Pakistan Social Sciences Review
www.pssr.org.pk

RESEARCH PAPER

Examining the Effect of Knowledge-based Training and Development on Employee Innovative Behavior: A Practices-resources-uses-performance Linkage

Fatima Abrar[1] Dr. Saad Hassan*[2] Dr. Noshaba Batool[3]

1. Ph.D. Scholar, School of Management, Air University, Islamabad, Pakistan
2. Assistant Professor, School of Management, Air University, Islamabad, Pakistan
3. Assistant Professor, School of Management, Air University, Islamabad, Pakistan

PAPER INFO	ABSTRACT
	Based on RBV and KBV, Knowledge-based training and development is potential practice for enhancing skills of employees in organizations. In this regard, current study is conducted with an aim to analyze linkage such as practice-resource-uses- performance, in which knowledge-based training and development (practice) impacts on human capital (resource), individual absorptive capacity (uses) and employee innovative behavior (performance).Data was collected through 149 faculty members of Islamabad and Rawalpindi universities (public and private). The statistical tools used for data analysis were SPSS Version -24 and Smart PLS 3.2.7. The sequential mediation was also analyzed to comprehend this linkage. Results show that Knowledge-based training and development enhances human capital which improves individual absorptive capacity and ultimately impact on employee innovative behavior positively. Based on significance of study, it is recommended to examine other knowledge-based HR practices for highlighting their importance in relation to employee's innovative behavior through Practice-resource-uses-performance linkage. Further, this model should also be applied in other service industries like tourism and telecom for generalizability of results.

Introduction

Knowledge-based HR practices are crucial factors in strategic human resource management and it depends on specific knowledge needed by organization through employees (Al-Tal & Emeagwali, 2019). They are important for service industries for developing human capital and then exploited by employees with the help of innovation termed as employee innovative behavior(Kianto, Sáenz, & Aramburu, 2017a; Majhi, Snehvrat, Chaudhary, & Mukherjee, 2020). Knowledge-

based training and development is important for motivating human skills and therefore it is highlighted that there is dearth of knowledge concerning theoretical contribution for understanding causal linkage such as practices (knowledge-based training and development)-resources (human capital)-uses (individual absorptive capacity)-performance (employee innovative behavior).

Innovation is the foremost and basic aspect of organization as it leads to better performance. This can be attained through human capital as employees of organization develop new ideas and implement them. Therefore, it is ascertained that innovation will establish on efficient process of human resource management (Budhwar, Pereira, Mellahi, & Singh; Kianto, Sáenz, & Aramburu, 2017b). Innovation depends on evolution of input (concepts, ideas, and prototypes) and outcomes (novelty) through effective knowledge. Thus, knowledge and human resource management are basic pillars of innovation in organizations. In this study, the innovation with perspective of knowledge-based HR practices in concern to human capital and their absorptive capacity will be discussed and this study is based on individual level which deals with employees of organization.

Without focusing on type of industry, creativity and its implementation regarding innovative services and products is becoming viability strategy for long-term development (Hon, Chan, & Lu, 2013). The innovative behavior prevailing in organization is truly human centric. People think critically through their abilities and provide creative findings to complex problems of business (Noopur & Dhar, 2020). During whole process, efficient HRM practices imparts significant role. Based on hospitality sector, knowledge is defined as "specific information based on the customers, operational procedures, services and products, job associates and competitors" (Pradhan, Jena, & Singh, 2017).

The different scholars (Minbaeva, 2013; Soo, Tian, Teo, & Cordery, 2017) investigated HRM integration with knowledge-contextas the critical issue with considerable potential, which still remains unexplored (Noopur & Dhar, 2020). Particularly, there is dearth of research in addressing the issue of HRM and knowledge being the antecedents of innovation. Whereas different studies have examined the impact of corporate innovation on human resource management (Gil-Marqués & Moreno-Luzón, 2013) and intellectual capital (Inkinen, Kianto, & Vanhala, 2015). Different researchers have also analyzed empirically reciprocal between human capital and knowledge-based human resource management vis-à-vis to innovation(Al-Tal & Emeagwali, 2019; Donate, Peña, & Sánchez de Pablo, 2016). The research scarcity determines need of further investigation based on relationship between knowledge-based HR practices, human capital and performance with respect to innovation.

