Study of Effective Virtual Project Management through Emotional Intelligence, Empowerment and Leadership Style in Partly and Truly Global Projects

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Declaration

The substance of this thesis is the original work of the author and due references and acknowledgements have been made, where necessary, to the work of others. No part of this thesis has been already accepted for any degree, and it is not being currently submitted in candidature of any degree.

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Abstract

Increasing globalization of organizations and proliferation of new technologies have made multi-cultural virtual teams not only a reality but important also. Global virtual team members rarely meet face-to-face and thus deal with challenges which not associated with traditional collocated teams (Lipnack & Stamps, 1997). These challenges faced by virtual project team members form the basis for the first phase of research. The research was conducted in three phases. Initially, in phase one of the research, important behavioral contributors to virtual project management were identified from the literature. The researcher gathered these contributing factors within a framework named the “Factor Reinforcing Model®”. This model was empirically tested through statistical method, against data on the relevant variables, obtained from a survey of fourteen software houses in Pakistan. Findings from the model conclude that several contributing factors of virtual project management (VPM), namely, communication, motivation, information security, trust building etc reinforce each other to lead to effective virtual project management.

In the second phase of the thesis, the researcher conceptualized that Emotional Intelligence (EI) plays a very decisive role in the performance of managers even in a VPM environment. She tested the proposition that there is an overlapping relationship between the factors contributing to effective virtual project management and the competencies of emotional intelligence. Findings highlight that emotional intelligence together with soft skills and intelligence help in uplifting motivation, reducing cultural barriers, resolving conflict, building teamwork and collaboration and enhancing communication among professional project team members. Thus research findings establish that EI helps project managers to cope with the challenges of VPM through self-awareness, self-management, social awareness, and relationship management.

In phase three of the research, the researcher analyzed the preferred leadership behaviour for effective project management. Leadership behavior is measured by concern for tasks and
concern for people in partly and truly global projects. Factors based on leadership behaviour were identified like participative decision making, open communication, conflict management, delegation of power, task monitoring, time management, coaching, and team work and a model for effective project management was proposed in leadership context. In addition to above, in the third phase, the relationship of social intelligence and leadership style in partly and truly global virtual projects was also analyzed. Results showed that social awareness and relationship management were positively related to concern for task and concern for people and was higher in truly global than partly global virtual projects. A model of effective virtual project management was proposed from research findings regarding SI. The relationship between empowerment climate and leadership style and customer service as a measure of effective project management was also analyzed in projects with varying degree of virtuality. Initially the researcher compared the empowerment environment among more and less virtual projects. Then she examined the moderating effects of degree of virtuality on the relationship between empowerment climate and leadership style. The findings of this research suggest that high empowerment climate and concern for people are highly demanded by truly virtual projects than partly virtual projects. A model of effective virtual project management was proposed with respect to empowerment climate, leadership style (concern for people) and customer service. Moreover, it was found that virtuality moderates the relationship between empowerment climate and concern for people. The findings of this research have significant implications for leadership skills and behaviours at partly global and truly global project management workplaces.
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<thead>
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<th>VT</th>
<th>Virtual Teams</th>
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<tr>
<td>VPM</td>
<td>Virtual Project Management</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>EI</td>
<td>Emotional Intelligence</td>
</tr>
<tr>
<td>SI</td>
<td>Social Intelligence</td>
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<tr>
<td>IV</td>
<td>Independent Variable</td>
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<tr>
<td>DV</td>
<td>Dependent Variable</td>
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1 Introduction

The project management paradigm is too rapidly shifting due to business globalization and information technology (IT) advancement that supports distributed and virtual project teams. Virtual organizational forms have become popular, and the professional management literature consistently promotes the virtues of going virtual (Boudreau et al., 1998; Davidow & Malone 1992; Townsend et al., 1998; Grenier & Metes, 1995). Global competition, reengineered product life cycles, mass customization, and the increased need to respond quickly to customers’ needs are just some of the more pronounced trends currently driving organizational change (Grenier & Metes, 1995; Miles & Snow, 1992). Increasingly, successful organizations are those organized in a dynamic network form that, using IT as a primary enabler, can more quickly adapt to ever-changing competitive landscapes and customer requirements (Jarvenpaa & Ives, 1994). All these dynamic organizations comprise virtual teams (VT)\(^1\). Organizations use virtual teams to make decisions because they have access to larger pools of information than any individual manager, which should lead to more informed decisions and improved performance (Shaw, 1981; Dennis, 1996; Deeter-Schmelz & Ramsey, 2003).

Several researchers (Chiesa, 1996; Coughlan & Brady, 1996; Dalton & Serapio, 1995; Medcof, 2001; Roebuck & Britt, 2002) have pointed out the importance of understanding management within virtual environments, as well as to assess to what extent current practices and processes are effective. The present research critically examines these practices and processes proposing various models of effective virtual project management\(^2\) (VMP) taking

\(^{1}\) Cleland and Ireland (2002) define virtual teams as group of project team members, linked via the internet or the media channels to each other and various project partners.

\(^{2}\) Project management effectiveness refers to the success of the project (Hyvaˇri, 2006). Achieving projects’
into account softer behavioural aspects of VT members.

1.1 Challenges of Virtual Project Management

As the research is focused around virtual project management (VPM), it is important to understand how the concept of VPM has evolved in the literature. Virtual project management is the system by which virtual teams collaborate for a finite period of time towards a specific goal. Virtual teams are groups of geographically and organizationally dispersed knowledge workers brought together across time and space through information and communication technologies (such as the internet or media channels) in response to specific customer needs or to complete unique projects (Cleland and Ireland, 2002 and DeSanctis & Poole, 1997). A team is virtual team if the team members are geographically distributed and thus do not engage in face-to-face contact (Rad & Levin, 2003).

Cynthia (1997) views virtual projects and teams as projects and teams with a virtual overlay. Technology enables and helps create the "virtual workspace" through which a project team communicates and collaborates. As technology defines the operational environment of the virtual team, tools like audio conferencing, videoconferencing, electronic mail etc are used as channels of communication for the effective management of virtual teams. Table 1 in the Appendix A shows a more comprehensive list of all of the forms of collaborative technology.

Virtual project management is supplanting the traditional concept of project management because of persistent pressures to reduce costs and headcount, the need to quickly address customer problems, develop products, deliver services, and tap a more diverse pool of employees across the organization (Duarte et al., 2001). Several studies suggest that virtual teams (VTs) face significant challenges in four major areas: communication, culture, technology, and project management (Kayworth et al., 2000). However, in addition to these, there are behavioral aspects of VT members which pose critical challenges to VTs as discussed in the literature review section.

Current research suggests that virtual team failure is directly related to the difficulties of building trust, positive relationships across the three boundaries of geographical distance, time zones, and cultural differences (Kimble et al., 2000). Dube and Pare (2001) outline several of success depends on people and organizational environment.
the problems and challenges faced by VTs. The challenges of leading and managing virtual teams are intensified because of the different cultures, languages, business practices and attitudes relating to hierarchy and power. It is therefore critical that leaders of VTs need to be cognizant of these differences and increase team awareness of these differences. These challenges of VPM with respect to Pakistan’s IT industry will be observed and analyzed in the first phase of research thesis.

The present research first focuses what challenges these virtual teams will face in virtual project environment keeping in view the softer aspects of virtual team members. As no study has been earlier conducted on this topic with respect to Pakistan’s IT industry, this will be the first to identify the challenges that project managers face in virtual projects. In this research thesis, the researcher will initially examine different challenges of virtual project management such as culture and language barriers, communication and information security, information redundancy as a result of multi-channel communication, time zone differences, face to face context, team structure, trust building, conflict resolution and management, motivation and tacit knowledge sharing. Further, a model is proposed to show how these factors contribute to effective virtual project management.

1.2 Emotional Intelligence and Challenges of VPM

In phase two of the research, the researcher conceptualized that emotional intelligence (EI) plays a very decisive and positive role in the performance of managers even in a VPM environment. The dynamics of a virtual project demand that a team is built across cultural and geographical boundaries thus posing challenges which can only be managed through the competencies of Emotional Intelligence (EI). Sternberg’s (2003) in his theory of multiple intelligence suggests that interpersonal and intrapersonal intelligence are unique and different from general intelligence which is measured by "IQ" or intelligence quotient and is based on mathematical and logical aptitude.

Goleman (1995a, 1998b) defined EI as a person’s self-awareness, self-confidence, self-control, commitment and integrity, and a person’s ability to communicate, influence, initiate change and accept change. Goleman found that emotional competence is twice as important as purely cognitive abilities for star performers in all jobs in every field (Goleman, 1998). Emotional intelligence can be categorized into two-core beliefs. EI is the intelligent use and
ability to manage one’s own emotions and it also entails applying this insight to understanding and influencing the emotions of others. Goleman called the second component of EI, social intelligence (SI). (Goleman et al., 2002; Goleman 2006). Thus emotional intelligence can also be classified as a combination of emotional competencies. These skills contribute to a person’s ability to manage and monitor his or her own emotions, to correctly gauge the emotional state of others and manages his/her relationships with others and influence their opinions (Caudron, 1999).

Emotional intelligence in the workplace is the ability to understand yourself and others well enough to express emotions in a healthy way, which is critical to job success and career satisfaction (Sims, 1998). Goleman (1998) says that professionally successful people have high emotional intelligence in addition to the traditional cognitive intelligence or specialized content knowledge. Goleman's (1998) contends that 75% to 90% of effective performance, particularly in the case of managers and leaders, is attributable to "emotional intelligence" (EI). Managers who do not develop their emotional intelligence have difficulty in building good relationships with peers, subordinates, superiors and clients. More emotionally intelligent individuals presumably succeed at communicating their ideas, goals, and intentions in interesting and assertive ways, thus making others feel better suited to the occupational environment (Goleman, 1998). Organizational leaders, who are high on EI, with a supportive organizational climate and the human resources team, may affect the relationship in the work setting, which, in turn, impacts upon group and individual EI and organizational commitment (Cherniss, 2001). EI may also be useful for group development since a large part of effective and smooth team work is knowing each others’ strengths and weaknesses and leveraging strengths whenever possible (Bar-On, 1997).

