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Shahzad, Khuram; Arenius, Pia; Muller, Alan; Rasheed, Muhammad Athar; Bajwa, Sami Ullah

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Unpacking the Relationship between High Performance Work Systems and Innovation Performance in SMEs

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Abstract

Purpose – The objective of this study is to explore the black box between high-performance work systems (HPWS) and innovation performance in small and medium enterprises (SMEs). Through application of the Ability, Motivation, and Opportunity (AMO) framework, the study examines the mediating roles of innovation-specific ability, motivation, and voice behaviors between HPWS and SMEs' innovation performance.

Design/methodology/approach – The hypotheses are tested on data collected through a self-administered questionnaire from 237 SMEs in Pakistan.

Findings – Findings indicate that human capital, motivation, and employee voice fully mediate the relationship between HPWS and innovation performance in SMEs.

Implication – SMEs need to invest in the adoption and implementation of HPWS that will develop innovation-specific abilities, motivation, and voice behaviors simultaneously among employees that will lead to higher innovation performance.

Limitation and Future Research – The cross-sectional research design and self-reported measures warrant caution for the interpretation of findings. Future research may consider a longitudinal research design and objective measures.

Originality/value – This is the first study of its kind utilizing an AMO framework to investigate the underlying mechanism through which HPWS affect innovation performance in SMEs.

Keywords: High Performance Work System, SMEs, Innovation Performance, AMO framework

1. Introduction

High-performance work systems (HPWS) have been shown to improve the innovation performance of firms (Escribá-Carda, Balbastre-Benavent, & Canet-Giner, 2017). However, review of the literature reveals that past studies have focused on large organizations and overlooked how HPWS contribute to innovation performance in the context of small- and medium enterprises (SMEs) (Andries & Czarnitzki, 2014; Gilman & Raby, 2013; Rasheed, Shahzad, Conroy, Nadeem, & Siddique, 2017). Investigation of HPWS in SMEs is important (Patel & Conklin, 2012) because SMEs' competitiveness is essentially determined by their innovation performance (Curado, Muñoz-Pascual, & Galende, 2018; Soto-Acosta, Popa, & Palacios-Marqués, 2017). Scholars assert that SMEs differ from large firms in their approach to adopt and implement HPWS due to several factors, such as scarcity of resources, absence of bureaucracy, informal and flexible structures, fire-fighting mentality, and easier communications (Sheehan, 2014; Terziowski, 2010). However, our understanding of how HPWS affect innovation performance in the SME context remains underdeveloped (Drummond & Stone, 2007; Torre & Solari, 2011).

Most prior studies on large firms have used the resource-based view (RBV) or human capital theory (HCT) to explain the HPWS-innovation performance relationship by conceptualizing human capital—i.e., knowledge, skills, and abilities (KSAs)—as a prime source of competitive advantage (Razouk, 2011; Takeuchi, Lepak, Wang, & Takeuchi, 2007). However, there is a consensus emerging about the mediating role of behavioral factors such as employees' motivation and extra-role behaviors as the “causal link which flows from practices through people to performance” in the SME context (Ramsey, Scholarios, & Harley, 2000, p. 502). Scholars argue that HPWS can simultaneously improve the KSAs of employees, increase their motivation, and encourage them to exhibit requisite behaviors for higher innovation in SMEs (Drummond & Stone, 2007). Despite these insights, there is a lack of research that has conceptualized the requisite human capital and behaviors of employees in a single framework to identify the mediating mechanism through which HPWS may influence innovation performance in SMEs.

We argue that the Ability, Motivation, and Opportunity (AMO) model (Appelbaum, Bailey, Berg, & Kallerberg, 2000) is well suited to explain the HPWS-innovation relationship in the SME context. The AMO model assumes that the achievement of an organization's strategic goals is a function of employees' ability, motivation, and opportunity to perform specific tasks/roles (Boxall, 2003). These distinct but interrelated components complement each other in the process and therefore in the absence of any of these components, it may be unlikely that a HR system can influence organisation innovation goals (Almutawa, Muenjohn, & Zhang, 2016; Bos-Nehles, Riemsdijk, & Looise, 2013). Ramsay, Scholarios, and Harley (2000) argue that "it is this logic of interdependent effects that makes the HPWS argument distinctive," because it "entails a causal path in which worker outcomes mediate between HPWS practices and performance" (p.504). Since HPWS and AMO both contain the notion of interrelatedness and complementarity, the conceptualization of employees' AMO as a mediating mechanism seems logical and a better theoretical approach to unpack the HPWS-innovation "black box" in the SME context.

Therefore, in light of the aforementioned gap and suggestions given by contemporary scholars (Bowen & Ostroff, 2004; Chang & Chen, 2011; Obeidat, Mitchell, & Bray, 2016), this research explicates the roles of three AMO-derived elements, namely human capital, motivation, and voice, as mediators in the HPWS-innovation relationship in the SME context. Our analysis of 237 SMEs in Pakistan lends full support to these arguments.

2. Theoretical Background and Hypothesis Development

The RBV and HCT lenses typically used to understand the HPWS–innovation performance relationship (Boxall, 1996; Razouk, 2011) mainly take a cognitive perspective (Huber, 1991) in assuming that innovation performance can be achieved by attracting, developing, utilizing and retaining superior human capital (Iverson & Zatzick, 2011; Wright, Gardner, & Moynihan, 2003). However, scholars taking a behavioral perspective argue that SMEs innovation performance is also dependent on employees' requisite emotional responses and discretionary behaviors that may be stimulated by organizational factors (Morrison, 2011; Piccolo & Colquitt, 2006; Terziovski, 2010).

In order to incorporate both cognitive and behavioural aspects in our study, we use an AMO (ability, motivation, opportunity) framework (Appelbaum et al., 2000; Jiang, Lepak, Han,

et al., 2012) as a theoretical lens to unpack the mediating mechanisms through which HPWS may influence innovation performance of SMEs. Ability encompasses human capital; i.e., the knowledge, skills, and abilities (KSAs) employees possess specifically with regards to innovative tasks and goals. Motivation explains employees' willingness and desire to use their innovative KSAs to enhance innovation performance of the firm. Opportunity reflects the provision of a conducive environment and context that enables employees to take an active part in the innovative activities that essentially include change initiation, creativity, risk-taking, and idea sharing (Heffernan, Harney, Cafferkey, & Dundon, 2016).

