


Role of Human Resource Practices in Knowledge Spillover: Study of Knowledge Hubs

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ABSTRACT

The aim of this study is to identify the significant role of HR practices in the knowledge spillover process that drives firm innovation and to ascertain doable HR- practices to accelerate this process. For data collection, semi-structured interviews were conducted. Interviews were transcribed. For analysis, phenomenology is used as a research methodology to cater the essence of the phenomenon (knowledge spillover process) by studying HR-managers lived experiences. Findings validated through subjective saturated evidence of informants. The results based on data analysis revealed that frequent employee interactions, cooperative work environment and participative leadership are considered as the essence of knowledge spillovers. Another objective is fulfilled as Training and development and Employee relations are the two major HR practices that facilitate the knowledge spillover process effectively. This research benefits both academicians and practitioners. For educationist, it propounded a conceptual framework that supports in theory enhancement. For practitioners, effective implementation of HR practices can open new avenues of success for organizations.

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INTRODUCTION

It is broadly recognized that knowledge-based organizations are considered as the significant drivers of innovation and growth in today's emerging knowledge economies (Bruton et al., 2018 as cited in Eldridge et al., 2021) but these economies basically lack entrepreneurial expertise and resources, especially strategies to employ innovative activities (Peng, 2001). Firms develop knowledge through various external and internal sources to obtain innovation (Shujahat et al., 2019). Some firms seek knowledge and innovation through continuous technological development (Mansfield, 1988) and others possess through internal sources such as culture, experiential learning, decision making, retrospective experiences and interactions etc. (De Zubielqui, Lindsay, et al., 2019). Knowledge is not universally accessible (Arrow, 1962), especially tacit knowledge that resides in human brains and manifest in routine actions (López-Cabarcos et al., 2019). The creation and diffusion of tacit knowledge is possible through frequent interactions within organization (Shujahat et al., 2019) and investing on research and development activities in order to attain a high profits based on market demand (Romer, 1994, as cited in Jones, 2019).

The knowledge in organizational settings is tacit and socially complex (Nonaka & Takeuchi, 1995). The complex nature of tacit knowledge often makes knowledge acquisition very challenging and difficult (Kim et al., 2013), because it is embodied in organizational members, tools, tasks, and networks. It can be transferred more effectively through human mobility (Song et al., 2003) and hands-on-experiences (Almeida & Kogut, 1999, as cited in Phene et al., 2012) as human mobility reduces barriers, in the transfer of knowledge and enhance diffusion. Human mobility is a significant driver of knowledge spillovers within and outside the organization (Teece, 2018). Destruction of previous knowledge creates new spirals of knowledge. It revolves in cyclic form and is dynamic in nature. The dynamism of knowledge creation and diffusion fuels innovation (Nonaka & Takeuchi, 1995).

Knowledge spillover is a socially complex phenomenon, because it resides in social interactions. Frequent social interactions encourage the exchange of ideas (spillover) that fuels innovation in many ways within the organizations (Braunerhjelm et al., 2018). When people interact, ideas exchange and spillover occurs. Several practices nurture these interactions within the firm in which the role of human resource practices gain momentum in last decades (H. Hislop, 2012). According to Jacobs and Human Resources Research Organization (1970), the spillover school of thought describe that diversity of activities leads toward knowledge spillover. Human resource practices involves bundle of activities and each activity outbids the spirals of new knowledge which nurtures the knowledge spillover process (Santoro & Usai, 2018), such as recruitment and selec-

tion (R&S) helps in selecting the most appropriate employee for the organization. Induction stages of R&S are significant in the spillover process at each level i.e. from employee first interview to final selection stage. After recruitment, training and development (T&D) are the most significant determinants of knowledge spillover. It opens the new horizons of exchange of ideas through multiple training programs (Santoro & Usai, 2018). These programs polish individual competencies and pave a way for knowledge spillover through the employees' interactions. Compensation and appraisal determine employee performance and drive motivation.

A committed and motivated employee works more devotedly and supports firm knowledge-creation mechanisms. The most pertinent practice of HR is employee relations. It refers to the clusters of informal frequent interactions of employees within organization at informal social events. Till now, the role of human resource practices is widely studied empirically to investigate the firm performance and competitive advantage through many proxy variables like employee satisfaction, turnover intention, employee loyalty, retention and innovation etc (Cooke et al., 2020). The role of HR-practices in the formation of knowledge spillover through the lens of lived experiences of managers is least explored. Literature sufficiently supports the significant role of human resource practices in the knowledge spillover through the recruitment and selection process, training and development programs, compensation and appraisal mechanisms, and employee relations but the operationalization of HR-practices and the way knowledge spillover occurs through it needs a subjective understanding from the manager's perspective. The subjective nature of each practice and its influence on knowledge spillover seems worth exploring phenomenon. This article will contribute in the domain of knowledge management by providing a conceptual model for academicians to add value towards theory enhancement in knowledge spillover literature. For practitioner, the study will contribute to the domain of HR to specify role of each HR practices in the knowledge creation process. To address/refute research questions, interviews of HR-heads and team leaders were conducted. This study will reflect the vision of developing countries and corporate challenges related to knowledge diffusion and exploration.

LITERATURE REVIEW

The significant role of knowledge always remains a source of competitive advantage in each era. Firms identify, acquire and use externally generated knowledge to create innovation. Firms seek knowledge through many direct and indirect means of spillovers (De Zubielqui, Fryges, & Jones, 2019). These common means of spillover include buyers, suppliers, scientists, engineers,

customers and employees who switched jobs. Knowledge is partially tacit, and it transfers through frequent interactions among individuals. Therefore, interaction is a prerequisite determinant to increase the exposure of potential knowledge spillovers.

Knowledge spillovers occur in two forms i.e., internal and external. Internal spillover drives the positive influence of knowledge on individuals within organization that supports in production of goods and services. An external spillover impacts outside of the firm. In any industry, knowledge travels among firms as they share information about products/services and new production mechanisms to facilitate innovation and growth (Braunerhjelm et al., 2018). For example, technological development in networking and security services support many firms to foster in knowledge travels ways. Even HR training function facilitate faster knowledge travels among different actors of firms. The exchanges of ideas leads to development of new products and services. There are other types of spillovers i.e. market and network spillovers. But the latest growth theory emphasizes on the furious role of knowledge spillovers (Aghion et al., 2019).

Knowledge accumulates through R&D activities, frequent interaction of employees and the significant role of human resource practices in an organization. Information technology becomes the common denominator of information's diffusion at zero cost in today's world. But there is much significant difference between information and knowledge (Audretsch et al., 2011). Information comprises simple facts which can easily be diffused, but knowledge is a context bound entity, its diffusion and spillover depends on social entities. In today's globalized economy, organizations alone are not the source of knowledge production, practitioners and scholars began to look for externalities (Caiazza et al., 2020). In refocusing the model of knowledge production, scholars face two major challenges: the first one is to determine theoretical basis of knowledge spillover; and the second challenge is to identify the measurement process of knowledge spillovers. To confront the first challenge, scholars focus on the new growth theory of knowledge. Bawa and Krugman (1991) argues that second challenge is quite impossible to measure the invisible knowledge flows within an organization. Krugman and Romer (1991, as cited in Jones, 2019) viewed the models based on increasing returns to scale in production and identifying the role of externalities in knowledge production.

