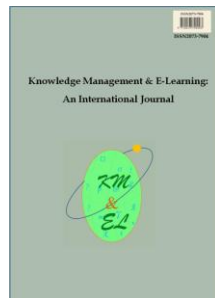

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Seeking a potential system in managing organizational knowledge flow towards enhancing individual learning and intellectual capital

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Abstract: The knowledge-based economy of today heralds an era where the business environment is characterized by complex and ever-changing conditions, driven by rapid technological advancements. With knowledge regarded as the main competitive resource, continuous learning becomes critical to firms as they try to keep up with the latest technology and business practices. Moreover, knowledge resides within individual employees, and the challenge is to ensure that knowledge is acquired, applied, and shared to benefit the firm. The situation becomes more complex when it is established that there exists different human capital in firms at any one time, differentiated based on the types of knowledge they contribute to the firm. Further, scant literature exists on the relationship dynamics between the different human capital groups and their influences on individual learning. This paper aims to propose a potential system to manage interaction between the different human capital groups within firms, and its link to enhancing different types of individual learning and intellectual capital.

Keywords: Resource-based theory; Human capital types; Knowledge flow; Individual learning types; Intellectual capital

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1. Introduction

A 'knowledge-based economy' is an economy that is hugely driven by skills, information and knowledge (OECD & Eurostat, 2005). In such an economy, it augments the business environment that is already made complex by rapid technological development (Chen & Huang, 2009).

Firms are in the business of meeting the needs of their customers, albeit in the form of new products, services, and processes – in this, knowledge is key (Gloet & Terziovski, 2004). A firm's intellectual capital - the sum of all types of knowledge within it - becomes critical for organizational survival (Kang, Morris, & Snell, 2007; Subramaniam & Youndt, 2005). Hence, in order to create knowledge, a firm must seek to acquire it i.e. it must seek to learn (Heraty, 2004; Nonaka & Takeuchi, 1995). More importantly, firms find it imperative to continuously learn ultimately to sustain competitive advantage (Boud & Garrick, 1999; Drucker, 1992). Literature on managing employees in acquiring, sharing, and applying knowledge is available (Youndt & Snell, 2004); nonetheless, scant literature is found on strategies that focus on organizational knowledge flow and continuous learning (Kang, Morris, & Snell, 2007).

The situation is made more complex when it is found that there can exist several different types of employees or human capital in firms at any one time, and they are differentiated based on the types of knowledge they contribute to the firm (Bryant & Allen, 2009; Lepak & Snell, 1999; Palthe & Kossek, 2003; Perez & de Pablos, 2003). At this juncture, the field of human resource management (HRM) comes to significance as it concerns the management of people in organizations. While it is observed that ample HRM literature recognizes the human capital types and different strategies required to manage them, the relationship 'between' the human capital groups remains unexplored. This gap is partially and minimally addressed by researchers studying social interactions among organization employees who highlight the need for further research on social interaction, learning, and knowledge exchange in organizations (Kang, Morris, & Snell, 2007). In sum, it appears that only limited literature exists on the relationship dynamics between the different human capital groups and their influences on individual learning. This paper highlights the need for a specific system of managing knowledge flow between the different human capital groups towards knowledge building.

The research question is therefore ‘how can a firm’s human capital types be leveraged upon for the purposes of continuous individual learning and organizational knowledge building?’ As such, this paper aims to explore a firm’s system for managing interaction and knowledge flow between its different human capital types, and its link to individual learning and the firm’s intellectual capital.

2. Literature review

2.1. Resource-based theory of the firm

The resource-based theory involves the ability of a firm to bundle on its variety of resources i.e. its organizational assets, for the purpose of seeking competitive advantage (Grant, 1996). The notion of a firm as a bundle of resources was first presented by Penrose (1959) - the argument being that the resource heterogeneity of a firm is what gives it a unique personality (Kostopoulos, Spanos, & Prastacos, 2002). In addition, Wernerfelt (1984) argues that useful insights can be gained by seeking a firm-specific perspective into how firms bundle their resources, as opposed to an industry-specific perspective.

