CHAPTER 2
LITERATURE REVIEW

This chapter presents a brief overview on Indian higher education system and its reforms and challenges. The chapter also deals with analyzing the factors that influence the performance of Higher Education Institutions (HEIs). Therefore, this chapter uses a systematic literature review to understand the factors in the internal environment of the institutions such as learning organization culture, creative organizational climate, and knowledge creation practices and their impact on the performance of the HEIs. Lastly, the theoretical frameworks adopted in this study to effectively answer the research questions are discussed.

2.1 AN OVERVIEW OF HIGHER EDUCATION SECTOR IN INDIA

2.1.1 Higher Education System in India

In ancient India when Gurukula system of education was adopted, a student went to a teacher or Guru and requested him to teach. When accepted by the guru he stayed at the guru’s place as long as he wished or until the guru felt that the student had learnt all that is necessary for his life. This process was holistic, in the sense, that the student learnt not only the technical aspects of knowledge but also the life skills that shaped a student for lifelong learning. The learning was an ongoing activity for the individual during his period of stay. Today, education in India has taken a modern outlook as a result of British Colonization and even more so in the 21st century. The first
A college to impart Western education was founded in 1818 at Serampore near Kolkata (Agarwal 2009). Teaching is now mostly confined to classrooms in educational institutions that foster learning and knowledge sharing. These institutions are either managed by public or private sector. The education system in India is divided into different levels such as pre-primary level, primary level, elementary education, secondary education, undergraduate level and post-graduate level. The primary education is up to the age of fourteen years, commonly referred as elementary education. The secondary education is usually for children of age group between 14 and 18. After the higher secondary examination (grade 12), students may enrol in general degree programmes such as bachelor’s degree in arts, commerce, or science, or professional degree programmes such as engineering, law or medicine. As per the University Grants Commission (UGC) website there are about 693 universities in India and various regulatory councils have been set up to govern these institutions (www.ugc.ac.in/).

2.1.2 Regulatory Bodies for Higher Education

In India, The Department of Higher Education, MHRD, is responsible for the overall development of the basic infrastructure of higher education, both in terms of policy and planning. It caters to one of the largest higher education sector of the world, next to the United States and China (Gupta & Gupta 2012). The department through its well structured development process is responsible for the expansion of access and qualitative improvement in higher education, through world class Universities, Colleges, and other institutions. The website of the department (www.mhrd.gov.in/) gives a detailed report on its vision, mission, objectives, and functions. Table 2.1 shows a comprehensive list on the structure and function of the regulatory bodies for governing the higher education sector in India.
<table>
<thead>
<tr>
<th>Institution Name</th>
<th>Function</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Advisory Board of Education (CABE)</td>
<td>Higher Education Policy</td>
<td>Apex body to advise the central and state governments pertaining to education affairs.</td>
</tr>
<tr>
<td>University Grants Commission (UGC)</td>
<td>Universities</td>
<td>Coordination and maintenance of standards of university education. It is also the apex institution that grants recognition to universities and disburses funds to such recognized universities and colleges.</td>
</tr>
<tr>
<td>All India Council for Technical Education (AICTE)</td>
<td>Technical Education</td>
<td>Apex body for technical education and for accreditation and maintaining standards.</td>
</tr>
<tr>
<td>Medical Council of India (MCI), Pharmacy Council of India (PCI), Indian Nursing Council (INC), Dentist Council of India (DCI), Central Council of Homeopathy (CCH), Central Council of Indian Medicine (CCIM), Rehabilitation Council of India (RCI)</td>
<td>Medical Education</td>
<td>Accreditation and standards</td>
</tr>
<tr>
<td>Bar Council of India (BCI)</td>
<td>Legal Education</td>
<td>Accreditation and standards</td>
</tr>
<tr>
<td>National Council for Teacher Education (NCTE)</td>
<td>Teacher Education</td>
<td>Accreditation and standards</td>
</tr>
<tr>
<td>Distance Education Council (DCE)</td>
<td>Distance Education</td>
<td>Accreditation and standards</td>
</tr>
<tr>
<td>Indian Council for Agriculture Research (ICAR)</td>
<td>Agriculture</td>
<td>Apex institution and an autonomous institution for planning, conducting and promoting research, education, training and transfer of technology in agriculture and related areas</td>
</tr>
<tr>
<td>National Assessment and Accreditation Council (NAAC)</td>
<td>Accreditation Agency</td>
<td>Assess and accredit institutions under the purview of the UGC based on prescribed criteria.</td>
</tr>
<tr>
<td>National Board of Accreditation (NBA)</td>
<td>Accreditation Agency</td>
<td>Assess the qualitative competence of institutions in technical education approved by AICTE</td>
</tr>
</tbody>
</table>
2.1.3 Types of Higher Education Institutions

In general, UGC classifies higher education institutions (HEIs) based on its structure and objectives as follows (www.aishe.nic.in/).

I. Based on the structure of the institution

Based on the structure of the institution there are university/university level institutions, colleges affiliated/recognized with university, and stand alone institutions not affiliated/recognized with university.

❖ Universities/University level institutions

Central University - A university established or incorporated by a Central Act.

State University - A university established or incorporated by a Provisional Act or by a State Act.

Open University - This imparts education exclusively through distance education.

Private University - A University established through a State/Central Act by a sponsoring body such as a society registered under the Societies Registration Act 1860, or any other corresponding law for the time being in force in a State or a Public Trust or a Company registered under Section 25 of the Companies Act, 1956.

Deemed University - An institution Deemed to be university is a high-performing institute, which has been so declared by Central Government under Section 3 of the UGC Act, 1956.
Institute of National Importance - An institution established by Act of Parliament and declared as Institution of National Importance such as all Indian Institute of Technology (IITs), National Institute of Technology (NITs).

Institute under State Legislature Act - An institution established or incorporated by a State Legislature Act.

Cities/Institutions affiliated/recognized with University

Colleges Affiliated with University / University level Institutions - These are institutions that are necessarily affiliated with a university/university level institution for the purpose of awarding degree. They include the colleges that the university governs or an affiliated college. Some colleges are given autonomous status based on certain criteria such as academic reputation, quality of institutional management etc.

Institutions recognized by the University - These institutions are attached with the University for awarding degree for the programmes conducted in these institutions. Examples of such institutions are Indian Military Academy, Army Cadet College Wing etc.

Off-Campus Centre/PG Centre - A centre of the university established by it outside the main campus and maintained as its constituent unit.

Off-shore Campus - A campus of the Private University or deemed-to-be university established by it outside the country, operated and maintained as its constituent unit.

Regional Centre - A centre established and maintained or recognized by the University. The primary purposes of these centres are to advice, counsel or
render any other service required by the students in regular/distance education mode.

**Study Centre** - A centre established and maintained or recognized by the university for the purpose of advising, counselling or for rendering any other services.

**Evening College** - These colleges impart education in the evening.

- **Stand alone Institutions not affiliated/recognized with university**
  
  These institutions generally award Diploma level degrees for which they require recognition from one or other statutory bodies. e.g. IIMs, polytechnics. Some stand alone institutions enroll exclusively female students and are known as institutions for women.

II. **Based on the Objectives of the institution**

Based on the objectives and focus area of the HEIs, they are classified as follows:

**Research-focused Institutions:** The primary focus of these institutions is to promote research to innovate through its research projects. These are the centres of research excellence which strives for creation of knowledge that benefits the wider society. It has a research integrated curricula and strong research infrastructure funded by government or corporate-led organizations. The academic staffs in these institutions are highly qualified with 90 to 100 per cent of them with doctoral degrees.

**Career-focused Institutions:** These institutions focus on the student’s learning outcomes and make them industry-ready to take up jobs in business organizations. They offer industry-aligned courses by embedding skill-related
training in their curricula. The focus of these institutions is to promote critical thinking skills and problem-solving skills to take up challenging jobs in their workplace. These institutions have higher proportion of undergraduate enrolment with the students having a strong aptitude in their chosen fields. Further, emphasize is given for recruiting academic staffs who have industry experience to act as mentors to students. In order to give hands on experience, these institutions have good tie-up with the industry for research, guest lectures, curricula design and live projects.