Evidence suggests that the AMO model may help explain the process through which HPWS enhance the innovation performance of SMEs. In their meta-analytic investigation of the mediating mechanisms between HRM practices and organizational outcomes Jiang, Lepak, Hu, and Baer (2012) assert that for higher innovation performance, a knowledgeable, skilled, able, and well-motivated workforce along with a supportive climate is required. Reinholt, Pedersen, and Foss (2011), by drawing on the AMO model, assert that employees' motivation and ability to share knowledge is necessary for their knowledge-sharing behaviors. SMEs mainly count on their human resource's knowledge, creativity, and innovative capabilities when designing their competitive strategy (Wu, Hoque, Bacon, & Bou Llusar, 2015). Being more labor-intensive in comparison to larger firms, SMEs tend to invest more in their human resources practices to develop a unique and innovative knowledge pool that gives them a sustainable advantage (Patel & Conklin, 2012). The next challenge is to retain that innovative workforce as the replacement cost is always difficult for resource-constrained SMEs to afford. Motivation, commitment and satisfaction are important factors in SMEs that influence employees' decision to leave or stay with the organisation. Though SMEs retain their workforce by maintaining personalised relationships and giving employees a sense of empowerment and belongingness, a proper performance and reward management system also extends help to keep employees motivated (Long, Ajagbe, & Kowang, 2014). Sheehan (2014) asserts that due to the higher stakes involved, SMEs consider and implement HPWS more carefully than large-scale firms. Way (2002) argue that HPWS can ensure the recruitment, development, motivation and retention of employees having AMO characteristics in SMEs.

Based on these arguments, we suggest that innovation performance may be enhanced only when HPWS develop employees who have innovative KSAs, are motivated and willing to

apply their innovative KSAs, and have a supportive environment to conceive and implement change and innovation.

2.1 HWPSs and Innovation Performance

According to Chen and Huang (2009), organizations' innovation performance increases when HRM practices are in place that sufficiently and consistently ensure the creation, acquisition, sharing, and exploitation of new knowledge. Literature shows that knowledge and learning are the main determinants of creativity and all types of innovation in SMEs (Alegre, Sengupta, & Lapiedra, 2013; Martin & Matlay, 2003). Thus, in order to achieve higher innovation performance, SMEs need to make sure that the organization-level learning and knowledge management is taking place on regular basis (Alegre et al., 2013; Brunswicker & Vanhaverbeke, 2015; Salavou, Baltas, & Lioukas, 2004). This can be achieved through professional and strict selection and training of employees by particularly focusing on their learning, adaptation, knowledge sharing, creativity, and innovative capabilities (Camps & Luna-Arocas, 2012; Gamage, 2014).

Innovation-based appraisal and compensation and merit-based promotion motivate employees to use their creative and innovative knowledge and skills to generate and implement creative ideas (Saunila, 2016). Flexible job design, autonomy, and participation opportunities also enhance creativity and innovation in SMEs by providing employees a chance to explore new or improve existing technologies and processes to perform their jobs innovatively instead of getting stuck with narrowly defined roles and mechanistically designed jobs and work output (Baggen, Lans, Biemans, Kampen, & Mulder, 2016). Autonomy and participation also increase employees commitment that is critical for discretionary or citizenship behaviors (Byaruhanga & Othuma, 2016). Together in a bundle these all practices develop human capital with requisite innovative capabilities, motivation, and discretionary behaviors to develop and implement creative ideas to enhance organization level innovation (Raja & Johns, 2010; Ramsay et al., 2000; Razouk, 2011).

Past empirical studies on SMEs across different countries have recognized HPWS as a strong predictor of firm-level performance outcomes. For instance, Razouk (2011) found that HPWS contribute substantially to SME performance. In their study on emergent organizations, Messersmith and Guthrie (2010) found that HPWS have a significant positive effect on

organization performance. Wu et al. (2015), in their comparative study of small, medium, and large firms, identified HPWS as a significant predictor of labor productivity in both small and large firms. Ivars and Martínez (2015) found a significant positive impact of HPWS on the financial performance of SMEs. Rasheed et al. (2017) also found a positive impact of HPWS on innovation performance of SMEs in Pakistan. Apart from the HPWS construct, researchers have also identified the positive link between SME innovation performance and strategic HRM practices more generally (Andries & Czarnitzki, 2014; De Winne & Sels, 2010). Hence, in keeping with established research, our foundational hypothesis is as follows:

H1. HPWS have a positive effect on innovation performance.

2.2 An AMO-based mediation framework

The AMO framework suggests that employees' performance is an outcome of three important components: ability, motivation, and opportunity (Jiang, Lepak, Hu, et al., 2012). Ability indicates the knowledge, skills, and abilities necessary to outperform; motivation denotes drive and willingness to outperform; and opportunity specifies a context or climate supportive for outperforming (Jiang, Lepak, Hu, et al., 2012). The AMO model specifies that any single component is inadequate to achieve performance outcomes and thus ability, motivation, and opportunity should be viewed as interdependent components that complement each other to achieve superior performance. The conceptualisation of the AMO model is supported by the literature which suggest that a highly capable but unmotivated workforce (or vice-versa) (Aryee, Walumbwa, Seidu, & Otake, 2016; Delery & Shaw, 2001) or a mere existence of opportunities may not help employees and the organisation achieve their desired performance outcomes (Dundon, Wilkinson, Marchington, & Ackers, 2004).

Scholars have used the A, M, or O component of the AMO model as mediators between HRM practices and performance (see for instance the meta-analysis of Jiang, Lepak, Hu, et al., 2012). However, very few studies have incorporated all three components in a single framework to study the relationship between HR practices and performance (Wang & Xu, 2017). While individual empirical studies indicate the possibility of a mediation role for human capital (De Winne & Sels, 2010; Manev, Gyoshev, & Manolova, 2005), motivation (Camelo-Ordaz, Garcia-Cruz, Sousa-Ginel, & Valle-Cabrera, 2011), and supportive climate/context (Wang & Xu, 2017)

between HPWS/HRM practices and innovation performance, thus far no study has taken an AMO perspective on this relationship—in particular in the SME context. Our underdeveloped understanding of the critical role all AMO components play in the HPWS-innovation link is limiting the literature’s ability to offer an integrated view of how HPWS influence innovation performance (Jiang, Takeuchi, & Lepak, 2013) in SMEs.

