Chapter Three
METHODOLOGY

The aim of this chapter is to discuss the measurement of the constructs. Besides, the chapter will discuss the questionnaire used, sample and statistical tools used for analysis. The chapter also gives an overview of rationale and validity of the questionnaire.

Measurement of the Constructs

Organizational culture

Although the concept of organizational culture has been prominent in organizational and management literature since the 1970s (Barley, Meyer, and Gash, 1988), scholars still disagree on the best way to measure it (see O’Reilly, Chatman and Caldwell, 1991; Rousseau, 1990a). The methods used to study organizational culture range from quantitative i.e., collection through the administration of surveys, questionnaires to the qualitative i.e., collection through interviews, focus groups, observations and participation (Ashkanary, Wilderom & Peterson, 2000; Martin, 1992; Martin & Frost, 1996; Ott, 1989).

Qualitative researchers suggest that psychometric techniques employed in quantitative methodology are fundamentally at odds with the vague and implicit nature of culture (see for example, Alvesson, 1989; Bromus and Gabrmberg, 1983; Martin & Seihl, 1983; Ouchi & Williams, 1985; Petigrew, 1979; Rentsch, 1990). Martin (1992) for example, has noted that quantitative assessment of organizational culture has been criticized in the past because of strong mono-method bias in the field. On the other hand, quantitative researchers regard culture measurement as crucial to understanding relationships between factors of interest, arguing that in order to generalize findings across organizations, comparable measures must be developed to allow valid investigation of cultural differences and their relative impact on other
organizational factors (Caldwell and O’Reithy, 1990; Cook and Rousseau, 1988; Cooke and Szumal, 1993; O’Reilly, Chatman and Caldwell, 1991; Xenikou and Furnham, 1996; Zamantou and Glaser, 1994). Denison (1996) noted that questionnaire, survey-based methods are now often seen in culture literature (e.g., Denison and Mishra, 1995; Hofstede, Newijen, Ohayu and Sanders, 1990; O’Reilly, Chatman and Caldwell, 1991). In the words of Reichers and Schiender (1990) and Rousseau, (1990a) questionnaires can play an important role in the quantitative analysis of organizational cultures.

Not surprisingly, culture research has been marked by endless definitional, theoretical, and methodological debates. Unfortunately this has led to a great deal of confusion. Martin & Frost (1996) regard qualitative research as invaluable and essential in organizational culture analysis, though still marked by constant criticism of validity and reliability. Researchers have criticized the questionnaires as a research tool to study the culture because the questionnaires force researchers to cast their theoretical nets too narrowly. The researcher decides ahead of time what kind of items to write and thereby limit the domain of inquiry. Ashkanasy, Broadfoot and Falkus (2000) acknowledge that quantitative questionnaire measures of culture are bounded in their range of application. Therefore, advocate the use of qualitative methods as a means to extend the boundaries of application of quantitative measurement of organizational culture. Some authors have suggested the use of multiple methods (e.g., Martin, 1992; Rousseau, 1990), but these methods are often complex, expensive, and time consuming (Ashkanary, Broadfoot and Falkus, 2000). Researchers are of the view that the questionnaires combined with the qualitative data provide a standardized means to assess organizational culture.

A number of authors (see for example, Frost, Moore, Louis, Landberg, and Martin, 1991; Furnham, 1997; Ott, 1989 and Rousseau, 1990a) have found that the lack of consensus over the style and format of questionnaire in organizational culture was unfortunate. Seihl and Martin (1988) indicate that
there are good reasons for using qualitative methods in investigating organizational culture, but the advantage may be bought at a cost, as the data collected usually cannot form the basis for systematic comparisons. Fundamental theoretical aspects of the concept of organizational culture can be tested only by comparisons across organizations or departments. In order to understand the core aspects of culture, it is often necessary to compare the individual responses of members and the extent of their commonality. The researchers further note that in order to examine if an organization has subcultures with distinctive values and practices, data can be collected from different departments of the same organization so that comparisons can be made. These two central theoretical questions cannot be answered until culture can be measured with some robust, reliable, sensitive and valid instrument that allows systematic comparisons. Systematic comparisons are exceedingly difficult to make when only qualitative data is available. Furthermore, some qualitative data is non-parametric, precluding any multivariate analysis of the data, which almost requires it (Xenikou and Furnham, 1996). Researchers have cited numerous other advantages of survey assessment and quantitative techniques generally. These include allowing replication and cross-sectional comparative studies, providing an accepted frame of reference for interpreting data, helping the evaluation and initiation of culture change efforts in organizations and providing data that can be analyzed through multivariate statistical techniques (Cooke and Rousseau, 1988; Xenikou and Frunham, 1996), and it has the potential to tap deeper levels of culture (Ott, 1989; Rentsch, 1990). Among authors who suggest use of quantitative measures are (Amsa, 1986; Barnett, 1988; Bookbinder, 1984; Desatnick, 1986; Hofstede, 1986; Reynierse, 1986; Reynierse and Harker, 1986; Reynolds, 1986; Wiener, 1988; Denison, 1990; Denison et al., 2003,2004).
Measurement of Organizational Effectiveness.