One of the toughest challenges, in managing a project in the 21st century, is to manage the people involved in delivering the project successfully (Verma, 1995). Verma states that project managers must be very effective in interpersonal relationships as well as building and nurturing project teams (Verma, 1995). These extraordinary skills though most critical for VPM are difficult to accomplish. Knowing oneself, especially one's capabilities, strengths and

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3 Goleman (1998) defined an “emotional competence” as a “learned capability based on emotional intelligence which results in outstanding performance at work.”
weaknesses is the first step towards successful project management (Kerzner, 1998). This relationship will be analyzed in the second phase of research. The researcher suggests that EI competencies help project managers to tackle the challenges of virtual project management. How EI helps project managers to cope up with the challenges of VPM will be discussed in detail. Moreover, an overlapping relationship between EI and challenges of VPM will be critically examined. Goleman’s model of EI will be taken as a basis for measuring EI of project managers.

1.3 Leadership Behaviour

The conceptual premise for phase three of the dissertation has its roots in the concept of social intelligence, leadership style and empowerment climate. The researcher will discuss these concepts next. In the third and final phase of research, the researcher first analyzes effective project management in the context of leadership behaviour (concern for task and people) in less global and truly global projects. For this research, researcher defines partly or less global projects as the projects where project team members and team leader are collocated but having reliance on technology and latest communication channels. In such projects the use of technology and latest communication channels define the level of virtuality. These projects use virtual tools like telephone, fax, email, and audio conferencing for communication thus making it slightly distinct from collocated. Researcher defines truly or more global projects being projects in which project professionals worked in a single team from start to finish of the project collaborating with other virtual team members dispersed in different countries. Truly global projects involve people from geographically and organizationally dispersed knowledge workers brought together across time and space through information and communication technologies on an “as needed basis” in response to specific customer needs or to complete unique projects (DeSanctis and Poole 1997; Jarvenpaa et al. 1998; Lipnack and Stamps 1998; Jarvenpaa and Leidner, 1999). For this thesis, less global or less virtual terms are used interchangeably for partly global projects. Similarly, more global or more virtual terms are used interchangeably for truly global projects.

Organizations involved in projects are now focusing on effective leadership as an important success factor (Pinto 1986; Pinto & Slevin 1988). Crawford (2000) suggests that project leadership is the highest ranking category among project management competence factors. Project management leadership style affects overall project performance.
Recent research supports the idea that successful projects are led by individuals who possess not only a blend of technical and management knowledge, but also leadership skills that are internally compatible with the motivation of the project team (Slevin & Pinto, 1988; Turner et al., 1998). Zimmerer and Yasin (1998) found that positive leadership contributed almost 76% to the success of projects. Negative or poor leadership contributed 67% to the failure of projects. Slevin and Pinto (1991) suggest that project leaders need both relationships and task oriented leadership styles to cope up with the challenges of different phases of project. This provides us the rationale to take Managerial Grid based on concern for people and concern for task to study leadership style in projects with varying degree of virtuality. This is the first time that human competencies are studied by the researcher at actual workplace in virtual projects instead of the experimental laboratory settings with student sample.

The researcher suggests that projects which are virtual in nature make project leadership more challenging. Keeping this in view, the researcher identified the leadership style used by project team members in partly and truly global projects. Moreover, the distinguishing factors of leadership style in two types of projects were examined. In the end, a model for effective project management was proposed based on leadership behaviour.

### 1.4 Social Intelligence and Leadership Behaviour

After examining the leadership style in the third phase, the researcher first examined the relationship of social intelligence (SI) with leadership style in projects with varying degree of virtuality. This research contends the research of Chidambaram and Bostrom (1993), Walther (1995) and Lipnack and Stamp (2000) who suggested that virtual teams tend to have more of a task-focus and less of a social-focus. The researcher proposed that both task and relationship behaviours are important for virtual project teams and these interrelationship skills are found in the SI of Goleman’s model. Taking its basis from virtual team literature, this research thus extends the work of Kayworth and Leidner (2001) and Strang (2007) by proposing that SI has a significant relationship with leadership style in projects with varying degree of virtuality.

Research on social support has illustrated that close personal relationships in the workplace lead to quantitative improvements in performance outcomes (Eisenberg et al., 1983; Tjosvold & Field, 1983; Henderson & Argyle, 1985; Kram & Isabella, 1985; Corson & Enz, 1999). Thus project manager’s interrelationship with its team is critical to effective team
performance whether it is collocated, less global or more global in nature. This establishes the significance of interrelationship in project teams for effective project management. However, now the question arises to what extent such close relationship works in virtual project teams where there are no face to face interactions and communication is heavily dependent on technology. To answer this query we take definition suggested by Lipnack and Stamps (1997):

“Virtual teams are living systems not machines. They are made up of people with interdependent roles and a web of relationships aligned through shared purpose, everything about them is organic. As living systems, they are not biological organisms but rather social organisms, which have both a pulse and a life cycle”. (Lipnack & Stamps, 1997). This definition pinpoints the importance of personal and psychological relations among virtual team members thus emphasizing the importance of EI particularly social intelligence in VPM. Social Intelligence (SI) covers this aspect of interrelationship between project leader and team members at a work place and this relationship was examined in the third phase.

In the second phase of research, Nauman et al. (2006) established that there exists a multi tier overlapping relationship between challenges of VPM and EI competencies. EI competencies help project managers to tackle the challenges of VPM effectively. Moreover, the results of second phase of research dissertation show that project managers demonstrate strong SI (social awareness and relationship management) competencies in VPM environment as compared to other competencies. This provides us the rationale to further analyze SI in projects with varying degree of virtuality.

Previous studies on emotional intelligence did not consider whether emotional intelligence, as a human resource management competence, is essential for project managers (Barry & Plessis, 2006). This research will analyze SI as a critical human resource management competence in projects with varying degree of virtuality. Previous studies looked at the self-awareness component of emotional intelligence and transformational leadership (Sosik & Megerian, 1999). The current research will identify whether the extraordinary skills required for effective management of partly global and truly global

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4 Researchers have now viewed virtuality as a continuum ranging from highly virtual to minimal virtual, arguing that many teams in organizations today are characterized by dimensions of virtuality (Griffith et al., 2003).
projects are social intelligence competencies.

1.5 Empowerment Climate and Leadership Behaviour

Based on the nature of virtual teams’ tasks, the researcher argues that empowerment is inherent in virtual project management as compared to collocated project management. Being distant and using technology as a means of communication, more virtual projects are more dependent on technology than less virtual projects. In this thesis, the researcher will call more virtual projects as more global and less virtual projects as less global projects. Project management is a growing field and many organizations have project teams which are less or more global in nature based on the level of virtuality. This transition towards project teams has led to the need to understand and enhance the effectiveness of management of projects in organizations. Researchers are increasingly interested in exploring the dynamics of these project based organizations and the factors which increase project management effectiveness. Frequently, members of virtual teams are not closely supervised. Rather, they function as empowered professionals who are expected to use their own initiative and resources to contribute value to customers and other stakeholders (Hammer, 1996). Thus empowerment is inherent in global project management and there is a need to explore factors which constitute empowerment in virtual projects and how they contribute to effective virtual project management.

Empowerment is the process of releasing the full potential of employees to take on greater responsibility and authority in the decision making process and providing the resources for this process to occur (Cartwright, 2002). Employee empowerment is the process of sharing information, training and allowing employees to manage their jobs in order to obtain optimum results. Empowered employees have "responsibility, a sense of ownership, satisfaction in accomplishments, power over what and how things are done, recognition for their ideas, and the knowledge that they are important to the organization".

In virtual teams that rarely meet face to- face, team leaders often have no choice but to distribute and delegate leadership functions and responsibilities to team members (Bell & Kozlowski, 2002). Virtual team members will more likely assume these responsibilities and functions if they are provided with highly empowered working environment. In short, empowerment in a virtual team may function as a substitute for many of the leadership
functions that are normally executed by a team leader who is physically present and interacting face-to-face with a team (Kerr & Jermier, 1978). As empowerment is a substitute for leadership in virtual environment, therefore, the present research thesis examines how empowerment climate contributes to effective leadership in VPM.

The concept of Empowerment Climate proposed by Scott et al (2004) is a shared perception regarding the extent to which an organization makes use of structures, policies, and practices supporting employee empowerment. Kirkman et al. (2004) compare the effect of psychological empowerment across two virtual project environments and their results indicate that team empowerment is positively related to process improvement and customer satisfaction in virtual teams. The researcher extends this work and compared empowerment climate in two types of virtual projects taking empowerment climate as independent variable and customer satisfaction and leadership style as dependent variables.

Blanchard et al and Randolph (Blanchard et al., 1995; Randolph, 1995) identified three key organizational practices associated with empowerment: information sharing, autonomy through boundaries, and team accountability. All these practices are critical for effective leadership in projects with varying degree of virtuality. Employees’ attitudes and behaviours are derived by the perceptions of empowerment climate (James & Jones, 1974; Schneider, 2000).