This is striking in light of performance theory claims (Blumberg & Pringle, 1982) that all AMO dimensions must be taken into account for any task to be done effectively and the absence of any one factor can cause adverse effects. From these arguments and empirical findings, we infer that the AMO model can help to explain the link between HPWS and innovation performance. We propose that elements of the AMO framework can be related to both HPWS and innovation performance, and therefore mediate the relationship between them. We develop these arguments in the following sections.

Ability. In our study, we conceptualize ability in the form of human capital, or employees’ knowledge, skills, and abilities (KSAs) that they use to perform their jobs and achieve organizational innovation goals (Aryee et al., 2016). A number of studies show that HPWS practices such as recruitment, selection, training, compensation, and participation affect the positive development of employees’ innovative knowledge, skills, and abilities (Camelo-Ordaz et al., 2011; Takeuchi et al., 2007). De Winne and Sels (2010) argue that small start-ups use HRM practices as a strategic tool to develop knowledge workers who possess abilities to identify and develop new opportunities, to improve current processes, and develop new products/services.

At the same time, research shows that innovation performance of SMEs is fundamentally dependent on their innovative human capital as employees identify new market opportunities and then willingly initiate procedural and administrative changes to take advantage of those opportunities by developing innovative products and solutions (Alegre et al., 2013; Sok & O’Cass, 2011). Marvel and Lumpkin (2007) in their study found both general and specific human capital as significant predictor of innovative outcomes. Gray (2006) also identified the SMEs capacity to absorb and manage knowledge as an important prerequisite for the adoption of innovations and entrepreneurial growth. The findings of these studies establish the fact that SMEs’ human capital in the form of employees’ knowledge, skills, and abilities is critical for

their innovation performance, and HPWS can potentially develop such human capital. Therefore, we hypothesize as follows:

H2a. Employees' knowledge, skills, and abilities mediate the relationship between HPWS and innovation performance.

Motivation. Motivation is a psychological force or contract that can increase individual effort and persistence to pursue and achieve a goal (Touré-Tillery & Fishbach, 2011). Barrick, Stewart, and Piotrowski (2002) find that motivation can be developed through intrinsic factors (i.e. autonomy, participation, team-work) as well as extrinsic factors (i.e. appraisal, recognition, rewards) (Reiss, 2012). Past studies indicate the positive effect of HPWS practices on the motivation level of employees in SMEs to put forth efforts towards organizational goals (Drummond & Stone, 2007; Ivars & Martínez, 2015; Way, 2002). Bryson and White (2018) concluded that small firms can achieve higher motivation among employees by investing intensively in HPWS practices. At the same time, motivation to utilize innovative KSAs, take initiatives, and make necessary changes is important for innovation outcomes in SMEs (Garcia-Morales, Lloréns-Montes, & Verdú-Jover, 2007; Ogunyomi & Bruning, 2016).

In order to achieve innovation performance, SMEs require a motivated workforce that will put forth extraordinary efforts and exhibit discretionary behaviors to initiate change and innovation (Hadjimanolis, 1999). Motivation is a strong predictor of employees' discretionary behaviors (Basford & Offermann, 2012), creativity (Cadwallader, Jarvis, Bitner, & Ostrom, 2010) and innovation performance in SMEs (Matzler, Schwarz, Deutinger, & Harms, 2008). Motivation also has a strong influence on employees' propensity to accept new technologies (Fagan, Neill, & Wooldridge, 2008), share knowledge (Reinholt et al., 2011), and undertake risks and experiments which is directly associated with higher creativity and innovation (Xiaomeng & Bartol, 2010). Motivated employees also engage in requisite discretionary behaviors such as citizenship, personal initiatives, putting extra energy, and perseverance that facilitate change and transformation of creative ideas into innovation (Garcia-Morales et al., 2007; Turnipseed & Turnipseed, 2013). Hotho and Champion (2011) argue that SMEs need to design people management strategy and practices that provide employees with an intrinsic motivation to do new things and be innovative. We, therefore, state the following hypothesis:

H2b. Employee motivation mediates the relationship between HPWS and innovation performance.

Opportunity. While opportunity is commonly understood to mean participation in the decision-making process (Almutawa et al., 2016), we conceptualize the opportunity dimension of the AMO framework in terms of ‘voice’ (Gilman, Raby, & Pyman, 2015). Voice covers organizational, social, and discretionary elements of innovation process such as self-initiative, knowledge sharing, OCB, creativity and so on (Dyne, Ang, & Botero, 2003; Ng & Feldman, 2012). Voice is a voluntary behavior associated with initiating improvements within an organization to address organizational or work-related problems (Van Dyne & LePine, 1998). By overlooking the social or discretionary aspect, the perspective taken in prior AMO studies seems oversimplified given that innovation is a complex and dynamic phenomenon involving social as well as management interactions, integration, and changes at multiple hierarchical levels (Barton & Delbridge, 2001; Farndale, Van Ruiten, Kelliher, & Hope-Hailey, 2011; Rothaermel & Hess, 2007).