Knowledge externalities are so important and forceful entities which triggers the spillovers of knowledge across all boundaries (Caiazza et al., 2020). These externalities involve stakeholders, government agencies, creditors, debtors, employees, non-profit firms and customers. These external entities nurture the knowledge production process which is invisible and based on tacit

knowledge that is vague, difficult to codify and cannot be formalized and written down. It emerges through interaction among individuals, non-rival in nature, develop through particular application and implementation of which gives economic value (Aghion et al., 2019). Therefore, observations, interactions, and communications are the key sources to gather knowledge (Glaeser et al., 2010). Knowledge spillover processes are not homogenous in nature within industry. It varies due to structure of organization leadership and its management systems. Absorptive capacity of each firm also influence its knowledge production process. Those firms who invest on R&D develop capacity to adopt new knowledge which drives firm economic growth (Agrawal, 2002). Social capital develops social networks which is the significant source of knowledge production especially relational networks. Universities are the major hub that drives spillover process through sources to bridge industry individuals and government institutes (Audretsch & Feldman, 2004).

Another important determinant of knowledge spillover is entrepreneurship. Entrepreneurship is related with the startup and growth of new enterprises. Traditional mechanisms of spillover were related to the appropriateness of new knowledge and absorptive capacity of firms; however, entrepreneurship assumes that firms exist exogenously and then undertakes (knowledge) investments to generate innovative outputs (Audretsch et al., 2019). Entrepreneur conceives an idea of business and develop the expected value of knowledge to start new business venture. Knowledge spillover drives innovation which is the preliminary requirement of each entrepreneurial firm (Audretsch et al., 2019).

Most of the organizations use knowledge spillover for strategic purpose of competition. Those firms are labeled as active actors and others as passive firms. Organizations can absorb knowledge through absorptive capacity (Cohen & Leventhal 1990, as cited in Marrucci et al., 2022). Firms absorb knowledge from three main sources i.e. industry, academia, and government. Academia and government are public sources that emphasis basic knowledge more and less appropriate. On the other side, industry generates less basic and more appropriate knowledge, because they operate in an actual dynamic environment. Therefore, organizations require more spillovers from industry side (Audretsch et al., 2019). High absorptive capacity and technologically advanced firms attain more profitable opportunities to revamping industry. An accumulated stock of public knowledge is another potential source of spillovers because it generates new ideas (Schmookler's, 1996, as cited in Gehringer, 2022). Retrospective accumulation of public ideas with technological support produces new ideas of innovation. Old knowledge is absolute with the emergence of new knowledge, but it evolves on the basis of previous knowledge consequences. Researcher calls this emergence as knowledge obsolescence

phenomenon (Chan et al., 2020). This knowledge evolving process occurs through knowledge spillovers process in which old knowledge diffuses and new knowledge emerges.

The transfer of knowledge requires frequent face to face interactions, personal relationship, and spatial proximity; therefore, it is a public property but highly a local one (Wijngaarden et al., 2020). Critical knowledge inputs diffuse through the markets of specialized services and skilled workers that both embodies knowledge through pecuniary externalities. Some research claims that intangible knowledge diffuses through informal frequent interactions and meetings with people in offices especially informal places like coffee bars and hotels etc. In a profit-seeking firm, expansion of product line drives innovation activity. Innovation activities in a firm not only lead towards new product development, but also significantly contributes in a general stock of new knowledge which builds subsequent innovators (Wijngaarden et al., 2020). It may act as the engine of economic growth because it raises the collective level of industry knowledge. Learning by doing considers as source of spillovers (Irwin & Klenow, 1994, as cited in Ingram, 2017) when people invest time in doing some projects/work, they learn from each other. In an organization, cooperation increases knowledge flows among the partners and nurture internal spillovers.

Some researches support that partners may voluntarily increase spillovers between them; however, the magnitude of spillovers depends on the decision to cooperate mutually (Cassiman et al., 2018). Research and development related collaboration establish innovative networking which enhances knowledge flows because ideas exchange through networking which is beneficial for each firms (Capron et al., 1996).

Knowledge Spillover School of Thoughts

Three theorists defined knowledge spillover. First theory, proposed by A. Marshall (1890), known as MAR. According to MAR theory, sector growth can be maximized on two ways i.e. sector dominance and nature of local competitions. Porter in 1990 proposed second theory, who claims that growth impact positively due to local competition in industry as competition drives imitation and upgrades innovation. Competition enhances innovation, because organizations are forced to innovate out of competition and firms, who fail at this, cannot survive in long run. Therefore, innovation is the backbone to survive in industry that is driven by positive competition (Kamalaldin et al., 2021). Third theory, proposed by Jacobs in 1969, describes the importance of local knowledge spillovers. The central intent of Jacob's theory is that knowledge spillovers works effectively in those organizations which prefer versatile activities. Jacobs and Human

[Resources Research Organization \(1970\)](#) assumes that local competition acts as an accelerator towards the adoption of new technologies that lead to economic growth. He has emphasized that the high degree of variety (diversity) in regions is essential to thrive. Thus, MAR emphasizes the effectiveness of knowledge spillovers within sector. Porter highlighted the positive effects of competition and Jacobs's focuses on the high degree of diversity ([Kamalaldin et al., 2021](#)). Three theories discussed the same phenomenon (knowledge spillover) among neighboring firms in different dimensions. They proposed the effectiveness of knowledge spillover in homogeneous organizations. They indicate the emergence of knowledge spillovers within one sector and it drives the growth of this sector. For example, Microchip manufacturing industry growth in Silicon Valley due to spillovers within industry ([Glaeser et al., 2010](#)). However, this paper adheres to the notion of MAR and Jacob theories.

Role of Human Resource Practices in Knowledge Spillover

Knowledge spillovers occur when firms cannot capture all quasi-rents due to its productive activities ([Caves, 1974](#)). Managerial knowledge plays the main role in spillover process. It comprises the current endowments of managerial intellectual property of a firm and its managerial and organizational practices that drives firm competitiveness (Teece & Pisano, 1994, as cited in [Pisano, 2015](#)). Management practices are comprised of the routines activities, which full-filled by managers, include, TQM (Total Quality Management), stock option scheme, just in time, and performance-related pay ([Capron et al., 1996](#); [Park et al., 2020](#)). These practices vary in each organization. Research on management practices indicates these practices as Human Resource practices ([Huselid, 1995](#), as cited in [Huselid and Becker, 2011](#)). Such practices drive spillovers within organization in which some of the practices can be codified in explicit form but mostly are tacit in nature. It cannot be explicitly expressed but developed overtime. Tacit practices involve decision-making ability of managers in tough situations which is complex to replicate ([Nelson & Winter, 1982](#)). These tacit practices can be learned through frequent interactions of the employees, training and development, and educational programs.