Service industries require human capital which plays pivotal role for organization and absorbs the particular strategies and knowledge for exploiting innovative behavior and competencies with the help of skills, knowledge and abilities (Al-Tal & Emeagwali, 2019). Hence in competitive era, organization needs to

adapt the new strategies for improving innovative behavior of employees and it impacts on organizational growth ultimately. "Missing organizational linkages" needs to be studied for establishing coherent relationship investigating different intervening variables and it impacts on performance (Majhi et al., 2020). Knowledge-based HR practices are studied as bundle rather than highlighting it as the single practice concerning influential nature and practices involves knowledge-based recruitment and selection, knowledge-based training and development, knowledge-based performance assessment and knowledge-based compensation management (Noopur & Dhar, 2020)

It is investigated that (Kremer, Villamor, & Aguinis, 2019)highlighted that knowledge accepts various factors which includes culture, technology, practices leads to boost knowledge economy with the help of employees and impact on innovative behavior positively. Universities are focusing on being innovative for survival in competitive economy. Faculty members are now being considering as an asset hence tends human capital investment for enhancing absorptive capacity and innovative behavior. This study is conducted to investigate linkage or relationship practices-resources-uses-performance (Noopur & Dhar, 2020), which is important resource in universities for market globalization and technological advancement (Secundo, Massaro, Dumay, & Bagnoli, 2017), based on genoma of collective intelligence determining following questions, who, how, what and why. Universities are now being shifting from administrative to strategic one, so this study is important.

Material and Methods

Data Collection and Sample

The methodology depicts systematic and logical study of guiding principles and philosophical investigation scientifically. The basic approach used in this study was to examine the relationship with the help of hypothetico-deductive method. The research was based on primary data and follows positivism philosophy. The data was collected from faculty members of public and private universities (Islamabad and Rawalpindi). The data was distributed to 200 faculty members based on convenient sampling. Out of which, 160 questionnaire were returned, yielding 80% response rate. The obtained size sample (160) was large sufficiently for conducting statistical research base on the approach of PLS-SEM (Chin & Marcoulides, 1998), as the required minimum sample size (100). The data gathered regarding independent and dependent variables based on single source of collection of data, so there would be risk of "common method bias" (Podsakoff & Organ, 1986). The 31.152% variance explained the single factor which highlights that there is no issue of common method bias.

Measures

Knowledge-based training and development consists of 4 items (Kianto et al., 2017a) and the reliability of this scale is 0.8. Human capital is based on three dimensions (including knowledge and skills, competencies, and attributes) comprised of 9 items adapted from (Lee, Cornwell, & Babiak, 2013), which has reliability of 0.79. Individual absorptive capacity consists of three dimensions including recognition, assimilation and exploitation (Yildiz, Murtic, Zander, & Richtnér, 2019) and 14 items adapted from (Jansen, Van Den Bosch, & Volberda, 2005) and alpha coefficient is 0.893 (Yildiz et al., 2019). Employee innovative behavior was developed (Lukes & Stephan, 2017)named as innovative behavior inventory including certain dimensions as idea generation, idea search, idea communication, implementation starting activities, involving others, overcoming obstacles, and innovation and it comprised of 23 items. Scale reliability ranges from 0.60 to 0.88. The questionnaire follows the 1-5 Likert scale in which 1 depicts strongly disagree and 5 strongly agree, whereas 3 illustrate neutral.

Statistical Tool

The proposed hypotheses were measured through SEM based on Smart Partial Least Square (PLS 3.2.7).SPSS-24 is used to analyse descriptive statistics. The SEM approach suits the composite approach and it is also suitable for estimating the data in the unknown population (Sarstedt, Ringle, & Hair, 2017). Sequential mediation is also conducted to analyse mediation analysis.

Theoretical Foundation

Determining the significance of contribution in SHRM, RBV and KBV are important determinants for comprehending capital (asset) in organization. RBV theory explicitly postulated that internal capital is important factor for strategic analysis(Wernerfelt, 1984). KBV is emphasizing on that knowledge is not just potential resource but also the way to attain competitive edge for improving performance. Knowledge base view follows the "knowledge crew" for sharing knowledge and enhancing momentum of HRM and SHRM and also acquires "critical strategic resources" in organizations (Grant, 2002).

