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**DO HIGH PERFORMANCE WORK SYSTEMS PAY FOR SMALL
FIRMS? AN INTELLECTUAL CAPITAL BUILDING PERSPECTIVE**

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ABSTRACT

Prior research suggests that small firms often struggle with human resource management, and limited research indicates that high performance work systems (HPWS) may assist firms in boosting their level of performance via the construction of intellectual resources for the firm. However, exploration of these phenomena in the small firm context is limited. We examine the mediating role of intellectual capital on the relationship between HPWS implementation levels and firm performance and find that a mediating impact is present for sales growth, profit growth, and perceived performance. Results suggest that HPWS implementation enhances small firm performance via intellectual capital building.

INTRODUCTION

Despite their established importance to the economy through both employment and innovation, small businesses face many challenges; one of the most pressing of which is the ability to develop and retain their workforce (Kemelgor & Meek, 2008) with limited resources (Hornsby & Kuratko, 2003). The resource-based view (Barney, 1991), supports the importance of High Performance Work Systems (HPWS), particularly in the large and emerging firm context, as a way for firms to develop their human resource systems to promote performance and advantage long-term.

Researchers agree that HPWS are comprised of separate, yet interrelated human resource practices, which incorporate the dimensions of human resource management such as selection, training, performance, management, compensation, and information sharing (Pfeffer & Veiga, 1999). Firms craft and implement such systems to recruit, improve, retain, and guide employees (Messersmith & Guthrie, 2010; Pfeffer & Veiga, 1999; Schuler & Jackson, 1987; Way, 2002), and the combinations of these elements are often imperfectly inimitable by competitors due to the intricacy of day-to-day human resource decisions stemming from HPWS implementation (Barney & Wright, 1998; Messersmith & Guthrie, 2010; Wright, Dunford, & Snell, 2001). These practices, integrated into human resource management by firm leaders, may build human, social, and organizational capital (Messersmith & Guthrie, 2010; Patel & Conklin, 2012; Youndt & Snell, 2004), yielding an augmented level of intellectual capital for the firm. Although human resource practices generally have been

shown to yield performance advantages for firms (Boselie, Dietz, & Boon, 2005; Huselid, 1995; Huselid & Becker, 1997; Way, 2002), prior researchers acknowledge that the linking mechanisms between human resource management via HPWS and performance are underexplored (Nyberg, Moliterno, Hale, & Lepak, 2014; Jiang & Liu, 2015).

In previous explorations of these phenomena, researchers generally meld human resources and strategic management views under the theoretical concepts of capital and the resource-based view (RBV) of the firm. For example, Youndt and Snell (2004) argue for the role of intellectual capital, comprised of human capital, social capital, and organizational capital, as a mediator of the relationship between HR configurations and performance of the organization. Employing the resource-based view, Messersmith and Guthrie (2010) conceptually argue that human capital and social capital mediate the relationship between HPWS integration and emerging firm performance. They suggest that HPWS serve as a dynamic capability (Teec & Pisano, 1994) of the firm that influences the development of human and social capital. Messersmith and Guthrie (2010) purport that the combining and recombining of such resources allow firms to heighten performance via both comparative and competitive advantages, but do not empirically examine the conceptualized mediating effect via their analyses of small firms. Although the relationship between HPWS and firm performance has been explored in the large firm and emergent firm contexts (Huselid, 1995; Tregaskis, Daniels, Glover, Butler, & Meyer, 2013; Way, 2002), to our knowledge, the relationships between HPWS, intellectual capital, and firm performance remain largely

unexplained, particularly in the domain of small firms.

Generally, scholars suggest that small firms may not receive the same payouts for implementation of HPWS that larger firms receive (Patel & Conklin, 2012; Way, 2002). As such, the purpose of this study is to examine the mediating role of intellectual capital (Subramaniam & Youndt, 2005; Youndt & Snell, 2004), when represented by combinations of human, social, and organizational capital, on the relationship between HPWS and small firm performance. We examine these relationships for 196 small, employer firms (i.e., between 1 and 250 employees) in the Southern United States using established measures. Further, we analyze the proposed direct and indirect effects for three performance measures: sales growth, profit growth and perceived success. HPWS appear to support a host of capital-building functions, such as innovation (Messersmith & Guthrie, 2010), production and safety measures (Kroon, van de Voorde, & Timmers, 2013), and lower turnover (Way, 2002). Further, they heighten small firm performance (Kotey & Slade, 2005; Maes, Sels, & Roodhofs, 2005; Messersmith & Guthrie, 2010), as well as improve the survivability rate of small firms (Welbourne & Andrews, 1996). We work to move this literature forward by probing the indirect effects of HPWS through intellectual capital building on the relationship with small firm performance.

The remainder of our manuscript proceeds as follows. In the subsequent section, we address the importance of the resource-based view as a stimulator of competitive advantage through

HPWS. Next, we hypothesize the effect for HPWS and performance and the mediating role of intellectual capital on this relationship. Then, we address the sample and methods utilized in our analyses, and report the results of our analyses. Finally, we raise the implications of our study, both academic and practical, followed by the acknowledgment of limitations that may inform future research.