1.6 Objectives of the Research

In the light of the above discussion, the dissertation has a number of major objectives and sub-objectives which will be done in three phases. The research starts with understanding the challenges of virtual project management in the IT sector of Pakistan. Further, the research examines the role of EI in virtual project management in Pakistan’s IT sector. To understand the factors that lead to effective project management, the relationship of Social intelligence and Empowerment Climate with leadership behaviour (concern for task and concern for people) was studied in projects. These patterns are compared in two kinds of project teams—partly global and truly global virtual or distributed project teams. Thus, the main objectives of the present research thesis are to find out the:

- Challenges of VPM
- Significance of EI and leadership in VPM
Significance of empowerment climate and leadership in VPM

Specific sub objectives of the research are:

- Analyze the effect of the contributing factors which collectively contribute to effective virtual project management in the IT sector of Pakistan.
- Measure the effect of these factors which consist of culture and language barriers, communication and information security, information redundancy.
- Ascertain and measure the role of Emotional intelligence using Goleman’s model in the effective management of virtual projects in the IT sector of Pakistan.
- Examine the Leadership Behaviour leading to effective project management.
- Compare the leadership behaviour in partly global and truly global virtual projects.
- Study the role of Social intelligence in virtual project management.
- Measure the contribution of SI to effective virtual project management in order to ascertain the extraordinary skills required for partly global and truly global projects truly form social intelligence competencies.
- Compare the role of SI in partly and truly global virtual projects with respect to leadership behaviour.
- Develop an Empowerment Climate construct for virtual project environment.
- Ascertain the significance of Empowerment Climate in virtual project management with respect to Leadership behaviour.
- Comparing Empowerment Climate in partly global and truly global projects with the Leadership behaviour.
- Measure and examine the relationship between Empowerment Climate and Leadership behaviour and how this is affected by level of virtuality.
1.7 Rationale, Significance and Expected Contributions of the Research Thesis

The literature suggests that there will be a continuing need for virtual organizations as firms seek to cut costs in order to regain and maintain market shares, profitability, and survival in a globally competitive marketplace (Echeverri-Carroll, 2003; Malnight, 2001). Trend analysis indicates that due to increased internationalization of business, demands for virtual organizations may increase substantially. As a result it becomes vital to further understandings of how best to manage within virtual environments and to determine if current practices and processes are effective (Chiesa, 1996; Coughlan & Brady, 1996; Dalton & Serapio, 1995; Medcof, 2001; Roebuck & Britt, 2002).

Though the concepts of team formation and team performance have been well researched, there is a need for research which focuses on human competencies and skills in projects with varying degree of virtuality. Hoffman (2002) also points out that the study of human variables seems to be lacking from rigorous definition and analysis.

These human variables in project environment can well be explored through constructs of Emotional Intelligence, Leadership and Empowerment Climate concepts within the project environment. This implies that a research which compares empowerment climate and leadership style and social intelligence and leadership style among project team members is required. This assumes significance since it is established that EI and leadership in project teams are related to human complexities which affect performance and effective VPM (Nauman et al., 2006).

Though several research studies on virtual teams were conducted, there is dearth of research on virtual teams which compare partly global and truly global virtual teams from SI, leadership and empowerment perspective. The literature consists of comparative studies of collocated and virtual teams, either from a ‘performance’ perspective (Sambamurthy et al., 1993; Straus & McGrath 1994) or from a team dynamics perspective (Cramton, 2001; Jarvenpaa & Leidner, 1999; Maznevski & Chudoba, 2000). There are only a few articles regarding leadership and virtual teams (Avolio & Kahai, 2003; Cascio & Shurygailo, 2003; Zigurs, 2003). These studies explain differences between virtual and collocated teams and provide general guidance on how negative issues associated with these differences can be minimized as well as how to use technology to maximize any new opportunities for such
teams. Moreover, few studies have examined the effects of partially distributed teams but none have examined their impact on virtual leadership (Cohen & Prusak, 2001; Walther1995; Kiesler & Cummings, 2002). Other research studies provide only high level approach to overcome the inherent challenges of leading a virtual team. These studies discuss how high level of trust; media richness and leadership processes lead to positive team outcomes (Avolio et al., 2001; Bell & Kozlowski, 2002; Spreitzer, 2003). However, such studies do not provide details regarding why leading a virtual team might be different from leading a collocated team. The literature which empirically examines virtual team leadership issues focuses primarily on describing the characteristics of effective virtual leadership including the engagement in extensive communication and the exercise of authority (Kayworth & Leidner, 2001). This gap in the literature provides the motivation to examine the relationship of social intelligence with leadership style in project management environment both for partly global and truly global projects.

The researcher will now discuss the rationale for studying empowerment and leadership behaviour in the virtual project environment. Next its significance will be explained in organizational context and finally the basis for studying the two variables will be discussed. Empowerment implies giving power to others, or creating in others the sense of personal power: power to achieve, accomplish and succeed. Empowerment is often defined as the act of giving people the opportunity to make workplace decisions by expanding their autonomy in decision making (Vogt, 1997). Also, empowerment has been described as the breaking down of traditional hierarchical structures (Blanchard, 1997). From a service perspective, empowerment gives employees the authority to make decisions about customer service. In industrial and organizational psychology and management, empowerment is the enhancement of the autonomy of employees in their work or increased involvement that results in increased decision making more generally within the wider agenda and interests of the organization (Wall et al., 2004). An empowered and committed workforce is generally claimed to be essential for the effective functioning of modern organizations (Bowen & Lawler, 1992; Sparrowe, 1995; Corsun & Enz, 1999). Empowerment have been proposed and found to facilitate a worker’s commitment to the organization (Grenier & Metes, 1995; Locke & Schweiger, 1979; Spreitzer, 1995).

Empowerment can be measured through two theoretical concepts. One is Psychological
Empowerment which has received much attention from researchers in many business fields (Thomas & Velthouse, 1990; Spreitzer, 1995). The focus of psychological empowerment is the psychological empowerment state of an individual. The other concept is the Empowerment Climate which focuses on work environment (Davidow & Malone, 1992). Empowerment in less and more global projects depends largely on its work environment which is predominantly dependent on communication and IT. This provides us the rationale to study the empowerment climate in less global and more global projects. As perceptions of organizational climate are related to individual attitudes and behaviours (Schneider et al., 1980, Hofmann & Stetzer, 1996; Glisson & James, 2002), therefore, in this thesis, its relationship with leadership behaviour in projects is studied.

Previous research has demonstrated a positive relationship between team empowerment and collocated team performance (Hyatt & Ruddy, 1997; Kirkman & Rosen, 1999; Wellins, 1991). However, no research has determined the significance of relationship between empowerment and leadership style in less global and more global projects. To date little attention has been paid to virtual team empowerment (Kirkman et al. 2004). Kirkman et al. (2004) work on virtual teams suggests that team empowerment is positively related to process improvement and customer satisfaction in virtual teams. This research thesis takes further the work of Kirkman et al. (2004) and compares it to two virtual project environments. His work focused on Psychological Empowerment while this present research takes Empowerment Climate as the basis for research. Here empowerment is taken as the independent variable and effective virtual project management as the dependent variable measured through customer service and leadership style (concern for both task and people). It is suggested that project management will be effective if these measures of effective virtual project management (customer service and leadership style) are high in virtual projects.

Virtual teams can rapidly respond to business globalization challenges (Kayworth & Leidner, 2001; Maznevski & Chudoba, 2000; Montoya-Weiss et al. 2001) and their use is expanding exponentially (Kirkman et al. 2002). Thus there is a need to understand further the role of empowerment in virtual projects. Cohen and Bailey (1997) suggests that empowerment research should also be conducted on various types of teams, including management teams, project teams, and virtual teams, to determine if the results of their findings with permanent work teams are generalizable (Cohen & Bailey, 1997). Kirkman et al. (2004) suggest that
researchers who build models of virtual team effectiveness should include empowerment as an important predictor variable. This research supports the growing body of research on empowerment suggesting that it to be a very important construct for building models of virtual project teams.

From truly academic perspective, it is expected that this research thesis would pave the way for further empirical research, which compares partly global and truly global virtual teams from different perspectives and concepts such as Trust, Culture and Motivation. From the industry perspective, the results of this research may be most relevant to the management of virtual teams in partly global and truly global projects, especially with involvement aiming to create SI awareness among the project team members and enhanced effective virtual project management for better performance. The research also provides insight into the empowerment and leadership style in both types of projects. Detailed theoretical and practical implications of the research are discussed in detail in the later part of the thesis.

1.8 Organization of the Research

The thesis chapters are organized as follows. Chapter one provides the introduction, premise, objectives, and rationale, significance and expected contributions of the research. In addition, the chapter presents an overview of the research. Chapter two provides a review of relevant definitions of social intelligence, empowerment climate and leadership behaviour in virtual teams. Chapters three, four and five present the literature review of phase one, phase two and phase three of research respectively. Chapter six includes the research design, research questions, participants, procedures and measures. Chapter seven describes the results of the research from the statistical analyses. Chapter eight concludes with a discussion of the implications for research and practice, limitation, and conclusion.

An overall organization of the thesis highlighting the key issues addressed in this research is presented in figure 1.
Significance of Emotional Intelligence and Empowerment Climate in Virtual Projects

Partly Global

Theoretical Framework

Factors leading to

Role of EI in VPM

Study relationship of SI, Empowerment and leadership behaviour in partly global & truly

SI & Leadership

Social Intelligence, Empowerment, Concern for People, Concern for Task

Empowerment & Leadership

Survey Items, Regression, T-Test, Moderation

Analysis & Findings

Limitations

Conclusion

Figure 1: Overview of the Research
Chapter 2

2 Literature Review

The research thesis would now focus on literature review of important concepts used in the research. A snapshot of various definitions is first introduced; then challenges of VPM are identified and discussed in chapter three. Factors of VPM are theoretically correlated with EI in a project set up in chapter four. Goleman’s theory of EI is explored in the perspective of virtual project environment thus covering the second phase of research. In the third phase, relationships of Social Intelligence and Empowerment Climate with Leadership behaviour are examined and finally the affect of virtuality on their relationship is studied.