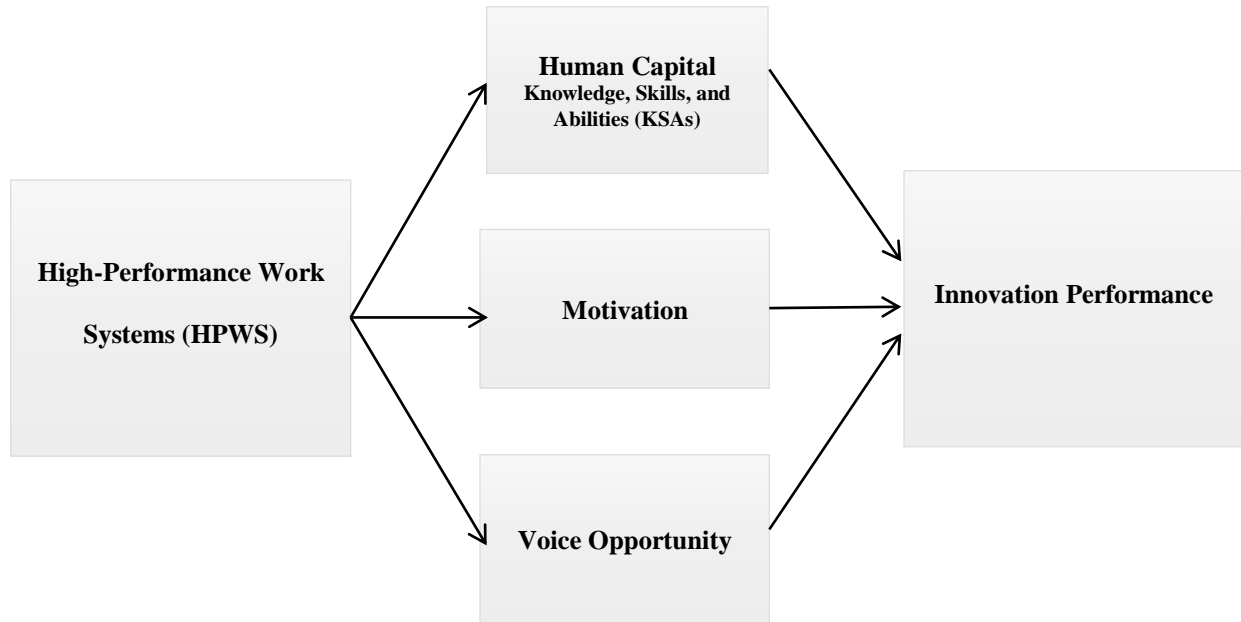
Innovation in SMEs essentially requires change which is dependent on a motivated workforce to challenge structures through choices, discretions, deviations, and decisions (Hotho & Champion, 2009). Voice is a strong predictor of employees’ participation, discretionary behavior, and efforts towards change and innovation (Mowbray, Wilkinson, & Tse, 2015; Royer, Waterhouse, Brown, & Festing, 2008). However, it has rarely been studied in the relationship between HPWS and innovation performance. Especially, with respect to SMEs, the concept of employee voice has remained under-theorized and under-investigated (Gilman et al., 2015; Sameer & Özbilgin, 2014). The AMO-framework provides an explanation of how different HPWS practices such as participative decision making, team-work, the autonomy of work, information sharing, and open communication generate and encourage employees’ voice behaviors. These practices help to develop the support mechanism and processes to strengthen employees sense that their opinions and concerns are fully addressed and acted upon (Morrison, 2011). There is empirical evidence that clearly indicates the positive and significant impact of HPWS on employees’ voice behaviors (Baptiste, 2008; Rasheed et al., 2017).

Additionally, innovation depends on the healthy participation and contribution of employees who emphasize the expression of constructive challenges instead of mere critique (Van Dyne & LePine, 1998). The concept of voice implies that employees contribute with innovative suggestions that facilitate change process and resultant innovation performance of firms (Gilman et al., 2015). However, voice behaviors require a conducive environment where employees feel encouraged and recognized for their ideas, initiatives, and suggestions (Walumbwa & Schaubroeck, 2009). Seibert, Kraimer, and Crant (2001) showed that proactive and passionate employees take more initiatives and thus contribute significantly more to the innovation process. Baer and Frese (2003) found that the existence of a positive climate for initiatives and shared perceptions of initiatives are strong predictors of process innovation in the organization. According to LePine and Van Dyne (1998), “innovation begins with recognition and generation of novel ideas or solutions that challenge past practices and standard operating procedures” (p. 865). Angela and Yu-Hsiang (2016) identified a positive relationship between voice behavior and individual creativity. Frazier and Bowler (2015) found that perception of voice climate boosts voice behaviors and performance among groups. Bashshur and Oc (2015), in their multilevel review of 1000 studies related to the impact of voice in the organization, conclude that employees’ voice behaviors affect many positive outcomes including innovation at all levels in the organization. Accordingly, we hypothesize that:

H2c. Employee voice mediates the relationship between HPWS and innovation performance.

In sum, our AMO framework suggests that HPWS may influence innovation performance of SMEs through employees’ innovative KSAs and behaviors. That is, SMEs may adopt HPWS to develop innovation-specific KSAs among employees and create an environment in which employees feel able and motivated to participate in innovation process to improve organization’s innovation performance. Our framework, thus, helps to unpack the mechanisms linking HPWS and innovation performance in SMEs (Chen & Huang, 2009; Fu et al., 2015). We visualize our hypothesized model in Figure 1.

Figure 1. Conceptual Framework



3. Research Methodology

3.1 Data collection and sample

To test our hypotheses, we collected data from SME companies in Pakistan with a formal HR function. In Pakistan, many SMEs do not possess a formal HR function and they manage people-related issues through the general administration office. Since HPWS is an organization level strategic construct which includes the presence of formal HR practices such as recruitment, selection, training, performance appraisal etc. to enhance firm-level performance, it was important to select only those SMEs that have a formal HR function. As there is no official listing of such SMEs available in Pakistan, we contacted the small and medium enterprises development authority (SMEDA), which organizes formal trainings for SMEs on people management practices. We obtained the contact detail of 1,200 SMEs operating all over Pakistan which had directly or indirectly received HR-related trainings, directly or indirectly, from SMEDA during the past five years.

The link to the online questionnaire was sent to those organizations at the email address provided accompanied by a basic introduction of the survey objectives and a request to respond to the survey. One response of senior-management position from each organization was

requested. After sending three reminders at one-week intervals, we received a total of 250 responses. This corresponds to a response rate of 20.8% which is comparable to other online surveys in developing countries, where response rate has been found fundamentally low (Krishnan & Poulouse, 2016). Eight responses were incomplete with more than 25% missing information and five responses were identified as potential outliers through the Mahalanobis distance (D2) method. These were dropped from the data set we used in the analysis leaving us with 237 usable responses. The majority of respondents were males (81%) with a masters- or higher level education (69%), and more than three years of working experience (66%). The majority of the respondents were working in service-sector SMEs (57%) and had been operating in the industry for more than nine years (61%). SMEs having 150-250 employees accounted for the majority of the sample size (42%) followed by 50-150 (30%).

3.2 Measurement

HPWS: We took eleven items related to HPWS practices from Huselid (1995) and Kehoe and Wright (2013). The items asked respondents to share their perception about the existence of formal selection, training and development, participation, grievance handling, information sharing, compensation, and performance management practices in the organization. After factor analysis, one item was dropped out due to poor/cross loading and thus the HPWS scale formed ten practices with respect to Pakistani SMEs. The Cronbach's alpha of ten items scale is $\alpha = .85$ (see Table 1).