The argument of the firm’s internal resources as main drivers of organizational profitability and strategic advantage has long been emphasized. The focus on the firm’s internal environment came to be due to several reasons i.e. the dynamic nature of products, technology, and customer preferences within an equally dynamic business environment, bound by the complex quality of traditional industry boundaries, especially in ICT-related industries (Kostopoulos, Spanos, & Prastacos, 2002).

In relevance, Barney (1991) presents that a firm’s resources must be valuable, rare, inimitable, and non-substitutable to ensure sustainable competitive advantage (Boselie, Dietz, & Boon, 2005). In the context of the resource-based theory, a ‘valuable’ resource is one that enables a firm to attain efficiency and effectiveness. A resource that is ‘rare’ means that it is not simultaneously available to many firms. A resource is ‘inimitable’ when it cannot be imitated or duplicated by other firms, and it is ‘non-substitutable’ when there are few or no other equivalent resources available (Barney, 1991).

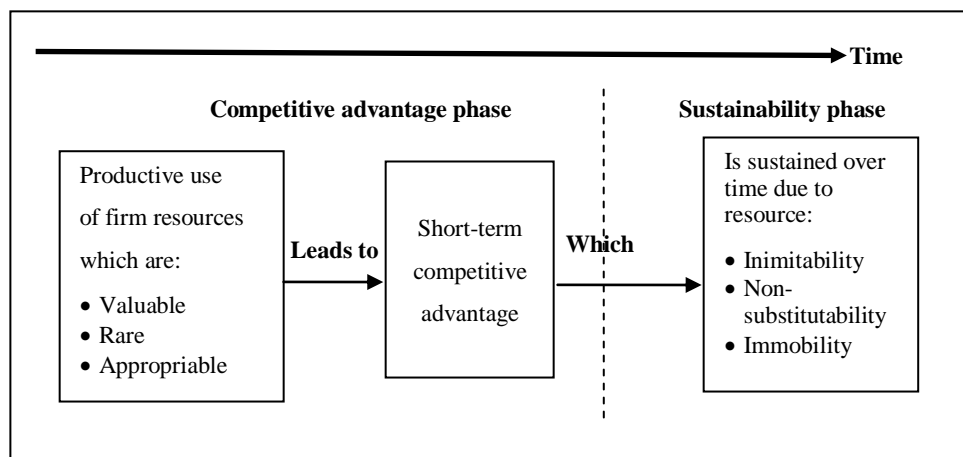


Fig. 1. The resource-based view over time. Adapted from Wade and Hulland (2004)

Subsequently, other researchers propose additional resource characteristics that drive a firm towards competitive advantage such as resource appropriability and immobility (Wade & Hulland, 2004). Wade and Hulland (2004) state that resource ‘appropriability’ relates to a situation whereby a firm is able to appropriate the returns gained from resource utilization. The ‘immobility’ of resources refers to a situation whereby resources are said to be relatively immobile or cannot be acquired by other firms (Amit & Schoemaker, 1993; Grant, 1991). In sum, the resource-based theory argues that firms owning resources that are valuable and rare would obtain a temporary competitive advantage, and that the advantage would only be sustainable over time if firms are able to protect themselves against resource imitation, substitution, or transfer. This perspective of the resource-based theory has been found to be supported by various empirical studies (Wade & Hulland, 2004), and summed up in Fig. 1.

2.2. Individual knowledge as an organizational resource

Because knowledge is embedded within individual employees, it becomes the fundamental responsibility of organizations to leverage on these two most strategically significant resources for organizational competitiveness (Gloet & Terziovski, 2004; Daud & Yusoff, 2010; Spender, 1996). Hence, by the resource-based theory, knowledge and employees are elemental to a firm’s ability to seek competitive advantage (Egbu, Botterill, & Bates, 2001).

