes. In this sense, organizational performance has long been represented by a single financial measure, such as growth and profits, which prevailed in the industrial era (Kaplan & Norton, 1992, 1996; Yeo, 2003). However, it has been argued that, along with financial indicators, managerial aspects such as product development and quality, production and marketing effectiveness, and business process efficiency should also be considered as corporate performance indicators (Venkatraman & Ramanujam, 1986).

Subsequently, stating that the organization's "ability to exploit intangible assets has become far more decisive than their ability to invest in and manage physical assets" (Kaplan & Norton, 1992, p. 75), Kaplan and Norton (1992, 1996) proposed the balanced scorecard (BSC) as a matrix for organizational performance, consisting of four organizational performance indicators including business process competency, customer competency, and learning and growth as well as financial results. In BSC, the financial perspective refers to a company's monetary accomplishment in the eyes of shareholders; the business process competency refers to a company's operational effectiveness and efficiency; the customer competency refers to a company's creation of and response to customers' needs and expectations; and learning and growth refer to a company's competency to learn, improve, and innovate its present and future value (Kaplan & Norton, 1992).

In a similar vein, Dyer and Reeves (1995) suggested four dimensions as organizational effectiveness indicators, including financial outcomes, organizational outcomes, HR outcomes, and capital market outcomes. In comparing these dimensions with the four performance indicators in BSC, organizational outcomes well correspond to the process and customer competencies, while HR outcomes correspond to people's capacities and motivations for learning and growth.

Long-term performance indicators

It has been argued that in defining organizational performance, learning and growth, process, and customer competencies should complement the financial indicator (Kaplan & Norton, 1992, 1996). Put in a context with a sequential flow, an organization's learning ability leads to long-term performance indicators of process and customer competencies that are driving forces of its future financial performance. Therefore, whether and to what extent an

organization's process and customer competencies have accrued indicate how the organization is going to do financially now and forward.

In comparing performance indicators with concepts of intellectual capital, both the HR outcomes in Dyer and Reeves' research and learning and growth indicator in BSC can be understood interchangeably with the concept of organizational human capital in that they are individual and collective competencies that are purposefully nurtured to contribute to fulfilling future performance as well as present responsibilities. As such, both organizational outcomes in Dyer and Reeves' and process and customer indicators in BSC can be interpreted as similar to the concepts of organizational structural and customer capital because all these represent organizational potential resulting from human capital that has accrued, and which should determine organizational financial success and sustainability in the long run.

Many scholars and practitioners have advocated the notion of BSC and the importance of long-term performance indicators, including Hiltrop and Despres (1994) who stated that these non-financial measures exert a far-reaching influence on organizational performance, making the organization financially thriving and sustainable.

Organizational Performance in Relation to Learning Interventions and Human Capital

In this section the literature on relationships among the constructs of learning interventions, human capital, and long-term performance is reviewed to explain the framework for the current research.

Learning Interventions and Organizational Performance

Gilley and Maycunich-Gilley (2002) suggested three domains of SHRD practices: organizational performance, organizational learning, and organizational change. Examples of activities in the organizational performance domain include training programs and competency modeling; the organizational learning domain relates to tacit learning, knowledge sharing, and learning culture; and the organizational change domain includes career planning, talent management, and change management. Lepak, Bartol, and Erhardt (2005) proposed another categorization of HRD activities, offered in an order indicating their strategic value to the organization: transactional (e.g., training records), traditional (e.g., managerial training, performance management), and transformational (e.g., knowledge management, cultural change programs) domains.

In comparing these two categorizations, efficiency-oriented practices in the organizational performance domain well correspond to the concept of traditional HRD activities whereas those in the organizational learning and change domains match the concept of transformational HRD activities (Garavan, 2007). Beyond the traditional HRD approach, organizational learning and change practices take a transformational perspective by focusing on the development of employees' core capabilities in order to enable organizations to better respond to and lead change. Put differently, taking the perspective of implementing HRD practices in alignment with organizational strategies enables organizations to better achieve business goals by accumulating and mobilizing their human capital (Davenport, Prusak, & Wilson, 2003; Zula & Chermack, 2007).

In the meantime, WLP interventions are meant to “bring about performance improvement by equipping people with more knowledge or skill” (Rothwell & Sredl, 2000, p. 9) and are mainly categorized into training, employee development, career development, and organization

development (OD). Different from either training that aims at short-term objectives for present jobs (Bartz, Schwandt, & Hillman, 1989) or OD that pursues change mainly in organizational processes and culture (French & Bell, 1984), the learning interventions of employee development and career development well match the aforementioned domains of organizational learning and change practices (Garavan, 2007; Gilley & Maycunich-Gilley, 2002) that take the transformational perspective (Lepak, Bartol, & Erhardt, 2005) on employees' capabilities for organizational performance improvement (see Table 2-1).

Table 2-1. Comparison of Learning Interventions

HRD activities (Lepak, Bartol, & Erhardt, 2005)	SHRD practices (Gilley & Maycunich-Gilley, 2002)	WLP learning interventions (Rothwell & Sredl, 2000)
Transactional activities		
Traditional activities	Organizational performance practice	Training
Transformational activities	Organizational learning practice Organizational change practice	Employee development Career development Organization development

More specifically, employee development is characterized as a long-term learning intervention that helps individuals to build a wide range of competencies, enables human capital to accrue to the organization, and develops organizational performance with the goal of overall improvement. Employee development, defined as “a change in attitudes or values”, is less concerned about current task requirements than training that focuses on “a change in skills” (Lawrie, 1990). Rather, it is more interested in far-reaching individual growth and capabilities and the organizational future, which makes it difficult to expect high short-term ROI and to

declare success or failure in a short period of time (Rothwell & Kazanas, 2003). Employee development programs in an organization that may include, but are not limited to, off-the-job training opportunities, higher education funding, incentive programs for study groups, and so forth are implemented with a conviction that they will pay off in the long run.

Career development is also a long-term learning intervention specifically designed to help individual employees pursue their career aspirations (e.g., short- and long-term, on and off the present job, and within and outside the organization) and simultaneously to help organizations prepare human capital for present and future demands. Career development interventions can serve as a career planning opportunity for employees and an HR management process for the organization. Therefore, deliberate arrangements of career development interventions, such as career development planning, succession planning, coaching and mentoring, and job rotation programs, facilitate employees' planning of their long-range careers and enable the organization to manage its human resources—both in turn foster the sustainable performance of the organization (Rothwell & Sredl, 2000).

In sum, these two learning interventions (i.e., employee development, career development) represent a deliberate organizational investment in human capital with long-term returns being equal to or greater than the investment in mind (Schultz, 1961). Required of WLP, then, is continued verification of the relationship of learning interventions through reinforced human capital to organizational long-term performance, both conceptually and empirically. In doing this, the current research focuses on the systematic relationship of WLP learning interventions as configurations of multiple programs to human capital and, in turn, to long-term performance.

Human Capital and Organizational Performance

In a knowledge society in which human resources are regarded as one of the most important resources (Gray & Herr, 1998), employees' competencies and capabilities (i.e., organization-level human capital) are increasingly emphasized as crucial contributors to organizational performance (Pennings, Lee, & Witteloostuijn, 1998). Individual and collective KSA in an organization's human resources is described as organization-level human capital (Becker, 1964); human capital theory argues that organizational productivity increases commensurate with investments in human capital. Aliaga (2001) asserted that one of the main foci of human capital theory in the workplace is seeking the plausibility of investing in human resources, especially in the form of education (e.g., learning interventions) to make the workforce more productive in the workplace—an area also explored in the WLP field (Holton & Naquin, 2002).

In this context, Nafukho, Hairston and Brooks (2004) argued that organizational investment in learning and development interventions enables an organization's human capital to be mobilized, developed, and conserved, which in turn leads to enhanced individual performance and improved organizational productivity and profitability. Upton (1995) maintained that knowledgeable people enable organizations to be flexible, making them more responsive to changes in process and customer needs. Youndt and Snell (2004) also empirically showed that the positive relationships between organizational human capital and the two performance components (i.e., return on equity, return on asset) were statistically significant and practically meaningful.

In addition, Buller and McEvoy (2012) reported that empirical studies with Israeli organizations (Carmeli & Schaubroeck, 2005), Spanish firms (Lopez-Cabrales, Valle, & Herrero, 2006), and Irish firms (Selvarajan et al., 2007) found that organizational human capital (i.e., employees' knowledge, skills, and abilities) were positively and significantly related to

organizations' competitiveness and efficiency. They also presented research on the influence of human resources on organizational performance through their core competencies and capabilities (King & Zeithaml, 2001; Lado & Wilson, 1994; Leonard-Barton, 1992), knowledge-base (Grant, 1996), or learning capability (Kang, Morris, & Snell, 2007).

Learning Interventions, Human Capital, and Organizational Performance

As stated, the long-term performance perspective focuses on an organization's human capital to establish potential business drivers (i.e., process competency and customer competency) that will secure organizational sustainability and future financial growth. These performance drivers, unlike the financial aspect, have been argued to have stronger relationships with long-term strategic goals of an organization (Kaplan & Norton, 1992, 1996).

In addition, using Dyer and Reeves' (1995) four dimensions, Way and Johnson (2005) showed that HR outcomes (learning and growth in BSC) mediated the influences of HR practices on organizational outcomes (process and customer competencies in BSC) as well as financial outcomes. Youndt and Snell (2004) went further to suggest that configured HR activities contribute to organizational performance only by influencing an increase in employees' human capital without directly impacting organization-level performance. Wright and McMahan (2011) also maintained that organization-level human capital mediates the relationship between HRM and performance.

Therefore, it seems plausible that human resources with enhanced human capital stemming from HR interventions play a significant role in positively influencing an organization's long-term performance (Wright, Dunford, & Snell, 2001). However, the empirical investigation of the issue raised in the extant literature—understanding of the specific mechanisms or relationships through which HR interventions contribute to organizational long-

term performance—still remains limited (Buller & McEvoy, 2012; Collins & Smith, 2006; Guest, 2011; Paauwe, 2009; Youndt & Snell, 2004). Moreover, the mechanism is even less articulate when it comes to the relationship of organizational learning interventions, such as employee development and career development, through reinforced human capital to organizational long-term performance. The current study intended to examine this topic in the Korean business context.

Chapter Summary

This chapter reviewed the literature in order to secure a foundational understanding and theoretical justification of the research purpose, which was to examine the relationships among WLP learning interventions, organization-level human capital, and organizational long-term performance.

First, this chapter presented the theoretical backgrounds and importance of each of the research constructs, including SHRD, WLP, human capital, and the organization's long-term performance. Then, it supported (or derived) the conceptual framework by referring to relevant research on similar constructs and relationships to those in the current research. That is, it explored a wide range of HR-related conceptual and empirical assertions that informed this research on the positive directional relationships from organizational interventions through human capital in the organization to performance.

Building on this theoretical basis, this research moved on to examine the established research questions empirically.

Chapter 3

Methodology

This chapter starts with a research procedure flowchart that describes three major steps—(a) research design, (b) instrumentation, and (c) analysis—with tasks within each step (see Table 3-1). Subsequently, this chapter provides detailed explanations how the tasks were conducted and concludes with a chapter summary.