These interactions become the source of knowledge diffusion in an organization through HR-practices. In today's organization, set of HR Practices have become one of the major source of diffusion and production of new knowledge ([Park et al., 2020](#)). HR Practices encourage the frequent interactions of employees within and outside organization to fulfill different purposes. These interactions serve as the pillars of knowledge spillovers in an organization. When employee interacts then ideas exchange which outbid new roots of knowledge by diffusing old knowledge ([Couture, 2015](#)). In the corporate sector, when employees switch

the job, they also inherit the learned knowledge and experience, and firms suffer the investment cost of their training. The competitive edge of a firm comes under stake. Therefore, the role of human resource management is inescapable for appropriate recruitment and providing need-based training to overcome the staff turnover rate (Fishbein & Ajzen, 2005). It is one of the best way to secure strategic knowledge. Also, competencies and strategic knowledge need to be developed for the long-term competitiveness and sustainability of the business (D. Hislop, 2003). In recent times the importance of employee management themes has been highlighted in KM (Knowledge Management) literature. One aspect of management is the level of commitment among the workers which depict the attitudes and behaviors of employees at workplace (Dainty et al., 2005; D. Hislop, 2003; Scarborough & Carter, 2001) e.g. turnover intention and level of organization citizenship behavior (Chen & Francesco, 2003). According to Quintas (2011), the success of KM initiative requires that “employees are willing to share their expertise and knowledge”. There is a need to develop willingness through HR practices. Organizational and HR practices influence the willingness among employees that facilitates the spillover process (Robertson & Hammersley, 2000)

In each organization, it is essential for success to retain human capital and manage knowledge because both are valuable, unique and non-substitutable resources (Barney, 1991). High quality human resource practices are complex to imitate or substitute whereas high quality capital provides value to a firm (Csuti et al., 1997). When knowledge circulates among others, it enhances knowledge stocks which would help to sustain organizational success (Horwitz et al., 2003). Knowledge flow consist of creation, transfer, and integration of distributed knowledge. Knowledge flow among employees are important in terms of attaining customer satisfaction. Everyone in organization has to become a knowledge worker (Akbar et al., 2018; Kang et al., 2003). Tallman et al. (2004) proposed that it is essential for employees to share their knowledge with each other. External customers considered as an excellent source of new knowledge creator. Therefore, effective HR practices encourage knowledge spillover activities among employees by encouraging knowledge sharing behaviors.

Recruitment and selection considered as the pertinent source of knowledge spillover. When organizations conduct interviews they acquire situational questions during interview process from candidates (Couture, 2015). In this process, ideas exchanged that drives knowledge spillovers within firm. Training and development is a source of enhancing employee’s knowledge and increase their self-efficacy. Training through team building promotes knowledge – sharing behaviors. Cross departmental trainings support employees to enhance social interactions among workers (Tallman et al., 2004). Recognition

and acknowledgment always remain the source of enhancing employee performance. An effective design of compensation and appraisal system fosters performance.

Theoretical Underpinnings of the Study

The knowledge-based view, knowledge creation theory, knowledge spillovers theory and role theory describe the theoretical grounds of knowledge spillover through the role of human resource practices. The knowledge based view (KBV) is a recent extension of RBV, proposed by Barney (1991), (Grant & Carolis, 1996: as cited in Kharabsheh and Agrabawi, 2013), describes firms as heterogeneous entities loaded with knowledge. According to KBV, firms are communities of knowledge and innovation that continuously acquire, create, transfer, transform and diffuse knowledge which drives firm sustainability. Knowledge considers as being the powerful strategic resource of the firm, which gives supremacy of intangible resources over tangible resources. It creates the weave of economic change from material-based production to knowledge-based production (Ndabari, 2021).

Another theory defines the creation of knowledge as a capability of an individual to create new knowledge through consistent observations, interactions and experiments. (Farnese et al., 2019). Knowledge creation theory proposed the dual perspectives of knowledge i.e. only individuals create knowledge and secondly, the interactions of tacit and explicit knowledge creates the new spirals of knowledge (Nonaka & Takeuchi, 1995). Second dimension explained by Nonaka and Takeuchi (1995) through SECI model (socialization, externalization, combination and internalization). In the context of this research, both dimensions of knowledge creation relate it (Farnese et al., 2019). Firstly, individuals have tacit knowledge, and they act as knowledge entities secondly, individual's interaction (tacit and explicit) encompasses through four phases of SECI that ultimately drives new spirals of knowledge (Shrivastava et al., 2021). The assumptions of role theory indicated the managerial role in each department have significant status and each role diffuse and create knowledge that drives firm competitive advantage (Farnese et al., 2019). At each level of managerial role changes lead towards firm superior performance.

METHODOLOGY

Constructionism is considered as the philosophical lens for this study (Crotty, 1998). Through these shared experiences, informants were able to describe their tacit perspective about phenomenon and the significant role of human resource practices that enables researcher to establish better understanding of

informant's actions and experiences (Lather, 1992; Neuman & Robson, 2014). The ontological stance of this study is relativism and the epistemological stance is subjectivism (Scotland, 2012). This study will be adhering phenomenology as research methodology where the central notion is lived experiences of individuals (Creswell, 2013; Merriam & Tisdell, 2015). Phenomenology is selected as appropriate research methodology. Phenomenology refers to the study of conscious phenomenon and it emphasizes neither on the subject of experience nor on the object of experience but focuses on the central point of contact at which "being and conscious meet". The task of the phenomenological authors is to investigate knowledge spillover process using both objective and subjective perspectives (Marks et al., 2020).

For data analyzing, bracketing, phenomenological reduction, horizontalization and imaginative variation are the terms of phenomenology used to describe the essence of phenomenon. Husserl (1985 as cited in Mckinnie et al., 1985) described bracketing (epoche) as the temporary suspension of existing personal perspectives (biases), beliefs, propositions and assumptions in order to get and capture the essence of phenomenon. Phenomenological reduction (eidetic reduction) is a process of continually returning essence of experience to cater the inner meaning and it is created during data analysis process while extracting similar and dissimilar themes from interview transcripts and field notes. Horizontalisation is a process where data is treated in equal weights and frequencies are analyzed in terms of typical and frequent themes. Imaginative variation means viewing the data from all but different dimensions. This study is descriptive in nature, used interviews as data collection method. This study used judgmental sampling as a type of non-probability sampling (Groenewald, 2004).