Like organizational culture, the definition and measurement of organizational effectiveness has been a thorny subject for theorists from a wide variety of disciplines as well as for the management practitioners in all sorts of organizations. In the words of (Lewin & Minton, 1986) it is the multiplicity of means and the plethora of ends, as well as many management philosophies and associated organization design extent that has made measurement of organizational effectiveness a very complex problem. It is complex because of the problems inherent in specifying some joint preference function or in attempting to satisfy the weight in some multi-attribute effectiveness measure (Cyert and March, 1963). Bennis (1962) argues that an organization may be essentially healthy despite measurement reveals that its performance and satisfaction are lower than last months, it can be unhealthy even if its performance and efficiency figures are higher than the last months. So the evaluation of organizational effectiveness is an ongoing process. It takes on the perspective of the various constituencies of the organization (Van de Van & Ferey 1980; Miler, 1980; Zammuto, 1984) and many involve the entire organization or specific units, functions or activities (Lewin & Minton, 1986).

The concept of organizational effectiveness is filled with obstacles regarding assessment, namely the criterion problems, criteria choice and the unique attributes of organizations involved. Organizational effectiveness is multidimensional and hence there has been no agreement on which dimensions are significant and should be used as the basis for analysis. Much debate continues in the literature regarding which are the best criteria (see for example, Cummings, 1983; Schneider, 1983; Weick and Daft, 1983). In some kinds of organizations, however, researchers face a more troublesome criteria problem than in other kinds of organizations. They are less able to find reliable and valid criteria. For example, criteria of effectiveness are especially ambiguous in organizations that do not have clearly defined goals (therefore, the goal model
of effectiveness (Campbell, 1977; Scott, 1977) is not applicable, that are so loosely coupled that acquired sources have little, if any, direct connection with the organization’s products (therefore, the system resource model of effectiveness (Yutchman and Seashore, 1967; Pfeffer and Salancik, 1978) has limited usefulness), that can ignore the demands of many strategic constituencies and still survive (therefore, the multiple constituencies model (Connolly et al., 1980; Zammuto, 1982) has little use, and so on. Judgments of effectiveness are less consensual and more individualistic in these kinds of organizations, and therefore, the meaning of effectiveness is less clear (see Weick, 1976; March and Olsen, 1976). While in some organizations agreement can be reached about what constitutes high level of effectiveness (e.g., profitability in industry), in other organizations such agreement is lacking, and it is not clear what constitutes optimal performance (Cameron, 1986). This lack of agreement among writers has led to a sense of confusion and chaos in the literature, as well as to multiple models of the construct.

In view of this, assessment of an organization’s effectiveness requires certain parameters for measurement. Experts have suggested a number of components that can be used as assessment criteria for organizational effectiveness. Such as productivity (Mott, 1972; Meade, 1967; Sinha and Sinha, 1977; Georgopoulos and Tannebaum, 1957; Price, 1968), growth (Child, 1974; Katz and Kahn, 1966), adaptability (Bennis, 1962; Mott, 1972; Webb, 1974), employee satisfaction (Friendlader and Pickle, 1968), profitability (Child, 1974; Friendlader and Pickle, 1968; Cameron, 2003), survival (Katz and Kahn, 1966; Gibson et al., 1973), flexibility (Schein, 1965; Georgopolous and Tannebam, 1957; Mott, 1972), quality and employee commitment (Cameron, 2003). Studying the available literature on effectiveness one comes across the issues on which researchers have conflicting opinions, though there is consensus on some issues amongst the researchers as well. The conflicts
mostly relate to the measurement of the construct. These conflicts exist due to the multi-dimensional and complex nature of organizational effectiveness.

