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Role of human and relational capital of universities as underpinnings of a knowledge economy: A structural modelling perspective from north Indian universities

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ABSTRACT

Authors propose a research framework that human capital of universities enhances performance through the mediating mechanisms of relational capital. Against the backdrop of the report issued by the National Knowledge Commission set up by the Indian government with a vision to transform India into a global knowledge hub, this study explores how universities can contribute in contriving a knowledge economy. Data collected from 13 north Indian universities has been tested empirically using structural equation modelling (SEM). Findings reveal that human capital has a significant influence on a university's performance and relational capital partially mediates that effect. The results of this study will be of paramount importance for planners in the Indian higher education sector to achieve the goals that have been laid down in the report. Furthermore, it will help administrators and policy makers at universities to take cognizance of the global shift towards the knowledge economy and leverage human and relational capital in the process.

1. Introduction

If physical capital was central to the debates on economic development in the 20th century, intellectual capital occupies the center stage today. This paradigm shift in the debate of economic development is majorly due to the emergence of the concept of knowledge economy. Knowledge economy is fast becoming concurrent with global competitiveness. So for India to be competitive, the critical success factor would be the ability to exploit its knowledge potential. With 50% of population under 25 years of age, it is a huge demographic dividend that India cannot afford to negate. India needs a knowledge oriented quality building in the field of higher education. In context to higher education, universities are largely those institutions where knowledge creation and dissemination takes place.

This gives Indian researchers and administrators, a new perspective to look at a university's performance and indicates that universities are undergoing a phenomenal change from being good quality education providers, to acting as agents in societal development because of the concept of Triple Helix. Hence universities have an indispensable role to play in India's socio economic development and in creating a knowledge economy.

2. Universities and knowledge economy

Powell and Snellman (2004) defined a knowledge based economy (KBE) as 'production and services based on knowledge intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence'. They further suggested that the key component of a KBE is reliance on intellectual capabilities. Among the theorized models of innovation underpinning a KBE, the triple helix model in particular has emerged as important.

Different forms of triple helix have been proposed. In a laissez faire system, industry might play the leading role, in a more state controlled system, the government might drive academia and industry. However the emergence of a science-based industry and the growth of new firms stimulated by academic research have resulted in the university becoming a primary institution and even replacing industry and government in the lead role as innovation organizer (Etkowitz, 2007).

Bano and Taylor (2015) suggested that much of the debate on KBE and universities is confined to developed countries because they are well equipped to deal with the power of knowledge in terms of availability of human, social and intellectual capital, complemented by the political will of their government. On the other hand developing countries are still groping in the dark with accumulating the pre

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requisite human and social capital needed to create, manage and disseminate knowledge. It will therefore be quite interesting to see how developing countries like India explore the role of universities in creating a KBE.

Universities around the world are dealing with many paradigm shifts like reduced state funding in the wake of increasing competition, changing ways of university governance due to the rise of neo-liberal policies in higher education, shift from teacher driven to student driven learning model and pressures of accountability towards the society. This calls for a fundamental reform in the overall purpose and functioning of higher education and contribution of universities towards knowledge economy. This provides a strong vision to the present study and also constitutes the major research question that can human and relational capital of universities effect their performance and thereby act as a catalyst in taking India towards the establishment of a knowledge based economy?

2.1. National Knowledge Commission (NKC)

Knowledge has become the key driving force in this century and India's ability to emerge as a globally competitive player will depend on its knowledge resources. The planned expansion of India's secondary, technical and higher education has created a reservoir of skills that are indispensable for a sustained economic growth. Despite this, India's achievements in education fall far behind countries with similar economic advancement (Little and Green, 2009).

To this effect, a systemic transformation is required that seeks to address the concerns of the entire knowledge spectrum and create a roadmap to reform the knowledge sector. Keeping this larger objective in mind, the NKC was set up to tap into the enormous reservoir of our knowledge. By constituting the commission, the Indian government showcased its vision and political will to transform India into a global knowledge hub. The 12th Five Year Plan also places high priority on higher education as a central instrument for achieving expansion, excellence and equity.

Recommendations given by the commission were based on the framework given below. These were based on five major thrust areas which formed the knowledge pentagon: **Access to knowledge, Knowledge concepts, Creation of knowledge, Knowledge applications, Delivery of services**.