Sample size calculation in qualitative inquiry is linked with data saturation and explains consistent interviews of informants until the textual data reaches at the point of diminishing return (B. Marshall et al., 2013). Creswell (2013) proposed 3 to 4 informants, whereas Morse (1995) proposed at least 6 informants for phenomenological inquiry. Determination of saturation level through informant's valid response is the final matter of judgment (Mason, 2010; Sandelowski, 1995 as cited in Gill, 2020). Thus, 6 informants were interviewed and their iterative themes verify the point of theoretical saturation.

Detailed face-to-face semi-structured interviews of representatives of human resource departments designated as head of HR and team leaders having relevant experience of 7-12 years, were conducted. Interviews were conducted in English and Urdu based on their convenience of language, later interviews were transcribed for data analysis purpose. Based on the transcription of these interviews, different units of themes are identified which are clustered together

to form key themes, variant and invariant dimensions. To assure reliability of data, the transformed responses of informants were shared and discussed with informants. They suggested minor changes in transcriptions. This approach ensures the validity of transcriptions.

RESULTS

As described earlier, the least subjective knowledge is known about the role of HR-Practices, irrespective of knowledge spillover process. Therefore, interviews were conducted to explore new horizons of knowledge spillover process employing the lens of experienced informants. The age of informants ranged between 28-45 years. Firstly, researcher listed all statements relevant to the informant's experience in the process of horizontalization. Then each comment was treated in equal weights before phenomenological reduction. Secondly, an invariant dimension of knowledge spillover is listed. Third, the researchers grouped variant and invariant dimensions into themes with frequency analysis. At fourth, variant and invariant dimensions of themes are linked with textual description of each informants and group's experience. Finally, group textual descriptions were used to describe a conceptual description about the essence of informant's experience as a whole. The description of knowledge spillover process lies in the heart of the lived experience of informants.

In Table 1 the demographical details of informants show that 6 informants were interviewed. Four were male informants and two were females. All are designated at key positions of HR and director level in reputable institutes. Face-to-face interviews were conducted. The age bracket of 6 informants were between 28-45 years. Their active role in human resource department is also considered because an active person can better explain the role of HR practices in facilitation of knowledge spillover process.

Informants were interviewed at their offices after taking formal appointment through e-mail and call with a semi-structured interview protocol related to the study. At first, all pertinent themes were listed then 15-30 themes were extracted from each interview then later it categorizes into similar and dissimilar form. This process adhered the phenomenological reduction. For this, all pertinent themes are listed based on informant transcriptions. Prominent codes extracted from interviews are mentioned in Table 2.

In this phase of analysis, each theme compared with each other to find same and different codes. In Table 3, 3 codes were found same based on informant's iterative responses and 21 codes were different. Details are exhibited in Table 3.

After identifying the same and different codes from informant's interviews. Another step refers phenomenological reduction in which same and different

themes/codes were compared with review of literature to gain theory support. Then, researcher reduce and separate the themes in the defined categories made from literature review of human resource practices in terms of recruitment and selection, training and development, compensation and appraisal management and employee relations. Mentioned codes are combined and counted for phenomenological reduction indicated in Table 4.

Table 1.
Demographic Profile of Informants (n=6)

Informants	Gender	Age Bracket	Participation in Business	Experience
Infor1	Female	30-50	Active	7
Infor2	Male	30-40	Active	9
Infor3	Female	30-60	Active	10
Infor4	Male	30-50	Active	12
Infor5	Male	30-60	Active	10
Infor6	Male	30-40	Active	8

Author’s figure on the base of Informants iterative responses

Table 2.
Prominent Classifications of informant responses

Informants	Emerging categories	Informants	Emerging categories
Infor ₁	Role of transformational leadership	Infor ₂	Case sensitive recruitment (faculty)
	Team work		R&S formal screening process
	Relevant Knowledge & Skill sets		List of interviews
	Shared goals		Recruitment need analysis
	Systematic structure of R & S		Person job fit
	Division of Work		Role of HR as analyst
	Autonomy		Potential preference then technical skills
	Passionate		T&D considers as backbone
	Guidance		Competent workforce
	T&D considers as backbone		T&D nurtures skills, competencies
	Competent workforce		T&D enhance employee morale
	T&D nurtures skills, competencies		Informal trainings
	T&D enhance employee morale		Hard work

Continued on next page

Table 2 continued

	Informal trainings		Knowledge and skills
	Hard work		Motivational training sessions
	Knowledge and skills		Trainers comes inside and outside both sources
	Motivational training sessions		Compensation based on performance
	Trainers comes inside and outside both sources		Annual performance appraisal
	Compensation based on performance		Recreational tours at university level
	Annual performance appraisal		Informal family culture promotes exchange of ideas
	KPI & MBO both appraisals		Spillover at each level
	Proposed plan for ER- practices		Low turnover ratio
	Working on vision of excellences		Learning by doing
	No role of HR in R&D		Less coherence among HR-activities
	Family culture (Superior family)		Application of OCB
	Award in events		Frequent interactions
	Recreational tours at university level		Lack of systematic structure
	Informal family culture promotes exchange of ideas		No pre-defined set of Job descriptions
	Spillover at each level		Less growth opportunities
	Low turnover ratio		Lack of environmental Sensing
	Learning by doing		Team work
	Application of OCB		Relevant Knowledge & Skill sets
	Frequent interactions		Shared goals
	Lack of systematic structure		Systematic structure of R & S
	No pre-defined set of Job descriptions		Division of Work
	Less growth opportunities		Autonomy
	Lack of environmental Sensing		Passionate
	Low absorptive capacity		Role of transformational leadership
	Role of social capital		
	Relational network		
Infor ₃	Relevant experience & skill set	Infor ₄	Relevant experience and skill set

Continued on next page

Table 2 continued

	Alignment of activities		Dedication
	Hard work		Hard work
	Guidance		Cooperative work environment
	Dedication		Team work
	Team work		Structure system of compensation
	Division of work		Forecast planning
	Cooperative work environment		Compensation link with appraisals
	Recruitment need analysis process		Guidance
	R&S induction process		Employee happiness
	Formal questionnaire designed		Flexible hours/timing
	Performance based job extension		Interactive culture
	Friendly behaviors		Goal specify
	Interactive culture		Knowledge inflows
	Division of autonomy		Division of autonomy
	Employee recognition		Participative leadership
	Participative leadership		Learning by doing
	Goal specify		Competent workforce
	Forecast planning budget		Role of communication
	Self-respect		
	Self-efficacy		
	Budget Allocation		
	Learning by doing	Infor ₆	Commitment
	Role of Communication		Budget allocation
	Recognition		Relevant knowledge & skill sets
	Relevant experience & skill set		Team work
	Hard work		Dedication
	Dedication		Cooperative work environment
	Commitment		Participative leadership
Infor ₅	Cooperative work environment		Guidance
	Flexible hours/timing		Recognition
	Knowledge inflows		Friendly behavior
	Participative leadership		Hard work
	Guidance		Budget allocation