According to Cameron & Whethen, 1981; Quinn and Cameron, 1982; and Miles and Cameron (1982) an organization passes through various cycles of growth and the criteria used in evaluating organization's success may change dramatically at another stage of development. That is the criteria used at one stage may not clearly represent the performance or effectiveness of an organization at another stage. Miles and Cameron (1982) state that organizations can pursue one set of criteria in one domain of activity and a different and possibly contradictory set of criteria in another domain of activities. Cameron (1981) asserts that even if the domains being assessed are identified, no organization can be effective in all its domains.

What is borne out by the review of literature that evaluators have often selected models and criterion convenient to them. In this context Cameron (1978, 1982) in a review of literature found that 80% of the criteria used already in other studies did not overlap. She further writes that indicators of effectiveness have been often too narrowly defined or too broadly defined or they did not relate to organizational effectiveness. A survey of literature found structure, decision processes, culture, congruence, job design, innovation, sensitivity to constituencies and environment responsiveness as synonymous with effectiveness (see for example, Cameron, 1986). Investigators of organizational effectiveness have been careless in differentiating between indicators and determinants of organizational effectiveness. Selecting the readily accessible indicators in evaluations has restricted the boundaries. Commenting on the conflicts in effectiveness evaluation, Hirsch (1975) argues that although the two firms are similar in technology and other aspects of their operations, they still differ in their performance due to institutional arrangements.
Despite the ambiguity and confusion surrounding organizational effectiveness, the construct is central to the organizational sciences and cannot be ignored in theory and research and consensus regarding the best or sufficient set of indications of effectiveness is impossible to obtain (Cameron, 1980). A review of the literature in the field reveals that there has been no consensus among researchers on the relevant dimensions and measures of effectiveness. Most of the researchers agree that organizational effectiveness is difficult to operationalize and measure (see Daft, 2001; Davidson and Griffin, 2002; Chelladurai, 1987) complicated and controversial (Chelladurai, 1987) it is a problem driven construct rather than a theory driven construct (Cameron, 1986).

Whatever the criteria of organizational effectiveness are adopted, it is necessary to identify the factors underlying effectiveness. There are numerous variables that are useful in discussing effectiveness. Likert (1967) has classified these variables in three groups. i.e, casual variables, intervening variables and end results or output variables. Casual variables are those independent variables that influence the organization growth and development. These include management strategies, structure, leadership styles and skills. These are variables that are within the control of organization and its management. Intervening variables are those human factors which can be influenced by casual variables and which represent the prevailing internal state of the organization. These include commitment to objectives, motivation, communication, conflict resolution, decision making etc. Casual variables like leadership style and behavior affect the intervening variables mentioned above. Output variables or end results are those dependent variables that reflect the achievements of an organization and include measures such as output, sales, cost, earnings, turnover, absenteeism and union management relations. These variables can be improved by modifying both casual and intervening variables in the organization.
A number of researchers have used multiple criteria for organizational effectiveness such as Menon, 1975; Maheswari, 1980; Khandwalla, 1980; and Katz & Kahn, (1960). Researchers argue that assessing effectiveness of an organization on all the components simultaneously is not possible, as achieving effectiveness on one component many make it difficult or even impossible for the organization to be effective in terms of one or more of the other components. Different people within and outside organization may focus on different components of organizational effectiveness. For example, investors on profitability, management on innovation and the customers on quality etc. On the other hand, use of multiple evaluation criteria adds breath to any assessment attempt; it simultaneously opens the door to conflicting demands that management may not be able to satisfy (Verma and Jain, 2001). Further, researchers have realized that agreement about effectiveness is mainly an agreement to disagree, and agree that flexibility and discretion must characterize the selection of criteria and models in effectiveness research, so long as the selections made by investigators are rationally bounded and justified.