Table 3-1. Research Procedure

Step	Task	Activities
Research Design	Research focus	<ul style="list-style-type: none"> • Identified the research problem and purpose • Established the research variables and developed the research questions
	Literature review	<ul style="list-style-type: none"> • Identified the literature relevant to the current research • Reviewed theoretical background for the research questions and variables • Operationalized major terms and research variables • Established the conceptual research framework
Instrumentation	Data set identification	<ul style="list-style-type: none"> • Examined a relevant data set • Identified and studied the HCCP 2009 data set • Determined the appropriateness of the identified data set in terms of providing reliable and valid information on human resources • Delimited the scope of the research
	Population and sample	<ul style="list-style-type: none"> • Specified survey target population and study sample • Examined descriptive statistics of sample by industry and size
	Measures	<ul style="list-style-type: none"> • Delimited research variables based on the literature review and examination of the data set

		<ul style="list-style-type: none"> • Selected and specified variable measures for the research questions • Examined content validity of the measures with the in-charge researcher of the HCCP data collection at KRIVET and three experienced HR scholars
Analysis	Measurement testing	<ul style="list-style-type: none"> • Conducted data cleaning to set up the data for analysis • Examined descriptive statistics for the variables • Examined construct validity of the variables through factor analysis and reliability and item analysis
	Examination of research questions	<ul style="list-style-type: none"> • Examined correlations between the variables by calculating Pearson's product-moment correlation coefficient • Checked the potential multi-collinearity issue and resolved it by splitting the conceptual research framework into two models • Examined the structural relationship among the research variables through multiple regression analysis according to Baron and Kenny's (1986) procedure
	Supplemental testing	<ul style="list-style-type: none"> • Conducted Sobel test to confirm the mediational relationship • Examined effect sizes of predicting factors by examining the standardized regression coefficient

Research Design

The WLP field continues to propose conceptual advancements and reinforcing influences through various interventions. This trend should become more desirable when the concepts and interventions are supported empirically. With this assumption, the current research identified important questions to answer and established the conceptual framework through which the questions were structurally investigated.

Specifically, as stated in the *research questions* and *conceptual research framework* sections of chapter 1, the purpose of this study was to investigate, in the Korean business context,

whether the directional relationship starting from long-term learning interventions (independent variables) through organizational human capital (mediating variable) to organizational long-term performance (dependent variables) is positive and statistically significant, and whether organizational human capital mediates the relationship between learning interventions and organizational long-term performance.

This correlational study, using a cross-sectional secondary data set collected on a national level (Korea), focused on an empirical examination of whether a business organization's investment in learning interventions leads to desired organizational long-term outcomes, with a particular interest in the mediating role of human capital. In other words, this study was designed to examine whether improved human capital plays an expected role as a (full or partial) mediator of the positive effects of far-sighted learning interventions on organizational long-term performance.

The research framework and its constituent (independent, mediating, and dependent) variables were theoretically grounded on the review of the extant literature, as detailed in chapter 2; they are explained in a methodological manner below.

Instrumentation

The *instrumentation* section provides details regarding the data set, the population and sample, and measures for this research.

Data Set

The current research utilized a data set from the Human Capital Corporate Panel (HCCP) 2009, which was funded by the Ministry of Labor in South Korea, administered by the Korea

Research Institute for Vocational Education and Training (KRIVET), and approved by the Korea National Statistical Office as official national data (approval number: 38903). Based on the understanding that human capital is now becoming more important than tangible capital as a core factor, the Korean governmental institutes initiated the HCCP data project in 2005 to systematically collect national panel data on business organizations' efforts regarding human resource development and organizational performance. Data have been collected through the interview survey process by trained visiting researchers, reviewed and validated by many researchers, and updated and re-administered by KRIVET biennially to provide researchers and businesses with reliable, valid information on human resources in Korea. The HCCP is one of the most comprehensive human resource (HR) data sets, representing Korean business corporations.

Therefore, the HCCP is regarded and used as a highly relevant data set for HR-related research by many researchers (e.g., Jeon, Kim, Kim, & Passmore, 2013; Park & Jacobs, 2011; Shaw, Park, & Kim, 2012), including the current research which used the most recent data set from HCCP 2009.

Population and Sample

The population for HCCP 2009 was all active business corporations operating within six industries (i.e., manufacturing; financial and insurance activities; information and communications; professional, scientific, and technical activities; education; arts, sports, and recreation-related services) in Korea. These six industries come from a total of 21 industries according to the Korean standard industrial classification, and in these six industries the accumulation of human capital has been judged to be relatively more important than in the other 15 industries. The survey target population is the corporations employing more than 100

employees among corporations listed in “KIS Corporate Data 2007” provided by Korea Information Service (KIS) (see Table 3–2).

Table 3-2. Survey Target Population by Industry and Corporate Size

Sector	Industry	Number of Businesses Based on Number of Employees			Total Number of Businesses
		100–299	300–999	1,000–	
Manufacturing	Manufacturing	2,436	593	158	3,187
Finance	Financial and insurance activities	69	41	48	158
Service	Information and communications	355	70	26	431
	Professional, scientific, and technical activities	176	62	13	251
	Education	24	4	1	29
	Arts, sports, and recreation related services	46	4	3	53
Total Number of Businesses		3,086	774	249	4,109

In determining the number of corporations for the survey, HCCP personnel employed the stratified proportional sampling method in proportion to the industry and size (the number of employees) of corporations based on the most credible national corporate data system so that the sample would represent the entire population (Cochran, 1977). In detail, the HCCP 2009 sampled 473 corporations—333 manufacturing, 37 financial, and 103 service corporations by industry; 220 small-, 171 mid-, and 82 large-sized corporations in terms of number of employees (see Table 3–3).

With regard to this HCCP 2009 data set, the number of samples was judged sufficient for the current research as per the general guideline regarding the number of samples for multiple regression analysis, which is “ $104 + m$ where m is the number of independent variables”

(Tabachnick & Fidell, 2001, p. 117). Due to the stratified sampling method, the current research also secured a sound basis for confidently inferring findings from the sample to the target population.

Table 3-3. Sample by Industry and Corporate Size

Sector	Industry	Number of Businesses Sampled Based on Number of Employees			Total Number of Businesses
		100–299	300–999	1,000–	
Manufacturing	Manufacturing	160	124	49	333
Finance	Financial and insurance activities	4	14	19	37
Service	Information and communications	27	16	5	48
	Professional, scientific, and technical activities	14	12	5	31
	Education	5	1	1	7
	Arts, sports, and recreation related services	10	4	3	17
	Total	220	171	82	473

Note. Industry is classified according to Korean standard industrial classification.

Measures

In order to answer the research questions, this research, using the HCCP 2009 data set, established three variable categories including independent, mediating, and dependent: two long-term learning interventions (employee development and career development) as independent variables; organization-level human capital as a mediating variable; and two organizational long-term performance indicators (process competency and customer competency) as dependent variables. With these variables, this research examined whether there were statistically significant

positive relationships between the variables and assessed whether a mediating role was played by the mediating variable.

The measures for these variables employed by the HCCP 2009 and the current research are explained below.

Independent variable

The independent variables in the current research were two types of WLP learning interventions—employee development and career development—that are assumed to improve the human capital and, in turn, long-term performance of the organization. In establishing these variables, this research used the cluster in the HCCP 2009 data set on various learning and development activities—whether or not each of the activities was implemented in the organization. Specifically, the employee development variable was constructed using related activities including the education funding programs, learning community program, and learning mileage program. The career development variable was constructed using activities including succession planning, career development planning, mentoring and coaching, and job rotation program. Each item was measured using a yes-no response item ($1 = \text{yes}$, $0 = \text{no}$). The items were answered by responsible personnel in charge of HR in each of the participating organizations; those responses to the items were aggregated into the two independent variables (see Appendix A).

Mediating variable

The mediating variable was organization-level human capital (Becker, 1964; Pennings, Lee, & Witteloostuijn, 1998) that is assumed to be affected by WLP learning interventions and, in

turn, to lead or contribute to organizational long-term performance improvement. The HCCP 2009 data set has the cluster of organization-level human capital consisting of four items—to what degree are employees' job capability, productivity, motivation, and retention enhanced through learning interventions—using a 4-point Likert-type response scale (*1 = rarely enhanced through 4 = very much enhanced*). This cluster was answered by responsible personnel in charge of HR in each of the participating organizations (see Appendix A).

Dependent variable

The dependent variables in this research were two organizational long-term performance indicators—process competency and customer competency—out of four BSC dimensions (Kaplan & Norton, 1992, 1996). The other two dimensions—financial performance and learning and growth—were not included as dependent variables in this research because financial performance is a short-term performance indicator affected by many other business-related factors, and the learning and growth dimension, as detailed in chapter 2, conceptually overlaps with the mediating variable, organization-level human capital, that presumably influences the subsequent process and customer competencies. The HCCP 2009 data set has the clusters of the process competency, consisting of three items of new product (service) development, work process effectiveness, and product (service) competitive advantage through cost reduction, and the customer competency, consisting of five items of prompt response to customer needs, product (service) variety, new customer acquisition, loyal customer retention, and brand image. All items are assessed on a 5-point Likert-type response scale (*1 = much poorer than competitors through 5 = much better than competitors*). These items were answered by multiple departmental heads in each of the participating organizations (see Appendix A).

Content validity

The content validity of selected items for measuring the mediating and dependent variables was assessed through a process of confirming conceptual and contextual meanings with the in-charge researcher at KRIVET and three experienced HR scholars. This validation process involving subject matter experts (SMEs) before moving on to the next step in the statistical analysis was necessary to secure SME agreement and justification regarding the appropriateness of items for the constructed variables (Lawshe, 1975; Nunnally, 1978).

Analysis

The purpose of the current research was first to examine the relationships between two independent variables, one mediating variable, and two dependent variables, and then to examine whether there was a mediating relationship among the variables in the Korean business context. To fulfill this purpose, with the data from the HCCP 2009, a two-fold process of measurement testing and examination of research questions was executed.

Measurement Testing

Factor analysis and internal consistency reliability analysis was performed to investigate whether the construction of multiple items into the latent variables was appropriate and meaningful (Kline, 1998).

To be more specific, along with basic descriptive statistics, construct validity (Hair, Black, Babin, Anderson, & Tatham, 2006) of the measures for the latent mediating and dependent variables was examined using the statistical technique of factor analysis. Because the selected measures have been consistently used in all three waves (2005, 2007, 2009) in the HCCP data

collections, are well grounded in the relevant literature, and secured content validity from the SMEs in the previous step, it has been judged appropriate to examine the strength of the statistical correlations among the measured items in a confirming manner with the criterion that factor loadings be greater than .60.

The reliability of the selected measures for the mediating and dependent variables was examined using Cronbach's alpha, which is the most commonly used reliability method (Urdan, 2010). According to Urdan's rule of thumb, an alpha level of .70 or higher has been set as the acceptable minimum reliability value.

Examination of Research Questions

With the measurement testing results, the next step was to answer the research questions through examination of the correlations, relationships, and mediating relationship among the variables.

