

Impacts of Learning Interventions on Organizational Human Capital and Performance

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“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). 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, Wright, & Ketchen, 2001; Leonard-Barton, 1992). Human capital theory also values employees' capabilities as core organizational competencies (Lepak & Snell, 1999) and assumes that their knowledge, skills, and abilities (KSAs) have a direct effect on organizational success (Buller & McEvoy, 2012).

The human resource development (HRD) field has been devoted to mobilizing people's KSAs and increasingly recognized as a facilitator of the organization's lasting performance (Russ-Eft & Preskill, 2005). HRD has solidified its ground as the scholarly discipline through relentless conceptual development. One example is the concept of strategic HRD (SHRD), which argues that HRD practices aligned with organizational strategies will more positively affect an organization's long-term performance through improved human capital (Garavan, 1991, 2007; Pfeffer, 1994). Another is workplace learning and performance (WLP), defined as “the integrated use of learning and other interventions for the purpose of improving

The current research examined the structural relationship between organizational investments in employee development and career development interventions, organizational human capital, and organizational long-term performance in the Korean business context. Four research questions were examined using the survey data with 469 sample corporations from the Human Capital Corporate Panel (HCCP) 2009 data set (the data set collected and shared for research purposes in Korea). The statistical strategies included measurement testing and examination of the predictive and mediating relationships between the variables, followed by the effect size comparison. The results of the statistical analyses indicated that the positive impacts of employee and career development interventions on organizational process and customer competencies are fully mediated by improved organizational human capital. That is, no statistically significant relationship between the learning interventions and organizational long-term performance was established without the critical mediating role of human capital. Based on the empirical findings, this research suggested implications for practice and recommendations for future research.

This research empirically examined whether two clusters of strategic learning interventions (employee development and career development) reinforce the organization's human capital and, in turn, lead to its long-term performance improvement; and whether organizational human capital plays a mediating role in the relationship between the learning interventions and performance.

individual and organizational performance" and guided by the human performance improvement (HPI) process (Rothwell & Sredl, 2000, p. 5). WLP maintains that learning interventions in the organization should lead to enhanced human capital and long-lasting positive outcomes in people and organizations, going beyond satisfying short-term task requirements.

One issue here is a call for empirical support for and/or debate about theoretical progress pertaining to learning and performance in the workplace setting. Unlike the vibrant conceptual discussions, less empirical research has been conducted on a positive impact of intangible assets, such as human capital, on performance and a contribution of learning interventions to developing the assets (Cho & McLean, 2000).

Zula and Chermack (2007) went further to state that "HRD academicians have virtually ignored human capital theory" (p. 246). The subsequent issue is that many studies have focused on micro relationships between various individual programs and their effectiveness rather than on the configurational mechanism through which a cluster of learning interventions influences organizational performance. Considering that the combination of multiple practices has bigger effects on outcomes than the sum of the effects of individual practices (Ichniowski, Shaw, & Prennushi, 1997), the configurational perspective would help systematically align an array of programs and activities with a strategic focus.

In a nutshell, the current research recognized both a need for an empirical investigation into conceptual arguments pertinent to human resources and organizational performance and a need for a configurational approach to the empirical investigation. Therefore, this research empirically examined whether two clusters of strategic learning interventions (employee development and career development) reinforce the organization's human capital and, in turn, lead to its long-term performance improvement; and whether organizational human capital plays a mediating role in the relationship between the learning interventions and performance.

Theoretical Backgrounds

HRD professionals are required to act as both learning strategists who leverage learning interventions in support of the organization's strategic direction and business partners who work together with management for the organization's sustainable success (Davis, Naughton, & Rothwell, 2004; Garavan, 1991; McCracken & Wallace, 2000; Rothwell, Sanders & Soper, 1999; Torraco & Swanson, 1995).

Learning Interventions

Gilley and Maycunich-Gilley (2002) suggested that learning interventions in the organization should be focused on developing employees' core capabilities to better achieve business goals by accumulating and mobilizing organizational human capital (Zula & Chermack, 2007). In WLP, learning interventions are considered as part of the HPI process and categorized into training, employee development (ED) and career development (CD), and organization development (OD). In particular, 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 ED and CD take the transformational perspective to "bring about performance improvement by equipping people with more knowledge or skill" (Rothwell & Sredl, 2000, p. 9).