2.1 Virtual Teams

Kirkman & Mathieu (2004) define virtual teams\(^5\) to be: “…groups of workers with unique skills, who often reside in different geographical places and who have to use for co-operation means of information- and communication technology (ICT) in order to span the boundaries of time and space. Cynthia (1997) proposes that teams become virtual when any of the three

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\(^5\) Virtual: The term ‘virtual’ is derived from computer systems to describe ‘virtual memory’- which is computer memory that shifts and varies depending on the situation (Kristof et al., 1995). The researcher defines virtuality to be the extent to which project members are dispersed geographically and the extent they rely on information and communication technologies for carrying out project goals.

Team: “A team is a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social system, and who manage their relationship across organizational boundaries” (Cohen & Bailey, 1997). Katzenbach and Smith (1993) define teams as groups of people who come together to develop a shared purpose, define a shared way of working, agree on performance goals, hold themselves accountable for results, and develop complementary skills.
following components are combined:

- Different geography or locations of team members,
- Team members from different organizations or parts of the organization, or
- Different durations or lengths of time that member work together as a team.

Virtual teams as defined in Project Management Book of Knowledge (2004) are comprised of:

- People from the same company living in widespread geographic areas
- Add special expertise to a project team
- Incorporate employees who work from home offices
- People work different shifts or hours
- Include people with mobility handicaps

Increased dependence upon virtual teams has been credited to overall ways to procure expert knowledge and transfer “best practice” information (Huber, 1990). By implementing virtual teams, many organizations have become better equipped to capitalize on the distributed pool of talent, experience, and expertise thereby making the achievement of organization-based objectives “better, faster, cheaper, and smarter” (Lipnick & Stamp, 1997; Townsend et al., 1998). Townsend et al. (1998) claimed that all of these factors put more emphasis on decision-making at lower levels and increase the need for fast response times. In addition, organizations are becoming "networked rather than hierarchical" (Lipnick & Stamps, 1999, p.14). Virtual teaming indeed has allowed organizations to quickly develop and enlist the aid of geographically and organizationally dispersed human resources to resolve problems in record time.

The use of virtual teams in organizations offers several benefits to organizations and individuals including the following: people can work from anywhere at anytime and providing flexibility to the individual (Townsend et al., 1998); people can be recruited for their competencies, not just physical location (Hagen, 1999); recruiting expenses and relocation costs can be reduced or eliminated (Hagen, 1999); organizations increase the ability to develop knowledge sharing networks and become a learning environment; expenses associated with travel, lodging, parking, and leasing or owning a building may be reduced and sometimes
eliminated (Townsend et al., 1996); increased individual production (Kimball, 1997); virtual teams allow individuals to develop a diverse skill-set (Horvath & Duarte, 1997); team members move on and off projects quickly without the delay and expense of relocation (Henry & Hartzler, 1997); and team members can be brought up to speed quickly by examining electronic team communications and documents (Townsend et al., 1996). What virtual teams have in common with all teams is that members must communicate and collaborate to get work done. Virtual teams, however, must accomplish this by using technology (Duarte & Snyder, 1999).

### 2.2 Characteristics of Virtual Teams

Virtual organizations tend to be structured to take advantage of members’ collective core competencies (Bultje & Van Wijk, 1998). Virtual organizations are a flexible, efficient, and cost effective way of meeting the demands of globally located customers (Jaegers, Jansen & Steenbakkers, 1998; Van Aken, 1998; Davidow & Malone, 1992; Mowshowitz, 1994). Fitzpatrick and Burke (2003) put forward another major characteristic of virtual organizations is that of a small efficient group that is capable of managing all basic functions.

Byrne (1993) and Van Aken (1998) characterize virtual organizations as a network of independent organizations. Davidow (1992), Jagers, Jansen, and Steenbakkers (1998) consider virtual organization as having very little hierarchy. Throughout the literature, team size appears consistently to be a major contributing factor to virtual teams’ innovative, flexible operation profile (Chesbrough & Teece, 1996; Byrne, 1993; Jagers, Jansen & Steenbakkers, 1998). Another defining characteristic is that the organizations are geographically dispersed (Katzenbach & Smith 2003; Ariss et al., 2002; Bultje & van Wijk 1998; Van Aken 1998; Jansen, Steenbakkers & Jagers 1998; Byrne 1993; Chowdhury 2003; Lipnack & Stamps 2000). Most of the literature attributes much of virtual organizations’ successes and functional capabilities to the emergence of information communications technologies (ICT).

Bell and Kozlowski (2002) propose the use of situational indicators looking at temporal distribution, boundary spanning, lifecycle, and member roles as means to categorize virtual team types. Table 1 outlines definitions of these virtual teamwork characteristics.
Table 1: Definitions of Virtual Teamwork Characteristics adopted from Bell and Kozlowski (2002)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal Distribution</td>
<td>Ability of members to cross time boundaries based upon their dependence on computer technology</td>
</tr>
<tr>
<td>Boundary Spanning</td>
<td>Ability of members to cross functional, organizational, and cultural boundaries in attempts to meet team objectives</td>
</tr>
<tr>
<td>Lifecycle</td>
<td>Ability of team to disband after objectives have been obtained</td>
</tr>
<tr>
<td>Member roles</td>
<td>Ability of member to assume multiple roles based on needs dictated by objective(s)</td>
</tr>
</tbody>
</table>

Each of these distinguishing characteristics, temporal distribution, boundary spanning, lifecycle, and member roles, can be viewed along a continuum. At one end lies the ideal virtual team typically discussed within the literature: distributed across time; spanning numerous functional, organizational, and cultural boundaries; short-lived; and comprised of members who each possess multiple roles within numerous virtual teams (Bell & Kozlowski, 2002). On the other end lie those virtual teams which are more conventional in nature, those that are more closely aligned with collocated work arrangements.

2.3 Virtual Project Team

Furst et al. (2003) definition of virtual project teams\(^6\) highlights the essential characteristics

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\(^6\) Project Team: Rosenau and Moran (1993) define project teams as “The project team is people who work on the project and report administratively to the project manager”. Hoffman, Kinlaw and Kinlaw (2002) observe that the term project team has been used in reference to the group of people assigned to a project; this being the popular thought among most of the writers Catledge & Potts, 1996; Kerzner, 1995; Kinney & Panko, 1996). Ericken and Dyer (2004) describe a project team as “Project teams consist of members who are brought together usually on short notice and from disparate functions, units, and geographical locations, and charged with analyzing issues and producing and sometimes implementing recommendations under fixed and often tight deadlines”. Keller (2001) suggests that those involved are expected to find ways to work together effectively, structure and execute
differentiating virtual teams from collocated ones. Virtual project teams are said to be:

… collectivities of individuals geographically and/or organizationally dispersed, interacting via a combination of telecommunications and information technologies to accomplish a specific organizational task within a specific timeframe. Virtual project teams allow organizations to pool talents, experience, and expertise of employees who are dispersed geographically and to promote resource sharing, since team members often continue working on regular assignments at their home offices while devoting time to their virtual project assignments (p. 2).

2.4 Virtuality as a Continuum

With the transition of organizations from traditional to virtual, the teams in project environment are neither purely collocated nor purely virtual. Virtual teams were originally conceptualized as “fully” virtual, in contrast to face-to-face (“traditional” or collocated) teams (Griffith & Neale, 2001). In today’s organizations most of the teams fall into a hybrid category (Griffith et al., 2003). Researchers have proposed levels of virtuality in the description of virtual teams. (Kirkman & Mathieu, 2005). Griffith et al. (2003) proposed three dimensions of virtualness, (1) the level of technological support used by the team, (2) the percentage of work that the team does with its members distributed across time and space, and (3) the distribution of the physical locations occupied by the team members. Kirkman and Mathieu (2005) have proceeded even further in arguing that geographic dispersion is not a prerequisite for team virtuality, but is likely to lead teams to adopt more virtual means of coordination. Though technology mediated communication is prevalent more in the virtual teams than in the traditional face-to-face collocated teams (Attaran & Attaran, 2003). Kirkman and Mathieu (2005) have argued that even collocated members can communicate and coordinate in a highly virtual manner. Following this discussion, in this thesis, the level of virtuality is measured in the project context with two traditional dimensions, spatial distance and use of virtual tools.

Questions were asked from the participants on a five-point scale pertinent to the use of virtual tools as well as how many members in the project team are at different locations. The respondents scoring low on this virtuality scale have been categorized as being partly located -

unfamiliar tasks, obtain essential resources, deal with multiple stakeholders, manage time, and ultimately produce high-quality outcomes.
which was further substantiated by other questions pertaining to virtualness. This has been discussed in detail in the research methodology section.

2.5 More Global / Less Global Virtual Projects

For this research, less global or partly global projects are taken as the projects where project team members and team leader are collocated but having reliance on technology and latest communication channels. More global or truly global projects are defined as the projects in which project professionals worked in a single team from start to finish of the project collaborating with other virtual team members dispersed in different countries.

Virtual projects involve people cooperating from internationally distributed sites and even different organizations (Adams & Adams, 1997). Professionals working geographically distributed, participate in multi-cultural projects with a global focus (Townsend et al., 1996). In the current research, these projects are called as truly global projects.

2.6 Project Management

Project management defined in PMBOK (2004) is “the application of knowledge, skills, tools and techniques to project activities to meet project requirements”. In traditional project management capacities, tasks - not knowledge - are managed; in the virtual project perspective access to knowledge in many cases is the essence of creating new projects.