THEORY AND HYPOTHESIS

Resource-Based View of the Firm and Competitive Advantage

The resource-based view (RBV) of the firm, developed by Barney (1991), posits that a firm's resources include all assets, capabilities, organizational processes, and information in its control. These internal resources include physical capital, human capital, social capital, financial capital, and organizational capital (Barney & Wright, 1998; Greene, Brush, & Brown, 1997), which can be used to create a sustained competitive advantage. To provide a sustained competitive advantage, the resources must be valuable, rare, imperfectly imitable, and cannot have strategically equivalent substitutes (Barney, 1991; Wernerfelt, 1984). For many organizations, it is difficult to create a sustained competitive advantage using only product, so they must look inside their organization to create an edge over the competition. This internal view led strategic human resource management (SHRM) scholars to examine the viability of using an organization's workforce to create a sustained competitive advantage (Barney & Wright, 1998; Wright, Dunford, & Snell, 2001). Barney and Wright (1998) describe a method whereby an organization can use its human

resource management practices to turn its workforce into something that creates value, is rare, and cannot be imitated. Such practices make it possible for employees to foster the elusive competitive advantage (Barney, 1991; Barney & Wright, 1998; Patel & Conklin, 2012; Way, 2002; Wright, McMahan, & McWilliams, 1994)

A firm's competitive advantage lies in the thousands of small decisions made by employees every day in an organization (Barney, 1995). These daily decisions are difficult, if not impossible, for competitors to see or imitate because they are based on the socially complex resources of teamwork, trust, and friendship that exist among employees and are formed within the culture of an organization (Barney, 1995; Nelson & Winter, 1982; Teece, Pisano & Shuen, 1997). In addition, many of a firm's routines are tacit in nature, which makes them very difficult to imitate (Teece & Pisano, 1994). All of these decisions and specific knowledge combine to result in a firm's employees and its organizational processes serving as a source of sustained competitive advantage (Wright, et al., 2001). Because the impact of human resources is more salient in smaller firms (Bendickson, Ligion, Muldoon, Newport, & Weaver, 2013), small firms that have highly integrated human resource management systems may find ways to leverage people and processes to create sources of sustained competitive advantage (Barney & Wright, 1998; McClean & Collins, 2011) by using HPWS to reduce the costs associated with turnover (Sels, De Winne, Maes, Delmotte, Faems, & Forrier, 2006). The use of HPWS may also lead to an increase in the productivity, ambidexterity and flexibility

needed for small firm survival (Patel & Conklin, 2012; Patel, Messersmith, & Lepak, 2013). In the following section, we hypothesize the role of HPWS in facilitating heightened performance in small firms.

High Performance Work Systems

HPWS are separate, yet interconnected, human resource management practices, such as selective staffing practices, high compensation based on organizational performance, reduction of status differences, and sharing of information (Pfeffer & Veiga, 1999). Together these practices help an organization to hire, develop, keep, and motivate a workforce that possesses superior abilities and encourages employees to apply those abilities to their work assignments (Huselid, 1995; Way, 2002). Sparham and Sung (2008) suggest that HPWS have two key objectives, which are increasing employees' control over their jobs and improving employee welfare through greater involvement and reward practices. These practices work together to give employees the knowledge, skills, abilities, motivation, and opportunity to do their jobs well (Combs, Liu, Hall, & Ketchen, 2006; Delery & Shaw, 2001). The key to effective HPWS is finding a combination that allows the practices to work together so that the sum is greater than the individual parts (Huselid & Becker, 1997).

HPWS have many positive impacts on organizations such as decreased turnover, increased sales, higher market value, and greater profits (Bendickson, et al, 2013; Huselid, 1995; Huselid & Becker, 1997; Messersmith & Guthrie, 2010; Way, 2002). Further, researchers credit HPWS with yielding increased organizational

ambidexterity (Patel, et al 2013), improved employee attitudes (Wu & Chaturvedi, 2009), heightened job satisfaction and affective commitment (Takeuchi, Chen, & Lepak, 2009; Kroon, et al., 2013), increased innovation (Messersmith & Guthrie, 2010), and increased productivity (Shin & Konrad, 2014). Human resources are even more valuable in small firms where each employee termination (voluntary or involuntary) has a more significant impact on the firms' performance (Bendickson et al., 2013). Therefore, practices that empower employees and reduce turnover will have a significant, positive impact on firm performance. In short, HPWS may be the key source of competitive advantage for small firms (Way, 2002). Using this view of the RBV and HPWS, we predict:

***Hypothesis 1:** The use of HPWS increases small firm performance.*

Intellectual Capital

Scholars suggest one way in which HPWS affect firm performance is by increasing the intellectual capital in a firm (Youndt & Snell, 2004). Intellectual capital is the sum of all knowledge firms utilize for competitive advantage (Subramaniam & Youndt, 2005; Nahapiet & Ghoshal, 1998). It is an intangible asset (Bosworth & Rogers, 2001) and is proposed to have three aspects: human, social, and organizational (Youndt & Snell, 2004).

