CHAPTER – I

INTRODUCTION
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1.1 Knowledge sharing

Knowledge is an important resource which is critical for the development of nation and institutions. Knowledge as a resource brings competitive advantage to institutions as “it signifies intangible assets that are unique, matchless and non-substitutable. It is a matter of concern to the institutions that “the source for competitive advantage exist in the mere existence of knowledge at any given point of time, rather than to leverage the institution’s capability to efficiently use the existing knowledge to generate new knowledge assets and to act upon them” (Barney, 1991).

Institutions are accepting knowledge management (KM) projects to regulate and manage the knowledge resources. There has been a tendency to put a substantial investment in technologies in the form of knowledge management systems (KMS). “Knowledge management refers to a systemic and organizationally specified process for acquiring, organising and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work” (Alavi & Leidner, 1999). In another study by Alavi and Leidner (2001), defines KMS as “IT (Information Technology)-based systems developed to support and enhance the organisational processes of knowledge creation, storage/retrieval, transfer, and application”. “Institutional spending on KM was estimated to increase from $2.7 billion in 2002 to $4.8 billion in 2007” (Bebcock, 2004). “A key enabler of knowledge management is knowledge sharing” (Alavi & Leidner, 2001; Nonaka & Takeuchi, 1996). Knowledge sharing is essential to increase the competencies among the employees and to obtain sustained competitive advantage (Sánchez, Sánchez, Collado-Ruiz, & Cebrián-Tarrasón, 2013). Prahalad & Hamel (1990) opine that “institution’s core competencies reside in the collective learning of the institution be it practice, teaching or technological capabilities, that are inimitable by the competitors.”

The ability to inspire its employees to share knowledge gives a rich intangible dividend for organizations in the future. The ability to create such a knowledge sharing environment is the challenging issue for institutions, Hansen, Nohria, &
Tierney (2000) claim that successful institutions use two KM strategies, viz., “codification and personalisation”. The codification strategy proposes that "knowledge is carefully codified and stored in databases, where it can be accessed and used easily by anyone in the company" (Smith, 2001). One may observe here that knowledge gets disconnected from the source (the individual(s) who generated it). The knowledge databases such as electronic repositories, digital libraries or institutional repositories act as a great source for knowledge transfer. As an instance, on completing a successful surgical operation, the team of medical professionals who are part of it may document the best practices followed or lessons learned and store it in the knowledge repository of their institute. The codified knowledge enables the easy diffusion/propagation of knowledge to other members of the institute. Personalization strategy, on the other hand, presumes that the source and the knowledge possessed by it are inseparable and thus cannot be disconnected from its source. The effective way of knowledge sharing is the one-to-one interaction between the source and the receiver. The communication between them could be “face-to-face interaction or through email, instant messaging, text messaging, videoconferencing, groupware etc” (Chennamaneni, 2007).

The focus of both the KM strategies differs in their approach, although both of them heavily dependent on the technology for their function. While the codification emphasises on archiving of knowledge, personalisation facilitates the dissemination of knowledge. Technology-mediated personalisation strategy is sine-qua-non in a distributed work environment and the participation in global teams. The trend in interpersonal communications shows the increased use of tools and technologies related to communication and sharing. It has a distinct advantage as the people can work in a distributed environment and still able to engage in knowledge sharing. Technology is certainly making knowledge sharing a practical solution regardless of the strategy adopted. Realizing the role of technology in knowledge sharing, it is not surprising to see institutions spending heavily on the tools and technologies required for KMS. Chennamaneni (2007) identifies the contributing tools and technologies in knowledge sharing. Chennamaneni’s (2007) list includes:
Group Ware and Collaboration tools
Expertise ‘Yellow Pages’ (computerised directory for locating experts having specific knowledge)
Knowledge Repository (existing expertise, lessons learned, best practices etc.)
Intranets (including corporate portals)
Email (listserv etc.)
Discussion forum (using tools like a bulletin board, chat room etc.)
e-learning tools (interactive systems for learning)
Desktop computer conferencing (using networked PC simultaneously for discussion and information exchange with tools such as net meeting, instant messaging, etc.)
Videoconferencing
Teleconferencing

Very rightly, Chennamaneni (2007) says that “while tools and technologies are important for supporting knowledge sharing strategies, practical implementations have found that the mere availability of technology does not guarantee that knowledge will be shared. There is, however, a lack of understanding of the factors that shape knowledge sharing behaviors in institutional context”.