Hypotheses

a) Knowledge-based HR practice (training and development) on human capital

It is analyzed that competent employees cannot exhibit their skills in every part of organization' activities. Their skills can be deteriorated and obsolete (Kianto et al., 2017b). Therefore, there is need to design and then implement activities of training and development, organizations tends to optimize link between the current and required skills and knowledge of employees, thereby increasing knowledge creation and human capital improvement (Budhwar et al., 2018; Leal-Rodríguez & Albort-Morant, 2019). Training also enhances the creativity of employees and their thought processed and expertise in tasks categories (Jiang, Wang, & Zhao, 2012).

(Sivagiri, 2019) argued that continuous and need-based training improves the competencies of employees through building up of novel ideas.

Concerning that, knowledge-based HR practice (training and development) transform knowledge into the enhancement of competencies of employees such as team-based training. It helps to enhances cooperation and building up strong relationships in the context of employees. Therefore this practices improves abilities as human capital (asset) for organization (Kianto et al., 2017a). The other perspective which is significant depicts that competent employees cannot even show their skills due to using of outdated methods and technology, and there is need of training to those employees to improve their competencies for using updated technology in organization (Noopur & Dhar, 2020). Shortly, knowledge –based training and development includes developing the breadth and depth of expertise and knowledge of employees regularly, exemplifying training to link particular requirements, and finally establishing continuous development of employees. Therefore it is proposed that

Hypothesis 1: There is significant relationship of knowledge-based training and development on human capital.

Human Capital on Individual Absorptive Capacity

Different programs based on training are the effective way to develop human capital and participation of individuals is the basic contributing factor to enhance extensive and diverse knowledge (Yildiz et al., 2019). Therefore, previous research is involved mostly in comprehending outcomes of absorptive capacity (Enkel, Heil, Hengstler, & Wirth, 2017), whereas, its antecedents are still unexplored yet due to diverse categorization. Human capital is the basic factor to enhance employee innovative behavior, but the absorptive capacity is still unexplored yet at individual level(Yildiz et al., 2019). Determining on resource based view and knowledge based view, human resource management is integral in concern to human capital as it is the basic pillar of HR practices (Choudhary et al., 2020).

Human capital consists of competencies, practices, behavior and talent which determines the development of process of innovation (Secundo, de Beer, Schutte, & Passiante, 2017). Knowledge-based training and development are the basic pillars of acquisition and then development of competent human capital (Soo et al., 2017). It is also established that (Enkel et al., 2017) that absorptive capacity is competency for utilizing knowledge. Therefore it is proposed that human capital has significant impact on individual absorptive capacity. Thus, it is proposed that

Hypothesis 2: There is significant relationship of human capital on individual absorptive capacity.

Absorptive Capacity on Employee Service Innovative Behavior

In this hyper-competitive and contemporaneous environment, employees incline to adapt in the organizations rapidly for their survival. They need to accommodate(Al-Tal & Emeagwali, 2019) with the updated technology and innovation behavior should be modified according to need of the organization. Therefore, employee innovative behavior is becoming crucial for effectiveness and long-term survival (Budhwar et al., 2018). Basic factors of employee innovative behavior are knowledge acquisition, information distribution, information interpretation and organizational memory (Kremer et al., 2019). Individual absorptive capacity ensures long-term development through acquisition, learning and enhancement of skills which impacts on employee innovative behavior, and there is dearth of knowledge still in consideration to absorption of skills which impacts on employee innovative behavior (Majhi et al., 2020). Therefore it is proposed that

Hypothesis3: There is significant relationship of individual absorptive capacity on employee innovative behavior.

Human capital mediates relationship between knowledge-based HR practices (training and development) and individual absorptive capacity:

Based on linkage of practices-resources-uses-performance(Fu et al., 2017)highlights that resources are integral components between the knowledge-based HR practices (training and development) and uses (individual absorptive capacity). Knowledge-based training and development shows the significant impact on individual absorptive capacity through human capital (Soo et al., 2017). Human capital includes skills, knowledge and talent of employees and human capital can be more effective through proper training and development and which impacts on their absorptive capacity(Soo et al., 2017). Depending on RBV and KBV, knowledge-based training and development influences human capital of employees and it impacts on individual absorptive capacity (Abubakar, Elrehail, Alatailat, & Elci, 2019). Hence, it is proposed that

Hypothesis 4: Human capital mediates relationship between knowledge-based training and development and individual absorptive capacity.