Continued on next page

Table 2 continued

Re-creational activities	Need analysis plan
Socialization	Trainer at both side (internal & external)
Frequent interactions of employees	Frequent training programs
Promote spillover of ideas	Training evaluation mechanisms
Employee retention	Polishing individual adaptive competencies
Structure system of employee relations	Hard and soft skills focus training programs
Interactive culture	Performance enhancement
Forecasting planning	Value addition
Budget allocation	Career development
Annually appraisals	Less turnover rate
Recognition	Employee happiness
Structure incentives system	Flexible timings/hours
Conflict management	
Rare cases of conflicts	
Brainstorming session support	
exchange of ideas	
Team building	
Low turnover	

Table 3.
Phenomenology of Horizontalization

Similar Codes	Dissimilar Codes
1.Flexible Timings/hours	1.Person job fit
2.Role of Communication	2.Beurocratic mechanisms
3.Guidance	3.HR analyst role
4.Team Work	4.ER proposed plan
5.Dedication	5.Award in events
6.Cooperative work environment	6.Application of OCB
7.Division of work	7.Low absorptive capacity
8.Recruitment need analysis	8.Conflicts management
9.Participative leadership	9.R & S induction process
10.Interactive Culture	10.T&D enhance employee morale
11.Hard Work	11.Less-growth opportunities
12.Shared goals	12.Role of social capital

Continued on next page

Table 3 continued

13.Frequent informal Interactions	13.Relational network
14.Knowledge Inflow	14.Knowledge & skills
15.Relevant knowledge & skill set	15.R& S induction process
16.MBO Appraisal method	16.Less environmental sensing
17.Alignment of activities	17.Re-recreational activities
18.Brainstorming	18.Rare cases of conflicts
19.Budget Allocation	19.Value addition
20.Training need analysis	20.Different hiring process
21.Knowledge inflows	21.Socialization
22.Forecast Planning	
23.Flexible work hours	
24.Friendly behaviors	
25.Learning by doing	
26.Competent workforce	
27.Division of Autonomy	
28. Low Turnover Rate	
29.Shared goals	
30.Frequent training programs	
31.Trainers from inside & outside	
32.Career development	
33.Recognition	

Source: -Authors figure

Table 4.
PhenomenologicalReduction: Knowledge Intense Institutes

Categories	Themes	N
Recruitment & Selection	1.Recruitment based need analysis	21
	2.Role of communication	
	3.Situational questions	
	4.Team work	
	5.Relevant experience & skill sets	
	6.Person job fit	
	7.Individual Potential focus	
	8.Hiring competent workforce	
	9.Dedication	
	10.R & S induction process	

Continued on next page

Table 4 continued

Training & Development	<ol style="list-style-type: none"> 1.Training need analysis 2.Trainer from both inside & outside sources 3.Brainstorming 4.Frequent interactions 5.Formal & informal training sessions 6.Career development Value addition 7.Knowledge & skills Learning by doing 8.Training Evaluation mechanisms 9.Budget Allocation for T & D programs 	16
Employee Relations	<ol style="list-style-type: none"> 1.Role of Re-creational events 2.Increase Commitment 3.Role of Communication 4.Informal interactions 5.Socialization 6.Cooperative work environment 7.Brainstorming sessions enhance spillover 8.Collaboration and team work 9.Interactive culture 10.Employee friendly behavior 11.Promote employee spillover 12.Flexible work hours 	23
Compensation & Appraisal management	<ol style="list-style-type: none"> 1.MBO appraisal method 2.Structured evaluation criteria 3.Annual appraisal 4.Target specification 5.Conflict management 6.Rare cases of conflicts 7.Structured system of employee relations 8.Goal specify 	11
Firm Performance	<ol style="list-style-type: none"> 1.Employee Retention 2.Increase knowledge inflow 3.Less Turnover rate 4.Employee Happiness 5.Career Development 6.Interactive Culture 7.Cooperative work environment 8.Employee Recognition enhance 9.Participative leadership 	10

Source: Author’s analysis

DISCUSSION

Innovation is considered as the foremost and first human issue within organization. Behind innovation are the people who propose and implement ideas, in-actual it resides in effective human resource management (Kirsimarja & Aino, 2019). The lack of knowledge causes stagnation and hinders firm innovation. However, HRM and knowledge are the key drivers of innovation

in today's firms (Kirsimarja & Aino, 2019). Organizations use effective human resource practices producing the pool of knowledge spillover for the company. The process of knowledge spillover occurs through communication, informal frequent interactions, direct and indirect ties, interactive culture, mutual consensus, guidance, commitment, team work, brainstorming and dialectical ways of interaction within the organization (Trachuk & Linder, 2019). The invariant role of human resource practices is grounded in the five defined levels of dimensions. The central aim of these dimensions is to create the new spirals of knowledge within organizations, but the process of spillover is variant. To enhance organization's knowledge spillover process, managers clubbed traditional HRM practices with knowledge sharing activities. Knowledge-based HR practices purposefully designed to improve knowledge processes within an organization (Fawehinmi et al., 2022).

Recruitment and selection is considered as the first source of Knowledge spillover within organization. HR-department conducts need-based analysis which comes under R&S induction process, other departments share their requirements of personnel according to their need then HR-department design advertisement accordingly and use channels to launch hiring process (Jiang et al., 2012). Interviews are conducted by shortlisting the most suitable candidates out of the pool of potential candidate. During different levels of interviews, technical and situational questions are asked by interviewers to assess candidates's competency for required job during which exchange of ideas (spillover) occurs frequently. Knowledge-based recruitment drives the selection of a strong and explicit personnel with relevant skills, knowledge, and capabilities.

Proposition 1: Knowledge-based Recruitment & Selection positively influence knowledge spillover process.

Peet and Robbins (2010) stated that "competent employees do not remain competent forever". They require new updated skillsets (De Winne & Sels, 2010) and to keep them updated, firms conduct training and development to nurture new skills. HR-department conducts need-based analysis to provide training according to specified purpose (Kirsimarja & Aino, 2019). Trainers are hired from both inside and outside sources depending upon requirements of training programs. Several formal training sessions are conducted to polish the hard and soft skills of employees that enhance competencies and career growth. Learning by doing plays significant role in exchange of ideas, employee learns then apply knowledge on daily activities which enhance their performance.

Proposition 2: Knowledge-based Training & Development positively influence knowledge spillover process.

Employee relations nurtures exchange of ideas (spillover) through frequent informal interactions, socialization and recreational events. HR-department plans some events occasionally like father's day, mother's day, Eid parties, birthday celebrations and tours etc. These informal frequent interactions strengthen the bond between employees and organization as a result employee retention, loyalty, job security, sense of belonging, motivation, commitment, and dedication increases (Wang et al., 2017).

Proposition 3: Knowledge-based Employee Relations positively influence knowledge spillover process.