1.2 Need for the study

The survival and progress of institutions are determined by knowledge sharing happening in them. Attitude to share knowledge (and not to share!) is not well understood and thus requires to be investigated. The knowledge sharing behavior of medical practitioners has received very scant attention in the literature. "Identification of factors that motivate employees to share knowledge for the benefit of other employees and the firm is regarded as a high priority issue for organisations" (Rahab & Wahyuni, 2013). The knowledge sharing behavior of medical practitioners cannot be speculated to be somewhat similar to other groups. Hence, it is only a systematic study of the group would reveal the factors affecting and the antecedents of knowledge sharing. In India, the prevailing condition of non-availability of studies on knowledge sharing in general and among medical practitioners, in particular, is conspicuous. It is true that “even much less empirical research exists on the deeper
individual issues that shape individual’s beliefs, attitudes, intentions, and behaviors in knowledge sharing” (Rahab & Wahyuni, 2013). It is hoped that this research study is a little step forward in filling the gap.

Of late, there are some studies which concentrate on knowledge sharing (Yilmaz, Aktas, Ozer, & Ozcan, 2013). While these studies do give some idea, they do not prominently measure the employee’s actual knowledge sharing behavior. Moreover, those studies concentrate on the non-medical field. There is also a growing demand for such studies and there is a dire need for studies which investigate factors that outline knowledge sharing behaviors in different organisational setups (Rahab & Wahyuni, 2013). The purpose of this research, thus, was to find out the causative issues that might impact knowledge sharing behaviors of medical practitioners in India. The effects of three determinants of knowledge sharing - psychological, organisational and technological factors – are examined in this study.

Knowledge sharing is commonly accredited as vital for the socio-economic growth in the light of rapid advancements in information technology across the world. Many studies of knowledge sharing concentrate in the corporate sector. So, it is needed to examine and enhance knowledge sharing culture in academic institutions. Hence, the present study has been taken up.

1.3 Statement of the problem

The title of the present study is “KNOWLEDGE SHARING AMONG MEDICAL PRACTITIONERS: A STUDY”.

The operational definitions for the keywords that appear in the title are given below. The concepts given below are used in this thesis in accordance with the definitions cited.

Knowledge

• “Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning”.
“Knowledge can be considered as a state of mind, an object, a process, a condition of having access to information and a capability” (Alavi & Leidner, 2001; Wasko & Faraj, 2000).

“The objective perspective regards knowledge as a thing or object, independent of human action” (Wasko & Faraj, 2000).

Knowledge sharing

Davenport and Prusak (1998) define "knowledge sharing as a process that involves exchanging knowledge between individuals and groups".

Alavi and Leidner (2001) compared knowledge sharing to knowledge transfer and define it as, “the process of disseminating knowledge throughout the organization. The dissemination can happen between individuals, groups or organizations using any type or number of communication channels”.

Medical practitioners

Definition of ‘medical practitioner’ according to Collins English dictionary -a qualified person who works as a doctor in a hospital or private practice (Forsyth, 2014).

“A physician, medical practitioner, medical doctor, or simply doctor is a professional who practices medicine, which is concerned with promoting, maintaining, or restoring health through the study, diagnosis, and treatment of disease, injury, and other physical and mental impairments” (WHO, 2011).

1.4 Objectives of the study

The structure of the objectives is based on universally recognized themes that are used to assess the amount of knowledge sharing in an organisation. The objectives considered in this study were as follows:

Objective 1. To study the influence of organisational factors on knowledge sharing practices of medical practitioners.

Objective 2: To study the influence of individual factors of medical practitioners on their knowledge sharing activities.

Objective 3. To study the influence of technological factors on knowledge sharing among medical practitioners.
1.5 Hypotheses

With the intention of meeting the objectives of this research study, nine research hypotheses have been formulated. Each of these hypotheses includes the six categories of respondents - Professors, Associate Professors, Assistant Professors/Lecturers, Tutors, Senior Residents and Junior Residents - as one of the group variables. The hypotheses of the present study are as follows:

**Hypothesis 1**

H<sub>0</sub>: There is no significant difference in the perception of management support among the six categories of respondents.

H<sub>1</sub>: There is a significant difference in the perception of management support among the six categories of respondents.

**Hypothesis 2**

H<sub>0</sub>: There is no significant difference in knowledge sharing culture among six categories of respondents.

H<sub>1</sub>: There is a significant difference in knowledge sharing culture among six categories of respondents.