It is likely that there are interdependencies between organizational knowledge and people management issues. Knowledge is expected to possess the rare, valuable, inimitable, and unsubstitutable elements of a unique resource (de Pablos, 2004). As for employees i.e. human resources, people management strategies have been found to be used by firms to acquire and retain employees with rare and inimitable characteristics, where such characteristics are nurtured into organizational competencies for sustainable competitive advantage (Barney & Wright, 1998; Boselie, Dietz, & Boon, 2005; de Pablos, 2004; Lado & Wilson, 1994). Much of knowledge management research is based on the resource-based theory of the firm such as in the works of Chen (2009), Seleim and Khalil (2007), and Perez and de Pablos (2003), whereby knowledge is recognized as an important organizational resource (Nonaka & Takeuchi, 1995). As such, further discussion on the roles of knowledge and people management in organizations seems imperative.

2.3. Individual learning and knowledge management

‘Knowledge’ differs from ‘information’ in that ‘information’ relates to data with a certain degree of relevance and purpose to the user; ‘knowledge’ is information infused with an individual’s experience, situation, interpretation, and judgment (Gloet & Terziovski, 2004). In this context, ‘knowledge management’ (KM) in organizations comes to mind where it involves the act of actively leveraging upon individuals’ knowledge and expertise for value creation (Scarborough, 2003). It comprehensively includes a symbiotic milieu of functions of knowledge creation, knowledge sharing, knowledge mapping and cataloging, and knowledge transport, storage, and distribution (Gloet & Terziovski, 2004).

In KM, learning is the crux to knowledge creation (Nonaka & Takeuchi, 1995). While learning in organizations generally refers to the acquisition of knowledge by organizational members (Heraty, 2004), the term ‘organizational learning’ refers to the firm’s collective capability for learning, which involves the acquisition, sharing and

utilization of knowledge by its organizational members. It refers to a social and collective phenomenon in firms that is related to the development of new knowledge (Bolivar-Ramos, Garcia-Morales, & Garcia-Sanchez, 2012). Because of innovation and dynamic business conditions, firms are forced to seek continuous learning (Boud & Garrick, 1999; Drucker, 1992). This becomes more significant as acquisition of new knowledge is likely to enable firms to enhance customer value (Kang, Morris, & Snell, 2007).

Organizational learning literature discusses two alternative forms of learning in organizations i.e. ‘exploratory learning’ and ‘exploitative learning’. Notwithstanding the type of learning adopted in firms, organizational learning can impact a firm’s existing knowledge base.

‘Exploitative learning’ involves refining and deepening the firm’s existing knowledge in order to increase customer value (Danneels, 2002), where the learning outcomes are on enhancing the ‘efficiency’ of searching, acquiring, and merging knowledge. It describes routine and incremental learning. While there are benefits of exploitative learning, it has been also found to lead to knowledge decay and the preclusion of knowledge stocks recombination and renewal (Levinthal & March, 1993).

It has also been discussed about how ‘exploitative learning’ needs to be complemented with ‘exploratory learning’, the other form of learning. Exploratory learning is where new knowledge, currently non-existent in the firm, is sought, and it includes knowledge that eradicates the firm’s current knowledge base. For dynamic and complex environments, radical innovative ideas are actively pursued (Luo & Peng, 1999). What exploratory learning does is assist firms in their recombinatory efforts for new and existing knowledge, enabling them to work towards organizational flexibility and adaptability (Danneels, 2002).

When employees acquire knowledge through contacts with people from both inside and outside the firm, it helps to reduce uncertainties for the firm as its existing knowledge base are able to interact with newly acquired knowledge (Nonaka & Takeuchi, 1995; Yli-Renko, Autio, & Sapienza, 2001). Firms can then improve their bundle of knowledge, skills, experiences, and individual and group competencies (Bontis, 1998; Roos, Roos, Dragonetti, & Edvinson, 1997).

Since knowledge resides within individual employees (Egbu, Botterill, & Bates, 2001), the next issue is how can individual knowledge be leveraged upon by their organizations. For that matter, the following section explores learning-related concepts from the field of human resource management, which is specifically concerned with the management of people in organizations.