Learning Interventions and Organizational Performance. ED is characterized as a long-term learning intervention that helps individuals to build a wide range of competencies, human capital to accrue to the organization, and organizational performance to improve. ED, defined as "a change in attitudes or values," is less concerned about current task requirements than is training that focuses on "a change in skills" (Lawrie, 1990, p. 44). 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 return on investment (ROI) and to declare a success or failure in a short period of time (Rothwell & Kazanas, 2003).

CD 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. CD interventions can serve as a career planning opportunity for employees and an HR management process for the organization. Therefore, deliberate arrangements of CD interventions 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 represent the organization's strategic investment to enhance human capital with long-term returns exceeding the investment in mind.

Human Capital

Economics has provided the HRD field with many theoretical ideas, including the concept of human capital (Nafukho, Hairston & Brooks, 2004). 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 (Becker, 1993; Denison, 1962; Schultz, 1961).

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) and that people as a human resource reserve capabilities and potential that are readily there to contribute to the process (Harbison, 1973). The theory argues that “individuals and society derive economic benefits from investments in people” (Sweetland, 1996, p. 341) in a form of education expecting returns to become equal to or greater than the investment (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).

Human Capital and Organizational Performance. In the organizational context, human capital is regarded as a subset of organizational intellectual capital. Intellectual capital is argued to be a key to organizational success in the knowledge-based economy and to consist of human capital, structural capital, and customer or social capital (Bontis, 1996; Edvinsson & Malone, 1997; Stewart, 1997). Human capital refers to KSAs that belong to individual employees in the organization; structural capital refers to the infrastructure and processes that organizations have established; customer or social capital refers to relationships that organizations have developed with customers. In the meantime, Argyris and Schon (1978) argued that organizations cannot create organizational knowledge assets as people can and thus both structural and customer capitals of the organization can be nurtured only through the function of its human capital (i.e., employees’ KSAs). In other words, as employees learn and grow, the organization will become more effective in its processes and with its customers.

Youndt and Snell (2004) empirically showed that the positive relationships between organizational human capital and the two performance components (i.e., return on equity and return on asset) were statistically significant and practically meaningful. 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’ KSAs) was 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), knowledge-base (Grant, 1996), or learning capability (Kang, Morris, & Snell, 2007).

Organizational Performance

Performance refers to resultant outcomes. In the post-industrial era, it is argued that, along with financial indicators, managerial aspects such

as product development and quality, production and marketing effectiveness, and business process efficiency should be considered as corporate performance indicators (Venkatraman & Ramanujam, 1986). 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" (p. 75), Kaplan and Norton (1992) proposed the balanced scorecard (BSC) as a matrix for organizational performance; it consists of four organizational performance indicators: process competency, customer competency, learning and growth, and financial results. In a similar vein, Dyer and Reeves (1995) also suggested four dimensions as organizational effectiveness indicators: financial, organizational, HR, and capital market outcomes.

In comparison of performance indicators to the concepts of intellectual capital, both the HR outcomes in Dyer and Reeves' (1995) 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 are represented organizational potential resulting from human capital that has accrued, which should determine organizational financial success and sustainability in the long run.

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).

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).

Research Questions and Research Framework

Based on the understandings mentioned thus far, the current study examined the following research questions in the Korean corporate context:

- 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?

To answer the research questions, the research framework was established.

Fundamentally, the current research framework stemmed from recognition of human capital theory and the notion of RBV in which human resources are considered an intangible capital composed of unique KSAs in place to ensure a competitive advantage (Wang, Hutchins, & Garavan, 2009) and should be developed through investment in learning and development interventions (Nafukho et al., 2004). Structurally, the research framework referred to Boswell's (2006) line of sight framework and Buller and McEvoy's (2012) research model. Both argued that employees' KSAs (i.e., human capital) are key to achieving positive organizational performance and that strategically arranged HR practices are a critical motivator in leading employees' KSAs to the organization's strategic goals. In addition, understanding that specific intervention programs will vary in each organization and that the configurational perspective better informs for strategic planning and alignment of interventions (Ichniowski et al., 1997; Youndt & Snell, 2004), the current research took the configurational approach to establishing the independent variables of ED and CD learning interventions composed of multiple programs and activities.