Human capital refers to the unit level resource created from individuals' knowledge, skills, abilities and other characteristics (KSAOs) that are relevant for achieving economic outcomes (Becker, 1962; Ployhart & Moliterno, 2011; Ployhart, Nyberg, Reilly, & Maltarich, 2014). Studies looking at the

impact of human capital argue it as a key resource in developing superior products and services (Youndt, & Snell, 2004), unique employee knowledge (Staniewski, 2016), and has a positive relationship with firm performance (Carmeli & Tishler, 2004; Hitt, Bierman, Shimizu, & Kochhar, 2001; Lubatkin, & Srinivasan, 2006; Reed, Oh, Kim, & Iddekinge, 2015; & Youndt & Snell, 2004). The second aspect of intellectual capital, social capital, represents the strength of relationships inside the firm and the ability to facilitate knowledge sharing and employee interaction (Guthrie, Flood, Wenchuan, MacCurtain, & Armstrong, 2011; Youndt & Snell, 2004). High levels of social capital have been found to result in increased levels of teamwork, collaboration, and organizational citizenship behaviors (MacDuffie, 1995), increased knowledge acquisition and new product development (Yli-Renko, Autio, & Sapeiza, 2001), incremental and radical innovation capabilities (Subramaniam & Youndt, 2005) and overall firm performance (Youndt & Snell, 2004). Finally, organizational capital represents the institutional knowledge and codified experience stored in databases, routines, patents, manuals, and organizational structures (Youndt & Snell, 2004). Organizational capital is positively related with incremental innovative capability (Subramaniam & Youndt, 2005).

While these types of capital are conceptually different, it is difficult to identify them individually in organizations as they are intertwined (Cross & Funk, 1997) through the day-to-day activities of a business (Subramaniam & Youndt, 2005). For example, individual KSAOs (human capital)

are often recorded in manuals or developed into computer programs and become institutionalized (organizational capital). This codified knowledge, or institutional capital, transfers throughout the organization via networks and social exchanges among employees (social capital) (Subramaniam & Youndt, 2005). Similar to the process used by Youndt, Subramaniam, and Snell (2004), we combine these three forms of capital into a single construct, intellectual capital.

The strategic human resource management literature often states that HPWS, in themselves, do not create the positive performance effects previously discussed (Applebaum, Bailey, Berg, & Kallerberg, 2000; Patel et al., 2013; Wright, et al., 1994). The transformation process between the use of HPWS and heightened firm performance has been referred to as a “black box” because the mechanisms through which HPWS affect firm performance have been underexplored (Banks & Kepes, 2015; Boselie et al., 2005; Nyberg et al., 2014).

Through the RBV lens, the SHRM literature posits that by using HPWS, organizations can create a competitive advantage through selecting the right employees, motivating them to use their knowledge, skills, and abilities for the good of the organization, and providing an organizational structure that allows for a free flow of information and production (increasing intellectual capital) in order to improve firm performance. The intellectual capital literature suggests that increases in intellectual capital result in improved firm performance. Thus, we offer the following hypothesis:

Hypothesis 2: Intellectual capital will fully mediate the relationship between HPWS and small firm performance.

METHODS

Sample

Data were collected over a two-month period in 2012 from businesses in a five county region of a Southeastern state. Researchers obtained a list of business owners from five local Chambers of Commerce, and surveys were mailed to 2,332 businesses based on the Chamber of Commerce member lists, excluding publicly traded and large, privately held corporations. An introduction letter was sent, followed by the survey and reminder cards. Of the 2,332 surveys distributed, 216 were returned, yielding a response rate of approximately 9.3 percent. Respondents were provided the option to either mail in the completed hard copy survey with a postage-paid envelope, or take the survey online via a Qualtrics link provided with the hard-copy survey. Of the surveys returned, 191 were completed in hard copy form and 25 were completed via Qualtrics.

Since the primary focus of this study is the effect of HPWS on small firm performance via the development of intellectual capital, we limit our sample to small, employer firms, using the threshold of 250 or fewer employees (e.g., Acs & Aldrich, 1989; Bell, Crick, & Young, 2004). Using this filter, our sample comprises 196 small firms with 1 to 235 employees. Firm age is 29 years, on average, but ranges from start-up to 150 years. Respondents represent owners, general managers, or other human resources supervisors. The sample consists of approximately 64 percent business owners, 26

percent general managers, and 10 percent other human resources supervisors. Respondents report, on average, more than 13 years of experience with the firm, but range from 1 year to 55 years. Approximately 57.7 percent of the respondents are male and 42.3 percent are female. All respondents have at least a high school education (19 percent), with 19 percent holding Associate’s degrees, nearly 46 percent holding bachelor’s degrees, 9 percent holding master’s degrees, and 6 percent having professional or doctoral degrees. Descriptive statistics and correlations for the variables utilized in the analyses are reported in Table 1.