Correlation

To gain a preliminary understanding of the strengths of association among the variables, the correlation coefficients between each of the independent, mediating, and dependent variables were computed using the Pearson's product-moment correlation coefficient, which is the most commonly used correlation coefficient (Urdan, 2010). Although correlation does not necessarily imply causal relationships between the examined variables, it serves as a prerequisite for further investigation of those relationships. Additionally, close attention was given to the correlation coefficient between the two independent variables to assess whether there is a potential serious issue of multi-collinearity that may distort a precise regression analysis (O'Brien, 2007) and to

examine later the unique contribution of each independent variable to variance in the following outcome variables (Urdan, 2010).

In the meantime, there is a frequent concern about common-method variance in statistics—correlations between variables can be distorted due to the use of the same data collection method (Podsakoff & Organ, 1986). However, the variables used in this study differed in terms of type, respondent, and time of survey (Chang, Van Witteloostuijin, & Eden, 2010), and thus were free of the concern.

Predicting relationship

Research questions 1, 2, and 3 were developed to examine the relationships between the independent variables and dependent variables (RQ1-1, RQ1-2), the independent variables and the mediating variable (RQ2), and the mediating variable and dependent variables (RQ3-1, RQ3-2). Besides the correlation coefficients calculated in the previous step, multiple regression analysis was used because the current research had multiple independent variables modeled to have relationships with the dependent variables and the mediating variable and examined whether and how the independent variables explained variance in the subsequent variables.

Mediating relationship

Along with research questions 1, 2, and 3, research question 4 was developed to examine whether a mediating relationship existed among the variables in the model. According to Baron and Kenny's (1986) procedure, the current research examined: (a) the relationships between the independent variables and dependent variables (RQ1), (b) the relationships between the independent variables and the mediating variable (RQ2), (c) the relationships between the

mediating variable and dependent variables (RQ3), and then (d) whether there is a change in the relationships between the independent and dependent variables when controlling for the mediating variable (RQ4).

Throughout these examinations, the following multiple regression equation was used as the basic formula where \hat{Y} refers to the outcome value (dependent variable), X_i to the predicting value (independent variable), and e to the error:

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + e$$

The individual examinations of (a), (b), (c), and (d) were expressed as follows:

- a. $\hat{Y}_{PC} = f(\text{ED}, \text{CD}, \dots) + e$, $\hat{Y}_{CC} = f(\text{ED}, \text{CD}, \dots) + e$;
- b. $\hat{Y}_{HC} = f(\text{ED}, \text{CD}, \dots) + e$;
- c. Controlling for ED and CD, $\hat{Y}_{PC} = f(\text{ED}, \text{CD}, \text{HC}, \dots) + e$, $\hat{Y}_{CC} = f(\text{ED}, \text{CD}, \text{HC}, \dots) + e$; and
- d. Controlling for HC, $\hat{Y}_{PC} = f(\text{ED}, \text{CD}, \text{HC}, \dots) + e$, $\hat{Y}_{CC} = f(\text{ED}, \text{CD}, \text{HC}, \dots) + e$

Where:

- \hat{Y}_{PC} and \hat{Y}_{CC} are the outcome values of the process and customer competency variables;
- \hat{Y}_{HC} is the outcome value of the human capital variable; and
- ED, CD, and HC in parentheses are predicting values of employee development, career development, and human capital, followed by possible influencing elements (Suter, 2011).

After conducting the multiple regression analyses, a Sobel test was performed to double-check the mediational relationship identified through the multiple regression analysis (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The Sobel test is known as the most common and conservative way to examine the indirect effects between variables in the research

model (MacKinnon, Warsi, & Dwyer, 1995). The test for this research was done at the website for the Sobel test provided by Preacher and Leonardelli (see <http://quantpsy.org/sobel/sobel.htm>).

Effect size

After analyses of the statistical significance of the relationships, the effect size of each of the independent variables was also examined because doing so helps assess the practical significance of a relationship by presenting a descriptive statistic of its strength (Kelley & Preacher, 2012). Especially in this research, the standardized beta weights in the multiple regression equations were viewed as the statistics for effect size because the variables were scaled metrics measured in different scales across all variables with little intrinsic practical meaning by themselves (Wilkinson, 1999).

With the understanding that interpretations of effect size would be substantive only when the findings were grounded in an interrelated context with many other possible predictors involved (Cohen, 1987) and that the investigation was not inclusive of all predictors that might have affected the researched relationship, this researcher did not attempt to operationally define effect size as small, medium, or large. Rather, the effect size in this research was interpreted as a relative comparison between the predicting factors of interest.

Chapter Summary

In order to achieve the research purpose—an empirical examination of whether the relationship between two independent variables through the mediating variable to two dependent variables is positive and statistically significant and whether there is a mediating relationship—a three-step research procedure was undertaken, as illustrated in this chapter.

After describing first the research design, this chapter in the instrumentation section explained the chosen data set (HCCP 2009), delimited the research population, sample, and variables, and presented ways to address the issue of ascertaining the content validity of selected items for the variables. Subsequently, this chapter described statistical strategies for testing measures in terms of construct validity and reliability, for answering the research questions on the predictive relationships and mediating relationship between the variables, and for estimating the effect size of each predictor as well.

Chapter 4

Results

This chapter reports the results of the statistical analyses conducted, followed by a chapter summary. The main purpose of this research was to determine whether there were positive relationships among established variables (employee development, career development, human capital, process competency, and customer competency) and a mediating relationship in the research model. To achieve this purpose, the measurement was first examined using factor analysis and reliability analysis. Based on those results, the relationships between the variables were examined to answer the research questions and, in addition, effect size was examined to discuss the practical significance of the findings regarding the relationships (Kotrlik & Williams, 2003).

SPSS Statistics 21 was used throughout the entire analysis process; the website provided by Preacher and Leonardelli (<http://quantpsy.org/sobel/sobel.htm>) was used for the Sobel test.

Results of Measurement Testing

The report of the results starts with descriptive statistics and inter-item correlations for the research variables (employee development, career development, human capital, process competency, and career competency) with 469 cases (see Table 4-1). These cases remained after the data cleaning process eliminated 4 cases due to missing data. Then, the results of the factor analysis and reliability analysis of the variables are described.

Table 4-1. Descriptive Statistics and Inter-Item Correlations for the Research Variables ($n = 469$)

	<i>M</i>	<i>SD</i>	ED	CD	HC1	HC2	HC3	HC4	PC1	PC2	PC3	CC1	CC2	CC3	CC4	CC5
ED	1.23	1.10	1													
CD	1.28	1.19	.49**	1												
HC1	2.45	0.60	.35**	.38**	1											
HC2	2.33	0.74	.26**	.33**	.72**	1										
HC3	2.51	0.76	.30**	.27**	.64**	.59**	1									
HC4	2.19	0.80	.26**	.24**	.55**	.54**	.65**	1								
PC1	3.46	.64	.17**	.18**	.25**	.23**	.22**	.23**	1							
PC2	3.31	.52	.18**	.15**	.20**	.20**	.19**	.23**	.59**	1						
PC3	3.53	.58	.16**	.20**	.22**	.26**	.23**	.18**	.65**	.66**	1					
CC1	3.72	.57	.18**	.14**	.23**	.24**	.20**	.17**	.57**	.59**	.63**	1				
CC2	3.64	.60	.13**	.14**	.21**	.23**	.17**	.21**	.69**	.51**	.54**	.62**	1			
CC3	3.37	.60	.17**	.15**	.25**	.24**	.22**	.21**	.64**	.60**	.62**	.59**	.67**	1		
CC4	3.72	.60	.19**	.16**	.23**	.23**	.20**	.15**	.58**	.53**	.61**	.69**	.60**	.68**	1	
CC5	3.65	.65	.22**	.24**	.29**	.27**	.23**	.22**	.63**	.55**	.59**	.64**	.65**	.71**	.74**	1

Note. ED: Employee development, CD: Career development, HC: Human capital, PC: Process competency, CC: Customer competency. The number in the stub head and stub column means the item number of each variable. ** $p < .01$

Factor Analysis

Using the methods of Maximum Likelihood extraction and Oblique rotation (Urdan, 2010), factor analysis was conducted for the mediating variable and dependent variables to assess whether the items statistically held together within the factor to which they belonged. From this analysis, it was determined that all items well served their assigned factors. All factor loadings were acceptable, with those for the mediating variable being greater than .71 and those for the independent variables being greater than .76 (see Table 4-2).

Table 4-2. Factor Loadings of the Mediating and Dependent Variables

	Human capital	Process competency	Customer competency
HC1	.84		
HC2	.81		
HC3	.78		
HC4	.71		
PC1		.76	
PC2		.79	
PC3		.84	
CC1			.77
CC2			.77
CC3			.82
CC4			.84
CC5			.86

Note. ED: Employee development, CD: Career development, HC: Human capital, PC: Process competency, CC: Customer competency. The number in the stub head and stub column means the item number of each variable.

Reliability Analysis

Cronbach's alpha coefficients for the mediating and dependent variables were examined to ascertain the internal consistency of the latent variables confirmed by the preceding factor analysis. The results showed that the summated scores for the research variables were internally consistent with all Cronbach's alpha values being greater than .86 (see Table 4-3). Also, each Cronbach's alpha value for the variables was greater when all items were combined than when any of the items were deleted from the variable using item analysis information, indicating desirable item combinations for the variables.

Results for Research Questions

With acceptable results from the measurement test, this research moved forward to answer the research questions following a sequence of examining results for correlation analysis, multi-collinearity analysis, and multiple-regression analysis.

Correlation and Collinearity Analyses

The calculation of Pearson's r showed that all variables were statistically and significantly correlated with each other (see Table 4-3), provisionally enabling this research to move forward to view predicting relationships.

Table 4-3. Correlations and Reliabilities of the Research Variables

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Employee development	1.23	1.10	-				
2. Career development	1.28	1.19	.49**	-			
3. Human capital	2.37	0.63	.35**	.36**	(.86)		
4. Process competency	3.51	0.50	.20**	.21**	.31**	(.86)	
5. Customer competency	3.62	0.51	.21**	.20**	.31**	.84**	(.91)

Note. Correlations are at intersections, and reliabilities are in parentheses. No internal consistency reliability test was needed for the independent variables because each of them is the sum of the dummy coded individual programs implemented (i.e., yes = 1, no = 0), which is interval/ratio data by itself (Hair et al., 2006). ** $p < .01$

At the same time, however, a moderately strong correlation between the two independent variables was detected ($r = .49, p < .01$), which necessitated a further investigation into the issue of multi-collinearity. Therefore, to see how severe the issue of multi-collinearity might be, Variation Inflation Factor (VIF) was first calculated, and then changes in the Standard Errors (SEs) in the independent variables' coefficients were examined. VIF is "the effects of R_i^2 on the variance of the estimated regression coefficient for the i th independent variable", and "a VIF of 10 or even one as low as 4 (equivalent to a tolerance level of 0.10 or 0.25) ha[s] been used as rules of thumb to indicate excessive or serious multi-collinearity" (O'Brien, 2007, p. 674). The calculation of VIF did not indicate serious multi-collinearity, with all values being less than 2 in every combination of the variables. However, when important elements such as industry and size (number of employees) of the sample corporations were taken into account and controlled for, there were slight consistent increases in the SEs of the coefficients of the independent variables, resulting eventually in a non-significant regression model presumably due to severe multi-collinearity between the two independent variables.