Innovation Performance: We measured innovation performance was measured in terms of significantly improved or new processes, products/services, and administrative practices during the past three years through eight items taken from Chen and Huang (2009). In exploratory factor analysis all eight items loaded on a single factor with a Cronbach's alpha of $\alpha = .91$ (see Table 1).

Human Capital: We measured human capital in terms of knowledge, skills, and abilities of the employee to undertake creativity and innovation. Five items were adapted from the work of Youndt, Subramaniam, and Snell (2004) and Donate, Peña, and Sánchez de Pablo (2016). As we proposed above, innovation performance requires specific abilities to undertake innovative tasks and roles so adoption of generic human capital scale, as has been the case in most past studies, may lead to misleading conclusions. Therefore minor modifications were made in the items to

make the human capital construct more innovation-specific. The Cronbach's alpha of five items scale is $\alpha = .77$ (see Table 1).

Motivation: To measure motivation, we developed a three-item scale based on the work of Fernandez and Pitts (2011) and Gegenfurtner (2013). In most previous studies motivation has been considered a generic construct. However, the literature clearly states that motivation of a person is a directional concept which may vary task to task (Sonnentag, 2011) and people may have varying level of motivation to perform a set of activities in their daily jobs and roles (Sonnentag, 2017). Therefore, in this study motivation items were developed with a specific focus on the inclination of employees to come up with innovative ways of doing things. Three items scale thus measured the employee's state of motivation to come up with innovative ways of doing things in their daily tasks and roles. The Cronbach's alpha for the three-item scale is $\alpha = .69$ (see Table 1).

Voice behaviors: To measure voice, we used a two-item scale adopted from Farndale et al. (2011). The scale measures the extent to which employees believe that their managers provide them sufficient opportunity to comment on proposed changes and that their suggestions and feedback actually affect organization decisions. Scholars have used this scale in their studies with high-reliability scores (Bryson, 2004; Bryson, Charlwood, & Forth, 2006). The Cronbach's alpha of two-item scale is $\alpha = .82$ (see Table 1).

3.3 Control Variables

Company size and age have been found to have an influence on the adoption of HR systems (Huang, Ahlstrom, Lee, Chen, & Hsieh, 2016) as well as innovation processes and outcomes (Henderson & Cockburn, 1994; Huang et al., 2016). Whereas some scholars have found that size is positively associated with innovation, others have argued that SMEs have a higher capability to be innovative (Damanpour, 1991). Age is said to affect the organization's knowledge repository in general, as well as wisdom about HR practices and processes and the way they affect innovation outcomes (Parida, Westerberg, & Frishammar, 2012). Company size was calculated based on the number of employees and was coded as micro (less than 50 employees), small (51 to 150 employees) and medium (151 to 300 employees). Age of the organization was calculated through the number of years it was in operation since inception and coded as a continuous variable. Previous studies conducted in manufacturing and services SMEs have found

different results in terms of resources, processes, HR practices, and innovation outcomes (Chandler & McEvoy, 2000; Huselid, 1995). Therefore, organization type was calculated in terms of manufacturing or services dominating operations and was coded as 1 for manufacturing and 2 for services.

As we sampled senior managers for our study, we controlled for gender, experience, and education level in line with previous studies (Ergeneli, Ari, & Metin, 2007) to see if managers differ in their perceptions due to controlled variables. A number of studies have considered gender while measuring the perceptions of managers toward HRM practices and innovative behaviors (Wang & Xu, 2017). Gender was coded as 1 for Male and 2 for Female. The length of service (experience) also influences the level of motivation and tendency of managers to get into voluntary behaviors such as knowledge sharing, team-work, cooperation which is an important determinant of creativity and innovation (Elorza, Harris, Aritzeta, & Balluerka, 2016). Experience was as the total time a manager has spent in the current organization, measured in years. Managers' educational level has a strong influence on their knowledge and ability to understand the dynamic environment and undertake creativity and innovation in the organization (Wang & Xu, 2017). So in line with previous studies related to HPWS, human capital, and innovation, the qualification of managers was coded into four categories where 1 was for intermediate, 2 for graduation, 3 for masters, and 4 for higher education.

3.4 Validity and reliability

Responses in this survey were perceptual and self-reported, which may raise the issue of reliability, social desirability, and common-method variance. However, scholars argue that perceptual measures are appropriate to use where objective data is not available or accessible, or when employees are not willing to provide objective information due to any perceived threats (Brouthers, Brouthers, & Werner, 1999; Peng & Luo, 2000; Woodcock, Beamish, & Makino, 1994). Since SMEs in Pakistan generally do not maintain or report accurate objective information, especially related to financials and performance, asking respondents for objective information could certainly reduce participation in the survey or lead to misinformation. On the other hand, there are studies that have identified a strong correlation or covariance between objective and perceptual data (Dess & Robinson, 1984; Frishammar & Åke Hörte, 2005; Geringer & Hebert, 1991; Ketokivi & Schroeder, 2004; Madrid-Guijarro, Garcia, & Van Auken,

2009; Zahra & Covin, 1993). Hughes (2001) in his study even found subjective measures better than objective measures. Given these arguments, it was logical to use perceptual or self-reported measures to investigate the HPWS-innovation performance link.

The data is initially checked for missing values and outliers to ensure normality, the absence of which may affect the robustness of the analysis and resultant findings (Schreiber, Nora, Stage, Barlow, & King, 2006). A small number of missing values (less than 2% of total observations) were identified and corrected by using means imputation method (Hair, Black, Babin, Anderson, & Tatham, 2010; Pallant, 2007). Five observations were identified as potential outliers through the Mahalanobis distance (D2) method and thus dropped from the data set (Hair et al., 2010). A Shapiro-Wilk test (score=0.699) indicates that there is no serious issue of data non-normality. Further, the analysis indicates that there is negligible *multicollinearity* among the predictor variables as the value of the variance inflation factor (VIF) is within an acceptable range (i.e. <10). The Durbin-Watson statistic (value=1.833) is also within the acceptable range (1.75 to 2.25) which refutes the presence of autocorrelation in the residuals.