**Foundation Institutions:** The primary goal of these institutions is to provide a range of undergraduate and post-graduate courses to the youth of the country to alleviate poverty by imparting skill-based training. They offer programs/courses in humanities, pure sciences, social sciences, engineering and management domains. The polytechnics and other vocational training institutes also come under this category. These institutions strive for equity, access and affordability and thereby, serve the economic needs of the country. The 10% - 20% of faculty in such institutions have doctoral degree and the rest with at least post-graduate degree.

### 2.1.4 Recommendations and Policy Initiatives in Higher Education

In India, higher education sector is undergoing a major transformation in bringing progressive improvements. The various factors that necessitate this are international and national policy changes, rapid growth in student enrolment, decrease in public funding, distinct competition between the institutions including foreign institutions operating in India, and marked emphasis for research and innovation.

University Grants Commission (UGC) of India, a statutory body was established in 1956 through an act of Parliament to govern the higher education sector. The primary responsibilities of UGC include co-ordination,
determination, and maintenance of standards of university education. It is also the apex institution that grants recognition to universities and disburse funds to such recognized universities and colleges (Source: www.ugc.ac.in/). Some of the policy initiatives and recommendations in the Indian higher education sector are discussed below.

**National Knowledge Commission (NKC) Recommendations on Higher Education**

The government of India constituted National Knowledge Commission in June 2005, to prepare a blueprint that suggests reformation initiatives for education institutions. The report gave its recommendations to improve infrastructure in HEIs that would enable India to meet challenges in the 21st century. The commission submitted their reports in three compilations: ‘Report to the Nation 2006’, ‘Report to the nation 2007’, and ‘Towards a Knowledge Society’. The recommendations pertaining to higher education is given in the report of 2006 that focused on three key aspects: Expansion, Excellence, and Inclusion. Expansion refers to the suggestions in establishing more number of universities, implementing change in the system of regulation, and increasing public spending for higher education. Excellence refers to reforming existing universities for enhanced quality in teaching-learning process, research and governance of institutions. Inclusion ensures access to higher education for all deserving students and sustainability in higher education. Further, it emphasizes the value of GER in higher education be increased to 15 and above by the year 2015. The report also suggests creating 1500 universities by 2015, partly by restructuring the existing ones to encourage private participation, philanthropic contributions and industry linkages. In order to accord degree granting power to universities, NKC recommended setting up an Independent Regulatory Authority for Higher Education (IRAHE). Not but the least, NKC to ensure quality in HEIs, insists
upon frequent curricula revisions, introduction of course credit system, internal systems for accountability, research, infrastructure to aid teaching-learning process and improved governance of institutions.

**Recommendations in Twelfth Five Year Plan (2012-2017) on Higher Education**

The some of the objectives and proposals of the 12th Five Year Plan with respect to Higher Education in India are as follows:

1. The process of wide access, inclusiveness, and excellence in higher education are the key aspects in the Twelfth Plan. The stress is laid upon excellence by encouraging private sector and public-private partnerships (PPP) in higher education.

2. It is recommended to re-examine the ‘not-for-profit’ tag in higher education in a more pragmatic manner to ensure quality without losing focus on expansion and equity.

3. To foster a culture for research and innovation in Indian universities in a self-sustaining manner. Some of the suggestions are collaborative research, setting up industry incubation parks, interdisciplinary research in new and emerging fields, inter-university centers etc.

4. To tackle the issue of faculty shortages, it proposes to find innovative ways such as technology-enabled learning through information and communication technologies (ICT).

5. Special Ph.D programme for senior citizens to enrich teaching-learning experience and convert their valuable acquired expertise into useful codified knowledge.

6. To improve quality and promote excellence by revamping and strengthening accreditation bodies.
7. To improve the GER by large enrolment and additional seats for each age cohort entering the higher education system.

8. To increase both public and private investment in higher education (including technical), and to increase in the efficiency of its utilization.

9. To increase the government spending on education from the existing 18.0 per cent or about 1.12 per cent of GDP to 25.0 per cent and 1.5 per cent respectively. An increase of 0.38 per cent GDP means an additional allocation of about Rs.25,000 crores to higher education by both the centre and the state governments.

10. To introduce norm-based funding based on competitive grants and performance contracts in state universities and their affiliated colleges.

11. To enhance employability of graduates by focusing on skills beyond basics of reading, writing and arithmetic to skills such as critical thinking, communication, collaboration and creativity (the ‘4Cs’).

12. To internationalize the Indian institutions by providing greater autonomy to enter into collaborative partnership with the best universities abroad.

Note: The newly formed Indian government in 2014 under the Prime Minister Mr.Narendra Modi announced in August 2014 that there is a need for replacing the Planning Commission by a new body keeping in view of the changed economic scenario. Subsequently, National Institution for Transforming India (NITI) Aayog was constituted on January 1, 2015 (www.thehindu.com) during the submission of this thesis. This study expects that the new institution would address the valid recommendations of the planning commission with respect to the higher education sector in the coming years.
2.1.5 Reforms in Governance

Government of India has brought in various reforms and measures to regulate and improve the quality in higher education sector. The EY-FICCI higher education summit report of 2013 suggested five salient trends in governance reforms since the year 2013 as follows:

**Diminishing role of government in governance:** The government has shifted its focus from direct management of public institutions to indirect forms such as performance based funding and quality recognition. The generation of funds for operation and management of such institutions were earlier supported by government funding but now the shift is on the institutional management, thereby increasing their autonomy in the conduct of their operations.

**Performance based funding:** The thrust for funding is on the performance such as knowledge outcomes and not on the fixed capital assets like size of built-up land, number of books in the library etc.

**Accreditation:** The accreditation agencies and other similar agencies ensure quality in higher education institutions. Periodic assessment and review facilitate these agencies to assess the institutions on a definite set of variables.

**Private and foreign participants:** Earlier, universities were predominantly managed by the government but now private and foreign participants play an active role in the sector. Yet, these foreign participants have to follow the same accreditation norms as laid out by the government for Indian HEIs.
**Thrust towards internalization:** The globalization and internalization in the business sector has also necessitated the reforms in higher education to demand for leadership with global view and international standards.

### 2.1.6 Challenges in Higher Education

Over the decades Indian higher education has witnessed significant expansion and progress. Yet, there are some systemic issues that need to be addressed. The EY-FICCI higher education summit report of 2013 classified these issues as social, economic and intellectual.

**Social issue:** There is significant disparity in higher education across genders, social groups and geographies. For example, it is found that the southern states of India have a higher GER than northern and eastern states.

**Economic issue:** Statistics based on the industry standards of employability of graduates show that half the graduates are unemployable. Further, of the total number of employable graduates a significant proportion comes from the country’s top 30% of colleges.

**Intellectual issue:** India lags behind the other BRIC nations in university world rankings and research output/impact. The Times Higher Education World University rankings for the year 2013-2014 shows that of the top 400 global universities, there are only four Indian universities featured in the list. The concerns in curricula and pedagogy include outdated and irrelevant curricula, poor quality, and limited choice for students to choose programmes. There are also other concerns such as lack of focus on research activity, and the number of high quality partnerships with the academia-academia and academia-industry except in top institutions of the country.
2.2 INSTITUTIONAL PERFORMANCE

To remain competitive, organizations/institutions must find ways to improve its performance through its learning and knowledge management practices. Performance is a multidimensional construct and performance theory is considered to be more recent than learning theory (Dirani 2006; Swanson & Holton 2001). These studies suggested that not one performance theory can explain complex systems. Further, it was evident that the institutional performance has been analyzed for internal functioning and performance of non-profit organizations and in creating such organizations (Saxton & Benson 2005; Cohen & Prusak 2001).