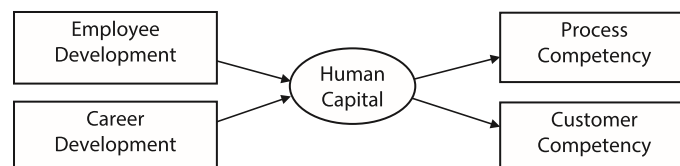


FIGURE 1. RESEARCH FRAMEWORK

Methodology

The following provides details regarding the data set, population and sample, measures, and analysis for this research.

Data Set, Population, and Sample

The current research utilized a data set from the Human Capital Corporate Panel (HCCP) of 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 an official national data (approval number: 38903). Based on an understanding that human capital is now becoming more important than tangible capital as a core competency, the Korean governmental institutes initiated the HCCP project in 2005 to systematically collect national panel data on business organizations' efforts regarding HRD and organizational performance. The data set has been collected through the interview survey process by trained visiting researchers, reviewed and validated by many researchers, and updated and readministered by KRIVET biennially to provide researchers and businesses with reliable, valid information on human resources in Korea.

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).

In determining the number of corporations for the survey, HCCP employed the stratified sampling method (Cochran, 1977) in proportion to the industry and size (the number of employees) of corporations so that the sample would represent the population. In detail, the data set for this research is the survey data from 473 corporations among the survey population of 4,109 listed in KIS as an employer of over 100 employees in the six industries—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. The number of samples for this research was judged sufficient as per the general guideline on 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). The stratified sampling based on one of the most credible national data sets helped the current research to secure the solid basis to infer findings from the sample to the target population.

Measures

To answer the research questions, this research set three variable categories of independent, mediating, and dependent variables. The items for each variable were developed at the first round of data collection in 2005 by KRIVET researchers in consultation with multiple groups of professionals as well as relevant research as exemplified in the following. Reliability and validity of the items have been tested and verified by many researchers since the first administration of the survey in 2005, which has enabled the items to remain the same up to the third round in 2009.

Independent Variable. The independent variables are two types of learning interventions, ED and CD (Rothwell & Sredl, 2000), that are assumed to improve the human capital and, in turn, long-term performance of the organization. The ED intervention is the configuration of related activities including the education funding programs, learning community program, and learning mileage program; the CD intervention is the configuration of activities including the succession planning, career development planning, mentoring and coaching, and job rotation program. Each item is a yes-or-no question on whether the individual program is implemented in the organization (1 = *yes*, 0 = *no*) answered by responsible personnel of the participating organizations; answers to the items were counted and aggregated into the two independent variables.

Mediating Variable. The mediating variable is organization-level human capital (Becker, 1964; Pennings, Lee, & Van Witteloostuijn, 1998) that is assumed to be affected by learning interventions and, in turn, to lead to organizational long-term performance improvement. The HCCP2009 data set has the cluster of organization-level human capital consisting of four items, to what degree employees' job capability, productivity, motivation, and retention are enhanced through learning interventions, in a 4-point Likert-type scale (1 = *rarely enhanced*, 4 = *very much enhanced*). This cluster was answered by responsible personnel in the participating organizations.

Dependent Variable. The dependent variables are two organizational long-term performance indicators (i.e., process competency and customer competency) out of four BSC dimensions (Kaplan & Norton, 1992, 1996). The other two dimensions, financial performance and learning and growth, are not included as dependent variables because the financial performance is a short-term performance indicator that is affected by many other business-related factors, and the learning and growth dimension conceptually overlaps with the mediating variable, organization-level human capital, that presumably influences the following process and customer competencies. The HCCP 2009 data set has the clusters of the process competency (consisting of three items: new

product [service] development, work process effectiveness, and product [service] competitive advantage through cost reduction), and customer competency (consisting of five items: prompt response to customer needs, product [service] variety, new customer acquisition, loyal customer retention, and brand image). All items were answered in a 5-point Likert-type scale (1 = *much poorer than competitors*, 5 = *much better than competitors*) by multiple team managers of each of the participating organizations.