Several respondents failed to answer items throughout the survey; thus, to examine missing data, we calculated Little’s MCAR for the sample data (Groza & Ryan, 2002). Our data were not missing completely at random; thus, we used regression techniques through SPSS to replace missing data points. Missing item analysis suggested that 95 percent of the data points overall were complete, with two-

thirds of cases being fully completed for the variables utilized in our analyses. With the use of these techniques, all 196 responses were retained for analysis.

MEASURES

Dependent Variables. We analyze three performance measures in our study: sales growth, profit growth, and perceived business success. We use these three measures to examine the top line effects, bottom line effects, and perceived effects of integrating HPWS into human resource practices. To measure growth of sales, respondents were asked, “Over the last two years, what is your average rate of growth of sales,” with the following reporting options, “negative,” “flat, approximately 0,” “1-2 percent,” “3-5 percent,” “5-10 percent,” and “Over 10 percent.” These categories were then coded from 1 to 6, with 1 being the lowest and 6 representing the highest percentages of sales growth, respectively.

Table 1
Descriptive Statistics and Correlations for the Sample

	Mean	Std. Dev.	1	2	3	4	5	6	7	8
1. Sales growth	3.71	1.53	1.00							
2. Profit growth	3.30	1.53	0.78*	1.00						
3. Perceived success	3.72	0.72	0.37*	0.34*	1.00					
4. Tenure in position	13.47	11.08	-0.30*	-0.27*	-0.07	1.00				
5. Education level	3.62	1.08	0.07	0.07	0.06	-0.11	1.00			
6. Total employees	21.14	34.65	-0.06	-0.08	0.10	-0.07	-0.01	1.00		
7. Intellectual capital	49.73	8.71	0.35*	0.31*	0.35*	-0.11	0.10	0.06	1.00	
8. High performance work systems	59.62	12.21	0.20*	0.12	0.34*	-0.07	0.12	0.31*	0.42*	1.00

N = 196, *p<0.05

Profit is measured in the same way, with the same percentage categories, according to the question, "Over the last two years, what is your average rate of growth in profits?" Sales growth and profit growth are traditional empirical measures of performance for small firms (e.g., Delmar, Davidsson, & Gartner, 2003; Wolff & Pett, 2006), and are intended to reflect more objective performance measures for the firms.

To measure the perceived effects of HPWS, respondents were asked, "Relative to your competitors, how would you describe your business success?" on a 5-point Likert scale, where 1 = unsuccessful, 2 = below average, 3 = average, 4 = very successful, and 5 = extremely successful. Prior researchers argue that perceived performance is an important consideration in fully understanding firm performance, and that more subjective measures tend to follow actual performance (Wall Michie, Patterson, Wood, Sheehan, Clegg, & West, 2004). We believe both objective and subjective reports of success provide a well-rounded view of how HPWS and intellectual capital are related, both directly and indirectly to firm performance.

Independent Variable. Our HPWS measure is an adaptation of the 21 human-resource oriented items examined by Messersmith and Guthrie (2010). Like Messersmith and Guthrie (2010), our items range from inquiries regarding interviewing procedures to promotion and merit to team composition. For the full text presentation of these questions, see Appendix A. However, rather than using a sum of binary responses, we asked respondents to indicate how often their employees and/or management team

participate in the 21 activities, based on a 5-point Likert scale, where 1 = never and 5 = always. The responses to the 21 items for each respondent were then summed to create a single measure indicative of the relative level of HPWS implementation. The Cronbach's α for the HPWS measures is 0.809, which suggests an adequate level of inter-item agreement, given both general thresholds and the Cronbach's α of 0.724 reported by Messersmith and Guthrie (2010).

Mediating Variable. We examine intellectual capital (IC) as a mediator of the HPWS and performance relationship, based on both the conceptual model of Messersmith and Guthrie (2010) and the specification of IC provided by Youndt and Snell (2004). In their work examining HR configurations and large firm performance, Youndt and Snell (2004) propose that intellectual capital serves as a mediator of this relationship, and measure intellectual capital as the configurations of human, social, and organizational capital utilized by the firm. We construct our organizational capital measure modeled after the items employed by Youndt and Snell (2004). Our human, social, and organizational capital measures exhibit a Cronbach's α of 0.876, 0.852, 0.741, respectively. The intellectual capital measure, comprised of the human, social, and organizational capital measures displays acceptable fit as a single construct (RMSEA = 0.082; CFI = 0.97; IFI = 0.97) via confirmatory factor analysis using LISREL 8.80 (Jöreskog and Sörbom, 2001). Further, Cronbach's α for the unitary measure of intellectual capital is 0.889, indicating sufficient inter-item agreement to be considered as a single construct. Given these results, we average the human, social, and

organizational capital items for each respondent to create the intellectual capital measure. For a full text presentation of these items, see Appendix B.

Control Variables. To control for contextual factors, we consider three additional measures. We control for the size of the firm via the total number of employees reported by the respondent. Additionally, we control for the education level of the respondent, as well as respondent tenure (years) in his/her current position.