Individual Absorptive Capacity Mediates Relationship Between Human Capital and Employee Innovative Behavior

Human capital has been established fully by concerning individual absorptive capacity as mediator in the previous literature with different variables (Glaister, Karacay, Demirbag, & Tatoglu, 2018). But concerning individual absorptive capacity as a mediator between human capital and employee innovative behavior, there is still dearth of knowledge (Noopur. & Dhar, 2020). Depending on previous literature, it is posited that absorptive capacity contributes on innovation significantly on individual level. It is highlighted that knowledge-based training and

development impact on employee innovative behavior via knowledge processes (Baskarada & Koronios, 2017; Fu et al., 2017). Therefore it is proposed that

Hypothesis 5: Individual absorptive capacity mediates relationship between human capital and employee innovative behavior

Human capital and individual absorptive capacity as sequential mediators between knowledge-based training and development and employee service innovative behavior:

Based on the linkage practices-resources-uses-performance (Fu et al., 2017), it is ascertained that practices are the best way to improve resources and it they are managed properly, then there is need of uses at individual level to improve their individual behavior(Al-Tal & Emeagwali, 2019; Kianto et al., 2017a). Following that, human capital and individual absorptive capacity acts as the sequential mediators between knowledge-based training and development and employee innovative behavior. Therefore it is proposed that:

Hypothesis 6: Human capital and individual absorptive capacity sequentially mediates between knowledge-based training and development and employee innovative behavior.
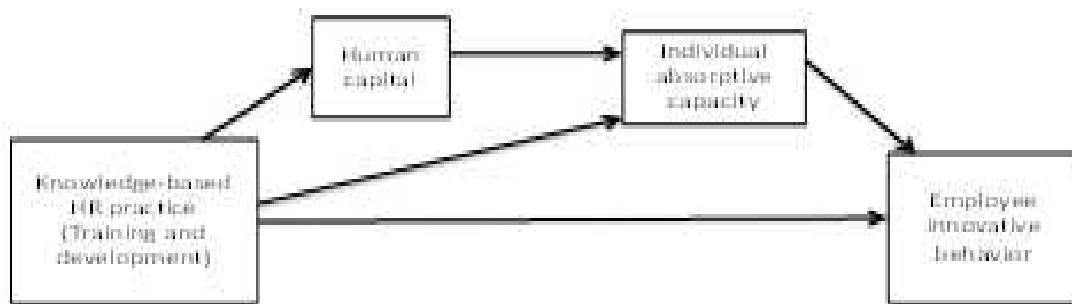
Theoretical Model

Figure 1 (Practices-Resources-Uses-Performance)

Research Findings

Following research hypotheses, model and methodology of study, the data collected was analyzed and model was validated. The findings are divided into three parts i.e. descriptive, measurement and structural model. The questionnaire was sent to 200 respondents, out of which 160 has been returned. From which 11 questionnaires had the missing data and uncompleted, so total sample used for this analysis is 149 (74.5%).

Response Rate and Descriptive Statistics

The social sciences research accepted that response rate of 50% is considered adequate, whereas 60% is considered good and 70% response rate is very good (Babbie, 2012). Table 4.1 depicts demographic characteristics of respondents regarding age, gender, education, post, academic work experience, university location which was extracted from SPSS-24.

Table
Demographic Characteristics of respondents

Category	Number of respondents	Percent	Cumulative Percent
Age			
20-30	37	24.7	24.7
31-40	75	50.0	74.7
41-50	20	13.3	88.0
51-60	15	10.0	98.0
61 and above	3	2.0	100.0
Gender			
Male	105	70.0	70.0
Female	45	30.0	100.0
Education			
Masters	9	6.0	6.0
MPHIL/MS	63	42.0	48.0
PhD	76	50.7	98.7
Others	2	1.3	100.0
Academic work experience			
1-5	45	30.0	30.0
6-10	51	34.0	64.0
11-15	35	23.3	87.3
16 and above	19	12.7	100.0
Post			
Lecturer	75	50.0	50.0
Assistant Professor	61	40.7	90.7
Associate Professor	8	5.3	96.0
Professor	6	4.0	100.0
University (Location)			
Islamabad	96	64.0	64.0
Rawalpindi	54	36.0	100.0

The normality of data was analysed through skewness and kurtosis and Shapiro-wilk test. The data was also linear relationship is also considered for multivariate data analysis (Akter, D'Ambra, & Ray, 2011)

PLS-SEM Approach

PLS-SEM is the basic tool for statistical analysis for examining relationship among variables (Sarstedt et al., 2017). It is the effective methods for measuring heterogeneity with the help of path modeling. This technique is used for testing of hypothesis (Chin, 1998) and this two-stage process for measuring SEM including measurement and structural model (Hair, Risher, Sarstedt, & Ringle, 2019). Measurement model includes convergent validity, composite reliability, discriminant validity, indicator reliability, significance and relevance of outer weights. Structural model includes predictive relevance, collinearity assessment, q2 effect size, f2 effect size, coefficient of determination (R2) and significance of path coefficients.