**Hypothesis 3**

H<sub>0</sub>: There is no significant difference in preferences among six categories of respondents with respect to infrastructure for knowledge sharing.

H<sub>1</sub>: There is a significant difference in preferences among six categories of respondents concerning infrastructure for knowledge sharing.

**Hypothesis 4**

H<sub>0</sub>: There is no significant difference in accessing information from non-library resources among six categories of respondents.

H<sub>1</sub>: There is a significant difference in accessing information from non-library resources among six categories of respondents.

**Hypothesis 5**

H<sub>0</sub>: There is no significant difference in preferences among six categories of respondents concerning the tools and technology used for knowledge sharing.

H<sub>1</sub>: There is a significant difference in preferences among six categories of respondents concerning the tools and technology used for knowledge sharing.
Hypothesis 6

$H_0$: There is no significant difference in preferences among six categories of respondents concerning the attitude towards knowledge sharing.

$H_1$: There is a significant difference in preferences among six categories of respondents concerning the attitude towards knowledge sharing.

Hypothesis 7

$H_0$: There is no significant difference in the personal factors influencing the knowledge sharing among six categories of respondents.

$H_1$: There is a significant difference in the personal factors influencing the knowledge sharing among six categories of respondents.

Hypothesis 8

$H_0$: There is no significant difference in preferences among six categories of respondents concerning benefits of knowledge sharing.

$H_1$: There is a significant difference in preferences among six categories of respondents concerning benefits of knowledge sharing.

Hypothesis 9

$H_0$: There is no significant difference in preferences among six categories of respondents with respect barriers towards knowledge sharing.

$H_1$: There is a significant difference in preferences among six categories of respondents with respect barriers towards knowledge sharing.

1.6 Methodology

This study is a survey of medical practitioners using a questionnaire as the major data collection instrument. Data from personal interviews and observation supplemented the data collected through questionnaire. The current study adopts the theory of reasoned action (TRA) and theory of planned behaviour (TPB) as a theoretical framework to study knowledge sharing behaviour in the organizational context to frame questionnaire. "A theoretical frame in which extrinsic motivators, social-psychological forces and organizational climate are integrated with the theory of reasoned action (TRA) and theory of planned behavior (TPB)" (Ajzen & Fishbein, 1980).
The questionnaire included both qualitative and quantitative questions for collecting relevant data on favourable Management, culture, infrastructure, individual factors, attitude, intention, opinions and viewpoints.

Lin (2007) uses the TRA “to examine different motivations which explain knowledge sharing intentions and finds that knowledge self-efficacy and enjoyment in helping others are positively related to knowledge sharing attitudes and intentions. In practice, TRA has been extensively adopted and has proved effective for investigating knowledge sharing behaviours in different contexts”. TRA and TPB provide a theoretical frame to measure the perception and willingness of the employees in knowledge sharing activities of an organisation.

The three factors considered in this study are; organizational factor, individual factors and technological factor.

Organisational Factor
The organisational factor is one of the main factors that endorse the accomplishment of the sharing of knowledge in organisations. Encouraging knowledge sharing activities has to be a deliberate attempt as it does not happen automatically in an organisation. The organisation has a significant part to play in making it happen. Lee, Gillepie, Mann and Wearing (2010) have suggested that “leadership plays a key role in promoting and cultivating knowledge sharing behaviour”. The leadership (in this study it is called supporting management) as an organisational factor affects the knowledge sharing. The study, hence, aims to provide evidence to show the influence of organisational factors on knowledge sharing behaviour of medical practitioners.

Individual Factor
Some literature in the field of knowledge management has shown that the personal factors affect knowledge sharing activity. Of these, attitude, personal factors, benefits and barriers have been cited as major factors. Davenport (1997) shows that sharing knowledge is often affected more by individual traits. An objective, hence, has been framed to understand the influence of individual factors on knowledge sharing of medical practitioners.
Technological Factor

New technologies are the catalyst for promoting knowledge sharing in organisations and hence there is an upward investment trend for allocating budgets for the use of information technology for knowledge sharing activities in organisations. As Davenport (1994) notes, “... many managers still believe that once the right technology is in place, the appropriate information-sharing behavior will inevitably follow.” In a similar view Rangel, Kamel, Gopi and Ruibah, (2009) have argued that “when the organisations provide the system with ease of use it will motivate the individuals to use it”. Hence, the objective of assessing the influence of technology on knowledge sharing of medical professionals is taken up.

The factors that are studied in this study to meet the objectives stated above are depicted in Figure 1.1 (Cheng, Ho, & Lau, 2009).