In general, literature review suggests that performance models in organizations are at three levels of analysis viz., individual, group, and organizational (Coffé & Geys 2005; Rummler & Brache 1995; Swanson 1994, 1999). Using these three levels of analysis, Swanson (1994) suggested a performance model for organizations that measures outputs in terms of quantity, time, and quality features. Rummler & Brache (1995) suggested a model for achieving competitive advantage through learning on how to manage individuals, processes, and organizations effectively. They considered that success and failure of organizations depend on understanding the variables that affect the three levels of analysis. Coffé & Geys (2005) gauged the institutional performance of government municipalities and found the effect of social capital on institutional performance. Further, to analyze performance as an outcome measure, a number of major categories of performance are evident in research studies that include financial outputs, customer satisfaction, and employee job satisfaction (Dirani 2006). Particularly, in higher education, performance funding is evident which emphasizes on linking institutional funding directly to performance outcomes.
(Dougherty & Reddy 2013). More recently, knowledge performance has become one of the two important predictors of organizational performance and the other being financial performance (Watkins & Marsick 1993, 1996). Watkins and Marsick’s model indicates how knowledge performance can act as an important performance indicator to assess organizational learning culture. Based on this model, Kumar & Idris (2006) examined knowledge performance in educational institutions. They found that the institutional characteristics such as institutional service, and effective teaching and learning affect the private HEIs performance. Further, previous studies have established that the differential effects of creative organizational climate on the learning organizations (Samad 2004) and the positive effect of knowledge creation practices on organizational performance (Nonaka & Takeuchi 1995).

Therefore, this study focuses on learning organization culture, creative organizational climate, knowledge creation practices and their effects on knowledge performance of HEIs. The following sections from 2.2.1 to 2.4 discuss elaborately on these study variables.

2.2.1 Organizational Knowledge Performance

In order to understand the concept of organizational knowledge performance, it is essential to understand what organizational knowledge essentially means.

“Organizational knowledge refers to the knowledge which an individual uses when acting as an organizational participant. It may be seen as residing in the formal descriptions of the organization and its activities or in the retained records of organizational activity” (Huysman 1996).
This type of organizational knowledge consists of formal knowledge about the organization that deals with, knowledge about the organization, and knowledge of the organization. The knowledge about the organization suggests the activities of the organization, which includes its goals, purpose, vision and mission. The knowledge of the organization includes the knowledge embedded within its people, process, and practices. In other words, this can be considered as the “collective mind” or “organizational memory”. Boisot (1995) classified organizational knowledge based on the dimensions of codification and diffusion. It includes, codified yet undiffused proprietary knowledge, uncodified and undiffused personal knowledge (also called as tacit personal knowledge), codified and diffused public knowledge, and uncodified yet diffused commonsense knowledge. Although in any organization, the basis of organizational knowledge is the tacit knowledge possessed by the individuals, it is also construed as a collective phenomenon that arises out of interaction and communication among the individuals in the organization.

Organizational learning facilitates organizational effectiveness and performance. To provide insight into the common propositions concerning organizational learning for organizational effectiveness, Huysman (1996) classified six different perspectives on the subject. They are as follows: the adaptation perspective, the incremental innovation perspective, the assumption sharing perspective, the organizational knowledge perspective, the learning organization perspective, and the social constructive perspective. He further argued that these perspectives are distinct enough in their approach to organizational learning and treat them as different categories.
This study reviews the literature on institutional knowledge performance using the organizational knowledge perspective and the learning organization perspective.

**Organizational Knowledge Perspective:** Literature review explicitly suggests that organizational knowledge is an information intensive phenomenon (Duncan & Weiss 1979; Stein & Zwass 1995; Wijnhoven 1995). According to Duncan & Weiss (1979), organizational knowledge performance depends on the knowledge about action-outcome relationships and the effect of environment on these relationships. Further, organizational learning which is considered as a continuous evolutionary process impacts knowledge performance and also, strives to improve its processes and practices that result in extension and/or refining the knowledge base (Argote 2013; Alipour et al 2011).

**The Learning Organization Perspective:** Learning organizations adopt double loop learning or generative learning to achieve its objectives, goals and purposes (Marsick & Watkins 2003; Garvin 1993; Senge 1990b, 1996, 1997). This results in enhancing the organizational performance through continuous learning resulting in change adaptation, innovation, and organizational knowledge performance (Kontoghiorghes et al 2005). The learning organization concept uses learning for empowering leadership and for strategic purposes to improve its organizational effectiveness. Ogbonna & Harris (2000) in their empirical study on UK companies argued that the organizational culture that is present in these organizations mediates the relationship between leadership style and performance.

2.2.2 **Knowledge Performance Indicators**

Performance is the key to the success of any organization. KPIs are the measures of inputs, processes, outputs, outcomes, and impacts for
development projects, programs, or strategies. There are several frameworks to create indicators that measure performance in several areas like knowledge management (Roy et al 2000, del-Rey-Chamorro 2003), health care system (Berler et al 2005), project management (Haponava & Al-Jibouri 2011), process improvement (Helgesson et al 2012), education (Wu & Chen 2012), and higher education (Zwain et al 2012). With the purpose of bringing in accountability among higher education institutions, research studies have developed KPIs for higher education. There are three major areas for measuring institutional performance in higher education. They are: innovative learning, research excellence, and personal and professional development (Wu & Chen 2012). However, predicting the outcome of educational operations cannot be done with a single indicator and therefore, requires a system of indicators (Chen 2007; Wang 1996).

Wu & Chen (2012) proposed a list of KPIs for schools based on three dimensions. First, the input dimension consists of educational background and educational resource. Second, the process dimension consists of leadership and management, curricula and teaching, professional development, student activity, and parental involvement and support. Third, the output dimension consists of student performance, teaching and research performance, and overall school performance. Similarly, Suryadi (2007) developed a framework of measuring KPIs for decision support in higher education institutions. The study analyzed the KPIs as key success factors that categorized them as academic, research, and supporting KPIs for institutional sustainability. Maturity models like capability maturity model (CMM) and balanced scorecards (Chen et al 2006) are also used as a diagnostic tool to measure performance and to point out the areas of improvement. For example, Pee & Kankanhalli (2009) proposed a General KM Maturity Model (G-KMMM) based on CMM to guide and assess the progress of Knowledge Management (KM) initiatives at the organizational level. The assessment tool
of the model provides empirical validation for a multi-unit information system at a large public university.

Thus, the literature review suggests that knowledge performance in an organization or institution is governed by several factors such as learning culture and knowledge management practices.

2.3 LEARNING ORGANIZATION CULTURE

There have been calls in the literature to build upon and extend existing theories of organizational learning for organizational performance (Jenkin 2013). Literature review suggests that previous studies have established the relationship between organizational learning and organizational performance across various cultures and organizational settings (Sampe 2012; Noubar et al 2011; Hernaus 2008; Kontoghiorghes et al 2005). For example, Sampe (2012) has studied the influence of organizational learning on performance in Indonesian SMEs context. The study reveals that organizational culture, transformational leadership, and empowerment as valid antecedents of organizational learning. Further, it is found that the constructs in the model have significant relationship on organizational learning outcomes and organizational performance. Similarly, the works of Noubar (2011) and Hernaus et al (2008) establish the relationship between organizational learning and performance that was carried out in Malaysia and Croatia respectively. Although the terms learning organization and organizational learning are often used interchangeably, learning organization is a concept that leads to organizational learning (Tarrini 2004). Therefore, this section presents an overview of the concept, models, and measures used in the literature on the learning organization.
2.3.1 The Learning Organization Concept

The survival of any organization depends on its ability to learn and also unlearn so as create new knowledge. This necessitates organizations to devise and implement rules, procedures, and strategies that promote continuous learning in its day-to-day operations. The concept of learning organization introduced by Garratt (1987) and subsequently popularized in Senge’s famous book, The fifth discipline: The art and practice of the learning organization, defines the learning organization as:

‘a place where people continually expand their capacity to create results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free and where people are continually learning how to learn together.’ (Senge 1990a).

