CHAPTER 4

RESEARCH METHODOLOGY

The chapter illustrates the methodological nuances undertaken during the research process namely, the methodological framework and philosophical underpinning of selected research methods. Further, it details a selection of population, data collection methods, data collection instruments, validity and reliability issues, data analysis and ethical issues considered during the study and limitations of the study.

The aim of the study is to determine empirically the impact of cultural attributes of organization on knowledge sharing in the workplace. This explanatory study, proposes to delineate the ways in which organizations can encourage people to share knowledge at the workplace by identifying critical attributes of organizational culture which facilitate knowledge sharing.

4.1 Research Paradigm:

The phenomenon under observation is guided by paradigms, a set of beliefs that define actions (Guba, 1990:17). Paradigms act as a frame of references to organize observations and reasoning. It comprises three generic elements: Ontology, Epistemology and Methodology. Denzin and Lincoln (1998:185) states that any research has to begin with answering these three basic questions. Ontology raises questions about the nature of reality thus involves philosophy of reality. Epistemology questions how do we know what we know thus focuses on how to learn that reality. Lastly methodology details about how do we gain the knowledge thus deals with practices used for gaining this knowledge. These three elements of the paradigm give a precise boundary to the research by logically intertwining them.

Positivist paradigm dominates in organizational studies as, it sustains the validity of findings and generalizability of results. Sujin Kim (2003) illustrates the significance of positivism for studying organizational praxis due to ease in analyzing the impact of a vast number of variables on a given factor in a single investigation. Kim (2003:16) illustrates that the empirical procedures used in positivist practice are suited to assess and develop practical organizational interventions compared to the outcomes produced by the interpretive and critical science paradigms. Synchronization of methodology and epistemology should be grounded in the goal of the study.
Exploring the world view of different people and then combining those aspects into a cohesive whole is a rationale to understand how different people work together. This study sought a nomothetic explanation to identify the various factors which impact the knowledge sharing in the organization. The principle argument guiding this research is that individual perceives the importance of knowledge sharing differently and people can be encouraged to share knowledge by providing a conducive cultural context which is common to people. The study involves the objective understanding of the knowledge sharing process in the organization and various factors impacting knowledge sharing at the workplace.

<table>
<thead>
<tr>
<th>RESEARCH PARADIGM</th>
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<tbody>
<tr>
<td><strong>ONTOLOGY</strong></td>
</tr>
<tr>
<td>Reality is objective in nature</td>
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<tr>
<td>Knowledge sharing as a process in the organisation can be studied independent of any bias</td>
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**Fig.- 11: Research Paradigm**

4.2 Research Approach:

The Process is divided into four stages: Exploratory, Conceptualization, Consolidation and Finalization. The processes and outcome of the exploratory and conceptualization stage are briefed in Chapter II and Chapter III, illustrates focused literature review and hypothesis generation. The research model is based on the theoretical understanding through literature review and will be further examined in the field using a structured measure through survey approach. The data about KM processes and KS initiatives in the organization is collected after discussing with management representatives accountable for KM initiatives especially from operations, HR, Learning Officers, IT and knowledge
managers\textsuperscript{16} whereas, data on the cultural attributes is collected from rest of the stakeholders within the organization using scientific sampling and data collection methods.

**RESEARCH APPROACH**

Exploratory Stage
- Literature Review
- In-depth Interviews & survey

Conceptualization Stage
- Knowledge KS determinants
- Scoping Research Theme
- Focused Literature Review
- Best practices in the organization & interviews

Consolidation Stage
- Cultural attributes KS behaviour
- Hypotheses Generation
- Survey Tool
- Survey

Finalization
- Findings and Dissemination

\textbf{fig.}-12: Research Approach

4.3 Objective of the study:
1. To study knowledge sharing and various factors that affect knowledge sharing in the organization.
2. To investigate the modes and goals of knowledge sharing in an organization.
3. To identify critical attributes of organizational culture which enhance knowledge sharing behavior of employees.
4. To suggest organizational interventions for effective knowledge sharing.

\textsuperscript{16} Very Few Organizations in India have knowledge management functions or knowledge officers. Most of the organizations consider chief learning officers accountable for knowledge activities in the organization. Since IT professionals are involved in the designing phase of KMS, most of the organizations tend to develop technically sound KMS which does not cater to need of people in the organization.
4.4 Research Questions:

Formulating research questions is a significant step that decides the entire course of a research process. The research study being explanatory intends to answer the ‘what’ and ‘how’ questions related to knowledge sharing in the organization. The overarching question for this study is “which attributes of the organizational culture facilitate knowledge sharing in the organization?” is examined by focusing on two lines of inquiry, the first line of inquiry attempted to understand knowledge sharing in the organization and its goals and modes. The second line of inquiry tried to investigate critical organizational attributes facilitating knowledge sharing in the organization. Following are the sub-questions under each line of inquiry apart from the demographic and functional attributes of the participants.

