



Collaborating for Innovation: a Study of Pakistan's Service Industry

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ABSTRACT

Innovation is a key parameter of business performance and the effect of HR practices on innovation has also been the subject of many studies. Nevertheless, effective implementation of HR practices presupposes the establishment of a suitable collaborative climate, but little attention has been paid by researchers to collaboration as a potentially important factor in this relationship between HR practices and innovation. The present study was conducted to fill this research gap by investigating the mediating role of collaboration between HR Practices and innovation. Four hypotheses were developed, out of which three tested the nature of the relationship between the variables of interest – HR Practices, Innovation, and collaboration – whereas the fourth examined the mediating role played by collaboration in the process. A correlational quantitative research design was used in the study. The probability sampling method was employed to select the sample ($n = 120$) from the service sector. Units of analysis were heads of HR/senior level managers. The final results established a positive relationship among the variables of interest and supported all four hypotheses. However, the results suggested that merely a positive relationship between HR Practices and Innovation may not lead a business firm to effectively innovate unless and until it fosters a collaborative climate across the whole organization. Similarly, the results also proved the mediating effect of collaboration in the relationship between HR Practices and Innovation, but it was also established that the role of mediation was far greater in the case of product innovation than in process innovation.

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1. Introduction

Innovation has lately become an essential prerequisite for businesses to compete in today's unpredictable corporate world (Grandori & Solari, 2002; Li, Li, & Lu, 2022). Since innovation is the best indicator of organization performance (OECD Co-operation & Development, 2005), it is empirically proved that organizations with greater innovativeness tend to perform better than others (Davenport, 1993). According to the Oslo Manual (OECD Co-operation & Development, 2005), innovation is of four types: "product, process, marketing or organizational". Organizations may have different innovation strategies, keeping in view the type of innovation and its radical or incremental form (Schumpeter, 1982). A business strategy that focuses on product and process innovation may be the best strategy for a firm because both these forms of innovation are interconnected (Grant, 1996) and effectively differentiate the company in the market (Baregheh, Rowley, & Sambrook, 2009). There is sufficient empirical evidence to suggest that firms combining product and process innovations amplify the gains obtained with technological innovation (Faria & Lima, 2009).

As knowledge-based view regards firms as repositories of knowledge Grant (1996), product and process innovation initiatives rely on the capacity of employees for transfer of

knowledge (Epple, Argote, & Murphy, 1996) which occurs more effectively in a collaborative climate (Huselid, 1995). Collaborative climate has been defined by research scholars as the common perceptions and behaviors the employees experience and observe vis-à-vis organizational policies and procedures (Hage, 1999). There are a number of research studies (Crook, 2000; Dixon, 2002; Hislop, 2003; Huselid, 1995; Kimberly & Evanisko, 1981; Salojärvi, Furu, & Sveiby, 2005; Sveiby & Simons, 2002) which establish that collaborative climate fosters innovation by increasing the capacity of employees for knowledge sharing. Culture has been widely studied by researchers in exploring the factors underlying the excellence of innovative organizations, but Sveiby and Simons (2002) regard culture as one of the four components of collaborative climate along with other components such as supervision, support and attitude. Hence, it would be more advisable to explore innovation with the backdrop of climate than culture, as climate is a more comprehensive and all-inclusive concept (Hartley, 2005).

In order to innovate, organizations first employ SHR practices to grow collaborative climate. Organizations implement a particular set of SHR practices so as to foster a suitable climate viz. Collaborative Climate for the purpose of motivating the employees to contribute to innovation by knowledge sharing (Akhtar, Ding, & Ge, 2008; Grandori & Solari, 2002). In this way, it is obvious that the effect of SHR practices on innovation may be reinforced by Collaborative Climate. There is a plenty of research that empirically establishes the relationship between SHR practices and innovation (Akhtar et al., 2008; Beugelsdijk, 2008; Chang & Huang, 2005; Herrmann, Zidansek, Sprott, & Spangenberg, 2013; Kozlowski & Hults, 1987; Lau & Ngo, 2004). Different researchers focus on various types of SHR practices. For example, Ostroff and Bowen (2000) lay emphasis on such SHR practices as training, performance appraisal and internal career opportunities whereas Arthur (1992) focuses on such practices as Profit Sharing, Job Description, Job Security and Employee Participation. Nevertheless, these studies suffer from a flaw as these fail to study the role of collaborative climate in this association.