Research on effectiveness has presented a number of criteria to study effectiveness. To look for the best criteria for evaluating effectiveness is next to impossible as Cameron (1986) argues that the criteria are based on the values and preferences of individuals and therefore the best criteria for assessing effectiveness cannot be identified. Supporting the above viewpoint Verma and Jain (2001) note that these criteria are unknown and effectiveness is a divergent problem. A problem not easily quantifiable and verifiable and seem not to have a single solution. The more rigorously they are studied, the more solutions tend to diverge. Therefore, according to Pennings, 1976; Fiedler and Gariea, (1966) both subjective and objective indicators should be included to assess organizational effectiveness. However, use of objective and subjective measures are time consuming and most of the researchers have profoundly
admitted the use of subjective measures. Therefore, the present study used the Denison’s model which entails subjective measures like: sales growth, market share, profitability, quality of products, new products development, employee satisfaction and overall organizational performance. The model is a multidimensional approach which uses the perceptions of respondents to assess the effectiveness of an organization on seven dimension like: sales growth, market share, new product development, quality of products, employee satisfaction and overall organizational performance. These multidimensional performance approaches including non-financial and perceptual performance indicators have met with wide approval in the conceptual performance literature (see for example, Donaldson and Pretson, 1995; Doyele, 1994; Pretson and Sapienza, 1990). Further, rationale for using this approach is given in the later part of this chapter.

Further, researchers (see for example, Cameron and Whetten, 1983; Hannan and Freeman, 1977) suggest further inquiry into the subject area of organizational effectiveness with the specific objective of understanding the relationship between organizational characteristics and organizational effectiveness. The objective of the present study is to explore this relationship. Specifically this study attempts to test the relationship between organizational culture and organizational effectiveness.

**The Instrument.**

The measurement instrument that was selected for the purpose of this study was Denison Organizational Culture Survey. The questionnaire was used in this study after proper permission from Dr. Mike Gillespie of Denison Consulting. This framework has been developed by Denison and his colleagues (Denison and Neale, 1996). To measure organizational culture the survey uses 60 items to focus on four cultural traits viz, Involvement, Consistency, Adaptability and Mission. Each trait is measured with three sub-dimensions and
each sub-dimension is measured by five Likert type questions ranging from 1-5 (strongly disagree to strongly agree). The survey assesses the organizational effectiveness using seven subjective measures of effectiveness like, sales growth, market share, profitability, new product development, quality of products, employee satisfaction and overall organizational performance, using seven five-point Likert items ranging from 1= low performer to 5= high performer. Employees were asked to compare their firms with others in the industry on these seven measures of effectiveness (see Appendix).

A brief description of questionnaire dimensions

The four cultural traits are described below with reference to their place in the organizational studies literature.

Involvement. The research literature has shown that effective organizations empower their people, build their organization around teams, and develop human capability at all levels (see for example, Block, 1991; Katzenbach and Smith, 1993; Lawer, 1986; Spreitzer, 1995; 1996). Organizational members are committed to their work, and feel a strong sense of ownership. People at all levels feel that they have at least some input into decisions that will affect their work and feel that their work is directly connected to the goals of the organization. This allows high involvement organizations to rely on informal, voluntary and implicit control system, rather than formal, explicit, bureaucratic control systems (Denison et al., 2005). In the model, this trait is measured with three indexes:

- **Empowerment.** Individuals have the authority, initiative and ability to manage their own work. This creates a sense of ownership and responsibility towards the organization.

- **Team Orientation.** Value is placed on working cooperatively towards common goals to which all employees feel mutually accountable. The organization relies on team effort to get work done.
- **Capability Development.** The organization continually invests in the development of employee’s skills in order to stay competitive and meet ongoing business needs.

**Consistency**

The literature has also shown that organizations are effective when they are consistent and well integrated (Saffold, 1988). Behaviour is rooted in a set of core values, leaders and followers are skilled at reaching agreement and incorporating diverse points of view, and the organization’s activities are well coordinated and integrated (Gordon & DiTomaso, 1992; Martin, 1992; Schein, 1992; Treacy & Wiersma, 1995). Consistent organizations develop a mindset and create organizational systems that build an internal system of governance based on consensual support. These implicit control systems can be a more effective means of achieving coordination and integration than external-control systems that rely on explicit rules and regulations. These organizations have highly committed employees, a distinct method of doing business, a tendency to promote from within and a clear set of “do’s” and “don’ts”. This type of consistency is a powerful source of stability and integration. (Denison, Janovics and Young, 2005). In the model, this trait is measured with three indexes:

- **Core Values.** Members of the organization share a set of values, which create a strong sense of identity and a clear set of expectations.

- **Agreement.** The organization is able to reach agreement on critical issues. This includes an underlying level of agreement and the ability to reconcile differences when they occur.

- **Coordination and Integration.** Different functions and units of the organization are able to work together well to achieve common goals. Organizational boundaries do not interfere with getting work done.
Adaptability.