Though items in the questionnaire were taken from established and well-validated scales, we conducted an exploratory factor analysis (EFA) in order to ensure its validity in a new context. Principle component extraction through Varimax rotation is applied to identify the underlying factor structure of each scale. The outcome of the EFA, as shown in Appendix 1, reveals ten items instead of eleven items for the HPWS scale. All other items loaded on their respective factors with appropriate eigenvalues, factor loadings, and variance. A five-factor model explains 62.76% of the total variance. Adequate values of Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity also confirm the appropriateness of the factors output.

In order to address the potential issue of common-method variance, the Harman one-factor test was employed. The possible existence of common-method bias may be high if a single factor accounts for the majority of covariance among variables (Podsakoff & Organ, 1986). As noted above, exploratory factor analysis (EFA) yielded five factors with Eigenvalues greater than one. The first factor accounted for 40.94% of the total variance, which was less than the commonly used 50% threshold value. Since one factor did not emerge out of all items and also a single factor did not account for the majority of the variance, we consider it safe to assume that the problem of common-method variance was unlikely to exist in the data set (Podsakoff &

Organ, 1986). Scholars working in the fields of strategic HRM and organizational behavior have used this approach to address the common-method variance issue in the past (Chen & Huang, 2009; Rees, Alfes, & Gatenby, 2013). Furthermore, in order to ensure the respondents are representative of the population, we conducted a time trend extrapolation test to check non-response bias by comparing the responses of early and late respondents. The assumption behind this test is that late respondents are similar to non-respondents (Armstrong & Overton, 1977). A one-way analysis of variance (ANOVA) found no significant difference among the compared groups across size, age, and type of firms.

4. Results

The means, standard deviations, inter-correlations, and estimated reliabilities of the key variables of the study are given in Table 1. All independent, mediators and dependent variables are significantly correlated with each other. The independent variable HPWS ($r=.673, p<0.01$), and mediators human capital ($r=.666, p<0.01$), motivation ($r=.692, p<0.01$), and voice ($r=.754, p<0.01$) are significantly correlated with the dependent variable innovation performance. HPWS also significantly correlate with all mediating variables i.e. human capital ($r=.851, p<0.01$), motivation ($r=.782, p<0.01$) and voice ($r=.607, p<0.01$). Of the control variables, HPWS and human capital do not correlate significantly with any of the control variables. However, organization size has a negative significant correlation with motivation ($r=-.157, p<0.05$) and voice ($r=-.196, p<0.01$). Organization age correlates significantly with voice ($r=-.203, p<0.01$) and innovation performance ($r=-.128, p<0.05$). Experience is also correlated significantly with innovation performance ($r=-.144, p<0.05$).

Tables 2 and 3 present the unstandardized coefficients results of regression analysis for hypotheses. Model 1 in Table 3 predicts HPWS as a significant predictor of innovation performance ($\beta=.439, p<0.01$) or explains 48.3% variance in the organization innovative performance when controlled for gender, experience, qualification, organization age, type, and size. Of the control variables, employees' experience has a negative influence on innovation performance ($\beta=-1.464, p <0.01$). This finding supports H1, which asserts that HPWS have a significant impact on innovation performance.

Table 1: Mean, Standard Deviation, Reliability and Correlations of Variables

Variables	<i>Mean</i>	<i>SD</i>	α	1	2	3	4	5	6	7	8	9	10	11
1 HPWS	53.95	14.37	0.85	1										
2 Voice	8.71	2.80	0.82	.607**	1									
3 Human Capital	22.36	5.83	0.77	.851**	.600**	1								
4 Motivation	16.47	4.97	0.69	.782**	.629**	.665**	1							
5 Innovation Performance	33.92	9.31	0.91	.673**	.754**	.666***	.692**	1						
6 Gender	1.20	0.40		-.002	-.012	.015	-.011	-.027	1					
7 Experience	2.25	1.07		.022	-.078	-.016	.048	-.144**	-.313**	1				
8 Qualification	2.87	0.75		.079	.044	.075	.030	-.054	-.001	.197**	1			
9 Organization Age	2.57	0.66		-.046	-.203**	.015	-.091	-.128**	-.076	.103	.222**	1		
10 Organization Type	1.74	0.44		-.023	-.040	.021	-.019	-.034	.179**	-.005	.002	-.068	1	
11 Organization Size	3.19	0.85		-.009	-.205**	.006	-.154**	-.098	.09	-.008	.201**	.426**	-.125	1

** Coefficient is significant at the 0.01 level (2-tailed)

* Coefficient is significant at the 0.05 level (2-tailed)

Table 2: Regression Results of HPWS's Impact on Human Capital, Motivation, Voice and Innovation Performance

Variables	Model 1 (Innovation Performance)	Model 2 (Human Capital)	Model 3 (Motivation)	Model 4 (Employee Voice)
	<i>B</i>	<i>B</i>	β	β
1 HPWS	.439**	.347**	.270**	.115**
2 Gender	-1.730	.036	.270	-.267
3 Experience	-1.464**	-.227	.074	-.284*
4 Qualification	-.623	.023	.149	.296
5 Organization Age	-.656	.570	-.064	-.479*
6 Organization Type	-.335	.578	.046	-.309
7 Organization Size	-.075	-.069	-.231**	-.587**
R Square	.499	.730	.635	.435
Adjusted R Square	.483	.722	.624	.418
N = 237				

** Coefficient is significant at the 0.01 level (2-tailed). * Coefficient is significant at the 0.05 level (2-tailed). Unstandardized regression coefficients are reported.

Table 3: Regression Results of Mediation

Variables		Model 5 (Innovation Performance)
		<i>B</i>
1	HPWS	.025
2	Human Capital	.302**
3	Motivation	.499**
4	Voice	1.502**
5	Gender	.025
6	Experience	-1.376
7	Qualification	-1.024**
8	Organization Age	-1.024*
9	Organization Type	-.132
10	Organization Size	.070
R Square		.696
Adjusted R Square		.683

Indirect Effect of HPWS on Innovation Performance through Human Capital: (Effect=0.309, *Boot SE*=0.084, *LL95%CI*=0.172, *UL95%CI*=0.448). **Sobel Test** - (Effect=0.309, *SE*=0.080, *Z*=3.880, *p*<0.01)

Indirect Effect of HPWS on Innovation Performance through Motivation: (Effect=0.349, *Boot SE*=0.068, *LL95%CI*=0.240, *UL95%CI*=0.466), **Sobel Test** - (Effect=0.349, *SE*=0.062, *Z*=5.616, *p*<0.01)

Indirect Effect of HPWS on Innovation Performance through Voice: (Effect=0.337, *Boot SE*=0.048, *LL95%CI*=0.265, *UL95%CI*=0.424), **Sobel Test** - (Effect=0.337, *SE*=0.043, *Z*=7.886, *p*<0.01)

** Coefficient is significant at the 0.01 level (2-tailed). * Coefficient is significant at the 0.05 level (2-tailed N = 237. Unstandardized regression coefficients are reported. Bootstrap sample size = 5000. LL = lower limit; CI = confidence interval 95%; UL = upper limit.