Vaddavalli and Poosarla (2004) suggested that project management has now entered in the third generation called virtual project management to facilitate projects to be done at various sites with minimum communication delays and gaps such that all the projects can be both estimated and executed at the most efficient and effective timeframes. They proposed the following pyramid for evolution of project management as shown in figure 2.
Large numbers of companies adopt project approach as the medium to pursue organizational goals (Pinto & Prescott 1988; Andersen et al., 2006; Hyvari 2006). Project management is quickly becoming the method of management for more and more industries (Newell, 2002). The rising demand for project management solutions, trainings and developments indicates its maturity and importance in managing projects (Rozenes et al., 2006; Crawford & Pollack 2007).

2.7 Effective Project Management

Project management is a growing field and many organizations have project teams which are
less or more global in nature based on level of virtuality. This transition towards project teams arouses the need to understand and enhance the effectiveness of management of projects in organizations. Research related to project management effectiveness in project organizations includes the following themes: (1) organizational structures, (2) project management tools and methods, (3) leadership competence, (4) critical success and failure factors and (4) the characteristics of an effective project manager (PMI, 2004; Gray et al., 1990; Fox & Spence 1998; Pollack & Liberatore 1998; Belassi & Tukel 1996; Pinto & Prescott 1988; Schoultz et al., 1987; Wilemon & Baker, 1988; Zimmerer & Yasin, 1998). Most significant success factors by Crawford et al. (2005) cited in Murphy and Ledwith, (2006) are relationship management, resource management, time management, cost management, risk management. In the present research, human aspects like SI and leadership behaviour (concern for task, concern for people) are examined in addition to empowerment climate for effective virtual project management. These variables are not examined before in the literature with respect to virtual project management thus providing a gap in research for the researcher to explore.
Chapter 3

3 Literature Review: Challenges of Virtual Project Management

In this chapter, the researcher will discuss the obstacles faced by project managers in the virtual management of the projects. Though these obstacles are already identified in literature as challenges of virtual project management, however, no model is proposed till now to show the reinforcing effect of these challenges on effective virtual project management. This thesis after giving a brief literature review of these challenges proposes a model for effective virtual project management. The factors which lead to the effective management of virtual projects will be called as factors or determinants of effective virtual project management.

First briefly, the reason for shifting of software industry towards virtual project management in Pakistan is discussed as the research takes this sector for gathering data.

3.1 Virtual Team Projects in Software Industry of Pakistan

Virtual team projects are becoming more common in the software industry. The power of distributed development can increase an organization’s opportunities to win new work by opening up a broader skill and product knowledge base, coupled with a deeper pool of potential employees (McMahon, 2001).

Many organizations in Pakistan are creating virtual project teams, using a mix of offshore, outsourced and key internal resources in an attempt to provide a cost effective approach for meeting business needs. Pakistan is a low wage country thus a source of attraction for low cost software development industry.
3.2 Discovering the Challenges of Virtual Projects Management in IT Industry of Pakistan

Main concepts contributing to challenges of virtual project management are briefly presented below:

3.2.1 Project Infrastructure

A project infrastructure can be best defined as the software, hardware, network, data, and content comprising the working environment of the project team. An integrated project infrastructure can significantly reduce the risks commonly associated with the virtual project team approach. This integrated project infrastructure is the reason for success of Data Ware Houses that were visited.

3.2.2 Communication

The success of any project relies on crisp, moment-to-moment communication of task assignments, responsibilities, milestones, issues and problems. The timeliness of corrective actions relies on the speed of team member communication. Most studies of virtual teams emphasize the importance of communication to accomplishing team requirements for coordination and efficient task execution (DeSanctis & Poole, 1997).

Dispersed teams have less opportunity for face-to-face communication and hence lose non-verbal aspects of communications that make up 65% to 93% of a message’s meaning (Harris, 1993). Differences in culture and language may further impede communication. When coworkers are not located in the same location, camaraderie and socializing -- important informal aspects of teamwork coordination-- are significantly reduced, and cohesiveness and team unity, and the means of socializing with new members of the global team, are harder to cultivate (Alexander, 2000; Benett, 2001).

Teams operating in the virtual environment face greater obstacles to orderly and efficiently information exchange because they rely heavily on information technology to communicate.

3.2.3 Language Barriers

One of the main problems in virtual teams is the difference in languages that are spoken. When
the team members speak different languages they have trouble communicating.

### 3.2.4 Face-to-Face Communication

Pinto and Slevin (1998) underscore the importance of communication in project teams, by stating that it is important to establish adequate communication channels within the project teams and with the rest of the organization and its clients, to exchange information about goals, processes, status reports etc.

Physical separation, whether in different buildings in the same city or in different countries leads to a lack of collaboration, apparently due to human nature. Research has shown that people will not collaborate very often if they are more than 50 feet apart. The natural tendency of distant participants not to collaborate with each other can cause disengagement from the project and its objectives (Allen, 1977).

The lack of face-to-face interaction in virtual teams may create obstacles to effective coordination and communication more salient and thus further impair team effectiveness (Jarvenpaa & Leidner, 2004). Some researchers explicitly advocate periodic face-to-face meetings for teams involved in intensive communication tasks (e.g. project planning) to build and maintain interpersonal relationships (DeMeyer, 1991; Gelegher & Kraut, 1994).

### 3.2.5 Information Redundancy

Information Redundancy implies the replication of information that occurs due to the usage of multiple channels of communication, excess documentation, lack of effective communication and as a result of effective security measures e.g organizations would like to replicate important information on various servers as a backup.

### 3.2.6 Time

Time can be an advantage or disadvantage depending upon the type of work and where the customer is located. Time becomes a problem when people who are not in the same place and need some of their activities to be synchronized. Gorton and Motwani (1996) argue that if virtual teams are used in the requirements definition stage, the teams can exploit overnight gain effect due to the time difference between the locations.
3.2.7 Proper Security

Use of internet as the backbone to collaborate on a project presents new risks to the team used to working in the confines of the corporate intranet. It’s the project manager’s responsibility to ensure that the project environment, documents and data are not accessible to the competitors, or to hackers on the internet.

3.2.8 Motivation

Motivation in a project environment has been extensively presented in the studies by Harrison (1994), when he emphasized on the role of ‘people system’ to achieve project performance. Harrison (1994) observes that the two situational factors that may determine the effectiveness or the applicability of any action aimed at motivating people in a project setting are:

- The characteristics of the people involved
- The characteristics of their environment (House & Mitchell, 1974)

Motivation is a critical element for a high performing project team, regardless of whether the team is collocated or is operating in a virtual environment. On a virtual project team, team members need to overcome the sense of isolation. It is easy for a virtual team member to have an "out-of-sight", "out-of mind" reaction.

3.2.9 Cultural Differences

Members of different organizational cultures may often have different norms, values and policies, which may lead to misunderstandings, hidden agendas, uncertainty and conflict (Evaristo, 2001). Dube and Pare, (2001) noted that cultural differences represent an enormous challenge for global virtual teams. In the case of multinational projects, national cultural differences also come to play, e.g. related to management behaviour (Dube & Pare, 2001).

In heterogeneous cultural situations the misunderstandings and potential lack of trust are likely to be higher, hampering further satisfactory project management (Evaristo, 2000).

3.2.10 Conflict Resolution

Conflict is common in projects. Without the ability to interact face to face and learn from one
another and determine what is really meant in communications, conflict is more likely to occur
in the virtual environment.

Cultural differences between software team members may cause conflicts and affect
performance. When a culturally diverse team first forms, its members will need time to be able
to adjust to the cultural differences among them. However, as team members learn to interact
with each other, despite their different backgrounds, performance differences should disappear
(Watson et al., 1993).

### 3.2.11 Trust

Trust on a virtual environment is critical for the success of a project (Jarvenpaa & Leidner,
1998). Gibson et al. (2002) found that building trust is the greatest challenge in creating
successful virtual teams. Studies on the sustainability of virtual collaboration suggest that trust
is critical to ensuring the optimal use of Information and Communication Technologies (ICT)
to support the exchange among business partners (Bandow, 1998).

It is also evident from the previous studies on ICT, trust and collaboration that understanding
social systems in which individuals, groups or organizations operate is a powerful mechanism
for the development and sustainability of trust in an on-line or virtual environment (Hossain &
Wigand, 2002). One of the best ways to create this trust is a face-to-face encounter, although
other alternatives also exist.

### 3.2.12 Project Team Knowledge and Cross-Team Collaboration

The most valuable asset of any IT organization is the collective knowledge of its staff. One of
the greatest risks of using a virtual project team is loss of this collective knowledge. Since most
virtual teams use contractors and/or offshore outsourcing, a knowledge-based approach must be
implemented as a way of effectively capturing their applications and technical knowledge. A
project infrastructure providing knowledge-base capability will allow team members to
collaborate on and share source code, articles, lessons learned, tips & tricks, procedures, sample
deliverables and other project artifacts. If coupled with a powerful search and retrieval engine,
this capability will provide great payback on future projects. Cummings (2004) notes that
knowledge sharing-task information, feedback about product or procedure (Hansen, 1999),
imPLICIT coordination of expertise (Faraj & Sproull, 2000) and know-how between the project
manager, client (as a feedback) leads to high performance (Ancona & Caldwell, 1992a; Brown & Utterback, 1985). Increased knowledge about the project would help the team members know the context of the project environment and thence about the significance of the work to the business, project and self, which fosters effective project management.

### 3.2 Hypothesis

In the first phase of the research, various challenges of virtual project management were studied such as culture and language barriers, communication and information security, information redundancy as a result of multi-channel communication, time zone differences, face to face context, team structure, trust building, conflict resolution and management, motivation and tacit knowledge sharing. After the detailed literature review with respect to challenges of VPM, now the research explores how these factors reinforce each other to contribute towards effective virtual project management. Our hypothesis is that:

**H1:** There exists a reinforcing relationship between various factors e.g. communication, motivation, information security, trust building etc that contributes towards effective Virtual Project Management.