RESULTS

Prior to testing our hypotheses, we examine our data for its suitability to be employed in such analyses via multicollinearity and common method variance tests using SPSS v.21. First, we examined the data for multicollinearity using both variance inflation factors (VIF) and the condition index values. Results suggest that no VIF was greater than 1.36, and the condition index was 19.075, which are both well within acceptable thresholds (Fox, 1997; Pedhazur, 1997). To examine our data for common method variance, we employed the Harman one-factor test (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). The study variables were entered into an exploratory factor analysis, where 11 factors emerged with eigenvalues greater than 1. The first factor comprises only 21.21 percent of the variance; thus, no single factor emerges or appears to dominate (Gerasymenko & Arthurs, 2014). The results of these analyses suggest that neither multicollinearity nor common method variance appear to serve as limiting forces for our tests of hypotheses.

To examine our hypotheses, we utilize the PROCESS syntax developed by Hayes (2013) in SPSS v.21, which employs regression analyses to examine both the direct and indirect effects. We rely on both bootstrapping and the Sobel test provided via the PROCESS analysis to confirm the direct and indirect effects of the models. Results of the regression analyses are provided in Table 2, and results related to further examinations of the direct, indirect, and total effects are provided in Table 3.

Hypothesis 1 proposes a direct relationship between HPWS and performance. We examine this relationship with three models, in which we test the direct effect of HPWS without the presence of intellectual capital in the model. The three models suggest that HPWS is significantly associated with sales growth ($\beta=0.03$, $p<0.01$), marginally associated with profit growth ($\beta =0.02$, $p<0.10$), and significantly associated with perceived performance ($\beta=0.02$, $p<0.001$). Given these results, we find support for Hypothesis 1, suggesting that higher levels of HPWS are directly associated with heightened small firm performance.

Hypothesis 2 proposes that intellectual capital will fully mediate the relationship between HPWS and small firm performance. The results of both the bootstrapping confidence intervals generated via the PROCESS model (Hayes, 2013), in addition to the Sobel tests, suggest that intellectual capital fully mediates the relationship between HPWS and sales growth (Sobel: $\beta = 0.02$, $p<0.001$) and HPWS and profit growth (Sobel: $\beta = 0.02$, $p<0.01$). Table 3 further highlights this result with the

lack of the direct effect when intellectual capital enters the models (Baron and Kenny, 1986). The PROCESS model results for the bootstrapped confidence intervals (Hayes, 2013) and Sobel tests indicate that intellectual capital partially mediates the relationship between HPWS and perceived success (Sobel: $\beta=0.01, p<0.01$). These results suggest partial support for H2, since for more objective

measures of small firm success (i.e., sales and profit growth), intellectual capital fully mediates the model, while for subjective measures of small firm success, intellectual capital partially mediates the model. Thus, our results suggest that HPWS, through the development of intellectual capital, facilitates growth of both the top and bottom lines for small businesses.

Table 2
Results for Mediation Analysis for Sales Growth, Profit Growth, and Perceived Success

	Model 1 Sales Growth			Model 2 Profit Growth		Model 3 Perceived Success	
	Dependent Variable <i>Intellectual Capital</i>	<i>Sales Growth</i>	<i>Sales Growth</i>	Dependent Variable <i>Profit Growth</i>	<i>Profit Growth</i>	Dependent Variable <i>Perceived Success</i>	<i>Perceived Success</i>
Respondent Tenure	-0.06 (0.05)	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.03*** (0.01)	-0.00 (0.00)	-0.00 (0.00)
Respondent Education	0.35 (0.53)	0.01 (0.10)	-0.00 (0.09)	0.04 ¹ (0.10)	0.02 (0.10)	0.01 (0.05)	(0.00) (0.04)
No. of Employees	-0.02 (0.02)	-0.01 ¹ (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	(0.00) (0.00)
Intellectual Capital	-	-	0.05*** (0.01)	-	0.05*** (0.01)	-	0.02*** (0.01)
HPWS	0.31*** (0.05)	0.03** (0.01)	0.01 (0.01)	0.02 ¹ (0.01)	0.00 (0.01)	0.02*** (0.00)	0.01** (0.00)
<i>R</i> ²	0.19	0.14	0.20	0.10	0.16	0.12	0.17
<i>F</i>	11.29***	7.48***	9.78***	5.05***	7.35***	6.25***	7.68***

N = 196¹ $p<0.10$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Robustness Tests

We examined the robustness of our sample first by confining our analyses to firms with 5 or more employees to ensure that the firm faced sufficient human resource management challenges. Although this restricted the sample to 143 observations, we believe these analyses highlight the robustness of the results within our sample. All results described in the previous analyses held when the number of employees was restricted between 5 and 250 employees, suggesting our results were not

skewed by smaller employers. Further, the robustness check indicates that the effects of HPWS through intellectual capital are universal among employer small firms.

Additionally, industry has been determined as an important factor in small business success and growth (e.g., Gadenne, 1998) and is often credited as an important controlling factor in small business and human resources studies alike (Batt & Colvin, 2011; Patel & Conklin, 2012).