➢ Which are the different factors affecting knowledge sharing at the workplace and what is the significance of these factors?
  1. How do demographic (age, sex) and functional (years of affiliation, functional expertise, career stage) affect the knowledge sharing in the organization?

➢ Which organizational factors impact knowledge sharing at the workplace and what is its significance?
  2. What is knowledge? What is the importance of knowledge management in the organization?
  3. How does knowledge sharing take place in the organization? What are the different modes of knowledge sharing in the organization?
  4. What are the determinants of knowledge sharing at the workplace?

➢ Which cultural attributes affect knowledge sharing at the workplace?
  5. What is the effect of culture on knowledge sharing
  6. Which cultural attributes enhance the value of knowledge sharing and knowledge sharing at the workplace
  7. What impact do cultural attributes of organizational culture have on knowledge sharing in the organization?
  8. What is the cumulative effect of the value of knowledge sharing and cultural attributes on knowledge sharing in the organization?
  9. Do the presence of formal knowledge management system and age of an organization spillover effect on knowledge sharing at the workplace?
4.5 Scope of the Study:

This study is carried out in the Oil and Gas industry in India and the data is collected from two public and two private organizations of the sector. The organizations included in the study have core expertise in the downstream business. The Oil and Gas sector is divided as upstream, downstream and midstream depending on the key activities of an organization and the levels of expertise of knowledge workers differ to a greater extent depending on the core activities they carry out in the firm.

4.6 Variables Used in the Study and their Operational Definitions

There are different strategies adapted to make the simplification of complex issues by way of reification. To study theories and seek answers to the research questions, the study of variable and their relationship is required. Concepts vary at times depending on the context and apriori knowledge and clarity about a concept helps more in research.

The concept of organization is closely related to the social system. The study sought to identify the organizational aspects of knowledge sharing on the backdrop of cultural attributes of the organization.

Apart from categorical variables, all other variables are assessed through the set of statements on a five-point Likert scale and they are interval variables.

**Dependent variable:**

1. **Knowledge Sharing:** Activity by which an individual voluntarily provides other social actors with access to his or her unique knowledge and experiences” (Hansen & Avital 2005)

**Independent variable:**

**Demographic factors:**

- **Age:** Age is calculated in years and then grouped as less than 30 years, 31-40 years, 41-50 years and 51 years onwards for further analysis.

- **Gender:** Gender is a nominal, dichotomous variable grouped as Female and Male

- **Duration of Affiliation:** It is the period of employment in the present organization. It is grouped as 5 years, 6-10 years, 11-15 years, 15 years and above.
Functional factors:

Functional Expertise: It is the function to which individual is attached and accountable for in the organization. It is grouped as Operations, Services and Sales.

Career Stage: It is a position an individual is currently holding in the organization. It is grouped as Junior, Middle and Senior management. The basis for grouping is not designation but responsibilities and accountability of an individual.

The Value of Knowledge Sharing:

The degree of one’s positive feelings about sharing knowledge, the way people perceive knowledge sharing at the workplace. The Word Value connotes ‘perceived value’ on knowledge sharing. The value of knowledge sharing is assessed regarding desirability, importance or significance they attach to knowledge sharing.

Cultural Attributes:

1. Trust: A confident reliance on the integrity, honesty, or justice of another (Wagnalls). Trust in the organization can be measured in terms of integrity, dependability and competence. The belief that the result of somebody’s intended action will be appropriate from our point of view. (for this research trust is a sum total of interpersonal trust and trust level in the organization)

2. Flexibility: It is the ability of a firm and people to respond and adapt structures and work processes effectively in the organization to deal with the changes (Evans). (The extent to which structural and procedural deviations are possible in the organization to increase efficiency)

3. Rewards: Things given in recognition of services, efforts or achievements. This forms the basis for what kind of behaviour is appreciated and propagated.

4. Team Orientation: It is organization’s philosophy about collective or individualistic efforts while measuring performance.

5. Openness: Organization’s tolerance for mistakes, approach for innovation and transparency and effectiveness of communication

6. Micro, Meso and Macro Levels: In this study micro level denotes individual level; Meso level denotes team level and Macro level indicates organizational level.
4.7 Hypotheses:

A hypothesis is drawn and guided by existing theory/axioms in a particular domain. The research involves either proving or refuting the hypotheses so as to add knowledge to the existing subject area.