The learning organization has learning as an ongoing process, rather than as a simple intervention to solve an extant problem. This creates an atmosphere where fresh and unrestrained thinking patterns are developed, and aspirations are liberated, making organizations agile in their response to uncertainty and change. The interdependent factors in organizations such as virtual organizations, digital/knowledge era, competitive advantage, complexity, and uncertainty are the driving forces that demand lifelong learning and intense interest in learning organizations (McKenzie & Swords 2000).

Garvin (1993) agrees that a learning organization is one that is ‘skilled at creating, acquiring and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights’.
He further suggests that there are five distinguishing features of such an organization: ‘systematic problem solving; experimentation and the testing of new knowledge; learning from experience; learning from others; and shared knowledge and knowledge-spreading mechanisms’ (Garvin 1993).

According to Pedler et al (1997), ‘a learning company is an organization that facilitates the learning of all its members and continuously transforms itself’.

The common themes in the above set of definitions on learning organizations is that new knowledge can improve performance and hence, it is necessary to design organizational policies, routines, and structure that promotes learning for knowledge creation and sharing. It is also imperative that organizations promote learning at an individual, team and/or organizational level. Some of the characteristics of a learning organization are as follows: (a) leaders create models for calculated risk taking and experimentation, (b) decentralized decision making and employee empowerment, (c) there exists skill inventories and audits of learning capacity, (d) systems for sharing learning, (e) frequent use of cross-functional work team, (f) opportunities to learn from experience on a daily basis, and (g) a culture of feedback and disclosure (Watkins & Marsick 1993). Any organization that features these characteristics can be called as a learning organization.

There are several theorists who discuss and debate on this concept that resulted in several books be published in the last two decades. A systematic literature review finds that there are eight books that deal with the classical school of learning organization. Table 2.2 enumerates the name of the book, author(s), and its publishing details.
<table>
<thead>
<tr>
<th>Name of the Book</th>
<th>Author(s)</th>
<th>Year of Publishing</th>
<th>Original Publisher (Place)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Organizational Learning Cycle: How we can learn Collectively</td>
<td>Nancy H Dixon</td>
<td>1994</td>
<td>McGraw-Hill (London)</td>
</tr>
<tr>
<td>The Living Company</td>
<td>Arie De Geus</td>
<td>1999</td>
<td>Nicholas Brealey, (London)</td>
</tr>
</tbody>
</table>
2.3.2 Differences between OL, LO and LOC

Organizational Learning (OL) is an elusive concept and the burgeoning literature on OL offers considerable confusion surrounding the subject (Inkpen & Crossan 1995; Popper & Lipshitz 2000). While some theorists argue that organizational learning is the sum of individual learning in an organization (Simon 1991; Kim 1993), others contend it as a collective idea, processes, systems, and structure of the organization (March 1991). Leeuw et al (1994) define organizational learning as the process of detecting and correcting errors that is carried out systematically with a culture of efficient and timely evaluations.

While organizational learning and learning organizations (LO) are very closely related practices, yet, they are different constructs (Gorelick 2005). The difference between organizational learning and learning organization is that the former is a by-product of normal work whereas the latter is an ongoing activity that promotes continuous learning. Easterby-Smith et al (2000) provide an overview of the historical development of organizational learning and pointed out that there are differences between authors on the components or pre-requisites for firms especially to become ‘learning organizations’. Örtenblad (2001) has attempted to distinguish OL and LO based on structure, nature, learning entities and location. Using a systematic literature review, Kontoghiorghes et al (2005) elaborated the distinctions between OL and LO based on the following normative distinctions: First, OL is a process or set of activities, whereas LO is a form of organization. Second, learning is a normal activity in organizational learning, whereas it requires strategic effort to develop a learning organization. Third, the literature on OL emerged from academic inquiry, while the literature on LO was primarily from practice. Lastly, OL focuses primarily on individual learners, whereas in LO the learning happens at three levels: individual,
group/team and organizational levels. Thus, in OL, knowledge resides in individuals, while in LO it resides both in individuals and in organizational memory.

**Learning Organization Culture (LOC):** Previous studies suggest that several researchers highlighted the importance of cultural perspective in learning organizations. Culture serves as a sense-making mechanism that guides and shapes values, behaviors, and attitudes of employees (O’Reilly & Chatman 1996). An organization’s culture imposes coherent, order, and meaning that enables the institutionalization of an appropriate sense-making structure to facilitate interpretation of unfamiliar events (Weick 1985). Learning organization culture (LOC) is the practices or culture in an organization that stimulates or enhances the process of learning in its people, process and structure for organizational performance.

### 2.3.3 Learning Organization Models and Theorists

There are several theorists who have contributed to the field of organizational learning. This study discusses two prominent works of the behavioral theorists on the concept of learning organization. First is the concept of the learning organization as discussed by Senge and second is the work of Garvin. Senge (1990a) formulated a theoretical framework for building a learning organization that involves five disciplines. They are personal mastery, mental models, team learning, shared vision and system thinking.

1. **Personal mastery** is a learning discipline that continually seeks to refine and deepen the personal vision that every individual in the organization possess. To achieve ‘personal mastery’ it requires self-discipline of meditative practice and the ability to see the world holistically.
2. **Mental models** are deeply ingrained assumptions, generations, or even pictures and image that influence how we understand the world and take action.

3. **Team learning** encourages new forms of shared learning, dialogue, and collective knowledge as defined by the systemic process for creating a shared vision.

4. **Shared vision** means that the individual visions or goals are integrated into a shared and meaningful organizational vision.

5. **System thinking** is a discipline for seeing wholes with feedback structures for change and transformation. It is the framework for seeing interrelationships rather than things and to see the patterns of change rather than static “snapshots”. Crucially, it is the fifth discipline that forms the ‘conceptual cornerstone’ that integrates the other four supporting disciplines by fusing them into a coherent body of theory and practice.

Garvin (1993) builds on Senge’s theories and describes five building blocks for learning organizations. They are as follows:

1. **Systemic Problem Solving**: It requires a consistent process for problem solving that involves tools and methods to collect facts and data, systematically analyze each with an open mind, identify causes of behavior, and decide on the actions to take.

2. **Experimenting with new approaches**: It requires programs to find innovative approaches and experiment with new ideas (e.g. sabbaticals to other companies, encouragement of risk taking).
3. **Learning from experience and history**: It relates to activities that reflect on the past, review success and failures and record learning in a format that is open and accessible.

4. **Learning from the best practices of others**: It relates to processes for ongoing benchmarking activities that ensure best industry practices.

5. **Transferring knowledge quickly and efficiently**: It requires a common vocabulary to minimize time and effort spent on interpretation. Activities to achieve this competency include personnel rotation, education, and training, centrally produced communications, and standardization programs (Garvin 1993).

**Learning Organization Models**

The systems-linked learning organization model as proposed by Marquardt (1996) has five closely interrelated subsystems: learning, organization, people, knowledge and technology. According to this model, if any subsystem is weak or absent, the effectiveness of the other subsystems is significantly weakened. Berrio (2006) described the learning organization profile using this model in Ohio State University Extension and showed its effectiveness in analyzing the characteristics of the university and the stakeholders involved.

This paper reviews that there are several other models for organizational learning. For example, Crossan et al (1999) proposed the 4I organizational learning model. The 4I model conceptualizes organizational learning as a multi-level dynamic process with individual, group, and organizational levels. It includes both feed-forward and feedback processes such as intuiting, interpreting, integrating, and institutionalizing processes. Tarrini (2004) presented an overview of both OL and LO models. The models
discussed in his study include the OADI-SMM cycle (Kim 1993), the two-dimensional model (Carré & Pearn 1992), E-Flow model (Pedler et al 1997), and INVEST (Pearn et al 1995) model. These models are based on certain relevant dimensions that impact the performance of the organizations. For instance, Carré & Pearn (1992) proposed a two-dimensional model for organizations to become learning organizations. The first dimension indicates the extent to which the general environment (including structure and culture) of the organization enhances and supports the learning in all of its employees. The second dimension indicates the level of motivation, confidence, and competence to learn among the workforce. These two dimensions result in four quadrants: a stagnated organization, a frustrated organization, a frustrating organization and a learning organization. However, this model does not provide any empirical or case study evidence and is frequently presented in the literature to conceptualize OL in learning organizations (Tarrini 2004).