Measurement Model

Measurement model analyze the latent constructs measurement properties and their measuring technique through observed variables. The total numbers of 50 items are used to measure the constructs of this model. The measurement model is used to analyze reliability and validity of the constructs used in the model.
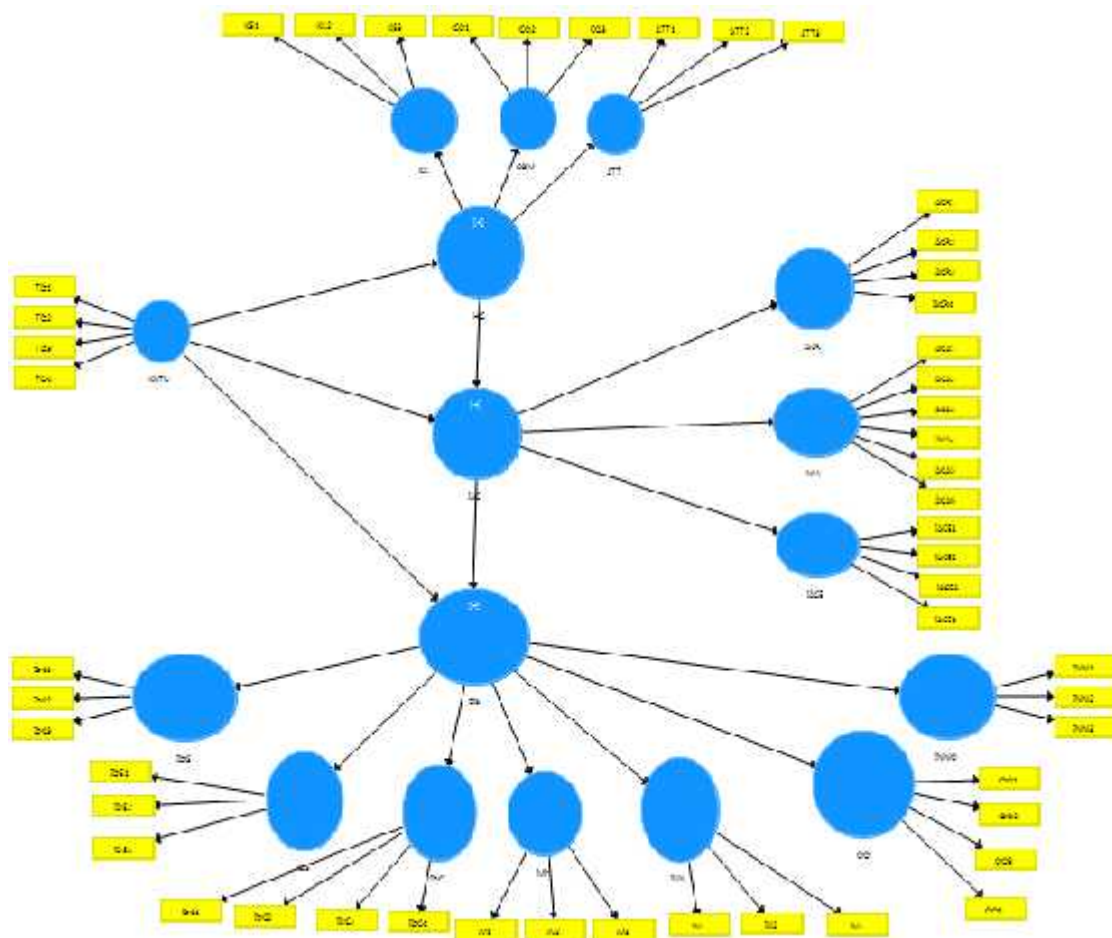
Figure 2 (Measurement Model used for CFA)