Some of the hypotheses tested in the study are as follows:

H1. Demographic characteristics like Age and Gender, Duration of affiliation significantly influence the knowledge sharing in the organization.

H2. Functional characteristics like functional expertise and career stage of people significantly affect knowledge sharing in the organization.

H3. The value of knowledge sharing in the organization positively affects knowledge sharing at workplace.

H4a. Knowledge sharing is negatively related to the age of the organization.

H4b. The presence of formal knowledge management system is positively related to the knowledge sharing at the workplace.

H5. Cultural attributes like team orientation, flexibility, rewards, openness, and trust positively affect knowledge sharing at the workplace.

H6. Cumulative effect of cultural attributes and the value of knowledge sharing is positively related to the knowledge sharing at workplace.
4.8 Research Design:

A research design is a complicated process grounded on the clarity of the aim and relevant theoretical perspective which informs totality of the research process. Data collections and analysis methods are selected to reflect the broad purpose of the research. This study is primarily an explanatory research study with a sample survey approach. Predominantly primary data is utilized in the analysis and illustrate the findings of the study. The study aims to examine knowledge sharing in the organization and which cultural attributes affect knowledge sharing in the organization.

A literature review was done to sensitize researcher about various concepts and identify the gap in the phenomenon under investigation. The study adopts a deductive mode of inquiry whereby a hypothesis is proven or refuted to add knowledge to the area under investigation. To achieve reliable and valid results the researcher carried a pre-test of the questionnaire.

It is hard to fill in all the blocks in the matrix made by functions, level and gender and the criterion of inclusion. Some blocks had very few people and there was a little
reluctance from people at the senior level as they either had no time or apprehension of being identified as there are very few people at the senior level in the organization. People at the junior level were mostly apprehensive due to insecurity in the job and fear of being targeted if identified.

Four organizations from oil and gas sector are included in the study. 367 survey instruments were collected from these organizations but only 305 instruments were duly filled which could be used as data for the study.

After applying both the inclusion criteria, the employees are identified using random sampling method and the questionnaire is administered to them.

4.9 Sampling:

Sampling involves empirical selection of a small group of subjects (sample) from the population wherein; the sample is representative of the population under study. The organizations selected for the study are selected from oil and gas industry by purposive sampling. The targeted organisations were sent a brief about the research study to know their willingness to participate in the research. Five out of nine organizations agreed to participate in the study, but one firm was dropped due to feasibility issue to carry out study there. People from these organizations were selected using random sampling with the help of an organizational representative. After applying inclusion criteria, a representative sample from across functions, experience and levels was obtained.

An online survey (to fill questionnaires at their convenience by sending through email or web link) could not get a proper response from the participants as, this work was not a priority to them. Visiting them at their workplace and briefing them about the study and collecting responses in a group of 15 people was a better option.

4.10 Unit of Analysis:

The study is proposed to assess Knowledge sharing in the organization and effect of attributes of organizational culture. The unit of analysis for the study is individuals working in the organization, the being ‘what and whom’ under study (Babbie 1995: 94). This study being a Nomothetic research intends to study ‘aggregates’ (a group of employees) from each organization.

The data on organizational aspects like knowledge management, knowledge sharing platforms, rewards, structure, etc. was collected from representatives of HR and knowledge managers of the organization.
The interview schedule was used to discuss and obtain information on various organizational aspects, KMS and knowledge process, whereas, the structured measure was used to capture information on different cultural attributes and knowledge sharing from other employees.

The inclusion and exclusion criteria of selection of respondents were as follows:

1. People who have been working with the organization from minimum five years are included in the sampling frame.

2. The second criterion for inclusion is individuals who are a part of the existing team for at least two years are included in the survey.

3. All other employees who do not fulfill any one of the criteria are excluded from the study.

Sample Matrix:

<table>
<thead>
<tr>
<th>Functions</th>
<th>OPERATIONS</th>
<th>SERVICES</th>
<th>SALES</th>
</tr>
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<td>Levels</td>
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<td>116</td>
</tr>
</tbody>
</table>

Table No.-2: Sample Matrix

4.11 Data Collection

The researcher found the survey method well-suited for this study as this method is mainly used in studies that have individual people as the units of analysis (Babbie, 2010:254). The main aim of a survey is to produce a snapshot of the opinions, attitudes, and behaviors of a group of people at a given time (Stangor, 2011: 107). This study investigates knowledge sharing in the organization and employees are the unit of analysis as they are the principal actors is knowledge sharing.