Researchers (see for example, Lawrence and Lorsch, 1967) argue that despite the natural advantage of well-integrated organizations, they can also be the least adaptive and the most difficult to change. Adaptable organizations translate the demands of the organizational environment into action, they take risks and learn from their mistakes and have capability and experience at creating change (Katz and Kahn, 1978; Kotter, 1996; Senge, 1990). They are continuously improving the organization’s ability to provide value for its customers by creating a system of norms and beliefs that support the organization’s capacity to receive, interpret and translate signals from its environment into internal systems that increase the organization’s chances for survival and growth. Organizations that are strong in adaptability usually experience sales growth and increased market share (Denison & Mishra, 1995). In the model, this trait is measured with three indexes:

- **Creating Change.** The organization is able to create adaptive ways to meet changing needs. The organization is able to read the business environment, quickly react to current changes and anticipate future changes.

- **Customer Focus.** The organizations understand and react to the consumer and anticipate his or her future needs. This reflects the degree to which the organization is driven by a concern to satisfy the customer.

- **Organizational Learning.** The organization receives, translates and interprets signals from the environment into opportunities for encouraging innovation, gaining knowledge and developing capabilities.

Mission.

Researchers (see for example, Hamel and Prahalad, 1994; Mintzberg, 1989; Selznick, 1957) argue that successful organizations have a clear sense of purpose and direction that defines organizational goals and strategic objectives.
and express a vision of what the organization will look like in the future. A mission provides purpose and meaning by defining a social role and external goals for the organization. It provides a clear direction and goals that serve to define an appropriate course of action for the organization and its members. A sense of mission allows an organization to shape current behaviour by envisioning a desired future state. Being able to internalize and identify an organization’s mission contributes to both short and long-term commitment to the organization. This trait is measured by three indexes:

- **Vision.** The organization has a shared view of a desired future state. It embodies core values and captures the hearts and minds of the organization’s people, while providing guidance and direction.

- **Strategic Direction and Intent.** The organization’s plan to make its mark in its industry. Clear strategic intentions convey the organization’s purpose and make clear how every one can contribute.

- **Goals and Objectives.** A clear set of goals and objectives can be linked to the mission, vision and strategy and provide everyone with a clear direction in their work.

**Rationale for using Denison Organizational Culture Survey (DOCS).**

The measurement instrument that was selected for the purpose of this study was the DOCS. This survey is based on 15 years of research on over 1000 organizations and over 40000 individuals. The survey uses 60 items to focus on four organizational culture traits that can have significant impact on organizational effectiveness. DOCS assesses organizational focus (internal and external focus) and organizational flexibility (flexible and stable). Organizations are assessed along the four basic cultural traits of involvement, consistency, adaptability and mission. Denison argues that this approach allows for assessment of the ways in which organizations (or sub-groups within organizations) deal with seemingly contradictory or paradoxical goals and
demands. Denison regards the understanding of such conflicts as essential to developing sustainable adaptive organizational behaviour and a number of studies have reported that the pattern of cultural traits of high performance organizations can be clearly distinguished from those with lower performance (Denison, 1984; Denison and Mishra, 1995; Fisher and Alford, 2000). This model is often used as a diagnostic process to profile specific organizations in order to highlight the strengths and weaknesses of their cultures and to suggest ways in which the organization’s culture may influence its effectiveness.

Denison’s model is based on four cultural traits of effective organizations. The main focus of the model is the contradiction between attaining both internal integration and external adaptation. This focus is consistent with Schein’s (1990) observation that culture is developed in organization as an organization learns to cope with the dual problems of external adaptation and integral integration. Peters and Waterman (1982) also argue that successful organizations have some cultural traits of excellence. In addition to this Schein (1985) views the basic assumptions as the most basic level of culture and (Kumar, 1992) argues that these basic assumptions express themselves in the behavior of members of a work group. Similarly Denison asserts that the elements of culture viz., Involvement, Consistency, Adaptability and Mission are manifested in a set of organizational behaviour, since behaviour is visible it is therefore, possible to measure company culture. Further Denison et al., (2004) argue that organizations that are market focused have problems with internal integration, while organizations that are signified by conformity and integration usually find it difficult to adapt to the surrounding environment. In a similar way organizations with a great deal of participation can have difficulty establishing a clear direction. The conclusion is that effective organizations have the capability to resolve these contradictions in a satisfying way.
This model uses perceptual measures for measuring organizational effectiveness. The model was preferred for many reasons: to measure organizational effectiveness using objective measures would have been difficult as the entrepreneurs in the state of Jammu and Kashmir are not willing to share the financial information, no centrally-collected financial information of the business organizations is available, for measuring organizational effectiveness, subjective measures have been found correlated with objective measures of effectiveness (see for example, Cameron, 2005; Denison and Mishra, 1995; Denison et al., 2002; Powell, 1992; Guest et al., 2003) and there has been a precedence of using the subjective measures of effectiveness in the literature (see for example, Delaney and Huselid, 1996; Denison and Mishra, 1995; Denison and Fey, 2000; Denison et al., 2004) and these perceptual performance indicators have met with wide approval in the conceptual performance literature (see for example, Donaldson and Pretson, 1995; Doyele, 1994; Pretson and Sapienza, 1990).