3. Theoretical framework

On the basis of the framework provided by the Commission, this study aims to explore the contribution of human and relational capital of universities in creating a knowledge economy. It is important to make sure that our universities constantly push the boundaries of knowledge, innovation and performance. It has been noted by Scott (1997) and Rowlands (2013) that though knowledge economy does not necessarily represent the apotheosis of the university, but they are the most adaptable institutions which makes them central to serve the emerging global knowledge economies.

Kruss et al. (2015) reinforced the link between higher education and economic development by drawing on evolutionary economics and the national innovation systems approach in context to South Africa. Teodorescu (2006) has reflected on the nature of institutional knowledge being created, managed and transferred while referring to the institutional researcher and academics as knowledge workers. Tirronen and Nokkala (2009) argue that being at the heart of knowledge creation and dissemination, monitoring and enhancing performance of universities will be a critical success factor in creation of a knowledge economy.

Kloot (2009) draws on two opposing forms of capital that exist within a university: academic capital, involving corporate modes of governance to better serve a knowledge economy and intellectual capital which depends on a scholarly reputation primarily on the basis of research. This study will explore the contribution of intellectual capital in creating a knowledge economy and the implications of the study will be a reminiscent to the work of Chege (2015) in context to Kenya's university sector which interrogated implications of the expansion of Kenyan higher education sector to the economic developmental reforms.

For the purpose of this study, the researchers have extended the concept of Intellectual capital into Human, Organizational and Relational unlike Kloot (2009) who took a purely academic and research based perspective. It is also proposed through this study that despite the fact that universities are turning more towards being neo-liberal, market driven and student oriented in terms of their management style, (Brownlee, 2015; Ferrer and Morris, 2013; French, 2015; Mollis and Marginson, 2002; Nadolny and Ryan, 2015; Pick et al., 2012; Rhoades and Slaughter, 2004; Stephenson et al., 2016; Tadaki and Tremewan, 2013; Guzman-Valenzuela, 2016) intellectual capital still continues to contribute majorly towards their performance thus providing impetus to a knowledge economy. Present research has taken into account the second pillar: "Knowledge Concepts."

'Knowledge concepts' in the report refers to the institutions where knowledge is generated, organized and disseminated and one of the focus areas of the Commission is to revamp these institutions. It includes 'School education', 'Vocational Education and Training', 'Higher Education', 'More students in Maths and Science', 'Professional Education', 'More Quality Ph.Ds'and 'Open and Distance Education and Open Educational Resources'.

Present study proposes to focus on the 'Higher Education' component. The thrust areas of reform and change in higher education according to the vision of NKC are: Expansion, Excellence and Inclusion and this study focusses on" Expansion" and "Excellence".

4. Literature review and research model

The most critical ingredients of firm resource endowment are not tangible but intangible and imperfectly imitable and non-substitutable. Positive psychological capital, social capital and intellectual capital have emerged as complementary forms of financial capital (Tamer et al., 2014). Measuring total value of the components of intellectual capital is indispensable for corporate survival in the knowledge economy. Nerdrum and Erikson (2001) proposed that intellectual capital is an individual's complimentary capacity to generate added value and thus create wealth. This provides a fresh perspective for assessing the present and future value of organizations. Intellectual capital researchers opine that identifying and valuing intellectual capital is increasingly important for knowledge-intensive organizations (Mondal and Ghosh, 2012).

4.1. Dimensions of intellectual capital

The Scandia Navigator model given by Leif Edvinsson suggested that intellectual capital consists of two dimensions: human capital and structural capital. Similar thoughts were reverberated by the OECD which described intellectual capital as the economic value of two categories of intangible assets: organizational (structural) capital and human capital. But majority works (Bontis, 1998; Bontis et al., 2000; Canibano and Sanchez, 2009; Komnenic and Pokrajcic, 2012; Mondal and Ghosh, 2012; Ramirez and Gordillo, 2014; Vishnu and Gupta, 2014) have proposed the widely accepted three dimensions: human, organizational and relational. In this research the two dimensions covered include: human and relational.

4.1.1. Human capital

Essence of human capital is the sheer intelligence of organizational members (Bontis, 1998). Human capital is a strategic resource that contributes to the creation of a competitive advantage and underpin its sustainability (Carmeli, 2004). Empirical evidence shows human capital