According to Ostroff and Bowen (2000), in order to be effective, every organization has to establish a climate which is peculiar to its particular effectiveness outcome. Accordingly, different types of organizational climates may be required for the implementation of specific organizational strategies e.g. service climate (Schneider, Ehrhart, & Macey, 2013) and safety climate (Hofmann & Stetzer, 1996). Batt (2002) suggested that SHR practices help the employees to collaborate with each other, which helps them to employ their skills effectually. As collaboration has become a twenty-first-century trend (Dixon, 2002), it is logical to believe that collaborative climate does exercise its effect in the impact of High Performance Work Practices on innovation. Accordingly, the present study was designed to investigate the role of collaborative climate in the impact of SHR practices on innovation. The objective of the study is to examine the role of collaborative climate in the impact of SHR practices on innovation.

2. Review of Literature

2.1 Innovation and Strategic Human Resource Practices

Innovation is by far one of the most extensively covered subjects within management literature during the last more than three decades (Fagerberg & Verspagen, 2009). The reason underlying this exclusive focus on innovation is the universal acceptance of innovation by management researchers and practitioners as one of the prerequisites of organizations for value generation and competitiveness in the rapidly changing business world (Delery & Doty, 1996; Hofmann & Stetzer, 1996). Empirical evidence has proved that firms equipped with increased innovativeness cultivate unique skills and abilities which help them to attain exceptional outcomes (Davenport, 2013).

Innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices" (OECD Co-operation & Development, 2005). There may be of four kinds of innovation: product ("a good or service that is new or significantly improved"), process ("a new or significantly improved production or delivery method"), marketing ("a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing") or organizational ("a new organizational method in business practices") (OECD Co-operation & Development, 2005). Firms generally go for both process and product innovation simultaneously (Wiklund & Shepherd, 2005), thus distinguishing

themselves effectively in their marketplace (Baregheh et al., 2009). Hence, the current research examines only these two forms of innovation.

However, no organizational outcome is possible without human resource management because the responsibility to make the most of the human resources for the ultimate goal of maximum output lies with HRM (Pfeffer, 1998). The latest term used for human resource practices is High Performance Work Practices (HPWP) that are meant to enhance knowledge, skills and abilities of employees, thus enabling them to contribute to the achievement of organizational outcomes (Becker, Huselid, Becker, & Huselid, 1998; Delery & Shaw, 2001). A lot of variation is observed in SHR practices across organizations, which should be explained by the variegated strategic goals of different firms. The recipe for success lies in the fact that the firms succeeding in harmonizing their HR practices with their strategies generally enjoy superior performance and the best organizational outcomes. Delery and Doty (1996) condense these HPWPs into seven practices (training, participation, result-oriented appraisals, internal career opportunities, job description, job security and profit-sharing). The study examines the impact of these SHR practices on collaborative climate and, subsequently, on innovation as these is consistent with the theoretical perspectives investigated here. Hence, the following hypothesis was framed for initial testing:

H₁: SHR practices have a positive impact on product and process innovation.

2.2 Role of Collaborative Climate

The research problem that the current study addresses is as to why we find numerous instances of firms that fail to implement innovation despite following the best strategic human resource practices. The premise of the study is that such firms actually fail to provide their employees with a climate that is conducive to innovation. In fact, the researchers have recently started laying emphasis on the importance of creating specific organizational climates to achieve requisite effectiveness outcomes (Dixon, 2002). To Ostroff and Bowen (2000), "for any given domain of effectiveness, the establishment of an organizational climate for that particular outcome will be the key factor that establishes whether people in the organization will enable the organization to achieve a competitive advantage". As different types of organizational climates may be needed for particular organizational outcomes, firms must foster a peculiar climate for innovation (Anderson & West, 1998; Klein & Sorra, 1996). The idea was already introduced by Huselid (1995) who defined such climate in terms of employees' common perceptions of an organization's policies, procedures and practices, impacting their readiness for knowledge transfer and knowledge sharing. Later, the concept of collaborative climate was fully developed by various researchers (Hartley, 2005; Sveiby & Simons, 2002) who elucidated the comprehensive concept of the collaborative climate in terms of organization culture, immediate supervisor, employee attitude and work group support.