Therefore, to solve the issue of multi-collinearity and improve analytical precision, it was decided to split the research framework into two models (*Model 1*, *Model 2*), each of which had

one independent variable in consideration of the two important elements, industry and size of the sample corporations (see Figure 4–1).

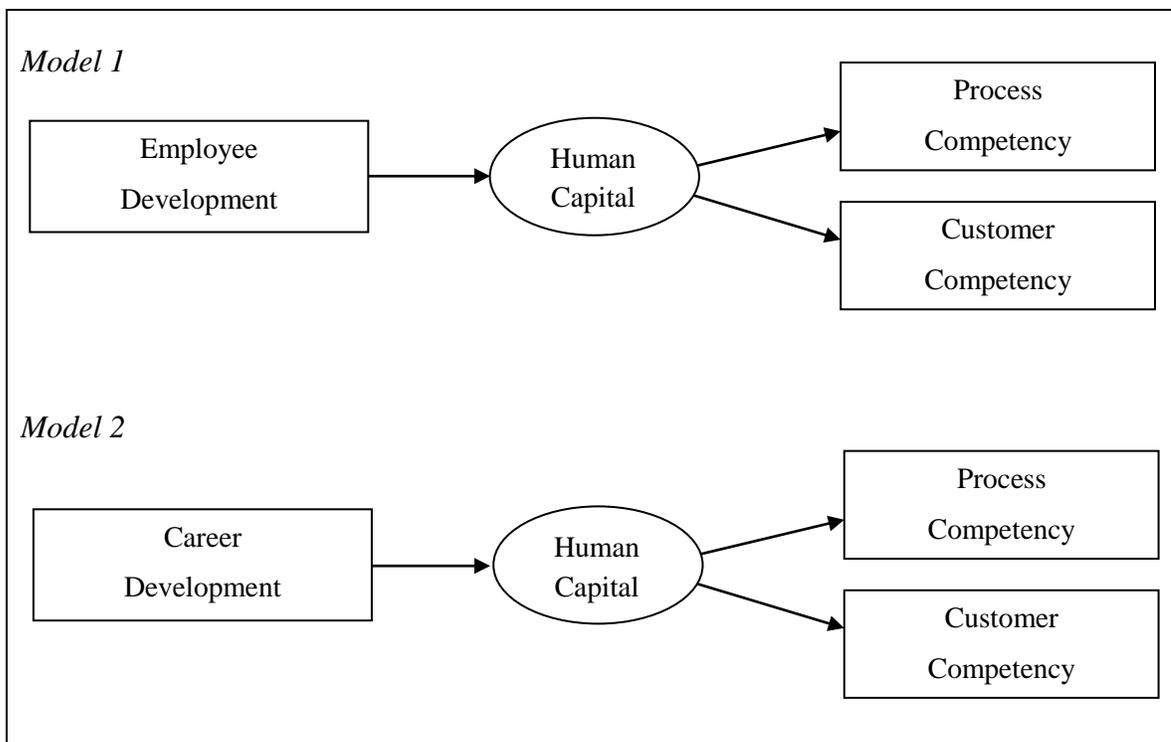


Figure 4-1. Revised Research Frameworks

Predicting and Mediating Relationships

This research followed Baron and Kenny's (1986) procedure, as detailed previously in the *analysis* section of chapter 3, to examine the mediation research models using multiple regression analysis. Based on the results of the statistical significance tests among the variables (see Table 4-4), along with additional attention to the standardized beta weights of the predictors, this research answered the research questions as follows.

Table 4-4. Regression Coefficients for the Research Variables

Research questions	Unstandardized coefficients		Standardized coefficients	<i>t</i>	Sig.	
	B	SE	Beta			
<i>Model 1</i>						
1-1	ED → PC	.04	.02	.10	1.98	.05*
1-2	ED → CC	.06	.02	.13	2.69	.00**
2	ED → HC	.14	.03	.25	5.23	.00**
3-1	HC → PC	.17	.04	.21	4.63	.00**
3-2	HC → CC	.18	.04	.22	4.76	.00**
4-1	ED' → PC'	.02	.02	.04	0.88	.38
4-2	ED' → CC'	.04	.02	.08	1.55	.12
<i>Model 2</i>						
1-1	CD → PC	.04	.02	.10	2.17	.03*
1-2	CD → CC	.05	.02	.11	2.20	.03*
2	CD → HC	.14	.02	.27	5.81	.00**
3-1	HC → PC	.17	.04	.21	4.56	.00**
3-2	HC → CC	.19	.04	.23	4.85	.00**
4-1	CD' → PC'	.02	.02	.05	0.95	.34
4-2	CD' → CC'	.02	.02	.05	0.91	.36

Note. ED: Employee development, CD: Career development, HC: Human capital, PC: Process competency, CC: Customer competency, ' : controlling for the mediator. * $p < .05$, ** $p < .01$

Learning interventions and organizational long-term competencies

RQ 1. Do the two types of learning interventions have a positive relationship with organizational (a) process competency and (b) customer competency?

Results for *RQ1* indicated statistically significant positive relationships between learning interventions and both process competency and customer competency when controlling for industry and corporate size elements of the sample corporations. To be specific, *Model 1* with three predictors (i.e., employee development, industry, corporate size) entered was shown to

explain 13.0% of the variance in process competency ($b = .04$, $SE = 0.02$) and 9.9% of the variance in customer competency ($b = .06$, $SE = 0.02$). *Model 2* with three predictors (i.e., career development, industry, corporate size) explained 13.1% of the variance in process competency ($b = .04$, $SE = 0.02$) and 9.4% of the variance in customer competency ($b = .05$, $SE = 0.02$).

Additionally, the control variable of corporate size was found to be a slightly stronger predictor of process competency ($\beta = .29$, $\beta = .29$) and customer competency ($\beta = .22$, $\beta = .24$) than the research variables of employee development ($\beta = .10$, $\beta = .10$) and career development ($\beta = .13$, $\beta = .10$) in both *Models*.

Learning interventions and human capital in organizations

RQ 2. Do the two types of learning interventions have a positive relationship with human capital in organizations?

Results for *RQ2* indicated statistically significant positive relationships between learning interventions and human capital under the condition of controlling for the industry and corporate size elements of the sample corporations. To be specific, *Model 1* with three predictors (i.e., employee development, industry, size) entered was shown to explain 16.1% of the variance in human capital ($b = .14$, $SE = 0.03$) with industry being non-significant ($p > .05$). *Model 2* with three predictors (i.e., career development, industry, size) explained 17.1% of the variance in human capital ($b = .14$, $SE = 0.02$) with industry being non-significant as well.

In both models, employee development and career development had slightly greater effects on human capital in organizations ($\beta = .25$, $\beta = .27$) than did corporate size ($\beta = .22$, $\beta = .23$).

Human capital in organizations and organizational long-term competencies

RQ 3. Does human capital in organizations have a positive relationship with organizational (a) process competency and (b) customer competency?

Results for *RQ3* revealed significant positive relationships between human capital and both process competency and customer competency. To be specific, human capital was significantly related to process competency ($b = .17$, $SE = 0.04$) and customer competency ($b = .18$, $SE = 0.04$) in *Model 1*, and human capital was significantly related to process competency ($b = .17$, $SE = 0.04$) and customer competency ($b = .19$, $SE = 0.04$) in *Model 2* as well.

Mediating role of human capital in organizations

RQ 4. How do the relationships between the two types of learning interventions and organizational (a) process competency and (b) customer competency change when human capital in organizations is controlled for?

RQ4 was found to be statistically non-significant, controlling for the mediator variable of human capital. To be specific, for *Model 1* four predictors (i.e., employee development, industry, size, and human capital) were entered—the employee development variable turned out to be non-significant ($p > .05$). For *Model 2* four predictors (i.e., career development, industry, size, and human capital) were entered—the career development variable turned out to be non-significant ($p > .05$). That is, the statistically significant direct relationships between the independent and dependent variables disappeared when the mediator variable of human capital was brought into the *Models*.

In terms of effect size, the regression analyses for *RQ 3* and *RQ4* showed that the corporate size element had the strongest effect on the organization's process competency ($\beta = .24$,

$\beta = .25$) and that the human capital variable had the strongest effect on the organization's customer competency ($\beta = .22$, $\beta = .23$) with slight margins over the others in both *Models* (see Table 4-5).

Table 4-5. Effect Sizes

Research questions	Predictors	<i>Model 1</i>			<i>Model 2</i>		
		PC	CC	HC	PC	CC	HC
RQ1	Corporate size	.29**	.22**	-	.29**	.24**	-
	Industry	.16**	.13**	-	.15**	.12**	-
	Employee development	.10*	.13**	-	-	-	-
	Career development	-	-	-	.10*	.11*	-
RQ2	Size	-	-	.22**	-	-	.23**
	Industry	-	-	.05	-	-	.02
	Employee development	-	-	.25**	-	-	-
	Career development	-	-	-	-	-	.27**
RQ3 & 4	Corporate size	.24**	.17**	-	.25**	.19**	-
	Industry	.15**	.12**	-	.14**	.11**	-
	Employee development	.04	.08	-	-	-	-
	Career development	-	-	-	.05	.05	-
	Human capital	.21**	.22**	-	.21**	.23**	-

Note. ED: Employee development, CD: Career development, HC: Human capital, PC: Process competency, CC: Customer competency. * $p < .05$, ** $p < .01$

All enumerated results indicate that the positive impacts of employee development and career development on organizational process and customer competencies are fully mediated by improved human capital in organizations, and no statistically significant relationship is established without the critical mediating role of human capital (see Figure 4-2).