**Fig. 1.1: Knowledge sharing model**
During the survey, the researcher engaged in interaction with the practitioners wherever clarification was required in the responses of the respondents. This interaction was only need-based and had no specific structure involved. The interaction was most of the time face-to-face although other methods such as phone, emails were occasionally used. This mixed approach balanced the broader, more prescriptive survey questions, providing participants with an opportunity to give more spontaneous, in-depth accounts of their collective behaviour. These responses provided her with some insight in explaining some behavioural aspect found in the study population. Studies in various setups are also taken into consideration at various stages of the research process from questionnaire design to analysis of data.

The sample for the data collection was drawn from practitioners from medical colleges associated with hospitals. As the researcher is working in a medical college, personal experience and unbiased impressions were taken into consideration, as valuable input about the patterns of knowledge sharing behaviour wherever required.

The observation was limited to the infrastructure facilities in the library. The users' interaction with the fellow staff and the available reading materials in the library has been considered for observation. The facts, events, and responses at the time of observation were systematically recorded to project the valid findings.

1.6.1 Study population and sampling

Medical practitioners are the guinea pigs for this study. The researcher had to choose the environment where she can get the respondents with diverse demographics, different positions, experiences and social backgrounds but still work in more or less homogenous conditions. The most conducive environment for knowledge sharing activities exists in medical colleges, and it met the requirements expected by the researcher. Moreover, it was a priori requirement that knowledge sharing activities should exist to some degree. Medical college environment satisfied this requirement also. Even among medical colleges, knowledge sharing can be vividly seen in those colleges where teaching, research and patient care facilities in the hospitals for practice are all available in some significant proportions. These conditions are met only by those colleges which have both undergraduate (UG) and
postgraduate (PG) courses. Hence, out of the 19 medical colleges in Bengaluru, only 12 colleges suited the requirements laid out for the research. Bengaluru is a cosmopolitan city and which attracts professionals from different parts of India in general and Karnataka in particular. Moreover, Cull, Connor, Sharp, & Tang (1994) have shown that “results are consistent with the pattern in the research literature showing response bias to be more of a problem for surveys of the general population rather than for surveys of fairly homogeneous professional groups such as physicians”. Thus, one can safely say that the study population selected for this research is a valid representation of medical practitioners in the country.

The study adopted simple random sampling method to decide the study population. The size of the overall population, i.e., a total number of medical practitioners in all the 12 medical colleges, is 4717. The respondents are medical practitioners, and they are a high-profile group in the society. This posed a kind of problem in the collection of data. Contacting the medical practitioners individually and distributing the questionnaire to them itself was difficult. Many of the practitioners outrightly rejected to participate in the survey. This could be one of the limiting factors of the study. However, with a great amount of perseverance, the researcher could distribute 725 questionnaires to medical practitioners in different medical colleges. Out of them, only 600 duly filled in questionnaires were received back, which accounts for 85.71 per cent of the total population of respondents which is acceptable response rate going by the statements of Nulty, (2008) and Goyder, (1985). The sample size was validated using the formula shown below.

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2N} \right)}$$

Where:

- Population Size $N$
- Margin of error $e$
- z-score $z$

$e$ is percentage, put into decimal form (for example, 3% = 0.03).

The minimum expected sample size calculated using the above formula was 356 for the population of 4717. The sample size in this study is 600 and is above the
minimum sample size, and hence the sample size is statistically validated and data collected can be safely generalised to represent the whole population.

The sample was proportionally distributed with representative cases. The questionnaire was distributed to the faculty belonging to all the speciality departments in the medical colleges considered in the study. A list of speciality departments is given in Appendix B.

1.6.2 Validity of the questionnaire

Prior to commencing of data collection, semi-structured questionnaire was pretested with 33 medical practitioners. The purpose of this pilot was to refine the study instruments thereby validating their reliability and ensuring they measure what they purport to measure. Then the questionnaire was restructured to reach out to a wider target population.

1.6.3 Data analysis

On completion of collection of data, the collected data was analyzed using suitable statistical techniques such as Mean, Chi-square test, Kruskal-Wallis Test, Mann-Whitney U Test, Statistical Packages for Social Sciences (SPSS. IBM 21.0). For some of these, the researcher made use of the services of a statistician.

The researcher conducted a three-phase model to test the Learning Organization Process and Knowledge sharing. At first level the researcher used descriptive statistics to find out the mean and standard deviation, on parametric Kruskal–Wallis test (also called one-way ANOVA) to compare more than two samples that are independent, or not related and the test does not identify where the differences occur or how many differences occur.