According to Suto (2013), innovation and collaboration are inevitable 21st Century skills. Though there are very few instances of researchers like Isaksen and Lauer (2002) studying collaborative climate as an intervening variable, there is a growing realization that, for innovation to take place, firms need to foster a climate of collaboration, characterized by a culture of mutual trust, support and supervision. Organizational culture, which constitutes values, beliefs and assumptions, influences the behaviors of members (Laine-Sveiby, 1991) and their willingness to share knowledge (Sveiby & Simons, 2002). Disagreeable work environment leads to lack of challenge in work (Ahmad, Zia-ur-Rehman, & Rashid, 2011), serving as a disincentive for employees to share their knowledge. Conversely, a collaborative environment raised an organization's ability to transfer knowledge, thus contributing to overall organizational performance (Epple et al., 1996). Hence, the most serious obstacle to knowledge sharing is the internal culture of resistance (Hackett, 2000). The immediate supervisor represents the organization to the employees (Konovsky & Pugh, 1994; Tyler & Lind, 1992). Supportive supervision increases employee creativity and innovation (Griffin, Patterson, & West, 2001) whereas weak interpersonal relationships of employees at work not only affect their performance but also have stress-related health outcomes for them (Ahmad, 2012). Similarly, employee attitude, that is not collaborative, may impede knowledge sharing and, thus, can reduce innovation in an organization (Hislop, 2003). When work group support exists in an organization, its employees get more closely engaged through a certain force associated with the experience of shared understandings (Crook, 2000). According to

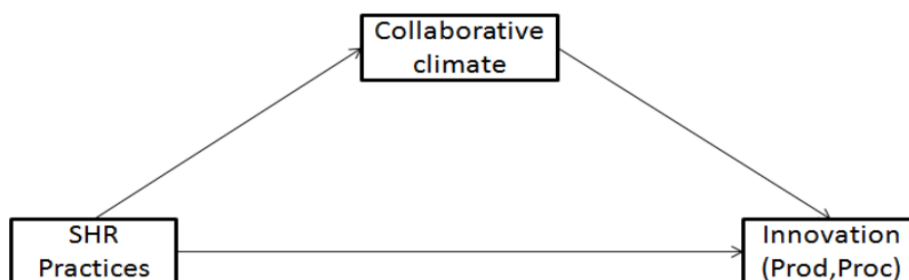
researchers, agreement among the individuals in what they think and feel is indispensable for successful working of groups (Burgoon, Stern, & Dillman, 1995). The current research, therefore, tries to find the missing link between SHR Practices and Innovation in the form of Collaborative Climate. The premise of the current research is that SHR practices foster a climate conducive to innovation, thus enabling the organization to enhance innovation in its products and processes. This premise needs to be tested in the context of Pakistani business organizations. Hence, the remaining three hypotheses of the study:

H₂: SHR practices have a positive impact on collaborative climate.

H₃: Collaborative climate has a positive impact on product and process innovation.

H₄: Collaborative climate mediates the impact of SHR practices on product and process innovation.

Figure 1 Theoretical model of the study



3. Research Methodology

3.1 Research Design

In order to study the relationship among the variables of interest and the mediating role of collaboration in this relationship, correlational quantitative research design was used. The target industry was the service sector of Pakistan which has exhibited enormous growth in recent years. A survey questionnaire consisting of three parts was adopted for the study. The first part of the survey instrument included Innovation sourced to (Donate & Guadamillas, 2011). The second part consisted of items on Collaborative Climate (Sveiby & Simons, 2002) and final part – SHR practices – was sourced to (Delery & Doty, 1996). These research variables were well tested on reliability and validity scales in the abovementioned sources. The independent variable of SHR practices included Training (4 items), Participation (4 items), Result-oriented Appraisals (2 items), Internal Career Opportunities (4 items), Job Description (4 items), Job Security (4 items) and Profit Sharing (2 items). Similarly, Innovation – the dependent variable – comprised two forms of Innovation Viz. Product Innovation and Process Innovation with 4 items included in each category. Finally, the mediating variable of Collaborative Climate was divided into four components containing Organizational Culture, Immediate Supervisor, Employee Attitude and Work-group Support with 5 items each. Data was collected at five responses based on Likert Scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) (Likert, 1932).