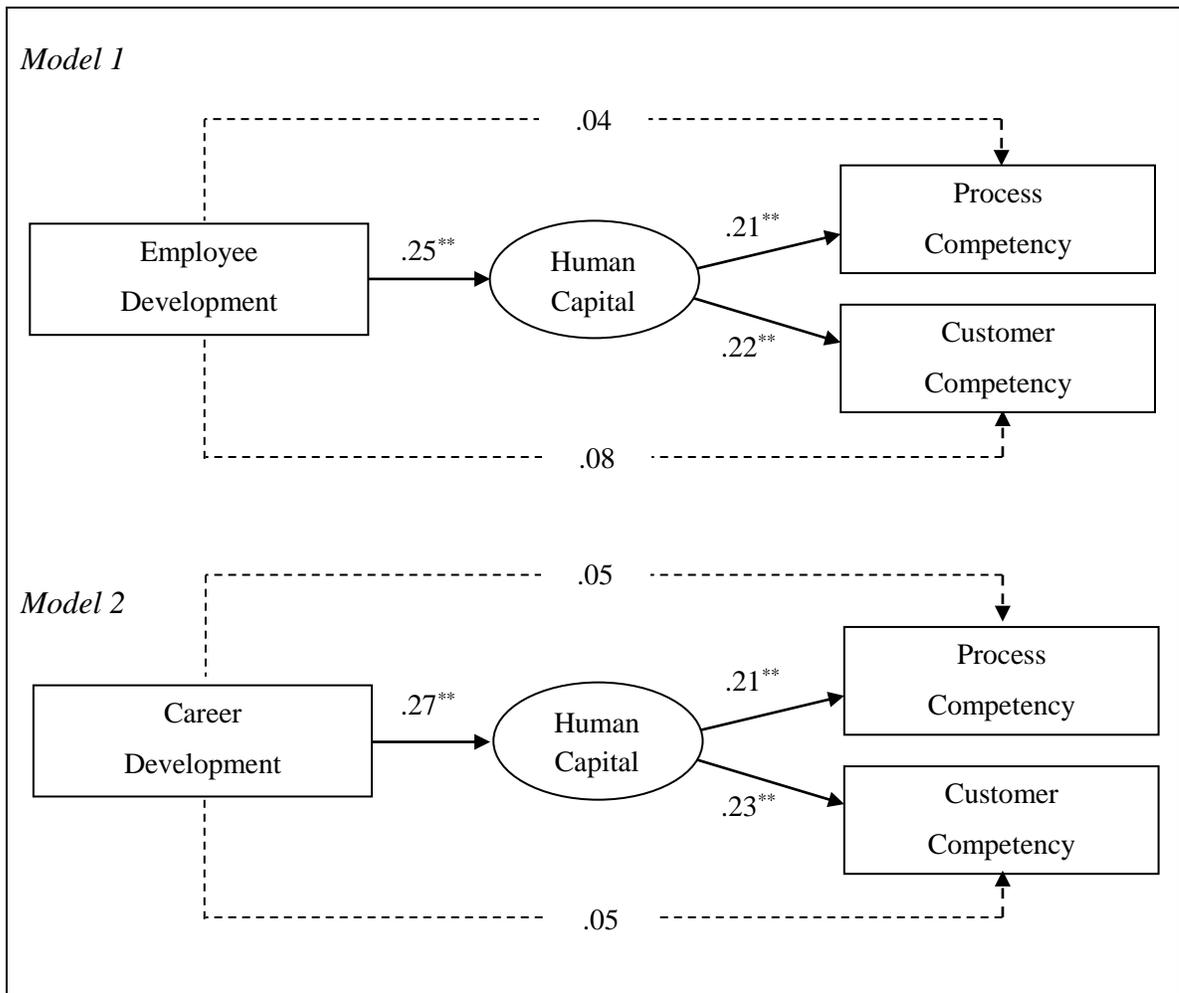


Figure 4-2. Research Frameworks Examined

Sobel Test

To confirm the mediational relationship in the research frameworks, which had been identified through multiple regression analyses, a Sobel test was conducted. According to the recommendations by Sobel (1982) and MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), the unstandardized coefficients between the variables and standard errors obtained from the multiple analyses were entered into the calculation. As shown in Table 4-6, the tests of

indirect effects among the variables reassured the mediational relationships in both research models.

Table 4-6. Sobel Test Results

	Unstandardized coefficients		Sobel test		
	B	SE	Statistic	SE	Sig.
<i>Model 1</i>					
ED → HC	.14	.03	3.44	0.01	.00**
HC → PC	.17	.04			
ED → HC	.14	.03	3.52	0.01	.00**
HC → CC	.18	.04			
<i>Model 2</i>					
CD → HC	.14	.02	3.62	0.01	.00**
HC → PC	.17	.04			
CD → HC	.14	.02	3.74	0.01	.00**
HC → CC	.19	.04			

Note. ED: Employee development, CD: Career development, HC: Human capital, PC: Process competency, CC: Customer competency. ** $p < .01$

Chapter 5

Summary, Discussion, and Recommendations

This research on the structural relationship among long-term learning interventions (employee development, career development), organizational human capital, and organizational long-term performance (process competency, customer competency) in the Korean business context concludes with this chapter by (a) summarizing the research process, (b) discussing the research findings and limitations and, then (c) suggesting recommendations for practice and future research.

Summary

Taking the long-term and configurational perspective in looking at the mechanism through which WLP practices contribute to organizational goals, this research empirically investigated the prescribed relationships among learning interventions, human capital, and performance in business organizations in terms of the following research questions:

RQ 1. Do the two types of learning interventions have a positive relationship with organizational (a) process competency and (b) customer competency?

RQ 2. Do the two types of learning interventions have a positive relationship with human capital in organizations?

RQ 3. Does human capital in organizations have a positive relationship with organizational (a) process competency and (b) customer competency?

RQ 4. How do the relationships between the two types of learning interventions and organizational (a) process competency and (b) customer competency change when human capital in organizations is controlled for?

This research first reviewed the relevant literature to understand theoretical backgrounds, operationalize terms, and conceptualize relationships of the research variables (learning interventions, human capital, and organizational long-term performance), which resulted in support for the established research framework. Then, using the HCCP 2009 data set provided by the Korean research institutes, this research identified 469 stratified sample corporations in proportion to the industry and size (the number of employees) and assessed the validity of the measures for the mediating and dependent variables. In short, the content validity of selected items for measuring the variables was agreed among multiple SMEs; construct validity was confirmed through factor analysis with all factor loadings being greater than .71; internal consistency was found reliable through Cronbach's alpha coefficients with all the alpha values being greater than .86.

Subsequently, the correlation coefficients between each of the variables analyzed using the Pearson's r enabled this research to move forward to investigate the structural relationship among them, but at the same time, the split of the research framework into two models was advised by the moderately strong correlation coefficient ($r = .49, p < .01$) between the two independent variables, by additional analyses (VIF, SEs) as well, due to the potential multicollinearity issue. With all the results from the measurement analyses and correlation coefficients analyses being acceptable, this research examined the research questions using multiple regression analysis according to Baron and Kenny's (1986) procedure.

To be specific, positive relationships between learning interventions and both process competency and customer competency were statistically significant ($p < .05$) in *Model 1* ($b = .04, SE = 0.02$; $b = .06, SE = 0.02$) and *Model 2* ($b = .04, SE = 0.02$; $b = .05, SE = 0.02$) for *RQ1*;

positive relationships between learning interventions and human capital were statistically significant ($p < .05$) in *Model 1* ($b = .14$, $SE = 0.03$) and *Model 2* ($b = .14$, $SE = 0.02$) for *RQ2*; positive relationships between human capital and both process competency and customer competency were statistically significant ($p < .05$) in *Model 1* ($b = .17$, $SE = 0.04$; $b = .18$, $SE = 0.04$) and *Model 2* ($b = .17$, $SE = 0.04$; $b = .19$, $SE = 0.04$) for *RQ3*. Also, the examination of *RQ4* found that the statistically significant direct relationships between learning interventions and organizational performance turned out to be statistically non-significant ($p > .05$) when the human capital variable was placed in the middle of them, indicating the full mediation of human capital in the structural relationship. This mediational relationship was double-checked and reassured using Sobel test.

After answering the research questions by analyzing the statistical significance of the relationships between the variables, this research additionally examined the effect size of each of the independent variables, and the control variables as well, for assessing the practical significance of the statistical findings.

Discussion

The following presents implications of the findings and some limitations that might be associated with this research.

Implications

First, all the direct relationships between learning interventions and organizational performance, learning interventions and human capital, and human capital and organizational performance were statistically significant in the research models. These findings empirically

supported the arguments that organizational investments in learning interventions will improve human capital and organizational performance (Nafukho, Hairston, & Brooks, 2004; Youndt & Snell, 2004) and that employees' KSAs are resources upon which organizations should capitalize in order to better satisfy the process and customer needs (Upton, 1995). These findings also made more universal (i.e., externally valid) the positive relationship of human capital to performance in business organizations by adding an empirical study in an Eastern culture in a different timeframe to those that reported a positive relationship in Western cultures (e.g., Carmeli & Schaubroeck, 2005; Lopez-Cabrales, Valle, & Herrero, 2006; Selvarajan et al., 2007). In other words, while indicating gains in ROI on long-term learning interventions in business organizations, the findings also fit with the RBV argument that, regardless of time and cultural settings, capitalization on human resources should be a strategic focus of business organizations looking to sustain competitive advantages.

Second, the direct relationships between learning interventions and organizational competencies became statistically non-significant ($p > .05$) when the human capital variable came into play as a mediator. By fully mediating the relationships of two types of learning interventions to organizational performance, organizational human capital was proven to be an indispensable factor for learning interventions' contribution to organizational performance. In other words, it is interpreted that long-term learning interventions (employee development, career development) improve organizational performance by improving employees' competencies and capabilities (i.e., organizational human capital), rather than acting as a direct causal factor. Also, complementing existing research arguments that enhanced human capital is a mediator of HRM practices (Wright & McMahan, 2011; Youndt & Snell, 2004) in improving organizational performance, this finding re-emphasized the major goal of WLP—building knowledge capital within the organization to improve performance, offered empirical credit to the SHRD assumption that organizational goals would be better achieved through collaboration between HRD and HRM, and corresponded to

Boswell's (2006) line of sight (LOS) concept that focused on "the alignment of the individual employee with the organization's strategy" (p. 1489). Boswell maintained that employees can effectively contribute to their organization's objectives when they understand the objectives (LOS-Objectives) and actions required of them (LOS-Actions) and agreed that employees are the linker of the organization's practices to its outcomes.

All these findings well addressed the two research issues—a need for empirical support for and/or debate about learning- and performance-related theories and a need for the configurational perspective on WLP interventions and their strategic contributions to the organization. That is, the theoretical insights, including WLP, SHRD, RBV, and LOS, into organization-level human capital and its antecedents and consequences were empirically supported in the context of this research in terms of their gaining relationships and the pivotal role of human capital in the relationships. The other point of issue that long-term learning interventions need to be examined as configurations, rather than individual programs, was also addressed by the research design and variable constructions. The empirical finding of the configurations' significant roles in improving the organization's knowledge capital and performance offers an implication that learning interventions should be positioned as a critical component of the overarching organizational strategy and, at the same time, stimulates the scholarly interest in the empirical significance of organizational (management) interventions as another important component.

In addition, although it was not the research variable, the analysis took into account the corporate size element and found it to be a strong player in the relationships researched. To be specific, as presented in chapter 4, corporate size had a greater direct effect than learning interventions on organizational performance ($\beta = .29$, $\beta = .29$, $\beta = .22$, $\beta = .24$) despite its weaker effect than learning interventions on human capital ($\beta = .22$, $\beta = .23$). It was also greater than human capital in its effect on an organization's process competency ($\beta = .24$, $\beta = .25$) while

human capital exerted a greater effect on customer competency ($\beta = .22$, $\beta = .23$). In light of the relevant argument that larger organizations are more innovative than small ones due to the availability of resources (Ettlie & Rubenstein, 1987; Laforet, 2008; Mahler & Rogers, 1999), these results could be interpreted such that large organizations invest more in performance improvement efforts, including new product (service) development, process effectiveness, and cost reduction as well as learning interventions, which helps them remain more competent. However, this interpretation is not the claim of this research and is open to empirical rebuttals because, as stated, the size was not the scope of this research and because organizational characteristics such as flexibility, agility, and participatory decision-making might be found more frequently in smaller organizations, possibly leading them to better performance. In fact, there are other studies that refute the argument of a positive relationship between the organization's size and its innovativeness, pointing out large organizations' bureaucracy and inflexibility as the obstacles to innovative moves (Kamien & Schwartz, 1975; Cohen & Klepper, 1996). Therefore, the corporate size and its impacts on organizational performance factors could be a topic for further explorations.