Also researchers have demonstrated that subjective measures of organizational effectiveness can be useful proxies for the objective sales or profitability data (see for example, Baer and Frese, 2003; Guthrie, 2001; Wall et al., 2004). Further to retain relevance, this study assessed culture and effectiveness in organizations from same trades (Lee and Yu, 2004).

Denison further explains these four cultural traits as:

- Mission-Is the company clear about why they exist and where they are going?
- Involvement-Do employees embrace the defined mission? Can they see the link between their jobs and the mission, and are they willing to give their all to achieve it?
- Adaptability-Do employees fully understand the needs of their customers and are they able to respond to changing marketplace demands?
• Consistency—Are there efficient and effective systems, structures, and processes in place to maintain focus on the mission?

Many authors have published work on cultural theory of organizational effectiveness within the field of organizational behaviour, however, their research cannot be regarded as academic research, as the evidence most often consists of stories and anecdotes that are entertaining but not always convincing (Denison, 1990). It is against this background of a disregard for science that Denison undertook research to address the issue of scientific evidence by taking both qualitative and quantitative approach. Denison studied the impact that organizational culture can have on organizational performance and effectiveness using Denison Organizational Culture Survey as the framework, which is being considered as the most extensive quantitative study conducted on the subject.

Validity and Reliability of the Instrument

In order to establish the validity and reliability of the instrument (Denison Organizational Culture Survey) Denison, 1998; Cho, 2000 and Denison et al., (2005) conducted the reliability and validity tests of the model. The first study was based on a sample of 40 American organizations and 960 individuals within three organizations. The objective was to establish the reliability of items in each index. In order to do this, Cronbach’s alpha was calculated for each of the indexes to make certain that the items written all resulted in indexes that had internal consistency scores in the recommended range of 0.60 to 0.90. The first step in this analysis showed that all of the indexes had alpha coefficients within the range of 0.62 to 0.82. Thus, it was concluded by Denison (1998) that the twelve indexes had acceptable reliability. The study showed that the loadings were strong and relatively consistent indicating good support of the model (see Denison, 1998). A later study conducted by Cho (2000) presented RMSEA (root mean square error of
approximation) value of 0.053 for the hypothetical model, indicating a good fit and thus supporting the original goodness of fit findings.

The model was once again tested for its reliability and validity by Denison and his colleagues (see for example, Denison, Janovics and Young, 2005; and Denison et al, 2006). This study was based upon a large and diverse sample of 35,474 individuals from 160 different organizations. The goal of this study also was to establish the validity of a set of sixty survey items and twelve five-item indexes as measures of four underlying traits defined by the theoretical model and to demonstrate the criterion related validity of culture rating in predicting organizational effectiveness. Overall, the results of the study provide strong support for the validity of the organizational culture survey as set of measures for the constructs in the theoretical model, provided support for the convergent validity of the items comprising the twelve measures. Also the results from the confirmatory factor analysis showed that the conceptual model of 4 traits each measured by 3 indexes that are themselves made up of 5 items closely approximated the observed pattern of relationship between item ratings. Overall, the results of the three studies provided a clear support for the theoretical model and a good fit overall. In addition to the above tests the model has been used by a number of researchers as framework in their studies to measure organizational culture and organizational effectiveness (see for example, Denison, 1984, 1990, 2000; Denison and Mishra 1995; Denison and Neale, 1996; Fey and Denison, 2003; Denison et al, 2005; Fisher, 1997, 2000; Fisher and Alford, 2000; Coffey, 2003; and Sharma, 2005).