3.2 Procedure

The population consisted of telecom companies (like Mobilink, Telenor and Ufone) operating in the service sector of Pakistan. Using probability sampling method, simple random sampling technique was employed to select the sample. The sample size was calculated on the basis of the rule of thumb proposed by (Haier, Jung, Yeo, Head, & Alkire, 2004). The questionnaire was prepared on Google Docs and the link of the same was shared with the potential respondents. The senior level employees in the HR department working in the selected companies served as units of analysis for the study. Half of the respondents consisted of the managers serving as heads of their departments while the remaining half comprised managerial level employees who were involved in the decision making at the regional and branch level. Keeping in view the low response rate in Pakistan (viz. almost 20% approximately), the questioner survey was sent to 840 respondents from the target population. Initially the response rate was very low; hence, efforts were made to collect data through self-administered questionnaires. Nevertheless, out of 840 questionnaires, only 135 responses were received. Out of these 135 questionnaires, 15 were rejected because of large

number of incomplete responses. In the final analysis, a total of 120 questionnaires were treated as final responses being complete in all respects and the response rate was 14.2%.

3.3 Assessment of multiple item measures

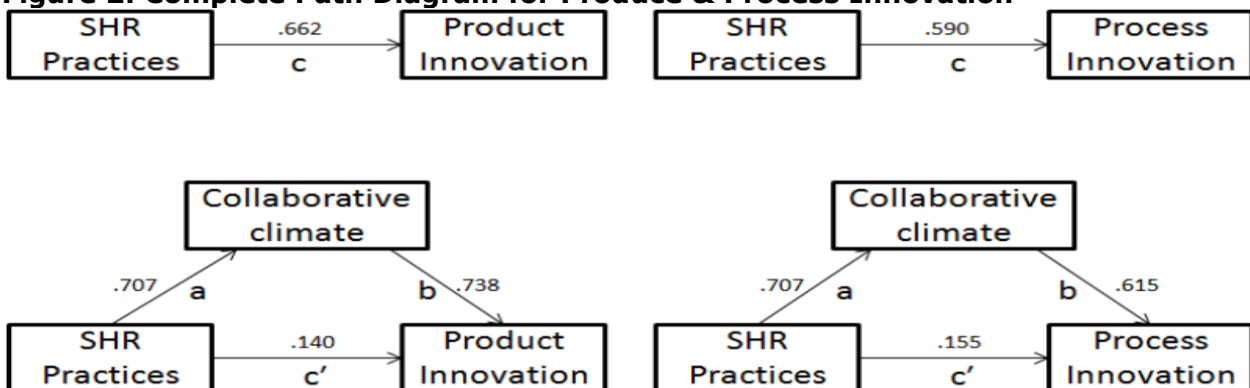
The questionnaire was tested on reliability, validity and other measures. Principal access factor technique was used for extraction and Varimax with Kaiser Normalization was applied for rotation. Cronbach's α indicated the reliability of the scales. Cronbach's α collectively ranged between .706 and .908 for seven HR practices; between .721 and .898 for four components of Collaboration; and finally, between .855 and .915 for two factors of Innovation. Similarly, inter-item correlation was checked to assess internal consistency of the sub-constructs with the main constructs. The inter-item correlation matrix showed a high correlation among all the variables of research (viz. between .431 and .911) with very high significance value (i.e. $.000 p < .001$). The mean values were also calculated which stood at 3.4, 3.6, 3.5 and 3.1 for Product Innovation, Process Innovation, Collaborative Climate and HR Practices respectively, which showed the agreement of the respondents to the questions in respect of the variables of research. SPSS 21 statistical tools including simple and multiple regressions were employed for testing of the first three hypotheses. For mediation analysis, Baron and Kenny (1986) Mediation Test was employed, using the PROCESS Macro of (Hayes & Preacher, 2014). In order to cross check the mediating effect of collaborative climate and to establish mediation in the relationship, the indirect effect was also calculated on the basis of the methods proposed by (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) as well as (MacKinnon, Lockwood, & Williams, 2004).