Analysis

To fulfill the research purpose, a twofold process of measurement testing and examination of research questions was executed.

Measurement Testing. Factor analysis and reliability testing were 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, the 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 are well grounded in the relevant literature and have been consistently used in all three waves of HCCP data collections (2005, 2007, and 2009), it has been judged appropriate to examine the strength of the statistical correlations among the measured items in a confirming manner with factor loadings being 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 was set as the acceptably reliable range for a set of items.

Examination of Research Questions. Subsequent to the measurement testing was to answer the research questions through examination of the correlations, relationships, and mediating relationship among the variables.

Correlations. To get 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. Especially, close attention was given to the correlation coefficient between the two independent variables in order to see whether there was a serious issue of multi-collinearity that might distort a precise regression analysis (O'Brien, 2007) and to examine later the unique contribution of each independent variable to variance of the following outcome variables (Urdan, 2010).

Predicting relationships. Research questions 1, 2, and 3 were developed to examine the relationships between the independent variables

and dependent variables, the independent variables and the mediating variable, and the mediating variable and dependent variables. Besides the correlation coefficients between the variables calculated at the previous step, multiple regression analysis was used because the current research has multiple independent variables that are modeled to have relationships with the dependent variables and the mediating variable and examines whether and how the independent variables explain variance in the following variables.

Mediating relationship. Research question 4 was developed to examine whether the mediating relationship exists 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).

After conducting the multiple regressions, a Sobel test was performed to double-check the mediational relationship identified through the multiple regression analysis (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) because the Sobel test is known as the most common and conservative way to see the indirect effects between variables in the research model (MacKinnon, Warsi, & Dwyer, 1995).

Effect size. After the analyses of statistical significance of the relationships, the effect size of each of the independent variables was also examined to help assess the strength and practical significance of the relationships (Kelley & Preacher, 2012). As the statistics for the effect size, the standardized beta weights in the multiple regression equations were examined because the variables are scaled metrics measured in different scales across all the variables with little intrinsic practical meaning by themselves (Wilkinson, 1999).

With the understanding that the operational interpretation becomes substantive only when the findings are grounded in an interrelated context with many other possible predictors involved (Cohen, 1987), this study did not attempt to operationally define the 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.

Results

For achieving the proposed research purpose, (a) the measurement test was first conducted using factor analysis and reliability test; (b) based on the results, the relationships between the variables were examined to answer the research questions; in addition, (c) effect size was examined to discuss the practical significance of the findings about the relationships

(Kotrlík & Williams, 2003). SPSS Statistics 21 was used throughout the analysis process, and the website provided by Preacher and Leonardelli (<http://quantpsy.org/sobel/sobel.htm>) was used for the Sobel test.

Results of Measurement Testing

What follows are the results of factor analysis and reliability test, conducted with 469 cases retrieved from the data cleaning process that eliminated four cases with missing data.

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 see whether the items hold together within the factor they belong to. From this analysis, it has been judged that all the items well serve their assigned factors because all the factor loadings are acceptable with those for the mediating variable being greater than .71 and those for the independent variables being greater than .76 (see Table 1).

Reliability Test. Cronbach's alpha coefficients for the mediating and dependent variables were examined to see the internal consistency of the variables that were confirmed by the preceding factor analysis. The results show that the research variables are measured reliably by the survey items with all the alphas being greater than .70 (see Table 2). Also, each Cronbach's alpha for the variables is greater when all the items are

TABLE 1 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. HC: human capital, PC: process competency, CC: customer competency. The number in the stub head is the item number of each variable.

TABLE 2 CORRELATIONS AND RELIABILITIES OF THE RESEARCH VARIABLES

	M	SD	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**	(.84)	
5. Customer competency	3.62	0.51	.21**	.20**	.31**	.84**	(.91)

Note. Correlations are at intersections, and reliabilities are in parentheses. No 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.