1. To assess the differences in the nine parameters, pertaining to the demographic variables like designation, gender, age, qualification, experience, of the respondents (PART A)

2. To evaluate the significant differences, Mann–Whitney U test is applied to evaluate 3 or more groups. Mann–Whitney U test would help analyse the
specific sample pairs for a significant difference to find the significant differences between each category of respondents in research. (PART B)

1.7 Scope and limitations of the study

The subjects of this research study are medical practitioners, and they belong to three domains: Pre-clinical, Para-clinical, and Clinical.

For cohesive analysis of knowledge sharing activities, the study population need to be drawn from a homogeneous environment. The comparison among different groups is meaningful when the study population fits into some organizational structure. Medical practitioners with different positions, experiences, personal traits and social background are suitable for testing the knowledge sharing behaviour. Moreover, the knowledge sharing activities are likely to be more among the medical practitioners who are involved in teaching, research and patient caring practices. All these environments are, by and large, available in medical colleges. Hence, the population for the study was drawn from medical colleges only. The private medical practitioners are left out from the scope of the study population.

The scope of the study is limited to medical practitioners geographically distributed in the city of Bengaluru. It may be noted here that studies (Cull et al., 1994) have shown the pattern of a response does not change significantly with geography particularly among highly professional and homogenous groups such as physicians or other medical practitioners. Hence, the population drawn from a particular cluster of a geographic area is valid for generalization of results.

Among the medical colleges, the scope of selection includes only those colleges which are affiliated to Rajiv Gandhi University of Health Sciences and those colleges which are offering both undergraduate and postgraduate courses. This restriction in the selection of the study population was imposed in the interest of maintaining the homogeneity of conditions among medical practitioners in their working environment.

The researcher collected the responses from the faculty members (professors, associate professors, assistant professors and lecturers), tutors, junior residents and senior residents of the medical colleges who are all involved in knowledge production.
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It may be noted here that the unit of analysis in the study are medical practitioners and not the medical colleges per se. The focus of the study is to analyse the knowledge sharing behaviour among medical practitioners irrespective of their institutional affiliations. Hence the analyses of data were made to in relation to the six respondent categories (Professors, Associate Professors, Assistant Professors/Lecturers, Tutors, Senior Residents and Junior Residents) for their knowledge sharing behaviour. In other words, institution wise analyses and comparison was not made.

One of the limitations of the study was induced by the population considered for the study. Medical practitioners are high-profile professionals with high social status. It is a matter of common experience that getting an appointment to meet them for non-medical reasons is a difficult proposition. Although the investigator tried her best to contact all 4717 doctors in the medical colleges she could get the access to meet them only with 725 of them. However, the investigator made sure that the sample size is validated statistically and the size was kept much higher.

There are many psychological models for measuring knowledge sharing (Bock, Zmud, Kim, & Lee, 2005; Chennamaneni, 2007; Grubić-Nešić, Matić, & Mitrović, 2015; Olatokun, Elueze, & Olatokun, 2012; Rahab & Wahyuni, 2013; Yiu & Law, 2012). The present study uses only TRA and TPB model as it suits the measurement of knowledge sharing in academic environments.
1.8 Organization of the thesis

The reports of the study have been presented in Five Chapters.

Chapter 1 – Introduction

The first chapter lays the foundation for the topic of the research. It covers the need for the study, statement of the problem, definitions, objectives, hypotheses, scope and limitation and methodology adopted for data collection and data analysis. It also provides the chapter schema.

Chapter 2 – Review of literature

The second chapter provides data on base for the research which highlights on where exactly there is a proof for further research to carry on. Reviews done on available literature throws more light and enables the researcher to have evidence to proceed in the direction

Chapter 3-- Knowledge sharing : A conceptual base

The third chapter provides a conceptual pattern of knowledge sharing, the role of information technology in knowledge sharing, barriers of knowledge sharing, the significance of knowledge sharing and knowledge sharing strategies.

Chapter 4 –Analysis and interpretation of data

This chapter presents the results of the data collected by the researcher from the practitioners on knowledge sharing among practitioners of the medical college in Bangalore.

Chapter 5 –Summary of the findings, suggestions and conclusion

The fifth chapter presents the findings of the investigation, discussion concerning the hypotheses and conclusion. It also provides recommendations for improvement and suitable policies and model for knowledge sharing in medical colleges.