2.4. Employees as knowledge agents

Human resource management (HRM) in firms is defined as activities related to recruiting and hiring employees, retaining them, and managing their work performance in order to achieve organizational goals (Jones, George, & Hill, 2000). The ‘HRM system’ in organizations is made up of three elements which are interconnected, namely HRM strategy, HRM policies, and HRM practices. The first element termed ‘HRM strategy’ refers to the firm’s emphasis or orientation in managing its employees, which ensures the cohesiveness and consistency of the set of practices implemented by the firm. The second element consists of ‘HRM practices’, which refer to the various functional areas in HRM such as staffing, training and development, compensation and rewards, and work design. The third element in a HRM system refers to ‘HRM policies’, which (Martin-Alcazar,

Romero-Fernandez, & Sanchez-Gardey, 2005). HRM policies are the organisation's statements of intentions regarding its people management activities. They serve as intermediaries between HRM strategy and HRM practices by coordinating two or more HRM practices towards achieving particular HRM strategic objectives (Wright & Boswell, 2002).

Further, empirical studies in HRM have shown that firms may have four types of employees (often referred to as human capital) at any one time, and each type of human capital brings in different types of knowledge to the firm (Bryant & Allen, 2009; Lepak & Snell, 1999; Palthe & Kossek, 2003; Perez & de Pablos, 2003; Colbert, 2004). Each type of a firm's human capital is also viewed differently based on their 'uniqueness' and 'value' to the firm. The 'uniqueness' of a firm's human capital is based on their possession of firm-specific knowledge which is not easily replicated by competitor firms. On the other hand, the 'value' of each type of human capital is based on its ability to decrease costs and provide better products and services towards increasing customer value (Perez & de Pablos, 2003).

The first type of human capital is referred to as the 'core employees' as they possess the 'core knowledge' or firm-specific knowledge which relates to the firm's core competencies. A firm's pool of core employees is built through a long-term strategy involving extensive investment in their training and development. The second type of human capital consists of 'external or alliance partners'. They come in contact with the firm whenever the firm engages in partnership arrangements or collaboration with external parties to gain access to their unique expertise or knowledge. Hence, this group of alliance partners are said to possess 'idiosyncratic knowledge' that is valuable to the firm (Bryant & Allen, 2009; Lepak & Snell, 1999; Palthe & Kossek, 2003; Perez & de Pablos, 2003).

The third type of human capital consists of 'internal partners or traditional employees' possessing 'compulsory knowledge' which refers to valuable but non-firm-specific knowledge. Rather than investing in long-term training and development of existing employees, firms usually acquire this type of human capital from the external labor market to gain immediate access to their knowledge. The fourth type of human capital is made up of 'contract workers' who are unskilled or semi-skilled employees.. They are deemed to possess 'ancillary knowledge' not useful in creating customer value, and not specific to the firm, but supplementary to the rest of firm operations. Firms usually substitute these employees by automating work tasks and thus eliminating the need for human workers altogether, or by establishing external contracting or outsourcing arrangements. This is to reduce the firms' administrative costs and enable them to focus their investment on other types of human capital (Bryant & Allen, 2009; Lepak & Snell, 1999; Palthe & Kossek, 2003; Perez & de Pablos, 2003).

The work of Perez and de Pablos (2003) provides a matrix that captures the different forms of human capital existing within firms along with their 'uniqueness' and 'value' to the firm, and the different types of knowledge in their possession. The matrix is presented in Fig. 2.

When firms effectively manage the organization-environment boundary by accessing and utilizing knowledge from both external and internal environments, the gains are in terms of organizational flexibility (Evans, 1986). To gain continuous competitive advantage, a firm's HRM system should enable their human capital to engage in continuous discovery of new knowledge and enhancement of existing knowledge stocks (Kang, Morris, & Snell, 2007). When not continuously updated, organizational knowledge stocks would deteriorate and become obsolete, and this in turn

would thwart organizational renewal and the generation of dynamic firm capabilities (Levinthal & March, 1993).