Compensation and appraisal management practices improve employees existing knowledge and skill sets by evaluating current position (Kirsimarja & Aino, 2019). HR-department conducts appraisal annually, based on that compensation plans and benefits are given to employees. MBO (Management by objective) method is used by some HR-department in which goal specify attainment measures according to obtained performance (Kirsimarja & Aino, 2019). HR managers use tangible and intangible incentives to motivate employees. When employees are rewarded as per their contributions, they contribute more significantly (Andreeva & Kianto, 2012).

Proposition 4 : Knowledge-based Compensation & Appraisal management positively influence knowledge spillover process.

The thematic explanation (findings) indicated the essence of knowledge spillover process (phenomenon) which is shown in Figure 1. The central notion portrayed the essence of phenomenon (knowledge spillover) and inner layer/circle indicates the close link with essence i.e. team work, socialization, guidance, interactive culture, role of communication etc. are more closely interlinked with knowledge spillover process. However, the outer layer/circle depicted bit distant link with knowledge spillover process i.e. hard work, learning by doing, flexible working hours and systematic structure etc.

CONCLUSION

Literature indicates three sources of knowledge spillover i.e. academia, industry and government. Subjective lived experiences of informants validated that interviews, training and development and employee relations are significant sources of knowledge spillover within organization. Therefore, this study concluded frequent employee interactions, cooperative work environment along with participative leadership indicates the real determinants (essence) of knowledge spillover process within knowledge intense institutes.



Figure 1: *Essence of knowledge Spillover process* Source: *Figure proposed by author based on conducted interviews & thematic analysis*

IMPLICATIONS AND FUTURE DIRECTIONS

This study will provide a conceptual model to academics and enriches the data which adds value towards theory enhancement. It opens new avenues of innovation and growth for organizations through the significant role of HR-practices. Knowledge spillover process can be studied through many other dimensions like role of transformative leadership, social capital, digital marketing, absorptive capacity, entrepreneurship, dynamic capability, strategic role of knowledge spillover and co-creation etc. Future studies should focus this

perspective on the basis of gender (male and female). It may be studied through profitability and how companies manage knowledge inflows and outflows customers and employees. It may study in quantitative perspective as well.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interests.

REFERENCES

- Aghion, P., Akcigit, U., Bergeaud, A., Blundell, R., & Hémous, D. (2019). Innovation and top income inequality. *The Review of Economic Studies*, 86(1), 1–45. <https://doi.org/10.1093/restud/rdy027>
- Agrawal, O. P. (2002). Formulation of Euler-Lagrange equations for fractional variational problems. *Journal of Mathematical Analysis and Applications*, 272(1), 180–184. [https://doi.org/10.1016/S0022-247X\(02\)00180-4](https://doi.org/10.1016/S0022-247X(02)00180-4)
- Akbar, W., Riaz, S., Arif, K., & Hayat, A. (2018). Measuring the non-financial rewards in escalating employees job satisfaction (a study of private companies in Pakistan). *Asia Pacific Journal of Advanced Business and Social Studies*, 4(1), 108–116.
- Andreeva, T., & Kianto, A. (2012). Does knowledge management really matter? Linking knowledge management practices, competitiveness and economic performance. *Journal of knowledge management*, 16(4), 617–636. <https://doi.org/10.1108/13673271211246185>
- Arrow, K. J. (1962). The economic implications of learning by doing. *The review of economic studies*, 29(3), 155–173. <https://doi.org/10.2307/2295952>
- Audretsch, D. B., Cunningham, J. A., Kuratko, D. F., Lehmann, E. E., & Menter, M. (2019). Entrepreneurial ecosystems: economic, technological, and societal impacts. *The Journal of technology transfer*, 44, 313–325. <https://doi.org/10.1007/s10961-018-9690-4>
- Audretsch, D. B., & Feldman, M. P. (2004). Knowledge spillovers and the geography of innovation. *Handbook of regional and urban economics*, 4, 2713–2739. [https://doi.org/10.1016/S1574-0080\(04\)80018-X](https://doi.org/10.1016/S1574-0080(04)80018-X)
- Audretsch, D. B., Grilo, I., & Thurik, A. R. (2011). Globalization, entrepreneurship, and the region. In M. Fritsch (Ed.), *Handbook of Research on Entrepreneurship and Regional Development*. Edward Elgar Publishing. <https://doi.org/10.4337/9780857936493.00006>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bawa, K. S., & Krugman, S. L. (1991). Reproductive biology and genetics of tropical trees in relation to conservation and management. In Gomez-Pompa et al. (Eds.), *Rain Forest Regeneration and Management* (Vol. 119). UK: Parthenon, Carnforth.

- Braunerhjelm, P., Ding, D., & Thulin, P. (2018). The knowledge spillover theory of intrapreneurship. *Small business economics*, *51*, 1–30. <https://doi.org/10.1007/s11187-017-9928-9>
- Caiazza, R., Belitski, M., & Audretsch, D. B. (2020). From latent to emergent entrepreneurship: the knowledge spillover construction circle. *The Journal of Technology Transfer*, *45*(3), 694–704. <https://doi.org/10.1007/s10961-019-09719-y>
- Capron, I., Yvon, M., & Muller, G. (1996). In-vitro gastric stability of carrageenan. *Food hydrocolloids*, *10*(2), 80040–80043. [https://doi.org/10.1016/S0268-005X\(96\)80040-3](https://doi.org/10.1016/S0268-005X(96)80040-3)
- Cassiman, B., Veugelers, R., & Arts, S. (2018). Mind the gap: Capturing value from basic research through combining mobile inventors and partnerships. *Research Policy*, *47*(9), 1811–1824. <https://doi.org/10.1016/j.respol.2018.06.015>
- Caves, R. E. (1974). Multinational firms, competition, and productivity in host-country markets. *Economica*(162), 176–193. <https://doi.org/10.2307/2553765>
- Chan, T. M., Dzara, K., Dimeo, S. P., Bhalerao, A., & Maggio, L. A. (2020). Social media in knowledge translation and education for physicians and trainees: a scoping review. *Perspectives on medical education*, *9*, 20–30. <https://doi.org/10.1007/S40037-019-00542-7>
- Chen, Z. X., & Francesco, A. M. (2003). The relationship between the three components of commitment and employee performance in China. *Journal of vocational behavior*, *62*(3), 64–71. [https://doi.org/10.1016/S0001-8791\(02\)00064-7](https://doi.org/10.1016/S0001-8791(02)00064-7)
- Cooke, F. L., Schuler, R., & Varma, A. (2020). Human resource management research and practice in Asia: Past, present and future. *Human Resource Management Review*, *30*(4). <https://doi.org/10.1016/j.hrmr.2020.100778>
- Couture, V. (2015). Knowledge spillovers in cities: An auction approach. *Journal of Economic Theory*, *157*, 668–698. <https://doi.org/10.1016/j.jet.2015.01.022>
- Creswell, J. W. (2013). Steps in conducting a scholarly mixed methods study. *DBER Speaker Series*, *48*.
- Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. (pp. 1–256). SAGE Publications Ltd. <https://doi.org/10.1016/j.eneco.2008.04.008>
- Csuti, B., Polasky, S., Williams, P., Pressey, R. L., Camm, J. D., Kershaw, M., Kiester, A. R., Downs, B. W., Hamilton, R., Huso, M. M. P., & Sahr, K. (1997). A comparison of reserve selection algorithms using data on terrestrial vertebrates in Oregon. *Biological Conservation*, *80*(1), 68–75. [https://doi.org/10.1016/S0006-3207\(96\)00068-7](https://doi.org/10.1016/S0006-3207(96)00068-7)
- Dainty, A. R., Cheng, M. I., & Moore, D. R. (2005). Competency-based model for predicting construction project managers' performance. *Journal of Management in Engineering*, *21*(1), 2–9. [https://doi.org/10.1061/\(ASCE\)0742-597X\(2005\)21:1\(2\)](https://doi.org/10.1061/(ASCE)0742-597X(2005)21:1(2))
- De Winne, S., & Sels, L. (2010). Interrelationships between human capital, HRM and innovation in Belgian start-ups aiming at an innovation strategy. *The International Journal of Human Resource Management*, *21*(11), 1863–1883. <https://doi.org/10.1080/09585192.2010.505088>