Table 3
 Total, Direct, and Indirect Effects for Mediation Analysis

	Model 1				Model 2				Model 3			
	Effect	SE	LLCI	ULCI	Effect	SE	LLCI	ULCI	Effect	SE	LLCI	ULCI
Total Effect	0.027**	0.090	0.009	0.044	0.0176	0.009	-0.002	0.035	0.020***	0.004	0.011	0.028
Direct Effect	0.011	0.009	-0.008	0.030	0.001	0.010	-0.018	0.020	0.013**	0.005	0.004	0.022
Indirect Effect	0.016*	0.005	0.008	0.027	0.016*	0.005	0.007	0.026	0.007*	0.002	0.003	0.011
Sobel Test	0.016***	0.005			0.016**	0.005			0.007**	0.002		
Mediation	Full				Full				Partial			

Note: Number of bootstraps, 10,000; Confidence level 95%

As such, we examine the robustness of our results when industry controls were included in the analyses. Service, retail, and healthcare firms were included in the analyses, with all other industries serving as the reference. No significant results were determined for industry across the analyses, and all prior results held. Thus, the robustness check indicates that our results are likewise universal across industry for small firms in our sample.

DISCUSSION

The resource-based view supports that HPWS should improve firm performance (Barney, 1991; Barney & Wright, 1998), and research has consistently demonstrated this direct link (Guest, 2011; Messersmith & Guthrie, 2010; Shin & Konrad, 2014; Youndt & Snell, 2004). However, researchers suggest that the benefits of careful HPWS implementation in small firms may not truly outweigh their costs (Patel & Conklin, 2012); thus, limiting any performance advantages

from their integration into firm operations. Using RBV as a theoretical base, Nyberg et al. (2014) indicate that unit level human capital serves as an important mediator between HPWS and firm performance. After a comprehensive review of the literature, Nyberg and colleagues suggest that to fully understand its role as a mediator, researchers must better address unit level human capital in terms of KSAOs. Utilizing the Youndt and Snell (2004) intellectual capital construct allows us to examine both knowledge stocks (human capital), as well as how small firms leverage this capital through networks (social capital) and codification of knowledge (organizational capital). As such, our research more fully considers the relative KSAOs of the organization through this construct. Youndt and Snell (2004) purport a mediating effect for intellectual capital between the HR configurations and organizational performance relationship in large firms with an average of approximately 4,000 employees. Messersmith and Guthrie

(2010) conceptualize the mediating role for human and social capital between the HPWS and performance relationship, but provide no empirical examination for such a relationship with their sample of small firms.

Prior work in the small business context suggests that HPWS does enhance small firm performance when defined as sales growth (Messersmith & Guthrie, 2010), average sales and employee growth (Patel et al., 2013), product innovation (Messersmith & Guthrie, 2010), organizational innovation (Messersmith & Guthrie, 2010), organizational ambidexterity (Patel et al., 2013) and labor productivity (Patel & Conklin, 2012). We build on this literature by examining the role of intellectual capital as the mechanisms via which HPWS lead to a configuration of rare, imperfectly inimitable, valuable KSAOs that enhance small firm performance. Such operational advantages via human resources allow small firms an advantage that is difficult for competitors to pinpoint and imitate (Barney & Wright, 1998; Messersmith & Guthrie, 2010). Given our results of full mediation of intellectual capital between HPWS integration and objective firm performance and partial mediation for subjective firm performance, these HPWS may have a more significant influence on the top and bottom lines than small business owners and managers realize. As such, we believe this work makes several academic and practical implications to both the small business and human resources literatures.

Academic Implications

Although HPWS have been noted for their importance in the entrepreneurship and emerging firm contexts (e.g., Messersmith & Guthrie, 2010; Patel & Conklin, 2012), scholars argue that small firms may not obtain the same “bang for their buck” that larger companies reap from the integration of HPWS (Way, 2002, Patel & Conklin, 2012). Thus, exploring HPWS implementation in the small firm context, and obtaining robust results within our sample provides important implications for academics in proceeding with this vein of research. Under the resource-based view of the firm, researchers argue that HPWS heighten organizational performance, since they yield day-to-day practices that create value for the firm, are difficult to imitate, costly to implement by competitors (i.e., rare), and build soundness for the organization (Barney, 1991; Barney & Wright, 1998; Way, 2002). As such, when implemented at higher levels, our results suggest these HPWS build intellectual capital for the firm through heightening elements of human, social, and organizational capital, which yields higher performance in both revenue and profit growth. These results are robust, even with tighter specifications for the “small” employer firm definition, suggesting these results are universal to small firms in our sample.

Our examination of intellectual capital as a mediator of this relationships uncovers an important linking mechanism for the HPWS-firm performance relationship. Prior researchers have conceptualized this

link, but to our knowledge, this has not yet been examined in the small firm context. Intellectual capital is an intangible (Bosworth & Rogers, 2001), yet critical resource for the firm. Prior research has generally examined these human, social, and organizational capital factors separately. However, as prior researchers argue (e.g., Subramaniam & Youndt, 2005), our analyses suggest that perhaps they are best considered within our sample as a single construct. Researchers suggest there is an important linking mechanism between HPWS and performance (Boselie et al., 2005), but the linking mechanism is rarely specified (Nyberg et al., 2014). Based on the resource-based view, which is often used to support such relationships, HPWS should build resource stocks, including intangible ones; thus, our results suggest that through these intangible resources developed through the integration of HPWS, small firms can enhance performance. We believe this to be an important contribution to the literature, since HPWS have been recognized to lack the ability to directly influence performance in themselves (e.g., Wright et al, 1994; Patel et al., 2013). Although other constructs may exist which also mediate this relationship, the intellectual capital developed through the incorporation of HPWS appear to serve as an important link and allows researchers to explore this relationship in other contexts.