** $p < .01$.

combined than when any of the items would be deleted from the variable, meaning desirable item combinations for the variables.

Results of Examination of Research Questions

With the acceptable results of the measurement test, this research moved forward to answer the research questions in a sequence of analyses of correlation, multi-collinearity, and multiple regression.

Correlations and Collinearity. The calculation of Pearson's r shows that all the variables are statistically significantly correlated with each other (see Table 2), provisionally enabling this research to move forward to see the predicting relationships.

At the same time, however, the moderately strong correlation between the two independent variables was detected ($r = .49$, $p < .01$), which necessitated a further investigation about the issue of multi-collinearity. Therefore, in order to see how severe the issue of multi-collinearity might be, variation inflation factor (VIF) was first calculated, and then changes of 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 the values being less than 2 in every combination of the variables. However, when the important elements such as industry and size of the sample corporations were taken into account and controlled for, there were slight increases in the SEs of the coefficients of the independent variables in a consistent manner, resulting eventually in the nonsignificant regression model, presumably due to severe multi-collinearity among the two independent variables.

Therefore, to solve the issue of multi-collinearity and improve precision of the analysis, it was determined that the research model should

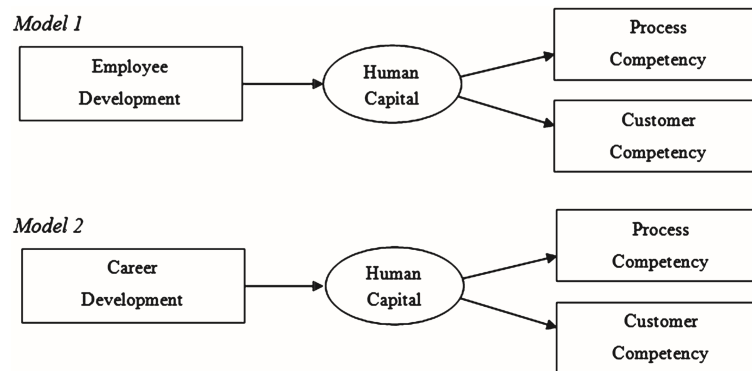


FIGURE 2. REVISED RESEARCH FRAMEWORKS

be split into two models (Model 1 and Model 2), each of which has one independent variable in consideration of the two important elements, industry and size of the sample corporations (see Figure 2).

Structural Relationships. As stated, this research followed Baron and Kenny's (1986) procedure to examine the mediation research models using multiple regression analysis and answered the research questions as follows.

RQ 1. RQ1 was statistically significantly supported under the condition of controlling for industry and size elements of the sample corporations. To be specific, Model 1 with three predictors (i.e., employee development, industry, and 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, size) entered was shown to explain 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 the 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.

RQ 2. RQ2 was statistically significantly supported under the condition of controlling for the industry and 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 nonsignificant; Model 2 with three predictors (i.e., career development, industry, size) entered was shown to explain 17.1% of the variance in human capital ($b = .14$, $SE = 0.02$) with industry being nonsignificant as well.

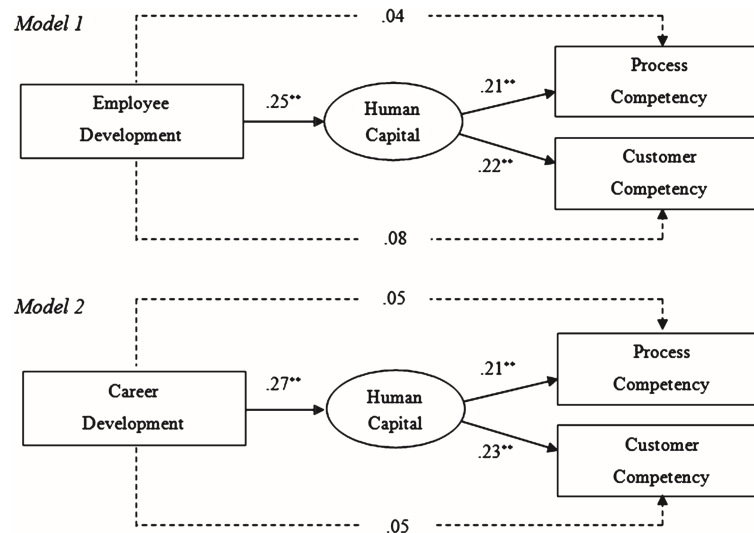
In both models, employee development and career development had bigger effects on human capital in organizations ($\beta = .25$, $\beta = .27$) than corporate size ($\beta = .22$, $\beta = .23$).