4. Results and Findings

4.1 Path Diagram based on data analysis

As per the values mentioned against (c) in Figure 2, the independent variable viz. SHR Practices was found to be significantly impacting Product Innovation ($\hat{c} = 0.662$, $se = 0.108$, $t = 6.149$, $p\text{-value} = 0.000$) as well as Process Innovation ($\hat{c} = 0.590$, $se = 0.135$, $t = 4.359$, $p\text{-value} = 0.000$), thus supporting *H1*. As per the values mentioned against (a) in Figure 2, the results showed a statistically significant effect of SHR practices on Collaborative Climate ($\hat{a} = 0.707$, $se = 0.067$, $t = 10.555$, $p\text{-value} = 0.000$), hence supported *H2*, too. As per values shown against (b), on measuring the effect of Collaborative Climate on the dependent variable (Innovation) while controlling the effect of independent variable (SHR Practices), it was found that Collaborative Climate positively impacted Product Innovation ($\hat{b} = 0.738$, $se = 0.131$, $t = 5.627$, $p\text{-value} = 0.000$) and Process Innovation ($\hat{b} = 0.615$, $se = 0.178$, $t = 3.458$, $p\text{-value} = 0.001$), resultantly supporting *H3*.

Figure 2: Complete Path Diagram for Produce & Process Innovation



As per the results of the mediation test shown in Table 2, the coefficient values of the indirect effect of Collaborative Climate in respect of the Product and Process Innovation were 0.5217 and 0.4354 respectively. As a result, the direct effect of SHR Practices on Product and Process Innovation stood at .1400 and .1551 relatively. It means that the initial effect of SHR Practices on Product and Process Innovation dropped from 0.662 to 0.140 and from 0.590 to 0.155, which was because of a sizeable indirect effect of 0.5217 and 0.4354 respectively, consequently supporting *H4*.

Table 2: Process Macro mediation test results

	Product innovation				Process innovation			
	Effect	Boot SE	BootLLCI	BootULCI	Effect	Boot SE	BootLLCI	BootULCI
Indirect	.5217	.1285	.2912	.7975	.4354	.1412	.1736	.7301
Direct	.1400	.1333	-.1241	.4040	.1551	.1807	-.2028	.5129

The Sobel test results (Sobel, 1982) in Table 3 also confirmed the indirect effect of 0.5217 and 0.4354 in case of product and process innovation respectively, which was highly significant in both the cases ($p < .001$). Hence, the support for $H4$ was reinforced by Sobel statistics.

Table 3: Indirect Effect (Sobel)

Mediators	Product Innovation				Process Innovation			
	Effect	se	Z	p	Effect	se	z	p
CC	.5217	.1056	4.9389	.0000	.4354	.1330	3.2729	.0011

Independent variable: SHR Practices

5. Discussion

In $H1$, $H2$ and $H3$, positive relationships between SHR Practices and Product as well as Process Innovation, between SHR Practices and Collaborative Climate and, finally, between Collaborative Climate and Product as well as Process Innovation respectively were hypothesized. The dependent variable was divided into two parts for the purpose of comparing the effect of Collaborative Climate on Product and Process innovation, keeping in view the findings of the previous literature (Baregheh et al., 2009; Faria & Lima, 2009), which establish that firms relying on product or/and process innovation distinguish themselves effectively in their marketplace. The support for $H1$ validated the findings of the previous researches (Akhtar et al., 2008). Similarly, $H2$ and $H3$ were also validated in line with the findings of similar empirical studies (Dixon, 2002; Huselid, 1995; Ostroff & Bowen, 2000). Subsequent to the support of $H1$, $H2$ and $H3$, the data were put to mediation test, as predicted in $H4$, with the help of Bootstrapping method of (Hayes & Preacher, 2014), using Process MACRO. Both the Process MACRO and Sobel test results supported $H4$, thus establishing a considerable role of collaborative climate in the impact of SHR Practices on Innovation. On comparison, however, the mediating effect of Collaborative Climate was stronger in case of product innovation (0.5217) as compared to process innovation (0.4354).