- De Zubielqui, G. C., Fryges, H., & Jones, J. (2019). Social media, open innovation & HRM: Implications for performance. *Technological Forecasting and Social Change*, *144*, 334–347. <https://doi.org/10.1016/j.techfore.2017.07.014>
- De Zubielqui, G. C., Lindsay, N., Lindsay, W., & Jones, J. (2019). Knowledge quality, innovation and firm performance: a study of knowledge transfer in SMEs. *Small Business Economics*, *53*(1), 145–164. <https://doi.org/10.1007/s11187-018-0046-0>
- Eldridge, D., Nisar, T. M., & Torchia, M. (2021). What impact does equity crowdfunding have on SME innovation and growth? An empirical study. *Small Business Economics*, *56*, 105–120. <https://doi.org/10.1007/s11187-019-00210-4>
- Farnese, M. L., Barbieri, B., Chirumbolo, A., & Patriotta, G. (2019). Managing knowledge in organizations: A Nonaka's SECI model operationalization. *Frontiers in psychology*, *10*, 2730–2730. <https://doi.org/10.3389/fpsyg.2019.02730>
- Fawehinmi, O., Yusliza, M. Y., Ogbeibu, S., Tanveer, M. I., & Jabbour, C. J. (2022). Academic employees' green behaviour as praxis for bolstering environmental sustainable development: A linear moderated mediation evaluation. *Business Strategy and the Environment*, *31*(7), 3470–3490. <https://doi.org/10.1002/bse.3095>
- Fishbein, M., & Ajzen, I. (2005). Theory-based behavior change interventions: Comments on Hobbis and Sutton. *Journal of health psychology*, *10*(1), 27–31. <https://doi.org/10.1177/1359105305048552>
- Gehring, A. (2022). Competent demand. *Elgar Encyclopedia on the Economics of Knowledge and Innovation*, 54–61. <https://doi.org/10.4337/9781839106996.00011>
- Gill, S. L. (2020). Qualitative sampling methods. *Journal of Human Lactation*, *36*(4), 579–581. <https://doi.org/10.1177/0890334420949218>
- Glaeser, E. L., Kerr, W. R., & Ponzetto, G. A. (2010). Clusters of entrepreneurship. *Journal of urban economics*, *67*(1), 150–168. <https://doi.org/10.1016/j.jue.2009.09.008>
- Groenewald, T. (2004). A phenomenological research design illustrated. *International journal of qualitative methods*, *3*(1), 42–55. <https://doi.org/10.1177/160940690400300104>
- Hislop, D. (2003). Linking human resource management and knowledge management via commitment: A review and research agenda. *Employee relations*, *25*(2), 182–202. <https://doi.org/10.1108/01425450310456479>
- Hislop, H. (2012). The quality assurance of Irish schools and the role of evaluation: Current and future trends. . *The professor seamas Ó súilleabháin memorial lecture*. Retrieved from <http://hdl.handle.net/10500/496>
- Horwitz, F. M., Heng, C. T., & Quazi, H. A. (2003). Finders, keepers? Attracting, motivating and retaining knowledge workers. *Human resource management journal*, *13*(4), 23–44. <https://doi.org/10.1111/j.1748-8583.2003.tb00103.x>
- Huselid, M. A., & Becker, B. E. (2011). Bridging micro and macro domains: Workforce differentiation and strategic human resource management. *Journal of management*, *37*(2). <https://doi.org/10.1177/0149206310373400>
- Ingram, P. (2017). *Interorganizational Learning*. (pp. 642–663). Blackwell Publishing Ltd eBooks. <https://doi.org/10.1002/9781405164061.ch28>

- Jacobs, T. O., & Human Resources Research Organization. (1970). *Leadership and exchange in formal organizations*. Retrieved from <https://apps.dtic.mil/sti/pdfs/AD0725584.pdf>
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of management Journal*, 55(6), 1264–1294. <https://doi.org/10.5465/amj.2011.0088>
- Jones, C. I. (2019). Paul Romer: Ideas, nonrivalry, and endogenous growth. *The Scandinavian Journal of Economics*, 121(3), 859–883. <https://doi.org/10.1111/sjoe.12370>
- Kamalaldin, A., Sjödin, D. R., Hullova, D., & Parida, V. (2021). Configuring ecosystem strategies for digitally enabled process innovation: A framework for equipment suppliers in the process industries. *Technovation*, 105. <https://doi.org/10.1016/j.technovation.2021.102250>
- Kang, Y., Siegel, P. H., Shu, W., Drobnjak, M., Kakonen, S. M., Cordón-Cardo, C., Guise, T. A., & Massagué, J. (2003). A multigenic program mediating breast cancer metastasis to bone. *Cancer cell*, 3(6), 537–549. [https://doi.org/10.1016/S1535-6108\(03\)00132-6](https://doi.org/10.1016/S1535-6108(03)00132-6)
- Kharabsheh, R., & Aqrabawi, A. (2013). Impact of knowledge management practices (KMPs) on competitive advantage in pharmaceutical firms. In *European Conference on Knowledge Management* (Vol. 1, pp. 349–355). ECKM.
- Kim, N., Im, S., & Slater, S. F. (2013). Impact of knowledge type and strategic orientation on new product creativity and advantage in high-technology firms. *Journal of product innovation management*, 30(1), 136–153. <https://doi.org/10.1111/j.1540-5885.2012.00992.x>
- Kirsimarja, B., & Aino, K. (2019). Knowledge-based view of the firm—Theoretical notions and implications for management. *Retrieved on*, 23(2).
- Lather, P. (1992). Critical frames in educational research: Feminist and post-structural perspectives. *Theory into practice*, 31(2), 87–99. <https://doi.org/10.1080/00405849209543529>
- López-Cabarcos, M. A., Srinivasan, S., Göttling-Oliveira-Monteiro, S., & Vázquez-Rodríguez, P. (2019). Tacit knowledge and firm performance relationship. The role of product innovation and the firm level capabilities. *Journal of Business Economics and Management*, 20(2), 330–350. <https://doi.org/10.3846/jbem.2019.9590>
- Mansfield, E. (1988). Industrial R&D in Japan and the United States: A comparative study. *The American Economic Review*, 78(2), 223–228. <https://doi.org/10.1126/science.241.4874.1769>
- Marks, J., Dawa, S., & Kanyemba, S. (2020). Transnational entrepreneurship in Sub-Saharan Africa: An absorptive capacity theory of knowledge spillover entrepreneurship perspective. *Journal of Entrepreneurship and Innovation in Emerging Economies*, 6(1). <https://doi.org/10.1177/2393957519895851>
- Marrucci, L., Iannone, F., Daddi, T., & Iraldo, F. (2022). Antecedents of absorptive capacity in the development of circular economy business models of small and medium