Sample and Data Collection

The present study aims at assessing the organizational culture and organizational effectiveness in select organizations operating in the state of Jammu and Kashmir. Using Stratified Random Sampling (SRS) the data for this purpose were collected from six manufacturing firms (two cement, two textile
and two steel manufacturing firms) with the help of a well-designed, valid and reliable questionnaire (Denison Organizational Culture Survey). With respect to the ownership of the firms, four firms were privately owned and two firms belong to public sector. The sample size in terms of respondents was 212 employees. Eight items are phrased negatively and answers were reversed in the analysis. Questionnaires with missing data on any of the sixty core items were excluded from the analysis. A total of 260 questionnaires were returned out of 480 but only 212 were usable for data analysis. The respondents for this study were taken from all the levels of the organization. All the respondents were requested to fill the questionnaires. However, some were on leave, attending training programmes, although others at work were unable to fill the questionnaires (mostly frontline workers) because of being less educated, in these cases the researcher made a brief presentation on the questionnaire items for the convenience of the less educated respondents. In the sample, nearly 95 percent of the respondents were male and rest were female. In terms of age group, nearly 40 percent of the respondents were between 30-40 years old, 30 percent of the respondents were between 40-50 years old, 10 percent of the respondents were above 50 years old and 20 percent of the respondents were below 30 years of age. In terms of educational background, 8 percent of the respondents were post graduates, 40 percent of the respondents were having bachelor’s degree or equivalent, 30 percent of the respondents had passed class 12\textsuperscript{th}, 10 % of the respondents were matriculates and nearly 12 % respondents were less educated. With regard to the number of employees four firms had between 200-300 employees and two firms had between 500-1000 employees. In terms of the number of years of establishment, all the six firms were in operation for more than fifteen years.
Table 1: Profile of Sample Organizations

<table>
<thead>
<tr>
<th>Firm Name</th>
<th>Year of Establishment</th>
<th>Ownership</th>
<th>Nature of Business</th>
<th>Employment Strength</th>
<th>Capital Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1974</td>
<td>Government</td>
<td>Manufacturing/Cement</td>
<td>700</td>
<td>Rs 15 Crores</td>
</tr>
<tr>
<td>2</td>
<td>1963</td>
<td>Government</td>
<td>Textile</td>
<td>250</td>
<td>Rs 655.53 lacs</td>
</tr>
<tr>
<td>3</td>
<td>1985</td>
<td>Private</td>
<td>Manufacturing/Steel</td>
<td>280</td>
<td>Rs 500 lacs</td>
</tr>
<tr>
<td>4</td>
<td>1975</td>
<td>Private</td>
<td>Manufacturing/Steel</td>
<td>200</td>
<td>Rs 3 crores</td>
</tr>
<tr>
<td>5</td>
<td>1985</td>
<td>Private</td>
<td>Textile</td>
<td>700</td>
<td>Rs182 crores</td>
</tr>
<tr>
<td>6</td>
<td>1987</td>
<td>Private</td>
<td>Manufacturing/Cement</td>
<td>300</td>
<td>Rs 500 lacs</td>
</tr>
</tbody>
</table>

*Source: Company built information.*

Statistical Analysis

The study used the statistical tools of Correlation, Regression, ANOVA and T-test to address the hypotheses and objectives of the study.

1. **Correlation Analysis:**

   In the words of Croxton and Cowden, “when the relationship is of quantitative nature, the appropriate statistical tool for discovering and measuring the relationship and expressing it in brief formula is known as correlation” (see Gupta, 1991). In order to understand the relationship between the independent variable i.e. organizational culture and the dependent variable organizational effectiveness, correlation analysis has been used.

2. **Regression Analysis:**

   In this study the dimensions of organizational culture have been used as independent or predictor variable and the subjective (perceptual) measures of organizational effectiveness have been used as the dependent or criterion variable.

3. **ANOVA:** Analysis of variance has been performed on the organizational culture scores in order to determine if there were any significant differences in company culture scores.
4. **T-test**: T-statistic (independent t-test) has also been used to determine the differences on culture scores between the firms. Firms falling in the same business were compared on the four organizational culture traits.

**Summary**

The chapter identified the problems in measurement of organizational culture and effectiveness. A brief description of the questionnaire, its validity, reliability and rationale is also given. The sample, data collection and statistical tools used were also discussed in this chapter.