The most widely and commonly used model in many studies is the one proposed by Watkins & Marsick (1993, 1996) and the model shares the characteristics as described in the work of Redding & Catalanello (1994). It attempts to understand on how companies learn to sustain and develop its structure and people.

2.3.4 Measures for Learning Organization Culture

Studies have a great deal of debate on how to investigate organizational learning because of the rather diffuse character of the processes involved, and thus, makes it difficult to measure. Greve (2003) attempted at a study in an effort to establish quantitative measures allied with behavioural stimulus-response model. Another way of measuring LOC is by using case study approach (Easterby-Smith et al 2000). Case study examples have always played an important role in the field of organizational learning. These
discussions have tried to measure OL by understanding whether organizations do benchmarking, or what incentives they provide for learning responses. Literature on empirical studies in the learning organization concept shows two widely used tools that measure LOC. They are Learning Organization Profile (LOP) and Dimensions of Learning Organization Questionnaire (DLOQ). For example, LOP is used as a tool for eliciting responses from staff regarding the nature and state of organizational learning in education settings (Patnaik et al 2013; Pareek 2002). It consists of 48 items covering eight dimensions of organizational learning such as holistic frame, strategic thrust, shared vision, empowerment, information flow, internality, learning, and synergy. Each dimension has six items with a rating on a 5-point Likert scale. Similarly, there are several studies that analyzed the application of DLOQ across several sectors (Marsick 2013; Song et al 2013b). The original version of DLOQ consists of 43 items on a 6-point Likert scale which was subsequently reduced to 21 items (Marsick & Watkins 2003). Yang et al (2004) tested and validated empirically this 21-item DLOQ and proved it as highly reliable. Recently, the journal on Organizational Behavior and Human Resource Management published a second edition on ‘Making Learning Count: Diagnosing the Learning Culture in organizations’. The preface of the article has analyzed the contribution of DLOQ in several fields over a decade (Marsick 2013) and suggested that both the versions of DLOQ find applicability across different sectors including the studies that measure the LOC in education institutions (Nazari & Pihie 2012) and business organizations (Song et al 2008).

2.3.5 Higher Education Institutions as Learning Organizations

Modern universities are more like business organizations, in a sense that they compete for the resources like staff, funds, student enrolment etc. Hence it is necessary to clarify the ways in which we expect the institutions and its culture to exemplify learning organizations. There is no universal
definition for Learning Organization Culture (LOC) with respect to HEIs. Summarizing the general literature on learning organization, this study defines LOC in HEIs as

‘the characteristics in an institution that promotes continuous learning for sustainable improvement in its practices for better institutional performance. The learning thus obtained gets transformed into knowledge that nurtures and fosters individual development, team spirit, and transformational leadership’.

Previous studies analyze the strategies employed by education institutions as learning organizations for continuous learning which is important in change management, innovation, and performance improvement (Gorelick & Tantawy-Monsou 2005; Watkins 2005). Further, LOC in education settings reports satisfaction level with respect to performance in teaching and research activities are heavily influenced by learning organization characteristics (Khasawneh 2011; Ali 2012; Holyoke et al 2012). Another dimension in the study of LOC is the relationship between university culture and management approaches (Knight & Trowler 2000; Sporn 1996). Knight & Trowler (2000) argued that leadership practices and working cultures as important factors at the departmental level to foster collective and collaborative teaching. Patnaik et al (2013) pointed out that organizational learning is below expected level in both private and public HEIs in India. The study used the Learning Organization Profile (LOP) tool to collect the data on the perceptions of the staff about their institutions. The outcome of this study laid emphasis on transformational leadership in HEIs to achieve the status of learning organization. Further, it is also evident in certain studies that department culture and research performance to be positively related with each other (Maki 2012; Bazeley 2010; Dundar & Lewis 1998). Bazeley (2010) developed an empirically based theoretical concept that could be used
to develop research performance indicators based on learning culture. Among other dimensions, the study showed that improved research performance occurs within conditions provided by the institutional context in two aspects: (a) education and training; and (b) opportunities and resources to bring about a range of outcomes such as product, impact, and reputation. Similarly, Edgar & Geare (2013) examined the managerial practices and learning culture within university departments in New Zealand. They found that certain managerial practices when coupled with a supporting set of cultural characteristics impacts research outcomes. However, most of these studies deal with qualitative or descriptive methods and case studies. Further, only few empirical studies have measured LOC within education sector in both developed and developing countries (Marks & Louis 1999; Schechter 2008).

2.4 CREATIVE ORGANIZATIONAL CLIMATE

Creative climate (VanGundy 1984) is a term coined in 1980’s to describe the study of environmental variables and/or attributes that promote or hinder the creative potential of people in social situations or structures such as organizations, classrooms, and families. This was later developed into a concept with a range of theoretical and empirical findings (Amabile & Gryskiewicz 1989; Ekvall & Tangeberg-Andersson 1986; Witt & Beorkrem 1989; Isaksen & Kaufmann 1990). An organization benefits with the effective use of the creative potential of its employees. This is plausible only if the organization embraces and creates a climate that nourishes creativity and innovation (Hvidsten & Labraten 2013). The creative organizational climate focuses on discovering how the organization’s environment influences creativity among individual organization members and their cognitive creative behaviours (Amabile 1988, 1987). Previous studies have also shown the impact of creative climate on performance not only at individual and
organizational level (Amabile & Gryskiewicz 1989; Ekvall & Ryhammar 1998) but also at country level (Bavec 2009; Peterson & Fischer 2004). A climate consists of several attributes that manifests the organizational culture (Axelsson & Sardari 2011). The study by Ekvall & Ryhammar (1998) raises questions about the dual influence of leadership style on organizational outcomes as a result of the impact of organizational climate in a state university college in Sweden. A sample of 130 teachers evaluated the creative climate in their department in terms of creativity and productivity. The results indicate that the behavioural style of the manager and the social climate affects the organizational performance. This reiterates the 3-dimensional model as proposed by Treffinger (1990). The model also called as C-O-C-O suggests that a creative product (outcome) is a function of the person (characteristics) and the process (operations) they perform within their environment (context) as shown in Figure 2.1.

![Treffinger’s 3-Dimensional Model](image)

**Figure 2.1 Treffinger’s 3-Dimensional Model**

Payne & Pugh (1976) proposed the structural approach of organizational climate. Based on the concepts of ‘organizational structure’ and ‘individual’, they argued that climate is an attribute of organizational characteristics such as size, structure, leadership style, and systems
complexity (Clissold 2006). Further, among other things, organizational climate at the individual level include attitudes, feelings, values, interactions, norms, and satisfaction. Similarly, the organizational structure consists of factors such as opportunities to grow, advance, develop, challenging work etc. (Lichtman 2007). In understanding the creative climate dimensions that contribute to innovative organizations, Hunter et al (2006, 2007) proposed 14 dimensions that provide a useful framework for researchers in the field of organizational study. From the perspective of culture, Tran (2008) developed a theoretical model of organizational learning culture using cognitive learning in the innovation literature. The model assumes innovation as the creative and commercial embodiment of organizational learning. The study also found that effective innovation cannot occur without higher learning abilities and that disparate learning cultures within the same organization will inhibit innovation.