- enterprises. *Business Strategy and the Environment*, 31(1), 532–544. <https://doi.org/10.1002/bse.2908>
- Marshall, A. (1890). The address of the president of section F—Economic Science and Statistics—of the British Association. *at the Sixtieth Meeting, held at Leeds*, 53, 612–643. <https://doi.org/10.2307/2979546>
- Marshall, B., Cardon, P., Poddar, A., & Fontenot, R. (2013). Does sample size matter in qualitative research?: A review of qualitative interviews in IS research. *Journal of computer information systems*, 54(1), 11–22. <https://doi.org/10.1080/08874417.2013.11645667>
- Mckinnie, J. J., Bourgeois, R. J., & Husserl, F. E. (1985). Long-term therapy for heart failure with continuous ambulatory peritoneal dialysis. *Archives of internal medicine*, 145(6). <https://doi.org/10.1001/archinte.145.6.1128>
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons. <https://doi.org/10.2134/agronj1970.00021962006200050011x>
- Morse, J. M. (1995). The Significance of Saturation. *Qualitative Health Research*, 5(2), 147–149. <https://doi.org/10.1177/104973239500500201>
- Ndabari, M. (2021). Knowledge management and performance: A conceptual review. *International Academic Journal of Human Resource and Business Administration*, 3(9), 538–553.
- Nelson, R. R., & Winter, S. G. (1982). The Schumpeterian Tradeoff Revisited. *The American Economic Review*, 72(1), 114–132.
- Neuman, W. L., & Robson, K. (2014). *Basics of social research*. Toronto: Pearson Canada. <https://doi.org/10.1177/00220345700490040701>
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press. [https://doi.org/10.1016/0024-6301\(96\)81509-3](https://doi.org/10.1016/0024-6301(96)81509-3)
- Park, G., Shin, S. R., & Choy, M. (2020). Early mover (dis) advantages and knowledge spillover effects on blockchain startups' funding and innovation performance. *Journal of Business Research*, 109, 64–75. <https://doi.org/10.1016/j.jbusres.2019.11.068>
- Peet, R., & Robbins, P. (2010). *Global political ecology* (Watts & M., Eds.). Retrieved from <https://www.guardian.co.uk/environment/2007/feb/152>
- Peng, M. W. (2001). The resource-based view and international business. *Journal of management*, 27(6), 803–829. <https://doi.org/10.1177/014920630102700611>
- Phene, A., Tallman, S., & Almeida, P. (2012). When do acquisitions facilitate technological exploration and exploitation. *Journal of Management*, 38(3), 753–783. <https://doi.org/10.1177/0149206310369939>
- Pisano, G. P. (2015). A normative theory of dynamic capabilities: connecting strategy, know-how, and competition. *Harvard Business School Technology & Operations Mgt. Unit Working Paper*, 16–36. <https://doi.org/10.2139/ssrn.2667018>
- Quintas, D. J. (2011). How Significant. *Built Environment*, 14(3/4).

- Robertson, M., & Hammersley, G. M. (2000). Knowledge management practices within a knowledge-intensive firm: the significance of the people management dimension. *Journal of European industrial training*, 24(2/3/4), 241–253. <https://doi.org/10.1108/03090590010321205>
- Santoro, G., & Usai, A. (2018). Knowledge exploration and ICT knowledge exploitation through human resource management: A study of Italian firms. *Management Research Review*, 41(6), 701–715. <https://doi.org/10.1108/MRR-07-2017-0215>
- Scarborough, H., & Carter, C. (2001). Investigating Knowledge Management. *Industrial and Commercial Training*, 33(5), 178–186. <https://doi.org/10.1108/ict.2001.33.5.178.4>
- Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, 5(9). <https://doi.org/10.5539/elt.v5n9p9>
- Shrivastava, S., Pazzaglia, F., & Sonpar, K. (2021). The role of nature of knowledge and knowledge creating processes in knowledge hiding: Reframing knowledge hiding. *Journal of Business Research*, 136, 644–651. <https://doi.org/10.1016/j.jbusres.2021.08.019>
- Shujahat, M., Sousa, M. J., Hussain, S., Nawaz, F., Wang, M., & Umer, M. (2019). Translating the impact of knowledge management processes into knowledge-based innovation: The neglected and mediating role of knowledge-worker productivity. *Journal of Business Research*, 94, 442–450. <https://doi.org/10.1016/j.jbusres.2017.11.001>
- Song, F., Altman, D. G., Glenny, A. M., & Deeks, J. J. (2003). Validity of indirect comparison for estimating efficacy of competing interventions: empirical evidence from published meta-analyses. *Bmj*, 326(7387), 472–472. <https://doi.org/10.1136/bmj.326.7387.472>
- Tallman, S., Jenkins, M., Henry, N., & Pinch, S. (2004). Knowledge, clusters, and competitive advantage. *Academy of management review*, 29(2), 258–271. <https://doi.org/10.5465/amr.2004.12736089>
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40–49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- Trachuk, A., & Linder, N. (2019). Knowledge Spillover Effects: Impact of Export Learning Effects on Companies' Innovative Activities. In *IntechOpen eBooks*.
- Wang, C. C., Sung, H. Y., Chen, D. Z., & Huang, M. H. (2017). Strong ties and weak ties of the knowledge spillover network in the semiconductor industry. *Technological Forecasting and Social Change*, 118, 114–127. <https://doi.org/10.1016/j.techfore.2017.02.011>
- Wijngaarden, Y., Hitters, E., & Bhansing, P. V. (2020). Cultivating fertile learning grounds: Collegiality, tacit knowledge and innovation in creative co-working spaces. *Geoforum*, 109, 86–94. <https://doi.org/10.1016/j.geoforum.2020.01.005>