H2 states that human capital (H2a), motivation (H2b), and voice (H2c) mediate the relationship between HPWS and innovation performance. This hypothesis can be tested by fulfilling the conditions set forth by Baron and Kenny (1986). The first condition of mediation is evident in Model 1 where HPWS have a significant positive impact on the outcome variable

innovation performance ($\beta=.439, p<0.01$). The 2nd condition of mediation is evident in Model 2, 3, and 4 respectively where HPWS have a significant positive impact on all three mediators i.e. human capital ($\beta=.347, p<0.01$), motivation ($\beta=0.270, p<0.01$), and voice ($\beta=0.115, p<0.01$). The 3rd and 4th condition of mediation is evident in Model 5 where human capital ($\beta=1.502, p<0.01$), motivation ($\beta=0.302, p<0.01$), and voice ($\beta=0.499, p<0.01$) remain, significant predictors of innovation performance when placed in the model with HPWS. However, since HPWS appear insignificant in the presence of mediators, thus this finding confirms the presence of full mediation. A Sobel test with a bootstrapped 95% confidence interval (CI) is also conducted to compliment the regression analysis and further confirm mediation. This approach has been adopted by various contemporary studies i.e. see (Cafferkey & Dundon, 2015; Eissa & Lester, 2017). The indirect effect of HPWS on innovation performance is found significant for human capital ($Z=3.880, p<0.01$), motivation ($Z=5.616, p<0.01$), and voice ($Z=7.886, p<0.01$) and demonstrate that the bootstrapped CI does not contain zero for all these variables. This further confirms that human capital, motivation, and voice mediate the relationship between HPWS and innovation performance in SMEs, and thus provide support for hypotheses H2a, H2b, and H2c.

5. Discussion

Using an AMO framing, we develop a model to unpack the cognitive and behavioral mechanisms linking HPWS and innovation performance in SMEs. We find support for our arguments that ability, motivation, and voice of employees are important factors that fully mediate between an organization's HPWS and its innovative performance. Consistent with previous studies we find that HPWS have a significant positive effect on innovation performance (Curran & Walsworth, 2014; Delery & Doty, 1996; Sanz-Valle & Jiménez-Jiménez, 2018). In our specific research setting, this positive influence indicates that SMEs in Pakistan have adopted HPWS to identify, acquire, utilize and retain a skilled workforce that has the potential to boost innovation performance of the organization.

In so doing, our study integrates prior findings into a single conceptual framework and extends them to the context of the HPWS-innovation relationship in the SME context. That is, a few studies have found a positive relationship between HPWS and human capital (Aryee et al., 2016; Takeuchi et al., 2007), HPWS and motivation (García-Chas, Neira-Fontela, & Castro-Casal, 2014), HRM system and AMO dimensions (Almutawa et al., 2016), service-oriented

HPWS, AMO dimensions, and service performance (Wang & Xu, 2017), HPWS, voice, and innovation (Rasheed et al., 2017), HPWS and business performance (Shih, Chiang, & Hsu, 2013), human capital and innovation (De Winne & Sels, 2010), motivation and innovation (Cadwallader et al., 2010), voice and innovation (Rasheed et al., 2017). However, ours is the first study to incorporate these ideas into a single AMO framework.

5.1 Theoretical Implications

This study provides clear implications for research and practice by developing an AMO-based framework in which innovation performance is a function of employees' innovation-specific abilities, motivation, and voice behaviors. While doing this, the study opens up new avenues for theoretical development and robust understanding of HPWS. For instance, identification of human capital, motivation, and voice as potential organization resources and carriers of HPWS's effect on SMEs innovation performance may add new explanatory value. The analysis confirms that there is a high degree of inter-correlations and mutual dependency between human capital, motivation, and voice which adds validity to the conceptualization approach of this study. This suggests that there is a need for a broader and more holistic approach to understanding the HPWS-innovation relationship, especially in SMEs. This study also succeeded in exploring critical proximal outcomes of HPWS in terms of human capital, motivation, and voice behaviors of employees. From the strength of the relationships, it is now also relatively easy to understand the potential causal paths to build a theory of HPWS and also refine empirical standards. The confirmation of full mediation and the strong relationship between AMO elements and innovation performance also provides a point for an investigation to explore causal links instead of only reporting the mere existence of HPWS (Gould-Williams, 2007; Macky & Boxall, 2007).

Another crucial contribution of this study is its conceptualization of employee voice as a proxy for the opportunity dimension of the AMO model. The emphasis on employee voice adds to the existing literature on strategic HRM in SMEs. Most past studies have conceptualized the opportunity dimension solely as the opportunity to carry out jobs and tasks freely (Almutawa et al., 2016), or a climate conducive for the expression of desired performance (Wang & Xu, 2017). However, this study clarifies the contours of employee voice specifically for the innovation performance of SMEs through the existence of a mechanism which ensures that employees put forward their ideas and opinions for change (which is a determinant of innovation), and whereby

the organization's decisions get affected by these ideas and opinions. In order to enhance voice's operational effectiveness, this study adopts a holistic approach to combine cognitive and behavioral factors to achieve a complementary and synergistic underlying model for higher innovation performance in SMEs through the adoption of HPWS (Gardner, Wright, & Moynihan, 2011; Ramsay et al., 2000).