In sum, based on the empirical findings, this research confirms the conceptual research framework that organizational investments in long-term learning interventions will deliver long-term performance improvement by fostering and capitalizing on employees' knowledge, motivation, and potential. Also, in combination with the other research arguments discussed, this research recapitulates the points of argument with an expanded diagram that depicts factors and their relationships (see Figure 5-1). In both frameworks, human capital remains as the bridge that links organizational inputs and their outcomes.

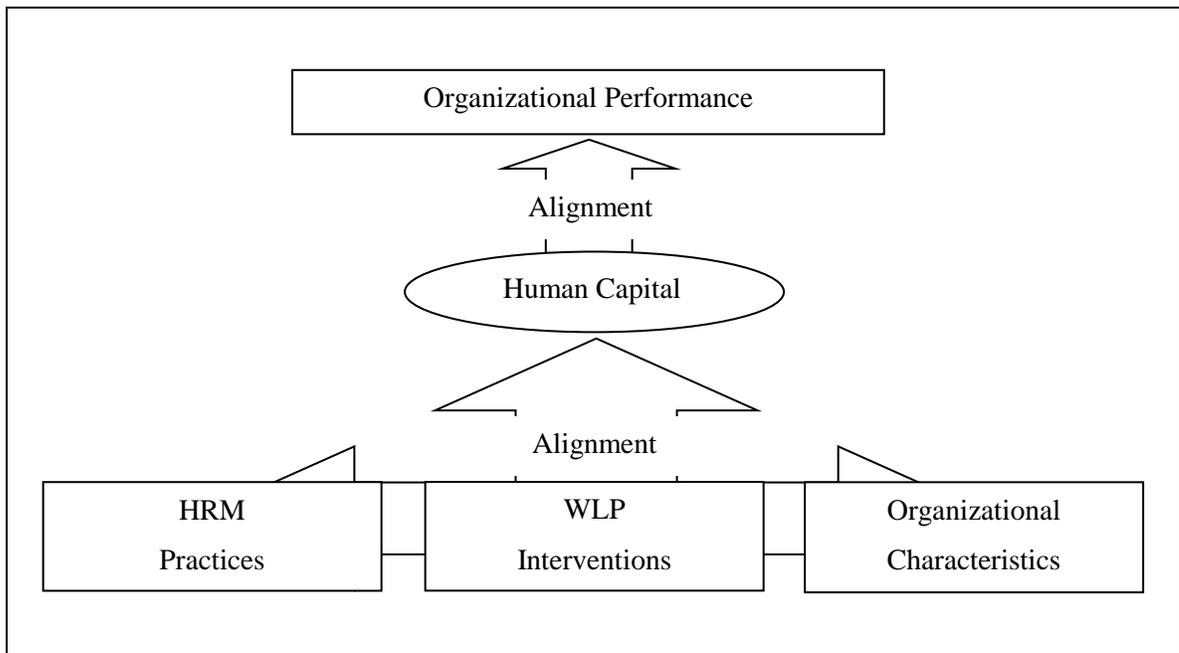


Figure 5-1. Expanded Diagram Interpreted

Limitations

The current research acknowledges several limitations.

First, the structural relationship identified in this research may possibly take a different form depending on organizational characteristics such as the size of firms and the industry to which they belong. Despite this understanding, a comparative study of the difference between corporations by size and industry was not the scope of this research because an arbitrary distinction of corporate size was judged undesirable and because a sufficient number of samples for each industry (i.e., manufacturing, financial service, non-finance service) was not secured. However, a study of this kind could have provided a more comprehensive understanding of the relationships researched.

Second, the fact that this research relied on data from South Korean businesses may render its findings not externally valid to other time and cultural contexts. Cross-sectional

research with participants in a single cultural setting is meant to provide specific empirical evidence and induce scholarly curiosity, inviting further generalizable research. For example, longitudinal studies with various participants in different cultural contexts would provide deeper insights into the identified relationships, which might be more externally generalizable.

In addition, questions might be raised about theoretical support of the measures used in this research based on the HCCP 2009 survey. The KRIVET in-charge researcher acknowledged that the validity of the HCCP survey has sometimes been challenged in terms of its development of measures that referred to multiple sources and collective intelligence of experts, rather than using validated existing measures. Therefore, although the measures in the HCCP 2009 survey have been proved valid via KRIVET's continuous review processes and relevant research that has tested their validity as well, continued verification by research like this helps both the measures and subsequent research become more robust.

Recommendations

In conclusion, this research has recommendations for the HR field from both practical and academic standpoints.

Recommendations for Practice

The introduction or retention of a certain program is sometimes challenged by management in terms of its direct business impact or measurable monetary value. The challenge might be escalated further when it comes to investments in such long-term interventions as employee development or career development programs because the input is measurably substantial in many cases but the explicit outcome sometimes appears questionable. Therefore, it

is encouraging to empirically find that organizational investment in far-sighted learning interventions delivers expected desirable results of improving organizational human capital and long-term performance in business organizations. What is still needed of WLP professionals, however, is to appropriately translate this proposition according to the specific business context in which they function and/or to convert it into managerial values for their communication with stakeholders. This translation and conversion can help justify a plan that they propose and reinforce its importance (Rothwell, Hohne, & King, 2007).

One good method of conversion is to demonstrate the business impacts of an intervention in a quantifiable and measurable fashion. This is where the importance of evaluating business impacts and ROI comes into play. Costly investment in long-term interventions is a strategic decision in the organization, which calls for high-level and multi-dimensional due diligence. Considering that the WLP professionals are (should be) a strategic partner of management, the tangible ROI and intangible business effects of important intervention strategies (along with learning and application of knowledge) should be projected at the time of planning and evaluated along the way to the final report. A point of emphasis here is that, when necessary, WLP professionals should attempt to and be able to isolate the effects of an intervention from other influences because multiple environmental factors or others' efforts almost always exert influences on the investment-return dynamics, as did the corporate size in this research. By doing so, they can present a fair and accurate demonstration of the value and contribution of the intervention (Phillips & Phillips, 2006). Another important point is that, in the evaluation of an intervention program, ROI by itself is insufficient and even risky sometimes, and thus should be presented with other relevant performance measures; the converse is equally true in that performance improvement and resultant benefits from an intervention would become more articulate when reported with quantifiable business measures such as ROI. The bottom line

always matters in business organizations, and the numeric is a telling demonstration of value-added.

The other method of translation and conversion is to view and communicate learning interventions as organization-level job resources that help make employees engaged in their work, committed to their organization, and therefore, perform better. In fact, Demerouti, Bakker, Nachreiner, and Schaufeli (2001) argued that employees are more engaged when they are offered such job resources as learning, growth, and development, and as a result, committed to their organization. Considering also that employee engagement is positively related to employees' energy and enthusiasm about their work (Schaufeli & Bakker, 2001) and to their in-role and extra-role performance (Schaufeli, Taris, & Bakker, 2006), it is plausible that the impacts of learning interventions on organizational performance should stretch beyond the findings of this research.

The full mediation of human capital in the midst of the intervention-performance relationship reminds us that one of the strategic moves in the HR field is in the direction of capitalizing on an organization's talent. More often than not, investments in the long-term development of employees are targeted at high-performing individuals as a form of strategic compensation or at high-potential emerging leaders as part of a strategic talent management initiative. This selective concentration of resources on talent has been made possible under the conventional belief that investments in people will pay off in the long run and has been advocated by many successful companies that have attributed their growth and competitiveness to their talented people (Pfeffer, 1994). Therefore, it is worth restating that functions for both management and development of human resources, especially talent, in organizations should be well aligned and coherent. In fact, this is one of the most common propositions that theories and practitioners in the HR-related fields share with one another. This understanding also guided this research to refer to and integrate relevant arguments from the HRM literature into the research

design and interpretation of the findings. Again, rather than competing or operating in isolation, they are advised to collaborate closely in planning the talent management initiative and establishing the policies, securing top management support, implementing it by selecting participants and managing an array of programs, and evaluating its effectiveness, efficiency, and impacts along the way. In other words, they should work together to strategize the talent management initiative, removing redundancy and ineffectiveness, to nurture talent and create trickle-down effects, and thereby to accumulate organizational human capital for sustainable success for both the organization and its people.

Recommendations for Future Research

First, longitudinal studies using the same research model with the other waves of the HCCP data set (2005, 2007, and 2011) would render this study's findings more internally valid; cross-sectional studies using the same research model in other cultural settings would make the findings more externally valid (Shadish, Cook, & Campbell, 2002). A more robust and generalizable assertion on the positive relationship of the research variables could be made if the findings from these potential studies agreed with one another. If not, more time- and culture-specific features could arise while complementing the widely accepted prescriptive arguments about the positive relationship among learning interventions, human capital, and organizational performance.

Second, highly encouraged are more concrete ROI studies that look at the relationship examined in this research from the perspective of economic outcome. This research investigated the business impact of learning interventions using the perception-based indicators of organizational performance, rather than looking at measurable ROIs in learning interventions using such objective quantifiable data as revenue, profit, or cost savings as independent variables.

However, since it is proposed that WLP adhere to a result-driven approach when discussing performance and that human capital theory pursue a return equal to or greater than the investment, scientific explorations of ROIs in learning interventions using actual business measures as predicted variables could better inform the academic and practical field of WLP. Theoretically, not only the numerator, the denominator—fully loaded costs for the learning interventions in this context—should also be measurable for a calculation of ROIs. Although this should be the case for the practice situations, well-designed applied research using, for example, historical costs or an expert's estimations as a converted predicting variable could offer plausible scientific insights into ROIs in learning interventions. In particular, considering the argument that previous studies on the HR-performance relationship are inconclusive in part because of their use of different performance measures (Paauwe & Boselie, 2005), a series of intervention studies that employ the same measures for organizational performance as independent variables would make a contribution to the WLP and HR literature by providing coherent substance regarding the trajectory of the relationship. Another possibility in this regard might be an expanded research framework that looks at the paths from planned interventions to human capital, to perceptual performance indicators, and eventually to actual performance measures. The paths in this expanded framework well correspond to the elements of the five-level evaluation framework (Phillips & Phillips, 2006) in a way that improved human capital corresponds to level 2 or level 3 evaluations, perceptual performance indicators to level 4, and actual performance measures to level 5. Research of this kind could be regarded as a full range evaluation study about learning interventions.