RQ 3. RQ3 was supported in both models. To be specific, human capital was statistically significantly related with process competency ($b = .17$, $SE = 0.04$) and customer competency ($b = .18$, $SE = 0.04$) in Model 1 and statistically significantly related with process competency ($b = .17$, $SE = 0.04$) and customer competency ($b = .19$, $SE = 0.04$) in Model 2 as well.

RQ 4. RQ4 was found to be statistically nonsignificant with the mediator variable of human capital being controlled for. To be specific, for Model 1 four predictors (i.e., employee development, industry, size, and human capital) were entered, and the employee development variable turned out to be nonsignificant ($p > .05$); for Model 2 four predictors (i.e., career development, industry, size, and human capital) were entered, and the career development variable turned out to be nonsignificant ($p > .05$). 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 RQs 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.

All the 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 3).



Note. The statistics are standardized coefficients. ** $p < .01$.

FIGURE 3. RESEARCH FRAMEWORKS EXAMINED

TABLE 3 SOBEL TEST RESULTS					
	UNSTANDARDIZED COEFFICIENTS		SOBEL TEST		
	B	SE	STATISTIC	SE	SIG.
MODEL 1					
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			
MODEL 2					
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.

** $p < .01$.

Sobel Test

To confirm the mediational relationship of the research frameworks, which had been identified through the multiple regression analyses, a Sobel test was conducted. According to the recommendations by Sobel (1982) and MacKinnon et al. (2002), the unstandardized coefficients between the variables and standard errors obtained from the multiple analyses were put into the calculation. As shown in Table 3, the tests of indirect effects among the variables reassured the mediational relationships in both of the two research models.

Conclusion

Taking the long-term perspective in examining the research questions, the current research interpreted the findings on the relationships between learning interventions, human capital, and performance in business organizations as the following.

First, the research findings empirically supported the arguments that organizational investments in learning interventions lead to improvement of human capital and performance of organizations and that employees' KSAs are resources that should be capitalized to make organizations better satisfy the process and customer needs (Nafukho et al., 2004; Youndt & Snell, 2004). This research also made more universal (i.e., externally valid) the positive relationship of human capital to performance in business organizations by adding the empirical study in an Eastern culture in

a different timeframe to those that reported the positive relationship in Western cultures (Carmeli & Schaubroeck, 2005; Lopez-Cabrales et al., 2006; Selvarajan et al., 2007). Put differently, the findings are indicative of a gaining return on investment in learning interventions in business organizations and also are in line with the idea of RBV by informing that, regardless of time and cultural settings, capitalization of human resources should be a strategic focus for sustainable success of organizations in the knowledge-based economy.

Organizational investments in strategic learning interventions will deliver long-term performance improvement by fostering and capitalizing on employees' knowledge, motivation, and potential.

Second, this research confirmed the crucial role of organizational human capital as a mediator between the learning interventions and organizational long-term performance. By fully mediating both the relationships of two types of learning interventions to organizational performance (i.e., making statistically nonsignificant the direct relationships between the learning interventions and organizational performance), organizational human capital was proven to be an indispensable factor for learning interventions' contribution to organizational performance. In other words, strategic learning interventions serve organizational performance improvement by improving employees' competencies and capabilities (i.e., organizational human capital), rather than acting as a direct causal factor. Also, complementing the existing research arguments that enhanced human capital is a mediator of HRM practices (Wright & McMahan, 2011; Youndt & Snell, 2004) for improvement of organizational performance, this finding re-emphasizes the importance of building knowledge capital within the organization to improve performance.