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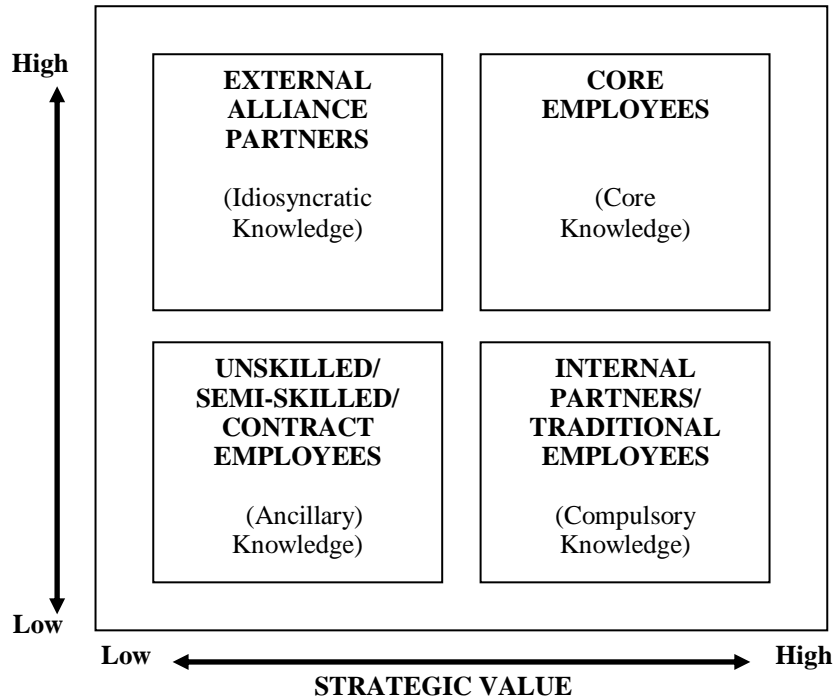


Fig. 2. Forms of human capital and corresponding knowledge types. Adapted from Perez and de Pablos (2003)

The next point of argument is that to ensure active and continuous renewal of their core knowledge, firms should have in place a HRM system that functions to increase the firms’ core employees’ opportunities to access others’ knowledge via increased interaction with internal and external parties (Kang, Morris, & Snell, 2007; Matusik & Hill, 1998; Perez & de Pablos, 2003). For example, even contract employees can contribute to building a firm’s core knowledge base by providing access to knowledge located outside the firm (Matusik & Hill, 1998).

Hence, it is argued that knowledge flow between the different types of human capital is important to enhance individual learning and organizational knowledge stocks. Continuous organizational knowledge updates is critical to enable organizations to renew themselves and adapt to changing business environments. ‘Knowledge flow’ in organizations refers to the movement of knowledge when it is acquired, transmitted, and assimilated to enhance a firm’s existing knowledge base. The term also refers to exchanges of new knowledge across firm boundaries and knowledge sharing within firms (Argote & Ingram, 2000; Kang, Morris, & Snell, 2007). For that matter, organizational learning literature even stresses that managing knowledge flow in an organization may be equally if not more important than managing its knowledge stocks (Kang, Morris, & Snell, 2007). The following section presents more detailed research findings on how

managing knowledge flow between the different types of human capital within firms can stimulate organizational learning.

2.5. Managing organizational knowledge flow

On the relationship between core employees and external alliance partners, studies on social relations in organizations have shown that new knowledge can be accessed through higher interaction and knowledge exchange between these two groups of human capital. Moreover, to effectively secure access to the latest knowledge available outside the firm, core employees would have to maintain external ties which are not necessarily strong, but they only need to be high in number to ensure diversity in terms of knowledge gained (Kang, Morris, & Snell, 2007). Collaborative knowledge sharing with external parties empowers employees to gain knowledge from other areas of specialization which has been shown to drive innovation activities (Edenius, Keller & Linblad, 2010). A firm's HRM system can be used to encourage core employees to develop high number of relationships with external partners and thereby engaging in 'exploratory learning'. Trust, cooperation, and understanding between the parties with firm-specific technical knowledge are cultivated through provision of flexible work structures and broadly defined job tasks, results-based incentives that reward joint contributions, and training on skills for multiple specialized technical areas (Kang, Morris, & Snell, 2007). In this case, the firm's HRM system supports the exploration of diverse new ideas in totally unfamiliar territories (Shane & Venkataraman, 2000).