An in-depth analysis of various factors of virtual project management was carried out, their effects on the execution of a project and their relationship with one another using a model. The model relates the different factors/elements of virtual project management using logical operators (e.g. AND, OR). The model was validated by conducting a primary research survey to document results visually. Hypothesis is supported by establishing a ‘Factor Reinforcing’ relationship between different elements of virtual project management.

Given the nature of research, a primary research survey of various software houses of Pakistan was conducted to authentically establish the proposed model. The survey was done using pre-tested questionnaire attached in Appendix B, which included both open ended and close-ended questions. Formal, informal interviews were also conducted to support the findings.

### 3.2 Proposed Model that supports Hypothesis

First a model is created that establishes the interrelationship between these factors and their resultant effect on Virtual Project Management. It was found that various factors related by
logical operators (e.g. AND, OR) reinforce one another to produce effective virtual project management. The Model has been created in the form of logical expressions or implications using logical operators AND, OR. These logical expressions were then converted into flow diagrams to enhance comprehension.

**Proposition 1**

Effective Communication => Effective VPM

**Proposition 2**

Greater the degree of Virtual Project Management => Greater degree of multi-organizational culture/distributed organization control

**Proposition 3**

Documentation OR Multi-channel communication => Information Redundancy

**Proposition 4**

Multi-channel communication AND Documentation AND Information Security => Effective VPM

**Proposition 5**

Greater geographical distance (time zone differences) OR non-existence of face-to-face interaction => Lower levels of motivation among team members

**Proposition 6**

Greater degree of physical one to one interaction AND Greater degree of flexibility among parties (conflict resolution) AND Greater level of trust among geographically distributed teams => High levels of motivation among geographically distributed teams

**Proposition 7**

Time zone difference advantage => High productivity and profitability of an organization.

These propositions are shown below as flow diagrams in the Factor Reinforcing Model for VPM elements.
Findings and analysis supporting these propositions are given in the findings and analysis section.
Chapter 4

4 Literature Review: Role of EI in VPM

Now after discussing the challenges of virtual project management, the researcher will argue how EI helps in coping up with the challenges of VPM. Goleman’s EI model which is the basis of this research will be discussed in detail with respect to virtual project management.

4.1 Definition and Introduction to the Concepts of EI

Recent publicity might suggest that EQ (Emotional Quotient) is a new concept, while in fact; it has been studied for years in various theories. Harvard University psychologist Howard Gardner (1983) introduced the theory of “multiple intelligences” in 1983. He identified two varieties he called “knowing one’s inner world” and “social adeptness”. This distinction between interpersonal and intrapersonal intelligence is the basis for the development of EQ theories.

Emotional Intelligence has its roots in the concept of "social intelligence", as first identified by E.L. Thorndike as early as in the early 1920s. Thorndike (1920) defined social intelligence as "the ability to understand and manage men and women, boys and girls - to act wisely in human relations".

The term Emotional Intelligence first appeared in a series of academic articles authored by Mayer and Salovey (1993). These publications generated little attention. Two years later, the term emotional intelligence entered the mainstream with Daniel Goleman's 1995 bestseller Emotional Intelligence: Why It Can Matter More Than IQ. Salovey and Mayer coined the term Emotional Intelligence in 1990. They described emotional intelligence as "a form of social intelligence that involves the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them, and to use this information to guide one’s thinking and action".
Mayer and Salovey (1993) defined EI as: Emotional Intelligence allows us to think more creatively and to use our emotions to solve problems. Emotional Intelligence probably overlaps to some extent with general intelligence. The emotionally intelligent person is skilled in four areas: Identifying emotions, using emotions, understanding emotions, and regulating emotions. According to Mayer and Salovey (1997), EI is the ability to perceive emotion, integrate emotion to facilitate thought, understand emotions, and to regulate emotions to promote personal growth. Emotional intelligence is a combination of competencies. These skills contribute to a person’s ability to manage and monitor his or her own emotions, to correctly gauge the emotional state of others and to influence opinions (Caudron, 1999).

Goleman (1995) takes a somewhat broader position in describing emotional intelligence. In his writings, emotional intelligence consists of five factors: Knowing one's emotions, managing emotions, motivating oneself, recognizing emotions in others, and handling relationships. Goleman (1995, 1998) defined Emotional intelligence as a person’s self-awareness, self-confidence, self-control, commitment and integrity, and a person’s ability to communicate, influence, initiate change and accept change. Sternberg’s (2003) theory of multiple intelligences suggests that interpersonal and intrapersonal intelligence are unique and different from the mathematical and logical type recognized today as "IQ" or general intelligence.

In Working With Emotional Intelligence, Goleman (1998) applies the emotional intelligence concept to the workplace setting; Goleman says that professionally successful people have high emotional intelligence in addition to the traditional cognitive intelligence or specialized content knowledge. In this analysis, he argues that the emotionally intelligent worker is skilled in two key areas he presents in his emotional competence framework. These are "personal competence" - how we manage ourselves, and "social competence" - how we manage relationships7. Emotional competencies are not innate talents, but rather learned capabilities that must be worked on and developed to achieve outstanding performance. Goleman posits that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies.

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7 Examples and the complete model (including sub-competencies) are available in Goleman's book, or at the web site for the Emotional Intelligence Research Consortium, founded by Goleman.
Goleman's thesis is that 75% to 90% of effective performance, particularly in the case of managers and leaders, is attributable to "emotional intelligence" (EI). Managers who do not develop their emotional intelligence have difficulty in building good relationships with peers, subordinates, superiors and clients. Recently, psychologists have shown that a 1% improvement in emotional climate creates a 2% increase in revenues. Some researchers suggest that IQ contributes to 20% of life success and EQ makes up the rest or 80% (Copper, 1997).

Goleman (1998) adapted Salovey and Mayer’s (1990) model as a basis for his discussion of the theory of emotional intelligence and its implications for everyday life including the world of work. He adapted Salovey and Mayer’s emotional intelligence model to develop five emotional and social competencies: self-awareness, self-regulation, motivation, empathy and social skills. Each broad area consists of number specific competencies, as outlined in the figure 5 below. The EI model developed by Goleman in 2001 is depicted in figure 5:
<table>
<thead>
<tr>
<th>RECOGNITION</th>
<th>SELF Personal Competence</th>
<th>OTHER Social Competence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self-Awareness</td>
<td>Social Awareness</td>
</tr>
<tr>
<td></td>
<td>Emotional Self-Awareness</td>
<td>Empathy</td>
</tr>
<tr>
<td></td>
<td>Accurate Self-Assessment</td>
<td>Organizational Awareness</td>
</tr>
<tr>
<td></td>
<td>Self Confidence</td>
<td>Service Orientation</td>
</tr>
<tr>
<td>REGULATION</td>
<td>Self-Management</td>
<td>Relationship Management</td>
</tr>
<tr>
<td></td>
<td>Emotional Self-Control</td>
<td>Developing Others</td>
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<tr>
<td></td>
<td>Trustworthiness</td>
<td>Inspirational Leadership</td>
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<td></td>
<td>Conscientiousness</td>
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<td></td>
<td>Adaptability</td>
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<td></td>
<td>Optimism</td>
<td>Change Catalyst</td>
</tr>
<tr>
<td></td>
<td>Achievement Orientation</td>
<td>Conflict Management</td>
</tr>
<tr>
<td></td>
<td>Initiative</td>
<td>Building Bonds</td>
</tr>
</tbody>
</table>

Figure 5: Goleman's Emotional Intelligence Competencies
All four competencies lead to increased ability to enter and sustain good relationships.

Cherniss (2000) outlines four main reasons why the workplace would be a logical setting for evaluating and improving emotional intelligence competencies:

- Emotional intelligence competencies are critical for success in most jobs.
- Many adults enter the workforce without the competencies necessary to succeed or excel at their job.
- Employers already have the established means and motivation for providing emotional intelligence training.
- Most adults spend the majority of their waking hours at work.

4.2 Role of EI in VPM

Researchers at Harvard University discovered over two decades ago that people who were best at identifying others' emotions were more successful in their work as well as in their social lives. EQ helps in managing difficult relationships. One cannot change the other person. However, your responses may influence or change the dynamic between you and the other person (Everett & Smyth, 2005).

Previous studies on emotional intelligence did not consider whether emotional intelligence, as a human resource management competence, is essential for project managers (Barry & Plessis, 2006). One of the toughest challenges, in managing a project in the 21st century, is to manage the people involved in delivering the project successfully. Knowing oneself, especially one's capabilities, strengths and weaknesses is the first step towards successful project management (Kerzner, 1998). Verma (1995) states that project managers must be very effective in interpersonal relationships as well as building and nurturing project teams. The work of Mansur and Rehman (2005) concluded to establish how EI influences the performance of projects in organizations. At least fifty percent of the problems responsible for the project failure can be attributed to the behaviour of human resource system in project organizations (POs). Therefore, tremendous potential exists for emotions to play with the fate of projects.

Research shows that there is a strong correlation between emotional intelligence and job performance. EI may be even more important in work teams that establish mutual trust among members, a sense of group identity, and a sense of group efficiency which is very much needed.
in virtual teams. These three group conditions are essential to a virtual team's effectiveness, because they are the foundation for true participation, collaboration and cooperation -- helping otherwise skilled teams fulfill their highest potential; make better decisions and more creative solutions.