There is another development in the conceptualization of how the relationship between HPWS and innovation performance and its underlying mechanisms should be studied. Considering the multidimensional vs. uni-dimensional debate, scholars have advocated the adoption of a multidimensional approach for the selection of HRM practices to investigate their impact on organizational outcomes (Almutawa et al., 2016; Jiang et al., 2013; Obeidat et al., 2016). However, there is little attention given to the adoption of a multidimensional approach in the identification of the underlying mechanisms that function in between HRM practices and innovation performance. This omission can potentially lead to an isolated or incorrect understanding of the mechanisms through which HPWS actually work in organizations to boost innovation performance. This study's multidimensional conceptualization of mediating factors on the basis of an AMO model brings a more holistic and integrated framework into the literature to identify critical determinants of SMEs' innovation performance.

Finally, this study contributes to the empirical stream as well by collecting data from 237 SMEs from multiple industries in Pakistan. Although previous studies have identified the effect of HPWS on organizational and individual level outcomes, the effects of HPWS on SMEs' innovation performance through employee- and firm-level mediating variables is rare in a developing country context. Since Pakistani SMEs have been striving hard to adopt best management practices, this study provides empirical evidence of HPWS's positive contribution in an important South Asian economy where employees have recently been identified as important resources (Ahlstrom & Ding, 2014; Zhu, Warner, & Rowley, 2007). It is also evident from this finding that developing countries' SMEs are shifting from the traditional administrative approach of adopting a few selected HR practices to a more contemporary 'bundle' approach to human resource management. Previous literature seems quite skeptical about the adoption of HPWS and innovative orientation by SMEs especially in developing countries. However, this study's empirical finding indicates that SMEs in Pakistan do exhibit a relatively strategic

approach to their HRM practices and invest in their human resources to achieve an innovation-based competitive advantage.

5.2 Managerial Implications

In terms of managerial implications, results suggest that by implementing HPWS, SMEs can not only enhance employees' innovative knowledge, skills, and abilities but also can motivate them to apply their innovative abilities to improve innovation performance. From the findings, it is also important that SMEs must provide their able and motivated employees a fair opportunity to participate in the change process and undertake innovative tasks that may pose some more risks of experimentations and failures. Furthermore, employees must feel that their ideas and opinions are being reflected in the organization's policies and practices. The findings provide a more holistic and comprehensive model for SMEs as to how they need to pay attention to different elements simultaneously to hone innovation outcomes. This essentially implies that SMEs need to ensure the presence of a complete bundle of HR practices to develop abilities, motivation and voice behaviors among employees simultaneously. In practical terms, this research confirms that the previous literature has somehow misinterpreted how HPWS are operationalized in actual SME workplace settings, implying that more caution is called for in the conceptualization and selection of variables used to understand the HPWS-innovation performance relationship.

Though the data in this study does not permit prescriptive solutions, it provides sufficient justification for further testing of propositions and hypotheses that may bring more practical insights to understand causal pathways between HPWS and SMEs' innovative outcomes. Managers can also use this study's insights to enhance the benefits of their already implanted HPWS. In case HPWS do not yield the desired organization-level outcomes, the problem could be a function of the abilities, motivation, or voice behaviors of employees. Specifically, managers need to figure out if all these factors are working in a truly complimentary and synergistic way. In the event that employees lack innovation-specific abilities, managers can revise the firm's recruitment and selection strategy to enhance innovative human capital in the organization. In the case of motivational issues, performance appraisal and rewards can be revised. If employees do not initiate change then it may be time to look into empowerment and decision making structure of the organization.

5.3 Limitations and Future Directions

This study is completed with few limitations, therefore caution is advised with respect to interpretation and generalization of the results. Firstly, a cross-sectional research design and self-reported measures are used to collect data mainly because of the reason that organizations were not willing to get engaged in the longitudinal type of research and also provide access to objective data. Though every possible attempt is made to ensure that the data is free of bias, future studies may use a longitudinal research design and objective measures to verify this study's conceptual framework and initial empirical findings. This study conceptualized a bundle of HRM practices as a single 'HPWS'. Future studies may decompose HPWS into their sub-dimensions of ability-enhancing, motivation-enhancing and opportunity-enhancing practices as these dimensions may have a different independent impact on human capital, motivation, voice, and innovation. In the end, since the data is collected from a developing country's SMEs, the generalizability of findings may be limited to SMEs in the developing-country context. Despite these limitations, this study contributes to our understanding of how the HPWS-innovation relationship unfolds through a synergized combination of employee- and organization-level factors.

6. Conclusion

By adopting an AMO lens, this study provides a better understanding of the underlying mechanism through which HPWS influence innovation performance in SMEs. Findings suggest that employees' innovation-specific abilities, motivation, and voice opportunities fully mediate the relationship between HPWS and innovation performance. In addition, findings imply that SMEs can provide their employees with requisite abilities, motivation, and voice opportunities through a bundle of HRM practices called HPWS. In so doing, this study makes theoretical, methodological, and empirical contributions along with practical suggestions for managers to improve innovation performance in SMEs.

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Appendix-1

Exploratory Factor Analysis with Items Loadings and Variance Explained

	HPWS	Human Capital	Motivation	Voice	Innovation
Formal job analysis...	.835				
Formal performance appraisals to determine compensation...	.807				
Formal tests for hiring employees733				
Access to performance appraisal to know performance status704				
A formal mechanism to report grievances/complaints...	.709				
Inclusion in information sharing program...	.699				
Non-entry level jobs are filled up within678				
Access to profit sharing and incentive programs623				
Participation in quality circles/programs...	.604				
Formal training programs555				
Employees are creative and bright...		.773			
Employees are considered best for innovation...		.759			
Employees are expert to undertake innovative jobs and roles...		.702			
Employees are highly skilled for innovation activities693			
Employees develop new ideas and knowledge...		.665			
Employees feel able to come up with innovative....			.876		
Employees feel prepared to come up with innovative...			.817		
Employees feel willing to come up with innovative693		
Senior management provides a chance to suggest changes...				.921	
Management takes and responds to suggestions appropriately...				.921	
Innovation in marketing techniques and methods...					.843
Innovation in manufacturing process834
Introduction of significantly improved products...					.828
Innovation in quality/process control systems...					.806
Innovation in planning procedures...					.784
Innovation in administrative structure...					.771
Responsiveness to environmental changes703
Introduction of new products...					.695
Eigenvalue	11.46	2.16	1.58	1.27	1.10
% of total variance	40.94	7.72	5.64	4.55	3.89
Total variance					62.76%

Note: Factor loadings <.5, and cross-loadings >.5 are suppressed.