Third, under the assumption that in terms of the total effect a configuration is greater than the sum of each program, this research took the configurational approach to constructing the independent variables of learning interventions and examined their structural relationship with important business factors. Likewise, there are studies that have examined the relationship

between HR practice configurations and organizational performance (e.g., Li, 2003; Youndt & Snell, 2004). That being said, research attempts to examine the structural relationship and to compare the effect sizes of multiple configurations of WLP and HR interventions against the same performance variables would offer an important reference for those who strive to prioritize allocations of limited resources and create synergy between management and development of human resources. Also possible is the more extensive research framework that encompasses, besides WLP and HR interventions, other organizational arrangements prescribed to affect performance, such as configurations of research and development initiatives and implementation of innovations, to examine the statistical and practical significance in comparison with one another. Plus, the extension of the research modeling might go further to include a configuration of informal learning as another predicting variable in the relational structure. Given the understandings that learning in the workplace leads to performance improvement and that 70 percent of learning in the workplace takes place in the form of informal learning (Faris, 2005), it is plausible and necessary to examine the impacts of informal learning on such subsequent factors as organizational human capital and performance. This extended examination would be practically more informative with the informal learning construct being on the same level as the other predictors and therefore, the informal learning construct in this context needs to be operationalized as the configuration of an organization's intentional efforts geared to fostering informal learning among employees and building a learning culture in the organization. By doing so, the result could better indicate which configuration(s) should be continued, discontinued, or prioritized over the others from the perspective of organizational strategy. Both the statistical and practical significance that the current research conducted would help with this analysis and decision process (see Figure 5-2).

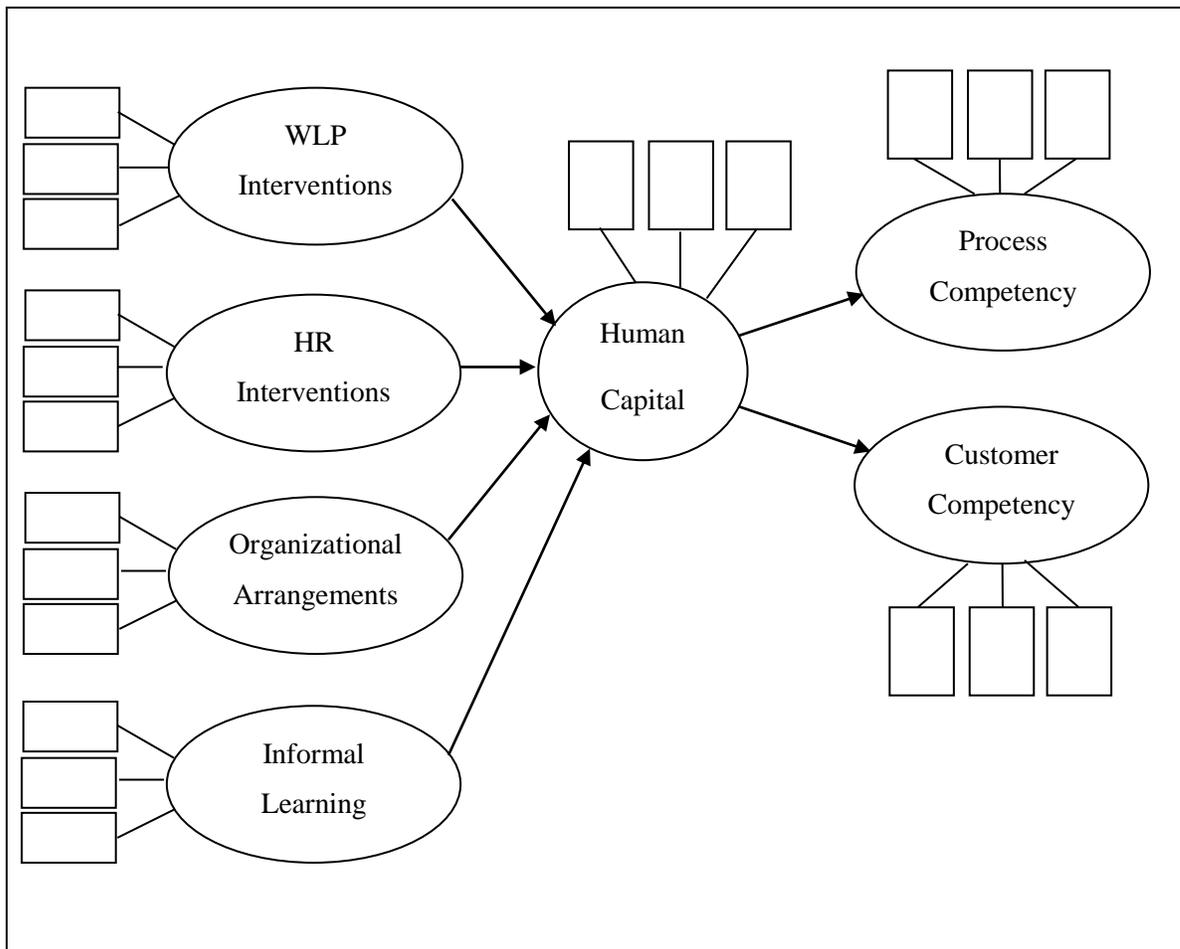


Figure 5-2. Potential Research Framework

In addition, more scholarly interest in defining the two concepts of human resources and human capital in the workplace context and making conceptual distinctions between them is important. Differing from Boudreau and Ramstad (2007) who showed a practical point-of-view on definitions of two concepts by stating “whether it is called ‘people’s’, ‘labor’, ‘intellectual capital’, ‘human capital’, ‘human resources’, ‘talent’, or some other term, the resource that lies within employees and how they are organized is increasingly recognized as critical to strategic success and competitive advantage” (p. 4), Zula and Chermack (2007) implied a substantive difference by critically saying that “HRD academicians have virtually ignored human capital theory” (p. 246). These two seemingly contradictory arguments indicate a call for research on the

concepts. In other words, there would be no need for concerns about the interchangeable use of the two concepts unless there is a noteworthy difference between the two. On the other hand, close attention should be paid to appropriately dealing with the terms and their features if there is a meaningful academic or practical difference. Research of this kind could evoke another constructive discourse surrounding important concepts and push the WLP field to move forward.

References

- Aliaga, A. O. (2001). Human capital, HRD and the knowledge organization. In O. A. Aliaga (Ed.), *Academy of Human Resource Development 2001: Conference proceedings* (pp. 427–434). Baton Rouge, LA: AHRD.
- Argyris, C., & Schon, D. A. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*, 99–120.
- Barney, J., Wright, M., & Ketchen Jr., D. J. (2001). The resource-based view of the firm: Ten years after 1991. *Journal of Management*, *21*, 625–641.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173
- Bartz, D., Schwandt, D., & Hillman, L. (1989). Differences between “T” and “D”. *Personnel Administrator*, *34*(6), 164–170.
- Becker, G. S. (1964) *Human capital: A theoretical and empirical analysis with special reference to education*. New York, NY: Columbia University Press.
- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). Chicago, IL: The University of Chicago Press.
- Binder, C. (1998). The six boxes™: A descendent of Gilbert’s behavior engineering model. *Performance Improvement*, *37*(6), 48–52. doi:10.1002/pfi.4140370612
- Bontis, N. (1996). There’s a price on your head: Managing intellectual capital strategically. *Business Quarterly*, *60*(4), 40–47.

- Boswell, W. R. (2006). Aligning employees with the organization's strategic objectives: Out of "line of sight", out of mind. *International Journal of Human Resource Management*, 17(9), 1489–1511.
- Boudreau, J. W., & Ramstad, P. M. (2007). *Beyond HR: The new science of human capital*. Boston, MA: Harvard Business Press.
- Buller, P. F., & McEvoy, G. M. (2012). Strategy, human resource management and performance: Sharpening line of sight. *Human Resource Management Review*, 22, 43–56.
- Carmeli, A., & Schaubroeck, J. (2005). How leveraging human resource capital with its competitive distinctiveness enhances the performance of commercial and public organizations. *Human Resource Management*, 44(4), 391–412.
- Cho, E., & McLean, G. N. (2000). Measures and indicators of intangibles for research institutes and colleges: A literature review. In K. P. Kuchinke (Ed.), *Proceedings of the Academy of Human Resource Development*. Baton Rouge, LA: AHRD.
- Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). New York, NY: Wiley.
- Cohen, J. (1987). *Statistical power analysis for the behavioral sciences* (Rev. ed.). Hillsdale, NJ: Lawrence Erlbaum Association.
- Cohen, W. M., & Klepper, S. (1996). Firm size and the nature of innovation within industries: The case of process and product R&D. *The Review of Economics and Statistics*, 78(2), 232–243.
- Collins, C. J., & Smith, K. G. (2006). Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. *Academy of Management Journal*, 49(3), 544–560.
- Davenport, T. H., Prusak, C., & Wilson, J. (2003). *What's the big idea? Creating & capitalising on the best management thinking*. Boston, MA: Harvard Business School Press.

- Davis, P., Naughton, J., & Rothwell, W. J. (2004). New roles and new competencies for the profession. *Training and Development*, 58(4), 26–36.
- Delery, J. E., & Doty, D. H. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions, *Academy of Management Journal*, 39(4), 802–835.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied psychology*, 86(3), 499–512.
- Denison, E. F. (1962). *The sources of economic growth in the United States and the alternatives before us*. New York, NY: Committee for Economic Development.
- Dyer, L., & Reeves, T. (1995). Human resource strategies and firm performance: What do we know and where do we need to go? *International Journal of Human Resource Management*, 6, 656–670.
- Ettlie, J. E., & Rubenstein, A. H. (1987). Firm size and product innovation. *Journal of Product Innovation Management*, 4(2), 89–108.
- Edvinsson, L., & Malone, M. S. (1997). *Intellectual capital: Realizing your company's true value by finding its hidden brainpower*. New York, NY: Harper Business.
- Faris, R. (2006). Lifelong learning, social capital and place management: A Canadian perspective. In C. Duke, M. Osborne, & B. Wilson (Eds.), *Rebalancing the social and economic: learning, partnership and practice* (pp. 16–36). Leicester, UK: National Institute for Adult Continuing Education.
- French, W., & Bell, C., Jr. (1984). *Organization development: Behavioral science interventions for organization improvement* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Galagan, P. (2003). The future of the profession formerly known as training. *Training and Development*, 57(12), 26–38.

- Garavan, T. N. (1991). Strategic human resource development. *Journal of European Industrial Training, 15*, 17–30.
- Garavan, T. N. (2007). A strategic perspective on human resource development. *Advances in Developing Human Resources, 9*, 11–30.
- Gilley, J. W., & Maycunich-Gilley, A. (2002). *Strategically integrated HRD*. Cambridge, MA: Persons Publishing.
- Grant, R. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(Winter Special Issue), 109–122.
- Gray, K. C., & Herr, E. L. (1998). *Workforce education: The basics*. Boston, MA: Allyn and Bacon.
- Guest, D. E. (2011). Human resource management and performance: Still searching for some answers. *Human Resource Management Journal, 21*(1), 3–13.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Harbison, F. (1973). *Human resources as the wealth of nations*. New York, NY: Oxford University Press.
- Hiltrop, J. M., & Despres, C. (1994). Benchmarking the performance of human resource management. *Long Range Planning, 27*(6), 43–57. doi:10.1016/0024-6301(94)90163-5
- Holton III, E. F., & Naquin, S. (2002). Workforce development: A guide for developing and implementing workforce development systems. *Advances in Developing Human Resources, 4*(2), 107–110.
- Ichniowski, C., Shaw, K., & Prennushi, G. (1997). The effects of human resource management practices on productivity: A study of steel finishing lines. *The American Economic Review, 87*, 291–313.