Extensive literature study shows the effect of creative climate in education settings but only very few such studies exists (Klimoviene et al 2010; Ekvall & Ryhammer 1999, 1998; Torrance 1963; Christie 1970). Isaken et al (2000) emphasized in their study that creative climate is important for education institutions. Their monograph provides a series of practical suggestions to help educators create a climate that encourages creativity within their classrooms. Argona (2001) studied the impact of Ekvall’s creative climate dimensions in an aesthetic education setting. This work analyzes how aesthetic education helps to enhance creative climate in elementary level classrooms. Similarly, McLellan & Nicholl (2009) studied the impact of creative climate in design and technology classrooms and suggested room for improvement. A unique study by Moran & Volkwein (1988) examined the positive and negative climates in public universities. Finally, it is evident from the literature that environmental variables affect organizational performance such as creativity, but what the affect is and how
they interact is widely debated due to the numerous variables involved in this interaction (Lauer 1994).

### 2.4.1 Organizational Climate versus Culture

The organizational culture and climate are closely related concepts and also, complimentary topics of study in the broad field of organizational studies (Ostroff et al 2012; Gershon et al 2004; Denison 1996; Lauer 1994).

The general distinction stems in the organizational settings as follows:

a). Climate is a more salient cultural phenomenon (Schein 1990) and culture manifests itself through climate (Ouchi 1981).

b). Climate can be studied directly whereas culture is a deeper concept than climate and is explored through organization functions.

c). Climate is shared perceptions whereas culture is viewed as shared assumptions (Schein 1990).

This is also exemplified in Ekvall’s (1991) work as follows:

‘Climate has to do with behaviour, attitudes and feelings which are fairly easily observed. Culture, on the other hand, refers to more deep-rooted assumptions, beliefs and values which are often on a preconscious level, things that are taken for granted’ (p.74).

Research studies that employ organizational climate in conjunction with that of learning culture in organizational studies have proven useful in further understanding the dynamics of organizational life (Lauer 1994; Hunt 1991; Ashforth 1985).
2.4.2 Creative Climate Models

Apart from the models discussed in the above section, there are several other models for creative organizational climate (O’Shea & Buckley 2007; Schepers & van den Berg 2007; Amabile 1988; Ekvall 1983). Amabile (1988) proposed a descriptive model that anchored on 13 elements of work environment at individual and group level. According to the model, there are five stages that measure creativity and organizational innovation process. The key factors that influence the innovation process in organizations include motivation to innovate, resources in the task domain, and skills in innovation management. Ekvall (1983) developed a model with the differentiated external environment (culture, political systems, legislation, markets) which includes nine individual and organizational antecedent variables that affects the individual and organizational performance. This study considers organizational climate as an intervening construct in the model. O’Shea & Buckley (2007) used an integrative model to identify the factors that influence creativity and innovation in organizations. The model identified that at the individual level the emphasis is on creativity and at the organizational level the emphasis is on innovation. Schepers & van den Berg (2007) studied the social factors that affect work environment creativity that includes four main determinants of organizational culture viz., adhocracy perceptions, employee participation, cooperative team perceptions, and procedural justice. Additionally, Axelsson & Sardari (2011) developed the Category-Element-Attribute model to assess and measure an organizational creative climate and provide a checklist for the users to identify the current state of a certain aspect of the climate, and the level of influence that the item has on the long-term performance of the organization. Further, the model suggested a method for gathering data about the specific item. Thus, the model with its climate assessing framework aids researchers and practitioners to assess the organizational climate for its creativity and innovation.
2.4.3 Measures for Creative Climate

There are several instruments that assess creative and innovative environments within organizations (Axelsson & Sardari 2011, Mathisen & Einarsen 2004). For example, some of the widely used instruments are,

- KEYS: Assessing the Climate for Creativity
- Creative Climate Questionnaire (CCQ)
- Situational Outlook Questionnaire (SOQ)
- Climate for Innovation Questionnaire (CIQ)
- Innovation Climate Questionnaire (ICQ)
- Team Climate Inventory and
- Siegel Scale of Support for Innovation

Mathisen & Einarsen (2004) have analyzed each instrument including details about the research on the measure's norms, factor structure, reliability, and validity. A brief description of the two popular instruments KEYS and SOQ has been given below.

1. KEYS: Assessing the Climate for Creativity

Teresa Amabile developed this instrument in 1989 from the Center for Creative Leadership that was then called as The Creative Environment Scales: Work Environment Inventory (WEI). The study conducted an organizational survey that assessed the climate for creativity and innovation in a work group, division or organization. It measured the work environment related to the areas of management practices, motivation, resources and interactions. The instrument consists of 78-items with 8 environmental scales (6 stimulants and 2 obstacles to creativity) and 2 outcome scales (creativity and productivity in the work) that measure using a rating scale.
KEYS Measures

The measures identified in KEYS are management practices, organizational motivation, resources and their outcomes (Source: http://www.ccl.org/). Each of these measures is described below.

Management Practices

- **Freedom**: Deciding what work to do or how to do it; a sense of control over one’s work.
- **Challenging Work**: A sense of having to work hard on challenging tasks and important projects.
- **Managerial Encouragement**: A boss, who serves as a good work model, sets goals appropriately, supports the work group, values individual contributions, and shows confidence in the work group.
- **Work Group Supports**: A diversely skilled work group in which people communicate well, are open to new ideas, constructively challenge each other’s work, trust and help each other and feel committed to the work they are doing.

Organizational Motivation

- **Organizational Encouragement**: An organizational culture that encourages creativity through the fair, constructive judgment of ideas, reward and recognition for creative work, mechanisms for developing new ideas, an active flow of ideas and a shared vision.
- **Lack of Organizational Impediments**: An organizational culture that does not impede creativity through internal political problems, harsh criticism of new ideas, or destructive internal competition.
Resources

- **Sufficient Resources:** Access to appropriate resources, including funds, materials, facilities and information.
- **Realistic Workload Pressures:** Absence of extreme time pressures, unrealistic expectations for productivity and distractions from creative work.

Outcomes

- **Creativity:** A creative organization or unit, where a great deal of creativity is called for.
- **Productivity:** An efficient, effective and productive organization.

2. **Situational Outlook Questionnaire (SOQ)**

The work carried out by Göran Ekvall during the 1950s influenced in this instrument development that has refined by more than fifty years of research and development (Isaksen 2007; Isaksen & Ekvall, 2006; Isaksen et al 2001). It is a multi-method assessment where the 10 dimensions in the Creative Climate Questionnaire have reduced to nine dimensions. The nine dimensions are Challenge/Involvement, Freedom, Trust/Openness, Idea-time, Playfulness/Humor, Conflict, Idea-support, Debate, and Risk-taking. There are 53 items that assess these nine dimensions with three open-ended questions designed to get narrative data from the respondents. The current version of 2001, the sixth in series, has the dimensions of risk-taking and Trust/Openness scales that have their Cronbach alphas below the minimum target of 0.70 (0.64 and 0.62 respectively). Further, some of the items within these dimensions did not load on their appropriate theoretic factors (Isaksen 2007). Since this instrument generally used in action research program, it is
important to review its psychometric adequacy continuously and also, use the results to refine the instrument for better analyses.

2.5 KNOWLEDGE MANAGEMENT

Successful organizations are efficient at creating and managing knowledge in people and within the organization (Argote 2013). One potential avenue for creating knowledge is through organizational learning (Vera et al 2011). Further, properly managed knowledge practices are very powerful tools in creating new organizational knowledge. Therefore, this section deals with understanding the concepts in knowledge management that results in improved organizational knowledge performance.