As discussed above, competencies of EI seem highly relevant in countering the challenges of VPM in terms of facilitating project managers to cope up with these challenges. Moreover, if EI is possessed by leaders in VPM, EI contributes to effective virtual project management. The present research examines EI as a critical predictor of performance of leaders in projects with varying degree of virtuality where managing people are the toughest challenge in the absence of face to face interaction. First, the role of EI in VPM is discussed and later in the third phase, it is argued as how SI (component of EI) contributes to effective leadership in projects with varying degree of virtuality.

This research address gaps in our understanding of the role of EI in VPM. Now each of the dimensions of EI will be correlated to the factors of VPM with respect to the identified challenges faced in VPM.

4.2.1 Self-Awareness (EI) & VPM

Self-awareness is the keystone of emotional intelligence (Goleman, 1995). Virtual environment is very demanding and challenging for managers and EI plays a positive role in meeting these dynamic challenges. First the personal awareness in EI will be related to VPM elements.

4.2.1.1 Decision-making (VPM).

In virtual environment, managers need to take sound decisions despite uncertainties and pressures. This comes under the head of self-awareness in EI. In VPM you need to think clearly and stay focused which is self-control in EI.

4.2.2 Self-Management (EI) & VPM

Self-management or self-regulation is the ability to keep disruptive emotions and impulses in check (self-control), maintain standards of honesty and integrity (trustworthiness), take responsibility for one’s performance (conscientiousness), handle change (adaptability), and be comfortable with novel ideas and approaches (innovation). This dimension of EI is related to
the challenge of trust, adaptability and change, innovation and motivation in VPM.

4.2.2.1 Trust.

Building trust through reliability and authenticity is self-regulation in EI. Trust is critical for the success of a project in VPM (Jarvenpaa & Leidner, 1998). Trust has been cited as a single most important factor especially in the context where the parties involved in a business partnership do not see each other. Studies on the sustainability of virtual collaboration suggest that trust is critical to ensuring the optimal use of Information and Communication Technologies (ICT) to support the exchange among business partners (Bandow, 1998). In heterogeneous cultural situations the misunderstandings and potential lack of trust are likely to be higher, thus hampering further satisfactory project management (Evaristo, 2000). In VPM, building trustworthy relationships among virtual project managers is dependent on the level of face-to-face communication support (Nauman & Iqbal, 2005).

4.2.2.2 Adaptability.

Adaptation is essential for distributed project management and presents many challenges as well as opportunities. Sensitivity to the need for change and its timing can dictate project success of failure (Qureshi & Liu, 2005). Adaptability is vital for VPM and EI creates its awareness through self-regulation. People with EI adapt their responses and tactics to fit fluid circumstances. They smoothly handle multiple demands, shifting priorities, and rapid change.

4.2.2.3 Innovation.

In VPM, original solutions to problems are explored and in EI, people with this competency generate new ideas and take fresh perspectives and risks in their thinking.

4.2.2.4 Motivation.

Non-existence of face-to-face interaction is a disadvantage for virtual projects and it lowers motivation level among team members. Greater the geographical distance (time zone differences) or no face-to-face interaction will lower the motivation among team members. Greater one to one interaction and flexibility among parties and greater level of trust implies high level of motivation among team members (Nauman & Iqbal, 2005). Motivation in EI is the emotional tendency guiding or facilitating the attainment of goals.
Motivation is low in VPM and through self-motivation in EI, VP managers can learn to improve and reduce uncertainty. Self-motivation increase initiative and optimism, this is what a virtual project manager needs.

4.2.3 Social Awareness (EI) & VPM

Empathy in EI is the understanding of others by being aware of their needs, perspectives, feelings, and concerns, sensing the developmental needs of others. This relates to various elements of VPM such as:

4.2.3.1 Service Orientation (EI & VPM).

Service orientation i.e. meeting customer's need is done through social awareness, which is important for VPM as well.

4.2.3.2 Empathy in EI and Cultural Difference in VPM.

Members of different organizational cultures may often have different norms, values and policies that may lead to misunderstandings, hidden agendas, uncertainty and conflict (Evaristo, 2001). In EI, respecting people from different backgrounds is one of the elements of social awareness. People with this competency see diversity as opportunity, creating an environment where diverse people can thrive. This quality of EI plays a major role in VPM and increase motivation.

In EI, collaboration and cooperation helps people balance a focus on task with attention to relationships thus promoting a friendly, cooperative climate, which is essential for effective VPM. People with this competency collaborate, share plans, information, and resources thus enhancing trust and reducing cultural differences.

4.2.4 Relationship Management (EI) & VPM

Social skills are fundamental to emotional intelligence. This cluster of competencies revolves around teamwork and it includes how effectively managers get things done in organizations. Mike Miller’s (1999) opinion is that many managers fail because they are too rigid and have poor relationships. As a consequence they are unable to adapt to changes in the business environment, organization, culture, work processes, and technology – which is the exact
dilemma with which VPM managers are battling all the time. Managers who are unable to receive or respond to feedback are unable to determine how they need to change their approach to leading others.

These emotional intelligence skills, combined with empathy, can enhance satisfaction and productivity at work and in other aspects of life.

4.2.4.1 Communication Management.

Communication and conflict management is one’s ability to effectively encode and decode messages to be able to convey ideas across different mediums to various receivers of the message; it is also demonstrative of the social skills, which are learnt through social awareness. Since VPM is also a process of conveying decisions and progress across different mediums between the senders and receivers of the message therefore in its very simplistic form it may be implied that the same is also important in VPM also.

Dispersed teams have less opportunity for face-to-face communication and hence lose non-verbal aspects of communications that make up 65% to 93% of a message’s meaning (Harris, 1993). It is very important for geographically dispersed members to have mutual knowledge for effective communication (Qureshi & Liu, 2005). Nauman (2005) in her paper “Challenges of Virtual Project Management in Developing Countries” concludes that effective communication implies effective virtual project management. The lack of face-to-face interaction in virtual teams may create obstacles to effective coordination and communication more salient and thus further impair team effectiveness (Jarvenpaa, & Leidner, 2004). The lack of mutual knowledge and shared language among team members can hamper communication.

In EI, people with communication competency listen well, seek mutual understanding, and welcome sharing of information fully. They also foster open communication and stay receptive to bad news as well as good.

4.2.4.2 Conflict Management.

Conflict is common in projects. Without the ability to interact face to face and learn from one another, conflict is more likely to occur in such virtual environment. Cultural differences between software team members may cause conflicts and affect performance (Nauman & Iqbal,
In EI people with conflict management competency handle difficult people and tense situations with diplomacy and tact. They spot potential conflict and encourage debate.

4.2.4.3 Change.

Globalization, increased competition, technological development, and diversification are some reasons why organizations should be prepared for change and undertake change (Kotter, 1988).

Handling change is vital for VPM as virtual environment is dynamic in nature. Managers with this competence recognize the need for change and remove barriers.

4.2.4.4 Team Capabilities.

When coworkers are not located in the same location, camaraderie and socializing -- important informal aspects of teamwork coordination-- are significantly reduced, and cohesiveness and team unity, and the means of socializing with new members of the global team, are harder to cultivate (Alexander, 2000; Benett, 2001). Thus creating group synergy in pursuing collective goals is a challenge in VPM environment. New improved methods must be explored and adopted such as video conferencing, employee special newsletters, celebrating special cultural and personal events etc.

In EI people with this competency cultivate team qualities like respect, helpfulness, and cooperation. Enhancing EI skills of team leaders and project managers enables them to maintain a positive attitude as they eliminate impediments to team success. Thus EI helps managers to cope with the challenges of VPM through social awareness.

4.3 Hypothesis

The objective of this research was to demonstrate linkages between emotional intelligence and the challenges faced by virtual project managers. The research showed that there exists a multi tier relationship between Emotional Intelligence (EI) and challenges/elements of VPM and the following Hypothesis is proposed:

H2: There exists a multi tier relationship between Emotional Intelligence (EI) and challenges/elements of VPM.
First a theoretical framework is established and elements of virtual project management and emotional intelligence are defined. Then references are drawn from theoretical framework of VPM and EI and interlink the role of EI in VPM. Emotional Competence Framework by Goleman is taken as a basis for seeking the role of EI in VPM.

Dimensions of EI in Goleman’s model were taken as the independent variables for evaluation whereas factors of VPM are taken as dependent variables. The competencies of EI’s are seen as important factors in resolving the challenges of virtual project management.

\[ VPM = f(EI) \]

It’ll be established that EI helps project managers to cope with the challenges of VPM through self-awareness, self-management, social awareness, and relationship management. Further it will be analyzed that there exists a strong positive relationship between EI and VPM and managers with high EI are better equipped to deal with the challenges of VPM.

Given the nature of research, a primary research survey was conducted to authentically establish the proposed hypothesis. The sample was taken from Pakistani software industry project team members who are working in a virtual environment. The survey was done using pre-tested questionnaires, which included close-ended questions attached in Appendix C. Formal, informal interviews were also conducted to support the findings.
Chapter 5

5 Literature Review: Social Intelligence, Empowerment Climate and Leadership Behaviour

The key contextual issues to be addressed in this thesis are to examine how SI, empowerment climate and leadership behaviour are linked in a virtual project environment. To envisage this discussion, the definition and the concepts fundamental to leadership style, SI, and empowerment climate in VPM are first discussed. Further, the role of SI and empowerment climate with respect to leadership behaviour in project environment was examined and compared in two project environments which form the basis of discussion of this research phase.

In this chapter, the researcher will first discuss leadership and leadership theories. Next, the researcher will argue the rationale for selecting style approach to study leadership behaviour in projects with varying degree of virtuality. Hypotheses to examine the patterns of leadership for effective virtual project management will be drawn from literature.

Further the researcher will discuss social intelligence and contend the rationale for selecting SI instead of taking EI as a whole for further study. The thesis will examine the relationship of social intelligence with respect to leadership style in virtual projects.