Table 2
Items and variables, Factor Loadings, composite reliability and AVE

Items and variables	Factor Loadings	α	CR	AVE
KBTD		0.884	0.920	0.741
TD1	0.843			
TD2	0.844			
TD3	0.897			
TD4	0.858			
KS		0.829	0.898	0.745
KS1	0.833			
KS2	0.756			
KS3	0.831			
CO		0.858	0.859	0.779
CO1	0.875			
CO2	0.893			
CO3	0.879			
ATT		0.782	0.794	0.696
ATT1	0.863			
ATT2	0.819			
ATT3	0.820			
IAC		0.895	0.911	0.634
IACR		0.787	0.791	0.611
IACR1	0.785			
IACR2	0.795			
IACR3	0.716			
IACR4	0.827			
IACA		0.834	0.879	0.547
IACA1	0.737			
IACA2	0.763			
IACA3	0.720			
IACA4	0.778			
IACA5	0.702			
IACA6	0.734			
IACE		0.761	0.849	0.581
IACE1	0.771			
IACE2	0.720			
IACE3	0.860			
IACE4	0.700			
EIB		0.926	0.934	0.620
IDG		0.745	0.855	0.618
IDG1	0.815			
IDG2	0.835			

IDG3	0.792		
IDS		0.789	0.876	0.703
IDS1	0.817		
IDS2	0.864		
IDS3	0.833		
IDC		0.812	0.877	0.842
IDC1	0.803		
IDC2	0.696		
IDC3	0.849		
IDC4	0.848		
IM		0.708	0.876	0.703
IM1	0.804		
IM2	0.753		
IM3	0.824		
IN		0.786	0.875	0.701
IN1	0.803		
IN2	0.906		
IN3	0.797		
OO		0.797	0.868	0.622
OO1	0.762		
OO2	0.804		
OO3	0.840		
OO4	0.753		
INNO		0.753	0.857	0.605
INNO1	0.865		
INNO2	0.762		
INNO3	0.821		

The factor loadings of all constructs based on individual reliability of items, all loadings of items are greater than 0.707, just one exception, IDC2 (Henseler, Hubona, & Ray, 2016). Loadings with 0.5-0.6 are also admissible. For examining internal consistency or construct reliability, composite reliability is calculated(Wong, 2013). All values are under acceptable range which is 0.7, as shown in Table 02. The convergent validity is assessed through average variance extracted (AVE)(Fornell & Larcker, 1981), which must be above than 0.5 (Cohen, 1988). All values are above 0.5 as shown in table 02.
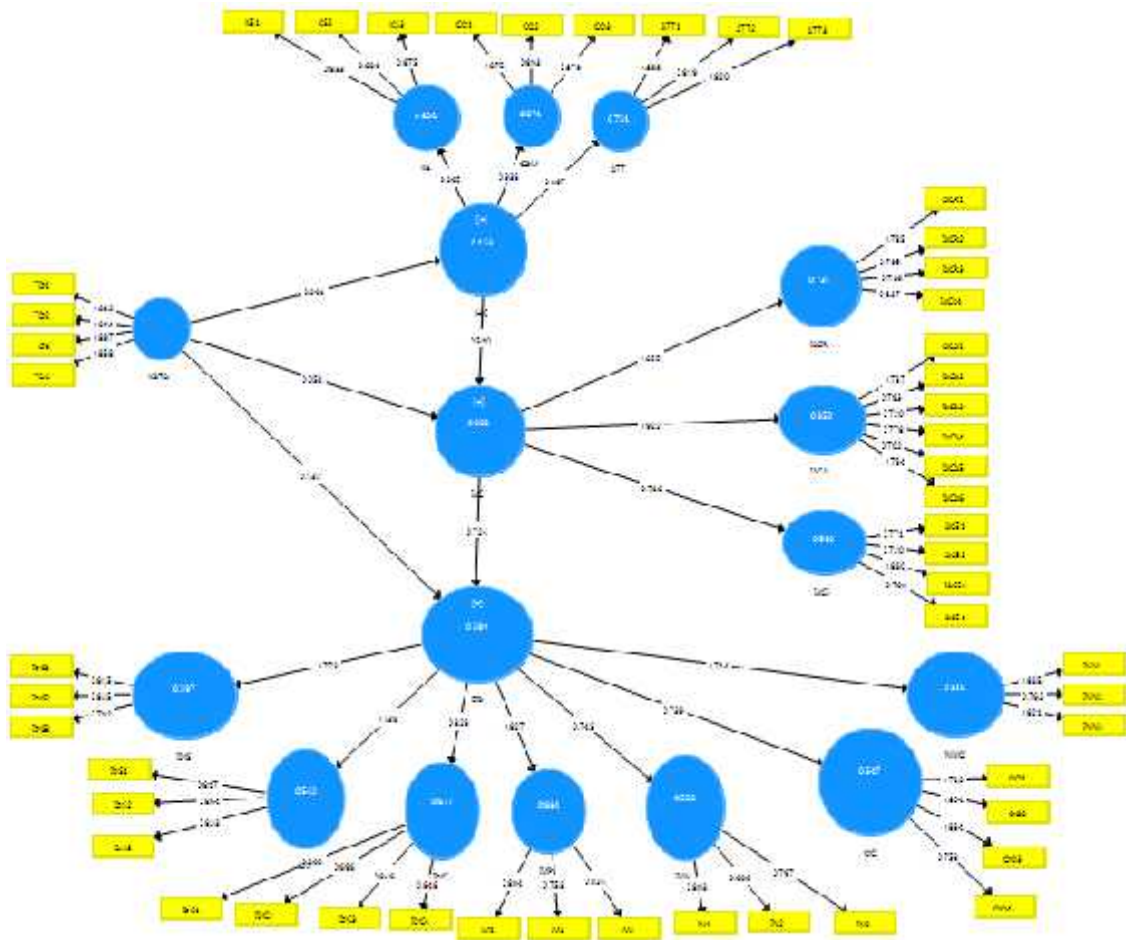
Structural Model