2.5.1 Knowledge Creation

In knowledge-intensive organizations like institutions of higher education, knowledge and its management play an increasingly important role (Sedziuviene & Vveinhardt 2009; Bhusry & Ranjan 2011). Knowledge is generally classified as tacit and explicit. According to Polanyi (1967), tacit knowledge is hard to verbalize and cannot be reduced to rules or standard operating procedures. In contrast, explicit knowledge is the codified knowledge that is easily expressed. The interplay between the tacit and explicit knowledge leads to new knowledge creation through the processes of knowledge sharing, conversion, and expansion. Huysman (1996) argued that creating new knowledge is possible through internal learning, imitation or as a result of experimenting and creativity. Internal learning happens through the processes of externalization, objectification, and internalization of knowledge. For example, university as an organization may learn from its students, say for instance, student participation in committees or during day-to-day encounters. When this feedback knowledge results in changing the curriculum, in changing the ways it approaches students, or in changing perceptions of its relation with the environment, then the university has
learned. This is also called as ‘Feedback Learning’ (Huysman 1996). Next, imitation or learning from others results new knowledge when the organization imitates the practices of other organizations. For example, new members from other organizations may bring their experiences and this diffusion of external knowledge of the individuals is termed as ‘Learning from others’. Finally, experimenting and creativity by the members in the organization generate ideas that results in innovation and new knowledge. This is called as ‘Creative Learning Process’ and is most prominent in so-called ‘Learning Organizations’.

2.5.2 Knowledge Creation Practices

The core of the knowledge creation practices are the learning systems in an organization. The learning systems are the mechanisms by which learning is perpetuated in the organization. Previous studies have shown that right knowledge practices environment (KPE) can foster knowledge creation practices in education (Bauters et al 2012). Knowledge creation in education was explained by Paavola & Hakkarainen (2014) using trialogical approach. The main theoretical elements of the approach are mediation, knowledge artifacts, knowledge practices, and object-oriented activities. Moodysson (2008) argued for a rethinking of the way social scientists should approach interactive knowledge creation in life science communities using the principles and practices such as ‘local buzz’ and ‘global pipelines’. According to Shrivastava (1983) learning systems include a variety of formal, informal, cultural, and historical schemes for managing the process of knowledge sharing within the organizations. These systems attempt to objectify the subjective personal knowledge of individual members into an organizational knowledge base (Huysman 1996). Particularly, the information systems during learning help in knowledge creation practices in organizations. Literature review reveals six important information intensive information phenomena that characterize organizational learning (Huysman
1996). They are externalization of knowledge, objectivation of knowledge, internalization of knowledge, information selection, information interpretation, and idea generation.

**Externalization of Knowledge**

The externalization of knowledge is the exchange of individual knowledge through communication and interaction of the individuals in an organization. In general, organizations organize work-meetings, committees, project groups, conferences, consultative structures and other forms of structures communication to enable externalization of knowledge. It is also called as participative learning systems (Shrivastava 1983). It occurs during day-to-day practices both in formal groups and informal groups. In addition to face to face communication, ICT tools such as telephone, e-mail, hand-held devices, and computers support externalization.

**Objectivation of Knowledge**

When knowledge is externalized, it becomes objectified into collective knowledge that is stored as organizational memory. It may range from explicit, embodied and embrained knowledge such as manuals and organizational annuals, to tacit knowledge such as language, rituals and symbols. Information systems, such as libraries, Management Information Systems (MIS) and database act as repositories of explicit organizational memory.

**Internalization of Knowledge**

Objectified knowledge will in turn be internalized by organizational members when it is used in practice. Internalization of knowledge takes place through learning from the past experiences and by imitating colleagues. Learning from past often happens through story-telling, gossiping, and idle
talk. Past experiences can also be transformed into explicit information systems in the form of manuals, such as training manuals. Learning by imitation can be supported by cooperation and apprenticeship. The role of computerized information systems becomes limited during internalizing explicit knowledge.

**Information Selection**

Selecting information from the environment is the feedback learning and learning from others. During feedback learning, the source of information is from clients, customers, suppliers, and other stakeholders. In the case of learning from others, the environment has a much scope and includes actors within the ecology of organizations. Management decisions such as what environments are relevant and what information is useful from these environments, are important to these two types of learning.

**Information Interpretation**

In addition to information collection, interpreting the information is also important during knowledge creation practices. The same information could be interpreted differently when presented, such as quantitative or qualitative form, graphs or stories, verbal or written mode. In most instances, the degree of information richness influences the learning process. Further, reference groups, self-referential forces, and specialization significantly influence the style of information interpretation. Individuals create interpretations according to the (cultural) norms that are prevalent within their organization or group and thus influence knowledge creation in team/group culture.

**Idea Generation**

The practices for idea generation are mainly suited to support creative learning. For example, many organizations have started having
incubation centres to foster creativity. Simulation techniques such as scenario planning have often been considered as important (management) tools to stimulate "generative learning" (Senge 1990b). These systems stimulate exploring within predefined solutions which limits the open character of idea generation. A more unrestricted form of idea generation is through brainstorming and exchange of ideas. Group Decision Support Systems (GDSS) are also used during idea generation. GDSS is an interactive computer based system which facilitates finding solutions for unstructured problems, non-quantitative, and facilitates electronic brainstorming. Through electronic brainstorming, ideas get exchanged for new ideas to emerge. Thus, by building on each other's ideas, individuals get creative insights that they did not have before (Turban 1995).

Further, from the review of literature on the ways that could promote knowledge creation practices, it is evident that new knowledge gets created in diverse sectors through certain operational practices. For example, quality management practices (Linderman et al 2004; Shan et al 2013) and agile practices (Khalil et al 2013) are some of the practices adopted by organizations to create knowledge. Further, management practices such as transformational leadership (Song et al 2012b), organizational culture (Moen et al 2012) and climate (Song et al 2013a), learning culture (Huysman 1996), and communities of practice (Wenger & Snyder 2000) are some of the determinants for knowledge creation practices. Song et al (2012b) showed that transformational leadership along with the mediating effect of employees’ work engagement result in effective knowledge creation practices in Korean business organizations. Song et al (2013a) analyzed the factors that influence knowledge creation practices in career and technical education teachers. It was found that transformational leadership affects the knowledge creation practices and supportive school climate had no direct relationship with knowledge creation practices.
2.5.3 Models for Knowledge Creation

Bratianu & Orzea (2010) have discussed some of the important models for knowledge creation in organizations. This study presents below a brief overview of these models.

Nonaka’s knowledge dynamics model: Nonaka developed the well-known knowledge dynamics model in the early 90's (Nonaka 1991, 1994) and the model has subjected to continuous improvement since then (Nonaka et al 1994; Nonaka & Takeuchi 1995, Nonaka et al 2001, 1996; Nonaka & Toyama 2007). Basically, this model consists of three main structures: the SECI model, the Ba shared context, and the knowledge assets platform. The SECI model is the epistemological dimension of the model that describes on how knowledge gets converted from tacit to tacit, tacit to explicit, explicit to explicit and explicit to tacit. This transformation is represented as a cyclical process. The concept of Ba is the ontological dimension of the model that describes the process of knowledge creation: individual knowledge gets converted into group knowledge, which in turn gets converted into organizational knowledge with possible reverse actions from the organization toward group and individual. Finally, the knowledge assets platform explains how the whole organization may exchange knowledge with its operational environment, which may be conceived as a knowledge ecosystem.

Nissen’s knowledge dynamics model: The idea of how knowledge moves through an organization motivated this study. According to this model, knowledge flows lie on the critical paths of the work flows they enable (Nissen 2006). In this model, along with Nonaka’s two dimensional views there are two more new dimensions: life cycle and flow time. Life cycle refers to the different sequence of activities associated with the knowledge flows like knowledge creation, knowledge sharing and knowledge use. Flow time
refers to the time duration expressed in minutes, days or years required for the knowledge to move from one person, organization, place, or time to another.

**Boisot’s Model:** Boisot’s model is an abstract model of knowledge dynamics based on the theory of information. The I-space in the model is a generic domain characterized by three dimensions: codification, abstraction and diffusion. Codification refers to the way we make use of explicit knowledge. Abstraction reduces the number of categories from which we choose codified events. It generates concepts rather than precepts. Diffusion is the property of data and knowledge that gets spread to the target population (Boisot 1995).

**EO_SECI model:** A group of researchers in 2007 extended Nonaka’s SECI model. Their model has the two dimensions of the SECI model and interlinked dynamically at four distinct levels: individual, group, organisational and inter-organisational. Thus, it consists of dimensions such as epistemological dimension (E), ontological dimension (O), socialization (S), externalization (E), combination (C) and internalization (I).