All these findings 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 learning interventions and their strategic contributions to the organization. That is, the theoretical insights, including WLP, SHRD, and RBV, into organization-level human capital and its antecedents and consequences were empirically supported 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. In sum, this research maintains that organizational investments in strategic learning interventions will deliver long-term performance improvement by fostering and capitalizing on employees' knowledge, motivation, and potential. In other words, enhanced human capital is the bridge through which learning interventions contribute to organizational performance and secure desired business impacts.

Implications 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 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 that organizational investment in far-sighted learning interventions was empirically proven to deliver expected desirable results of improving organizational human capital and long-term performance in business organizations. What is still needed, however, is to appropriately translate this proposition according to the specific business contexts in which it functions and to convert it into managerial values for companies' communication with stakeholders (Rothwell, Hohne, & King, 2007). One of the good ways for the translation and conversion is to demonstrate business impacts of an intervention in a quantifiable and measurable fashion. Costly investment in long-term interventions is a strategic decision in the organization, which calls for a high-level and multidimensional due diligence. Considering that the HRD professionals are (should be) a strategic partner of the management, the tangible ROI and intangible business effects of important intervention strategies should be projected at the time of planning and evaluated along the way to the final report (Phillips & Phillips, 2006).

The full mediation of human capital in the midst of the intervention-organizational performance relationship reminds that one of the strategic moves of the HRD field is in the direction of capitalizing on talent in the organization. More often than not, investments in long-term development of employees are targeted at high-performing individuals as a strategic compensation or at high-potential emerging leaders as part of a 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 been advocated by many actual cases in which successful companies attributed their growth and competitiveness to their talented people (Pfeffer, 1994). Therefore, it is worth stressing that the functions for both management and development of human resources, especially talent, in organizations should be in alignment with each other. They should collaborate closely on planning the talent management initiative, implementing it by selecting participants and delivering an array of programs, and evaluating the effectiveness along the way in order to accumulate organizational human capital for sustainable success for the organization and its people as well.

Recommendations for Future Research

First, longitudinal studies using a similar research model with the other waves of HCCP data sets (2005, 2007, 2009, and 2011) would make

the findings of this research more internally valid; cross-sectional studies using a similar research model in other cultural settings would make the findings more externally valid (Shadish, Cook, & Campbell, 2002). The more robust and generalizable assertion on the positive relationship of the research variables could be made, if the findings from these potential studies should be all in agreement with one another. If not, more time- and culture-specific features could come up while complementing the widely accepted prescriptive arguments about the positive relationship among learning interventions, human capital, and organizational performance.

Second, more concrete ROI studies that look at the relationship examined in this research from the perspective of economic outcome are encouraged. This research investigated the business impact of learning interventions using the perception-based indicators of organizational performance, instead of looking at measurable ROIs in learning interventions using such quantifiable data as revenue, profit, or productivity. However, because it is proposed that HRD adhere to a result-driven approach when discussing performance and that human capital theory pursue the return that is 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 HRD.

Third, in a similar contextual vein to the current research, there have been studies that examined the relationship between the HR practice configurations and organizational performance (e.g., Youndt & Snell, 2004). Building on these, research attempts to compare the effect sizes of multiple configurations of HR interventions against the same performance variables would offer reference for those who strive to prioritize allocations of limited resources and to create synergy between management and development of human resources. Also possible is an investigation of the more extensive research model that encompasses, besides HRD/HRM interventions, other organizational arrangements, such as configurations of organizational decision making and implementation of innovations to evaluate the effect sizes in comparison with one another.

In addition, the structural relationship identified in this research may possibly take a different form depending on, for example, the size of corporations and the industry they belong to because chances are that investment in learning and development, internal mechanisms and available resources, and employees' perspectives are all distinctive by organizational characteristics. In fact, as presented in the "Results" section, the corporate size element was found to be a strong player in the relationships researched. Although a comparative or moderation study examining the corporations by size and industry was not the scope of this research, a study of this kind could provide a more comprehensive understanding about the relationships researched.

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