After assessing measurement model quality, strength of path coefficients and even amount of variance explained is examined. For this, bootstrapping technique has been used. Adding to this, the hypotheses which were formulated in this study as mediation relationship were also examined. Figure 3 illustrates the significance of all results and these are obtained in the final model. It is ascertained that knowledge-based training and development have the positive impact on human capital and knowledge-based training and development impact on individual absorptive capacity significantly. Individual absorptive capacity has the significant impact on employee innovative behavior. Hence, it is established that direct relationship are present in this model. The mediation relationship is also present in the model.
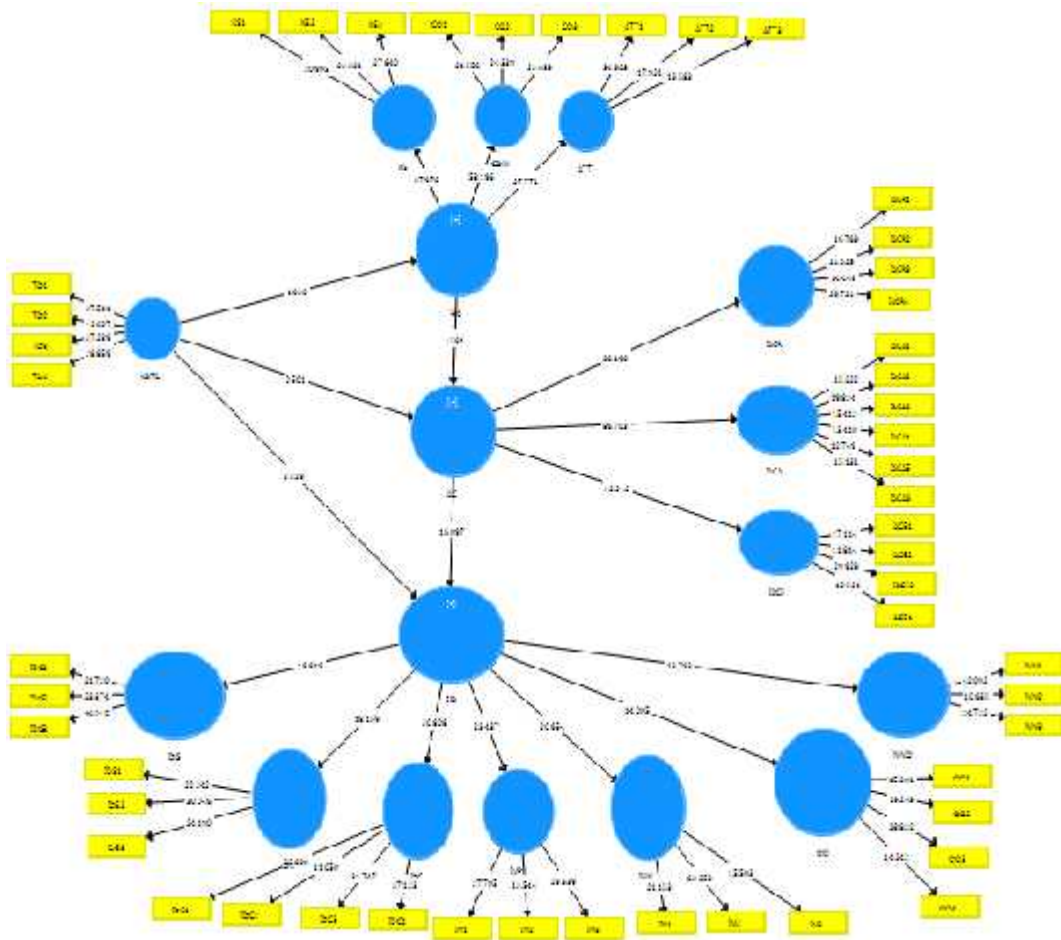
Relations	B	t-value	p-value	Decision	
Direct Relations					
KBTD →HC	0.391	5.026	0.000	Supported	
KBTD →IAC	0.166	3.540	0.000	Supported	
IAC → EIB	0.724	15.526	0.000	Supported	
Indirect Relations					
KBTD →HC →IAC	0.199	2.381	0.018	Supported	Mediation
HC→ IAC →EIB	0.144	2.292	0.022	Supported	Mediation
KBTD → HC →IAC → EIB	0.369	3.181	0.002	Supported	