### 2.5.4 Measures for Knowledge Creation Practices

The literature on knowledge creation practices suggest that there are several tools based on the SECI model or the knowledge conversion theory (Song et al. 2011, 2012a; Lloria & Moreno-Luzón 2005). Song et al. (2011) developed and validated a measurement tool for assessing organisational knowledge creation practices based on Socialization, Externalization, Combination, and Internalization (SECI) processes of the knowledge creation theory. The scale used a sample of 455 knowledge workers from four Korean for-profit organizations. They adopted a systematic procedure which includes, initial item and domain development based on a comprehensive literature review, reliability assessment, item deduction, construct validity, and psychometric property assessment. The results suggested that 17 items related to individual and team members' practices of
acquiring and sharing knowledge in organizational contexts measured the four domains of SECI knowledge creation practices. In the following year, the same authors developed a tool based on knowledge conversion theory using five knowledge creation phases. The phases are as follows: sharing tacit knowledge, creating concepts, justifying concepts, building prototypes, and cross-leveling knowledge (Song et al 2012a). Both the tools have high reliability and validity and thus, serve as a good tool to measure the underlying concepts.

Lloria & Moreno-Luzón (2005) designed and validated different scales for measuring enablers or the forces behind knowledge creation in 167 large-sized Spanish firms. They based their research fundamentally on the ideas proposed by Nonaka & Takeuchi (1995), later developed by Nonaka et al (2000) and von Krogh et al (2000). The tool measures the following enablers: intention or common goal, autonomy, fluctuation and creative chaos, redundancy, variety, trust, and commitment.

2.6 RESEARCH GAP

The literature review of this study reveals that existing literatures on the organization culture and knowledge management have been widely used in business organizations but not in HEIs. Further, it is found that previous studies focuses upon learning culture, creative climate and knowledge management practices to impact overall performance but the extent to which all these variables influence the knowledge performance has not been studied. Further, this study finds that there exists no previous study to measure the efficiency of the HEIs based on knowledge performance. Hence, this study attempts to develop an integrated model to analyse the knowledge performance of HEIs and to determine their efficiencies based on the derived model.
2.7 THEORETICAL FRAMEWORK

This study employs multiple frameworks to develop a knowledge performance model for higher education institutions based on learning organization culture, creative organizational climate and knowledge creation practices. The theoretical framework is based on the model of Yoon et al (2010) who studied the structural determinants of team performance based on the mutual influences of learning culture, creativity, and knowledge. A discussion on the frameworks used in this study is given below.

2.7.1 Learning Organization Model

The conceptual framework for learning organization culture in this study is an integrated model as developed by Marsick & Watkins (2003) and Watkins & Marsick (1999, 1996, 1993). They demonstrated how organizations could be assessed for their learning culture based on seven distinct but interrelated action imperatives. The dimensions and their definitions given below are adapted from the study conducted by Marsick & Watkins (2003).

1. **Create continuous learning opportunities:** Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth.

2. **Promote inquiry and dialogue:** People in the institution gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation.

3. **Encourage collaboration and team learning:** Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded.
4. **Create systems to capture and share learning:** High and low-technology systems to share learning are created and integrated with work; access is provided; systems are maintained.

5. **Empower people toward a collective vision:** People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do.

6. **Connect the organization to its environment:** People are helped to see the effect of their work on the entire institution; people scan the environment and use information to adjust work practices; the institution is linked to its communities.

7. **Provide strategic leadership for learning:** Leaders model, champion, and support learning; leadership uses learning strategically for key results.

Of the seven variables listed above, the first four analyzes the learning characteristics of the organization at the people level and the last three at the structural level. The model characterizes these variables at three levels viz., individual, group/team, and organization. The individual level has two dimensions: continuous learning and dialogue & inquiry. The group level has two dimensions: team learning and collaboration. The organizational level has four dimensions: embedded systems, system connections, empowerment, and provide leadership for learning. Further, the model measures the organizational performance outcome with two variables namely, knowledge performance and financial performance. But, the methodology of this study employs knowledge performance as the only outcome variable where similar studies in educational settings exist (Kumar & Idris 2006).
2.7.2 Ekvall’s Creative Climate Dimensions

Axelsson & Sardari (2011) developed a framework to assess organizational creative climate based on the Ekvall’s (1996) ten dimensions but their framework was not validated. Hence, the conceptual framework to assess the creative organizational climate in this study is the ten dimension model as identified by Ekvall (1996). The ten dimensions are as follows:

1. **Challenge** - It refers to the degree to which people are motivated to work in order to achieve the goals of an organization. The climate has a dynamic, electric and inspiring quality.

2. **Freedom** - It refers to the freedom of the people within an organization to plan their work and choose one’s means to accomplish an assigned task.

3. **Idea Support** - It refers to how supportive the organization is towards creative behaviour for the development of new ideas.

4. **Trust/Openness** - It explores the strength of relationships and the emotional safety the organization provides its people.

5. **Dynamism/Liveliness** - It describes the eventfulness within an organization.

6. **Playfulness/Humor** - It refers to the spontaneity and ease displayed in the workplace.

7. **Debates** - It refers to the discussions and critical thinking to accept diverse perspectives within an organization.

8. **Conflicts** - It refers to the personal and emotional tensions due to differences among the employees within an organization. It is considered as an obstacle to creativity.

9. **Risk Taking** - It refers to the low uncertainty avoidance and promotes new challenges.
10. **Idea Time** - It refers to the extent that employees find time to work on new ideas.

2.7.3 **SECI Model**

The conceptual framework for the knowledge creation practices is the Nonaka’s four modes of knowledge conversion process. It is also known as SECI model (Socialization-Externalization-Combination-Internalization) (Nonaka & Takeuchi 1995). Figure 2.2 shows a clockwise spiral in the model that depicts continuous learning process.

![SECI Model Diagram](image)

**Figure 2.2 SECI model of Nonaka & Takeuchi (1995)**

The model shows that the organizational learning depends on initiating and sustaining the learning spiral where the understanding moves deeper and deeper levels to create new knowledge (Nonaka et al 2001). This model views knowledge either as tacit or explicit. Tacit knowledge is context specific, subjective and experience based that cannot be expressed in words, sentences, numbers or formulas. Tacit knowledge is the cognitive skills such as beliefs, images, intuition, and mental models. It further includes technical skills and know-how. Explicit knowledge is context-free, objective and rational and expressed in words, sentences, numbers or formulas. According to the SECI model, conversion of knowledge from one form to another is as follows:
Socialization: The process of converting tacit knowledge into new tacit knowledge is called socialization (Martin-de-Castro et al 2008). It involves transfer of knowledge from an individual to individual through interaction and socialization such as informal meetings outside the workplace. This also results in acquired skills and common mental models beyond organizational boundaries through the interaction with external stakeholders (Nonak et al 2000).

Externalization: It is the process of converting tacit knowledge to explicit knowledge. The organization expresses formally its internal rules and regulations by writing it down as documents. Individuals share their tacit knowledge or elicit others through communication. Externalization is also a process where interactions among individuals happen within a group.

Combination: In combination phase, the knowledge that is explicit gets transferred as explicit knowledge in a more systematic manner. Documents, email, database, meetings and briefings are some of the means in an organization where combination allows knowledge transfer among groups across organizations.

Internalization: It is the process where explicit knowledge gets converted into tacit knowledge. The tacit knowledge is experiential and closely related to ‘learning by doing’. This tacit knowledge that gets accumulated at the individual level can then set off a new spiral of knowledge creation when it gets shared with others through socialization (Nonaka et al 2000).

Thus, this chapter discussed in detail, the higher education sector in India, and the variables required for knowledge performance in HEIs such as the learning organization culture, creative organizational climate and knowledge management. Finally, the chapter presented the theoretical framework used in this study.