Our results likewise highlight the robustness of the mediating role of intellectual capital on the HPWS and

performance relationship, since we view this relationship across three different performance elements. Intellectual capital fully mediates the models for both revenue and profit growth, suggesting the capital built by such practices has important top and bottom line performance implications. Additionally, we examine these relationships on perceived success, which yields a partial mediation effect. Interestingly, the full mediation effects for more objective measures suggests that small business performance improves even when the emotional aspect of feeling success for the business is less apparent from these relationships. Our performance measures were self-reported in percentage growth terms. As such, studies examining actual growth levels could add to this literature and further validate (or challenge) the results of our sample.

PRACTICAL IMPLICATIONS

The relationship between HPWS, intellectual capital, and firm performance is interesting for academics but it is likewise very important for business owners and practitioners since implementation of such practices is relatively straightforward. By using practices such as hiring the best employees, compensating employees based on organizational performance, extensive training, and sharing information, small businesses can see top and bottom line improvements. Our study shows that HPWS helps an organization to achieve increases in sales growth, profit growth, and perceived success by

improving the intellectual capital within the firm. Given the consistent link shown between HPWS and performance in the literature, both academics and small business development specialists must work to assist small business owners and managers in recognizing, choosing, and developing HPWS that can yield advantages for the small business given its context. Given that HPWS help both micro and small firms universally in our analyses, such activities appear to provide a solid return through intellectual capital growth and development.

Understanding the mechanism through which HPWS affect an organization's performance helps provide guidance on the types of activities organizations can undertake to help build intellectual capital. HPWS can serve as part of a toolkit that small business owners and managers, as well as business consultants can use to improve the top and bottom line metrics for a firm. It is important for small business owners and managers to understand that since this is a capital building process, the effects for HPWS implementation may take some time to yield bottom line impacts. Small business development training workshops targeted at further educating business owners on the benefits of HPWS via intellectual capital building of the firm can both raise awareness and implementation levels. Further, employees may benefit and exhibit higher levels of satisfaction through the building of organizational culture and an improved work environment. Finally, using HPWS often leads to a formalization of HR practices in

a firm which can provide many benefits for a small business. Having routine processes and procedures for dealing with employee issues can lead to more accurate documentation of employment decisions in case of litigation, more fair treatment of employees, increased job satisfaction, and increased productivity of workers (Kotey & Slade, 2005). These benefits not only help small businesses improve chances of survival (Welbourne & Andrews, 1996), they also promote growth and profitability.

LIMITATIONS AND FUTURE RESEARCH

Although we believe our results to be both interesting and robust there are some important limitations that must be recognized and considered moving forward. First, we view our conceptual model and subsequent analyses through the RBV lens (Barney & Wright, 1998). Following in other researchers' footsteps, we believe this is a pertinent and appropriate lens through which to view such effects, given our performance-oriented dependent variable. However, current research in this area suggests that other theories may provide useful lenses through which to view these phenomena, such as behavioral theory and general systems theory (Shin & Konrad, 2014). Perhaps general systems theory is the most useful potential alternative theory moving forward, particularly when paired with RBV, as it allows for greater exploration of any reverse causality or feedback that may occur in the firm (as a unit) due to the integration of HPWS, development of intellectual capital, and

subsequent effects on performance. Given the interconnectedness of activities within small firms, general systems theory, in conjunction with RBV, may provide a more holistic view of these complex relationships over time.

Like most research in this vein, our data are cross-sectional (e.g., Messersmith and Guthrie, 2010; Patel & Conklin, 2012); thus, caution should be undertaken in generalizing our results beyond our sample. Further, since the data were collected via a single instrument at one point in time, the potential exists for reverse causality and common method bias. Reverse regressions were run in an attempt to mitigate the reverse causality concern, and these analyses yielded no significant effects. Throughout both data collection and our statistical analyses processes, the researchers attempted to mitigate the common method bias issue to the extent possible. Based on the recommendations of Podsakoff et al. (2003), prior to administering the survey, respondents were assured of their confidentiality and the researchers attempted to ensure all items were concisely worded and addressed only one measure. Further, a Harman one-factor analysis indicates that common method bias does not statistically limit our data. Additionally, researchers argue that even when common method bias does exist within data of this nature; it does not severely limit results or their subsequent interpretations (Doty & Glick, 1998). Although we believe this sample to be an interesting and timely one, examining our results with subsequent samples and

longitudinal data would assist in better understanding these relationships.