The research account is etic in nature, moving towards generalizations and draw comparisons. Though data was collected at the workplace, employees were not too
concerned as they were assured that management of the organization is not involved in this study and the confidentiality and anonymity issues were taken care in advance. A structured questionnaire is used as a data collection measure. While designing the instrument, attention was given to the kind of data which will be collected through the measure and the potential analysis strategies for further analysis. While developing the questionnaire, the questions were phrased in a precise and clear manner to avoid ambiguity. Participants, in a group of 15-20, were briefed on the purpose of research and the way collected data will be used in the study. The responses are rated on five points Likert Scale with two extremes— strongly disagree to strongly agree.

4.12 Measures and Pilot Testing:

The research measure was developed on the lines of MANDI questionnaire used by Dana Minbaeva (2010) to investigate knowledge transfer at the workplace. After operationalization of variables, statements are designed for each variable to solicit responses from people on five-point Likert scale. The measure was pilot tested on 42 people and few changes were made. The instrument had 65 items apart from demographic information. During the pilot test respondents could not understand a few of them due to ambiguity. The instrument was improvised (few items were clubbed and few were deleted) and the number of items was reduced to 59.

4.13 Validity and Reliability:

In social sciences, researchers always find it difficult estimating the validity of knowledge they have acquired or even produced. Validity and reliability are crucial in the research. Validity talks about the extent to which a test measures what it claims to measure. The face validity was made inevitable by discussing with experts from the field and research supervisor.

Reliability refers to the parity of collected observations meaning same data would be collected in repeated observations (Babbie, 141). Cronbach alpha for the scale (59 items) using SPSS was 0.832.

4.14 Data Collection & Timing:

The data was collected from 4 organizations within a span of six months. HR and knowledge officers of the organization were briefed about the study. The participants were selected by random sampling after considering inclusion criterion and method for administering the questionnaire was explained to the organizational representative. For ethical considerations willingness and a voluntary participation clause was sent to

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selected people and after confirmation, they were called in a group of 20 in a conference room to fill the questionnaire.

4.15 Data Analysis:

For data analysis, SPSS Version 20.0 was used. After entering data, variables were coded and computed for various items of a measure for the responses. There were missing values in few questionnaires which were discarded and finally 305 responses were considered for further calculation.

Descriptive statistics is used to describe characteristics of the sample and the relationship among variables in the sample. Measures of association were seen to assess the relationship between the variables. Chi-Square and P-values are generated using Students’ independent samples t – test for an independent variable having two categories; p – values were generated using analysis of variance [ANOVA] test for an independent variable having more than two categories. Independent predictors of 'High' Knowledge Sharing is calculated using Multivariate Step-wise Logistic regression modelling. Chapter V and VI illustrate the detailed analysis and discussion on the effect on the dependent variable (Knowledge sharing) by the independent variables as well as a cumulative effect of the critical cultural attributes on knowledge sharing.

4.16 Ethics:

Research is seldom a value-free and ethical framework followed by research, guides the decision-making process at each step. Ethical considerations during this study are:

At the initial stage, the target organizations were contacted for this study along with a brief write – up about the study. The organizations which agreed to participate in the research asked the researcher to sign a confidentiality agreement stating that the organizations should always be referred by using pseudo names and data of a single firm without aggregation cannot be published anywhere in the public domain.

The organizations were communicated well in advance about the research study seeking permission for data collection at different subsidiaries located across India. Data collection through an online webpage or by emailing questionnaire was one of the feasible options since the plants are located in remote places in India. Considering the previous turnout rates of the survey, (conducted in-house or by other researchers) in the organization and complexity of the issue, it was mutually decided to visit different locations and get questionnaire filled from people in batches after briefing them about the study and clarifying in the case of any ambiguity.
The written informed consent (willingness and voluntary participation) was taken from all the respondents in advance and they were briefed about the study, its purpose and kind of information they are supposed to be giving through survey measure. The issue of anonymity of respondents was tackled by just numbering questionnaires without mentioning their names. The confidentiality of data was kept by presenting data by aggregating information at the organizational level and making it difficult to identify individual data.

4.17 Identification of Sector of study:

The oil and gas sector consists of three segments— upstream, midstream and downstream. The upstream segment companies are engaged in exploration and productions activities. While midstream companies are into storage and transportation of crude oil whereas the downstream companies are engaged in processing and marketing of petroleum products.

The data is collected from four organizations from oil and gas sector in India. There are two private players and two public players engaged in mainstream and downstream business with a significant market share. The public players are operating from many years since the economy has opened recently for private players in the market. They have well-established systems and processes at a workplace. The private corporations work on a particular rationality and they do not have robust systems, but they are experimenting many new organizational initiatives. There is a significant difference between the knowledge management perspectives and practices in the public and private sector but since this is not a comparative study, it does not fit in the scope of this study.

## Final Sample

<table>
<thead>
<tr>
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</table>

Table No.-3: Final Sample