As for the relationship between the firm's traditional human capital and its core human capital groups, they can be encouraged to engage in 'exploitative learning' by cooperating and leveraging on each other's prior competency bases. This is because both employee groups lie within the firm, and hence, their relationship is different in nature compared to relations between core employees and external partners. There needs to be better teamwork, and interpersonal and cross-functional interaction and collaboration, which can be supported by a HRM system that feature, among others, hiring criteria based on leadership, teamwork, and interpersonal skills, performance appraisals that include feedback from peers and internal customers, training programs focused on team and leadership skills, and employee rewards which include group bonuses and profit-sharing arrangements (McGill & Slocum, 1994; Youndt & Snell, 2004).

For further improved relationships and cooperation between a firm's traditional human capital and its core human capital groups, research shows that barriers based on hierarchy needs to be reduced or even eliminated. Social interaction and smooth knowledge exchange would be impeded whenever employees perceive power differences among them which are based on differing job levels. Hence, more 'exploitative learning' can be encouraged by a HRM system that features flatter organizational structures with reduced number of job levels and pay structures, elimination of status symbols such as reserved parking spaces and other exclusive benefits, and the empowerment of employees through increased autonomy and decision-making authority (Youndt & Snell, 2004).

Knowledge exchanges between all the different human capital groups and both 'exploitative' and 'exploratory' learning can also be supported by the move to capture knowledge through databases, processes, and manuals. Valuable knowledge can be safeguarded and continue to flow when firms create and fill up knowledge storage devices such as information systems, manuals, and standard operating procedures (Youndt & Snell, 2004; Davenport & Prusak, 1998). KM researchers also widely stress on the importance of computerized databases and other technological tools and techniques in support of knowledge sharing and capture (Camelo-Ordaz, Garcia-Cruz,

Sousa-Ginel, & Valle-Cabrera, 2011; Ruberg, Cummings, Piecka, Ruckman, & Seward, 2011; Chen, 2009). In this scenario, a firm's HRM system may be designed to ensure knowledge capture through updates of computer databases and other knowledge repositories, documentation of feedback from employees and customers, and procedures requiring employees to record their newly acquired experiences and skills (Youndt & Snell, 2004).

Knowledge flow among employees and individual learning are also enhanced when a firm's HRM system supports the utilization of information technology infrastructure in the codification, storage, and management of organizational knowledge (Youndt & Snell, 2004). In terms of knowledge protection, a HRM system that supports both knowledge capture and the use of information technology tools for knowledge management would limit or even prevent knowledge loss which may result from employees leaving the firm or completion of collaborative ventures (Subramaniam & Youndt, 2005). To summarize, a firm's HRM system for managing organizational knowledge flow has the capacity to stimulate employee acquisition of new knowledge, high interaction and sharing of knowledge, and application and storage of knowledge in systems, routines, and processes (Kang, Morris, & Snell, 2007; Youndt & Snell, 2004).

Further, when referring to organizational knowledge, the term intellectual capital is widely used by researchers in referring to the sum of all types of organizational knowledge utilized for the creation of competitive advantage (Youndt & Snell, 2004). Hence, the next section of the paper would touch on the concept of intellectual capital in organizations.

2.6. The creation of intellectual capital

An organization's intellectual capital is its collection of all forms of organizational knowledge which is used towards the creation of competitive advantage (Youndt & Snell, 2004). There are three types of intellectual capital within firms, namely human capital, social capital, and organizational capital (de Pablos, 2004).

The first component of a firm's intellectual capital is human capital, which refers to employee knowledge, skills, competencies, experiences, and commitment (Bontis, 1998; Roos, Roos, Dragonetti, & Edvinson, 1997). The second component of a firm's intellectual capital is relational capital or social capital, which is knowledge embedded in relationships among employees, customers, suppliers, industry associations, shareholders, and any other parties in its internal and external environments. Employees' relationships with both internal and external parties denote that there are internal and external social capital (Daud & Yusoff, 2010; de Pablos, 2004). The third component of a firm's intellectual capital is structural capital, which is comprised of software, hardware, manuals, policies and procedures, strategies, culture, and other forms of knowledge storehouses (Bontis, Keow, & Richardson, 2000; Daud & Yusoff, 2010). To go into further detail, structural capital can be further broken down into technological capital or organizational capital, which captures the difference between technology-based and nontechnology-based elements for knowledge capture, but it is more common for researchers to use the term organizational capital when referring to a firm's structural capital (de Pablos, 2004).