Discussion and Conclusion

The findings of the study depict that knowledge-based training and development has direct relationship on human capital, and knowledge-based training and development has also the direct relationship on individual absorptive capacity. Individual absorptive capacity has the direct impact on employee innovative behavior. The mediation effect also highlight that human capital mediates

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between knowledge-based training and development and individual absorptive capacity and also individual absorptive capacity mediates relation between human capital and employee innovative behavior.   The results highlighted that human capital and individual absorptive capacity sequentially mediates between knowledge-based training and development and employee innovative behavior. These results are also consistent with earlier researchers (Al-Tal & Emeagwali, 2019; Kianto et al., 2017a; Noopur & Dhar, 2020). It is also acknowledged that universities need knowledge-based training and development for improving skills, competencies and attitudes of employees (faculty members), which impact on their individual absorptive capacity for adopting new methods and techniques while teaching, research and social development. The absorptive capacity of faculty members improves their innovative behavior and utilizes their skills and brings innovation in the universities. Resource based view(RBV) and knowledge based view (KBV) are the basic pillars for acknowledging knowledge-base of an organization(Noopur & Dhar, 2020). Based on previous research (Kianto et al., 2017a), it contributes to the literature on strategic HRM by enhancing the comprehension of knowledge-based HR practices in terms of training and development.

Knowledge-based HR practices focuses on enhancing the process of individual level knowledge. The empirical study also reveals that these practices enhances assets (human-capital such as faculty members), which also improves their absorptive capacity and ultimately boosts up their innovative behavior. Thereby, this research strengthening relationship between the strategic HRM and with knowledge-based view by highlighting that various knowledge-based practices enhance other knowledge besides also human capital. This research contributes knowledge-based HR practices through enriching literature with the interplay between its dimensions and particularly human capital, absorptive capacity and employee innovative behavior. This study is also based on the interaction of various variables such as knowledge-based HR practices- innovative behavior linkage. Thus this study is also contributing to the innovative behavior and thereby organizations can adopt these new strategies to improve the innovation performance with respect to individual level (Choudhary et al., 2020; Yildiz et al., 2019). Based on practices, it is highlighted that successful innovative behavior is knowledge and human- based issue. Employees significantly enhance their innovative behavior by applying knowledge-based HR practices which are designed to increase the process of knowledge creation.

Limitations and Recommendations

This study is very pivotal for understanding practices-resources-uses-performance linkage. It is also important for universities to utilize their faculty members to gain competitive advantage. There are still certain limitations of this study. First of all, knowledge-based training and development has been studied in this model. This study was just restricted to Islamabad and Rawalpindi. The factors like other uses were not studied in this model.   This study did not cover

organizational level factors. This study is just limited on service sector like education and even only universities.

Based on the limitations, there are certain recommendations for future research. Other knowledge-based HR practices include recruitment and selection, compensation and performance assessment should be included in further research. The other uses such as empowerment, employee motivation, career development in the linkage. This model can be applied to other universities of Pakistan as this study was just restricted to Islamabad and Rawalpindi universities. This model can be further extended on the organizational level factors.This model can be applied in future research on other service sector like tourism, telecom and hospitality sector for generalizability of the results.

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