- Jeon, K. S., Kim, T., Kim, W., & Passmore, D. L. (2013). Impact of organizational communication, innovation culture, and organizational commitment on the effectiveness of informal learning in Korea. *The Korean Journal of Human Resource Development Quarterly*, *15*(3), 307–334.
- Kamien, M. I., & Schwartz, N. L. (1975). Market structure and innovation: A survey. *Journal of Economic Literature*, *13*(1), 1–37.
- Kang, S., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational learning, and value creation: Extending the human resource architecture. *Academy of Management Review*, *32*(1), 236–256.
- Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard: Measures that drive performance. *Harvard Business Review*, *70*(1), 71–79.
- Kaplan, R. S., & Norton, D. P. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, *74*(1), 75–85.
- Kelley, K., & Preacher, K. J. (2012). On effect size. *Psychological Methods*, *17*(2): 137–152.
doi:10.1037/a0028086
- King, A. W., & Zeithaml, C. P. (2001). Competencies and firm performance: Examining the causal ambiguity paradox. *Strategic Management Journal*, *22*, 75–99.
- Kline, R. B. (1998). *Principles and practices of structural equation modeling*. New York, NY: Guilford.
- Kotrlik, J. W., & Williams, H. A. (2003). The Incorporation of effect size in information technology, learning, information technology, learning, and performance research and performance research. *Information Technology, Learning, and Performance Journal*, *21*(1), 1.

- Lado, A. A., & Wilson, M. C. (1994). Human resource systems and sustained competitive advantage: A competency-based perspective. *Academy of Management Review*, *19*(4), 699–727.
- Laforet, S. (2008). Size, strategic, and market orientation affects on innovation. *Journal of Business Research*, *61*(7), 753–764.
- Lawrie, J. (1990). Differentiate between training, education, and development. *Personnel Journal*, *69*(10), 44.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, *28*, 563–575.
- Leonard-Barton, D. (1992). The factory as a learning laboratory. *Sloan Management Review*, *34*(1), 23–38.
- Lepak, D. P., Bartol, K. M., & Erhardt, N. L. (2005). A contingency framework for the delivery of HR practices. *Human Resource Management Review*, *15*, 139–159.
- Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, *24*(1), 31–48.
- Li, Y (2003). *The relationships between human resource management practices and perceptions of organizational performance based on 1996-1997 national organizations survey (NOS) data* (Doctoral dissertation).
- Lopez-Cabrales, A., Valle, R., & Herrero, I. (2006). The contribution of core employees to organizational capabilities and efficiency. *Human Resource Management*, *45*(1), 81–109.
- Lucas, R. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, *22*, 3–42.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods*, *7*, 83–104.

- MacKinnon, D. P., Warsi, G., & Dwyer, J. H. (1995). A simulation study of mediated effect measures. *Multivariate Behavioral Research*, *30*(1), 41–62.
- Mahler, A., & Rogers, E. M. (1999). The diffusion of interactive communication innovations and the critical mass: the adoption of telecommunications services by German banks. *Telecommunications Policy*, *23*(10–11), 719–740. doi:10.1016/S0308-5961(99)00052-X
- McCracken, M., & Wallace, M. (2000). Towards a redefinition of strategic HRD. *Journal of European Industrial Training*, *24*(5), 281–290. doi:10.1108/03090590010372056
- McLagan, P. A. (1989). Systems model 2000: Matching systems theory to future HRD issues. In D. B. Gradous (Ed.), *Systems theory applied to human resource development* (pp. 61–82). Alexandria, VA: ASTD.
- Nafukho, F. M., Hairston, N. R., & Brooks, K. (2004). Human capital theory: Implications for human resource development. *Human Resource Development International*, *7*(4), 545–551.
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, *41*(5), 673–690.
- Paauwe, J. (2009). HRM and performance: Achievements, methodological issues and prospects. *Journal of Management Studies*, *46*(1), 129–142.
- Paauwe, J., & Boselie, P. (2005). HRM and performance: What next? *Human Resource Management Journal*, *15*(4), 68–83.
- Park, Y., & Jacobs, R. L. (2011). The influence of investment in workplace learning on learning outcomes and organizational performance. *Human Resource Development Quarterly*, *22*(4), 437–458.
- Pennings, J. M., Lee, K., & Van Witteloostuijn, A. (1998). Human capital, social capital, and firm dissolution. *Academy of Management Journal*, *41*(4), 425–440.

- Pfeffer, J. (1994). *Competitive advantage through people: Unleashing the power of the workforce*. Boston, MA: Harvard Business School Press.
- Phillips, P. P., & Phillips, J. J. (2006). *Return on investment (ROI) basics*. Alexandria, VA: American Society for Training and Development.
- Rothwell, W. J., Hohne, C. K., & King, S. B. (2007). *Human performance improvement: Building practitioner competence* (2nd ed.). Burlington, MA: Butterworth-Heinemann.
- Rothwell, W. J., & Kazanas, H. C. (2003). *The strategic development of talent: A framework for using talent to support your organizational strategy*. Amherst, MA: HRD Press.
- Rothwell, W. J., Sanders, E. S., & Soper, J. G. (1999). *ASTD models for workplace learning and performance: Roles, competencies, and outputs*. Alexandria, VA: American Society for Training and Development.
- Rothwell, W. J., & Sredl, H. J. (2000). *The ASTD reference guide to workplace learning and performance: Present and future roles and competencies* (3rd ed.). Amherst, MA: HRD Press.
- Russ-Eft, D., & Preskill, H. (2005). In search of the Holy Grail: Return on investment, evaluation in human resource development. *Advances in Developing Human Resources*, 7, 37–55.
- Schaufeli, W. B., & Bakker, A. B. (2001). Werk en wel-bevinden: Naar een positieve benadering in de Arbeids- en Gezondheidspsychologie [Work and well-being: Towards a positive approach of occupational health psychology]. *Gedrag & Organisatie*, 14, 229–253.
- Schaufeli, W. B., Taris, T. W., & Bakker, A. B. (2006). Doctor Jekyll or Mr. Hyde: On the differences between work engagement and workaholism. In R. J. Burke (Ed.), *Research companion to working time and work addiction* (pp. 193–217). Glos, UK: Edward Elgar.
- Schneider, B., & Bowen, D. E. (1985). Employee and customer perceptions of service in banks: Replication and extension. *Journal of Applied Psychology*, 70, 423–433.

- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17.
- Selvarajan, T. T., Ramamoorthy, N., Flood, P. C., Guthrie, J. P., MacCurtain, S., & Liu, W. (2007). The role of human capital philosophy in promoting firm innovativeness and performance: Test of a causal model. *International Journal of Human Resource Management*, 18(8), 1456–1470.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Belmont, CA: Wadsworth Cengage Learning.
- Shaw, J. D., Park, T. Y., & Kim, E. (2012). A resource-based perspective on human capital losses, HRM investments, and organizational performance. *Strategic Management Journal*, 34(5), 572–589.
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology*, 13, 290–312.
- Stewart, T. A. (1997). *Intellectual capital*. New York, NY: Doubleday-Currency.
- Suter, W. N. (2011). *Introduction to educational research: A critical thinking approach*. SAGE.
- Sweetland, S. R. (1996). Human capital theory: Foundations of a field of inquiry. *Review of Educational Research*, 66(3), 341.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston, MA: Allyn & Bacon.
- Torraco, R. J., & Swanson, R. A. (1995). The strategic roles of human resource development. *HR. Human Resource Planning*, 18(4), 10–21.
- Upton, D. M. (1995). Flexibility as process mobility: The management of plant capabilities for quick response manufacturing. *Journal of Operations Management*, 12(3), 205–224.
- Urduan, T. C. (2010). *Statistics in plain English* (3rd ed.). New York, NY: Taylor & Francis.

- Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*, *11*(4), 801–814.
- Wang, J., Hutchins, H. M., & Garavan, T. N. (2009). Exploring the strategic role of human resource development in organizational crisis management. *Human Resource Development Review*, *8*(1), 22–53. doi: 10.1177/1534484308330018
- Way, S. A., & Johnson, D. E. (2005). Theorising about the impact of strategic human resource management. *Human Resource Management Review*, *15*, 1–21.
- Wilkinson, L. (1999). Statistical methods in psychology journals: Guidelines and explanations. *American Psychologist*, *54*, 594–604.
- Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of Management*, *27*, 701–721.
- Wright, P. M., & McMahan, G. C. (2011). Exploring human capital: Putting human back into strategic human resource management. *Human Resource Management Journal*, *21*(2), 93–104.
- Yeo, R. (2003). The tangibles and intangibles of organisational performance. *Team Performance Management*, *9*, 199–204. doi:10.1108/13527590310507453
- Youndt, M. A., & Snell, S. A. (2004). Human resource configurations, intellectual capital, and organizational performance. *Journal of Managerial Issues*, *16*(3), 337–360.
doi:10.2307/40604485
- Zula, K. J., & Chermack, T. J. (2007). Human capital planning: A review of literature and implications for human resource development. *Human Resource Development Review*, *6*(3), 245–262. doi:10.1177/1534484307303762

Appendix

Measures for the Research Variables

Measures for WLP Learning Interventions

Learning interventions	Activities	1	0
Employee development	1. Off-the-job training funding program		
	2. Higher education funding program		
	3. Learning community program		
	4. Learning mileage program		
Career development	1. Succession planning		
	2. Career development planning		
	3. Mentoring and coaching program		
	4. Job rotation program		

Note. 1 = yes, 0 = no

Measures for Human Capital

Items	4	3	2	1
1. To what degree is employees' job capability enhanced through learning interventions				
2. To what degree is employees' productivity enhanced through learning interventions				
3. To what degree is employees' motivation enhanced through learning				

interventions
4. To what degree is employee retention enhanced through learning interventions

Note. 1 = rarely enhanced, 4 = very much enhanced

Measures for Long-Term Performance

Competency	Items	5	4	3	2	1
Process competency	1. Competency to develop new products and services					
	2. Competency to enhance effectiveness of work processes					
	3. Competency to ensure competitive advantage of products and services through cost reduction					
Customer competency	1. Competency to promptly respond to customer needs					
	2. Variety of products and services					
	3. Acquisition rate for new customers					
	4. Retention rate for loyal customers					
	5. Competency to enhance and manage a brand image					

Note. 1 = much poorer than competitors, 5 = much better than competitors

VITA

Taesung Kim

Brief Biography

Taesung Kim is a Ph.D. candidate in the Workforce Education and Development (WFED) Program with an emphasis on Human Resource Development (HRD) and Organization Development (OD) at The Pennsylvania State University.

He earned both his B.A. in education and M.Ed. in HRD at Yonsei University in South Korea. He has more than ten years of HRD/OD experience and most recently worked for KPMG Korea as a senior manager in the Learning and Development Center.

During the pursuit of a doctoral degree, he served as a teaching assistant in the WFED program at The Pennsylvania State University and engaged in research in multiple areas, including workplace learning and performance, performance consulting, diffusion of changes in the organization, work engagement, and informal learning. He can be reached at 409 Keller Building, University Park, PA 16803.