The next line of argument is that when a HRM system is designed to manage and enhance knowledge flow and learning in organizations, the process would subsequently lead to the building of an organization's intellectual capital. Hence, the potential links

between the aforementioned HRM system, learning, and intellectual capital are captured in Fig. 3.

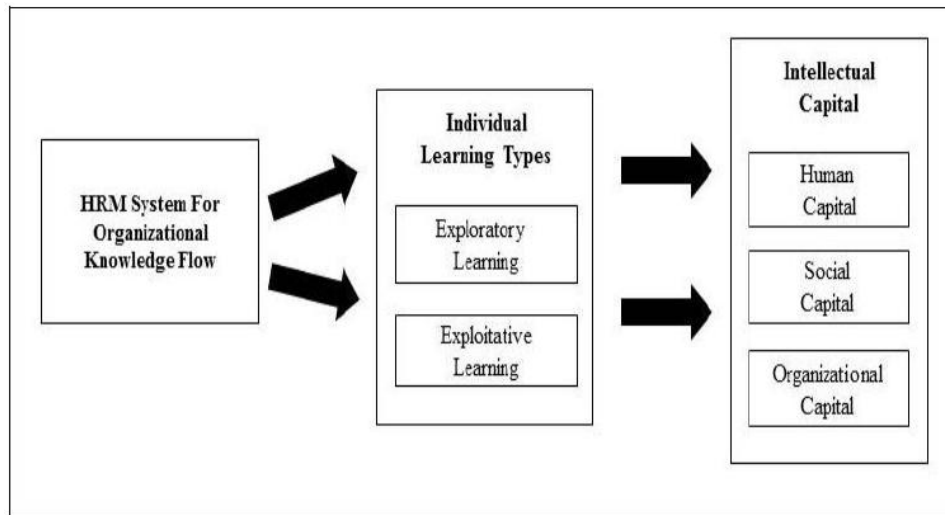


Fig.3. Relationships between a HRM system for organizational knowledge flow, individual learning types, and intellectual capital

3. Implications for research and practice

3.1. Implications for research

In terms of contribution to research, this paper adds on to the body of knowledge on KM and organizational learning within the context of different human capital types and social interactions within the firm. It explains how specific HRM practices can be implemented to stimulate interaction and knowledge exchange between different types of human capital existing within firms at any one time. The enhanced knowledge flow supports both exploratory and exploitative learning in individual employees, which subsequently results in the building of firms' intellectual capital.

This paper also contributes to HRM research as it introduces the concept of HRM system for the management of organizational knowledge flow to enhance employee learning and intellectual capital. Further, the proposed multidisciplinary research model based on studies in HRM, KM, social relations, and organizational learning contributes to the resource-based theory of the firm as it highlights the process through which human resources serve as an internal resource critical for organizational intellectual capital renewal towards sustainable competitive advantage.

3.2. Implications for practice

As for managerial implications, this paper draws attention to the fact that most contemporary firms utilize several different types of human capital at any one time (Palthe & Kossek, 2003), and that each type of human capital brings different value to firms based on their possession of particular knowledge types (Lepak & Snell, 1999;

Perez & de Pablos, 2003). It highlights how individual employees need to engage in both exploratory and exploitative learning to avoid knowledge obsolescence and to optimize the different types of knowledge residing within the respective human capital groups.

4. Conclusions

In addressing the research question of how a firm can leverage upon its human capital types for continuous individual learning and organizational knowledge renewal, the answer seems to lie in a HRM system for managing knowledge flow between its human capital groups. More specifically, potential links have been proposed between a firm's HRM system for organizational knowledge flow with individual learning types and the firm's intellectual capital. In sum, this paper highlights the importance of social interaction for knowledge exchange between organizational members towards continuous learning and the renewal of organizational knowledge stocks.

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