Additionally, we find limitation with some of our measures. Although we request information related to objective measures, both revenue and profit growth, these are self-reported measures in percentage terms. Prior research on subjective versus objective performance suggest that reported performance reflects actual performance for firms (e.g., Wall et al., 2004); thus, we believe these measures to accurately reflect the firm's performance. However, more objective performance measures and actual quantified levels of revenue or profit over time would assist in confirming whether these results are robust to differing performance specifications. Further, our intellectual capital measure combines three sources of capital (Subramaniam & Youndt, 2005). Although we believe we provide sufficient evidence that the single measure is parsimonious and reliable, future researchers may benefit from further exploring the individual roles of these capital measures if data allow.

Even with our limitations in mind, we believe our study and the associated findings pave the way for future research on HPWS, intellectual capital, and performance in small firms. Further exploration of the items comprising HPWS to determine which activities provide the most return for investment would provide benefit to both researchers and practitioners. Greater understanding related to which HPWS measures or factors from those measures influence greater levels of capital-building and

performance would yield more targeted recommendations for human resource managers in building an organizational structure conducive to capital building and performance growth for the firm. Further, it would be helpful to take a step back from the mediating role of intellectual capital, and examine how HPWS influence capital building for the firm, the time period in which this occurs, and whether particular activities accrue capital-building rewards for small businesses.

CONCLUSION

Previous research links the use of HPWS to increased firm performance, sales, market share, and profits (Huselid, 1995; Huselid & Becker, 1997; Guthrie & Messersmith, 2010; Way, 2002) and, via the resource-based view of the firm theoretical lens has been posited as one way that a firm can achieve a competitive advantage (Barney, 1991; Barney & Wright, 1998). Researchers argue that due to limited resources, investments in HPWS for small businesses may not yield sufficient return due to the unique resource configurations they possess and utilize (Way, 2002; Patel & Conklin, 2012).

As such, our study examines both the direct relationship between HPWS and small firm performance, as well as the mediating influence of intellectual capital development has on this relationship. Our results suggest that the use of HPWS in small firms does positively impact revenue, profitability, and perceived

performance via the development of intellectual capital; thus, highlighting the unique resource advantages the integration of such valuable and imperfectly inimitable practices yield for small firms.

These results have important implications for both academics and practitioners as we try to better understand the relationship between HPWS, intellectual capital, and the performance of small firms. Using a capital-building resource-based perspective, small firms do experience positive benefits by using HPWS via the development of intellectual capital. As such, practitioners and small business owners can use this information to develop an HPWS configuration that will increase intellectual capital within the firm and boost firm performance.

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Appendix A: HPWS Items (adapted from Messersmith and Guthrie, 2010)

1. When interviewing job candidates, interview questions are prepared ahead of time.
2. When interviewing job candidates, all candidates are asked the exact same questions in the exact same order.
3. Job candidates are required to pass one or more employment tests prior to hiring (e.g. skills tests, intelligence tests, personality tests, honesty tests)
4. Job candidates are required to pass a drug test prior to hiring.
5. Employees are offered extensive training in generic skills such as problem solving, communication skills, and decision making.
6. Employees are offered extensive training in company specific skills.
7. Employees are asked to evaluate the training they have received.
8. Performance appraisals and feedback are given on a routine basis.
9. Promotions are based primarily on merit.
10. Evaluations of job performance or merit are used in compensation decisions (e.g. salary, bonuses, benefits)
11. Employees share in the financial ownership of the company via stock options or other means.
12. Compensation is partially contingent upon group and/or company performance (e.g. profit sharing, team based pay, gain sharing).
13. Employees are provided relevant operating performance information.
14. Employees are provided relevant financial performance information.
15. Employees are provided relevant strategic information (e.g. strategic mission, goals, tactics, competitors' performance).
16. Employees hold non-entry level jobs as a result of entry-level position (as opposed to hiring from outside the organization for higher level jobs).
17. Employees are given the option of telecommuting.
18. Employees have the flexibility in the hours that they work.
19. Employees have job security. Employment with the firm is almost guaranteed if performance is satisfactory.
20. Non-managerial employees are involved in self-managed teams.
21. Non-managerial employees are involved in programs designed to elicit participation and employee input (quality circles, problem solving, or similar groups).

Appendix B: Intellectual Capital Items (Subramanian and Youndt, 2005)

1. Our employees are highly skilled
2. Our employees are widely considered the best in our industry.
3. Our employees are bright and creative.
4. Our employees are experts in their particular job and functions.
5. Our employees develop new ideas and knowledge.
6. Our employees are highly skilled at collaborating with each other to diagnose and solve problems.
7. Our employees share information and learn from each other.
8. Our employees interact and exchange ideas with people from different areas of the company.
9. Our employees partner with customers, suppliers, alliance partners, etc. to develop solutions to problems.
10. Our employees apply knowledge from one area of the company to problems and opportunities that arise in another.
11. Our employees develop new ideas and knowledge.
12. Our organization uses patents and licenses as a way to store knowledge.
13. Much of our organization's knowledge is contained in manuals, databases, etc.
14. Our organization's culture (stories, rituals) contain valuable ideas, ways of doing business.
15. Our organization embeds much of its knowledge and information in structures, systems, and processes.