The results showed perfect mediation because indirect effect was significant while the direct effect became insignificant after the inclusion of the mediator in the analysis. The adjusted effect of SHR Practices was not statistically significant either on Product Innovation ($\hat{c}' = 0.140$, $se = 0.133$, $t = 1.050$, p -value = 0.296) or on Process Innovation ($\hat{c}' = 0.155$, $se = 0.181$, $t = 0.858$, p -value = 0.392) which was in line with Barron and Kenny Step IV. The initial significant effect of SHR Practices on Product Innovation ($\hat{c} = 0.662$, $se = 0.108$, $t = 6.149$, p -value=0.000) as well as Process Innovation ($\hat{c} = 0.590$, $se = 0.135$, $t = 4.359$, p -value=0.000) was no longer there after the inclusion of the mediating variable (Collaborative Climate) in the analysis. As per the technique introduced by MacKinnon and colleagues (MacKinnon et al., 2002; MacKinnon et al., 2004), the specific indirect effect of X on Y through M was also estimated, to cross check the results, on the basis of the product of ab as is shown in Figure 2. So the indirect effect is 0.522 (.707*.738) in case of product innovation and 0.434 (.707*.615) for process innovation, representing 79% and 73% of the total effect respectively. It showed a sizeable decrease in the value of total effect of SHR Practices (\hat{c}) because the value dropped from 0.662 to 0.140 (Product Innovation) and from 0.590 to 0.155 (Process Innovation), resulting in a sizeable indirect effect (\hat{c}') of 0.522 and 0.435 respectively.

The Bootstrapping method also enables us to meticulously comment on the significance of the direct and indirect effect with the help of the population value ranging between lower and upper confidence intervals. As we can see in Table 2, the population value in case of indirect effect lies between .2912 and .7975 in case of product innovation and between .1735 and .7301 in case of process innovation. Since both these values are with the same positive sign, it means the population value in case of indirect effect does not contain zero value and is, therefore, significant. Conversely, in case of direct effect, the population value lies between -.1241 and .4040 (Product innovation) and between -.2028 and .5129 (Process innovation). Since, here the population value in case of both product and process innovation ranges between negative lower interval and positive upper interval, it suggests the population value is

most likely to contain zero in both these cases and is, hence, insignificant. According to the fourth step of Barron & Kenny test of mediation, this state of affairs shows complete mediation in which the total effect nosedives, resulting in insignificant direct effect and a highly significant indirect effect.

6. Conclusion

The current study provides evidence in support of mediating role of collaborative climate in the relationship between SHR Practices and Innovation. The results establish that collaboration holds the key to innovation performance and it is the main driving force behind the success of a business in the market through sustained competitive advantage. The research further demonstrates that collaboration intervenes more effectively in case of product innovation than in respect of process innovation. The findings of the current research can be useful for researchers, practitioners and organizations alike. Academically, the study contributes towards understanding the nature of the triangular relationship between SHR Practices, Collaboration and Innovation and the significance of the mediating role of collaboration in the relationship. On the practical level, the study advises organizations and practitioners to craft an effective business strategy which lies in fostering collaborative climate through a given set of HR Practices and instilling creativity in the workplace, thus ensuring successful innovation in products and processes and gaining competitive advantage in the market, eventually leading to continued success in the business world. There are certain areas in the context of the current research which the future researchers may like to cover. For instance, the mediating role of collaboration is greater in product innovation than in process innovation, which needs to be further investigated. Besides, the results are based on the cross-sectional data and the sample size is rather small. Hence, the use of longitudinal data may help in exploring more deeply the relationship between SHR practices, collaboration and innovation. Finally, future research in the area, replicated with a larger sample size, may also significantly improve the generalizability of the findings.

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