In the third phase, Social Awareness, Relationship Management and Empowerment Climate are taken as independent variables (IV) and Leadership Style (concern for task, concern for people) as dependent variable (DV). Virtuality was taken as a moderator\(^8\) to see its effect on the

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\(^8\) In general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. Moderation occurs when the effect of an independent variable on a dependent variable varies according to the level of a third variable, termed a moderator variable, which interacts with the
relationship between IVs and DVs. Figure 6 provides an overview of the model guiding the third phase of research.

![Basic Research Model Diagram]

**Figure 6: Basic Research Model**

### 5.1 Leadership

The increase in complexity of businesses and tough competition in contemporary business world, need for effective leadership has increased tremendously. Leadership affects all facets of human enterprise. Leadership affects all facets of human enterprise. Leadership study holds the entire human survival (Bass, 1981).

Though there are many definitions of leadership, each definition has different focus on leadership. Due to limits of the research focus the definition which highlights and reflects on the behaviour of the leader will be used. Leadership according to Hemphill and Coons (1957), is a “behaviour of an individual…directing the activities of a group toward a shared goal” (in Gregoire & Arendt 2004, p.396). Fiedler (1967) advances almost similar definition, as follows, “by leadership behaviour it is generally meant the particular acts in which a leader engages in the course of directing and coordinating the work of his group members. This may involve such acts as structuring the work relations, praising or criticizing group members, and showing consideration for their welfare and feelings”. George and Jones (2005) define leadership as the independent variable (Baron & Kenny, 1986). Moderation is usually tested with analysis of variance (ANOVA) or regression analysis.
“the exercise of influence by one member of a group or organization over other members to help the group or organization achieve its goals” (George & Jones 2005, p.375). Hersey and Blanchard (1993) defined leadership as the process of influencing the activities of an individual or group in efforts toward goal achievement in a given situation.

5.2 Leadership Theories

Over the last seventy years, leadership theory can be categorized into six main schools of leadership (Handy, 1982; Partington, 2003):

a) The trait school
b) The behavioural or style school
c) The contingency school
d) The visionary and charismatic school
e) The emotional intelligence school
f) The competency school

5.2.1 Trait School

Trait theories assume that leaders are born not made. Trait theories are concerned with the personal characteristics and have found different characteristics, which make the differences between leaders and non-leaders (Bass, 1981; Armandi et al., 2003). Turner (1999) identified seven traits of effective project managers including problem-solving ability, results orientation, energy and initiative, self confidence, perspective, communication and negotiating ability.

5.2.2 Leadership Style School

Most of well-known studies for style/behavioural approach were conducted at Ohio State University and University of Michigan in the 1950s and 1960s (Blake & Mouton, 1968; Northouse, 2004). This approach suggests multiple styles of leadership with the underlying assumption that there is a best way to lead i.e. high along both dimensions (concern for task, concern for people). These studies suggested that the most effective leaders are those who engage in both task and relationship behaviours. Perhaps the most popular approach to understanding leadership based on style is Blake and Mouton’s Managerial Grid, which has
since been refined and revised by Blake and McCanse and named the leadership grid (Blake & McCanse, 1991).

The style approach was taken to study leadership behaviour. Leader style is a behavioural oriented approach to understand leadership. Hackman and Johnson (2004) noted that “styles can be pared down to two primary models of communication: one model compares authoritarian, democratic, and laissez-faire styles of leadership communication; a second model contrasts task and interpersonal leadership communication”. The style approach focuses on behaviour and explains how leaders combine task and relationship behaviours to influence subordinates in their efforts to reach a goal which is critical in virtual project management. Thus for this research, task and relationship behaviour model was taken.

This theory of leadership follows the task-versus-relationship categorization creating a grid of encompassing key styles of leadership (Northouse, 2004). Thus there is a range from a leader who is highly concerned with results with a very low concern for people.

- Leadership behaviour who is highly concerned with production with a very low concern for people is labeled as authority compliance management.
- A high concern for people and low concern for results is labeled a country club management style.
- The “middle-of-the-road” leader has an equal balance for both task and results.
- Impoverished management leader lacks concern in both areas.
- Team management leader has a high focus on both people relationships and task efficiency.

Blake and McCanse (1991) believe that the ideal leadership style is categorized within the dimension called “team management,” which has a high concern for both people and production. Relations behaviours include listening carefully to others to understand their concerns, providing support and encouragement, helping. Task behaviours largely concern improving processes that facilitate accomplishment of tasks. Task behaviours include organizing activities and resources, clarifying role expectations and standards for task performance, marshalling information, and solving problems (McColl & Anderson, 2002).

Trait theories are not particularly useful as a tool as they merely make distinction of leaders from non leaders. The primary objective of behavioural approach is to emphasize what leaders
actually do in the job rather than just looking on the traits of the leaders. Behavioural theories thus provide a useful tool to analyze what leaders actually do and how one may be trained to be a more effective leader.

5.2.3 Contingency Theory

The contingency theories of leadership assume that the effectiveness of leader behaviours that is, task or relationship orientation of the leader depends on the context and situational factors such as task and organizational conditions (House, 1971; Katz, 1977). Though the contingency view of leadership provides a richer model for predicting leadership effectiveness, however it does not completely explain all leadership situations.

5.2.4 Visionary and Charismatic School

The visionary school identifies two types of leaders, those who focus on relationships and communicate their values, and those who focus on process, called transformational and transactional leaders, respectively (Bass, 1990). Keegan and Den Hartog (2004) predicted that transformational leadership would be more appropriate for project managers. However, in their study, even though they found a preference for transformational leadership, they could find no significant link (Müllera & Turner 2007).

5.2.5 Emotional Intelligence School

This school assumes all managers have a reasonable level of intelligence. What differentiates leaders is not their intelligence, but their emotional response to situations ((Müllera & Turner 2007). Goleman et al. (2002) identify nineteen leadership competencies grouped into four dimensions:

1. Personal competencies
   - Self-awareness
   - Self-management

2. Social competencies
   - Social awareness
They also suggest six management styles, with different profiles of competencies: visionary; coaching; affiliative; democratic; pacesetting; and commanding. Through a survey of 2000 managers they identified situations in which each style is appropriate. The first four are best in certain situations, but are adequate in most situations medium to long term. They classify the last two styles as toxic. They say that these two styles work well in turn-around or recovery situations, but if applied medium to long term they can poison a situation, and demotivate subordinates. Lee-Kelley and Leong (2003) found that project manager’s self-confidence and self-belief, arising out of their experience as a project manager, influenced their perception of success. However, social awareness is not related to leadership style and this gap is addressed in this research.

5.2.6 Competency School

This school encompasses all the previous schools and says effective leaders exhibit certain competencies. Dulewicz and Higgs (2003) identified fifteen competencies which influence leadership performance. They group the competencies into three competence types, which they call intellectual (IQ), managerial (MQ) and emotional (EQ). Dulewicz and Higgs (2003) identified three leadership styles, which they called Goal Oriented, Involving and Engaging. In a study of 250 managers working on organizational change projects they showed Goal oriented leaders are best on low complexity projects, Involving leaders best on medium complexity projects and Engaging leaders best on high complexity projects. Thus, they showed that on organizational change projects:

- certain leadership styles lead to better results than others
- different leadership styles are appropriate depending on the complexity of change.

Crawford (2005) investigated the competence of project managers, and found different profiles appropriate for different types of project. However, she did not investigate leadership style. In all these studies, the relationship of leadership style with empowerment climate and social intelligence is not addressed for effective VPM.
5.3 Virtual Leadership Behaviour

Virtual teams are a collection of individuals who are dispersed (geographically, organizationally, or otherwise), and who collaborate using information technology in order to accomplish a specific goal (Zigurs, 2003). Zigurs (2003) propose that team working in virtual context may or may not have an assigned leader but leader behaviour need to occur to move the team forward. Zigurs also suggests that cultural dispersion is one of the dimensions of virtuality along with geographic, organizational and temporal dispersions. More recently researchers have turned to a definition that allows for degrees of “virtualness” on a continuum (Griffith et al., 2003).

There have been studies which focused on leadership traits in multicultural management (Wills & Barham, 1994; Bloom et al., 1994). Wills and Barham (1994) found that cognitive complexity, emotional energy, and psychological maturity are common factors in successful multicultural managers. Bloom et al. (1994) studied leaders in European companies and suggest some common characteristics for multicultural leaders including managing international diversity, social responsibility, internal negotiation, general orientation in people rather than task orientation and manage to find a consensus in the multicultural environment.

According to Makilouko (2004), there has not been enough research on multicultural teams excluding virtual teams. Moreover, no studies are available that clearly shows effective patterns in multicultural leadership. Makilouko (2004) states that the question of coping with foreign culture is still an unanswered one. Project GLOBE (Global Leadership and Organizational Behaviour Effectiveness) is a major long-term multiphase, multi-method research project that studied cross-cultural leadership differences and similarities among countries. Javidan et al. (2006) in their paper used findings from the GLOBE research program to provide a sound basis for conceptualizing worldwide leadership differences. They suggest that countries can be different on some cultural dimensions and similar on others. However, no study gives patterns of effective leadership style in multicultural environment.

Reflecting on the literature, though there have been studies, which compared collocated and virtual teams, these studies have either been strictly from a ‘performance’ perspective (Sambamurthy et al., 1993; Straus & McGrath, 1994) or from a team dynamics perspective (Cramton, 2001; Jarvenpaa & Leidner, 1999; Maznevski & Chudoba, 2000). Only few articles
have been written about leadership and virtual teams (Avolio & S. Kahai, 2003; Cascio, & Shurygailo, 2003; Zigrus 2003). These studies explain differences between virtual and collocated teams and provide general guidance on how negative issues associated with these differences can be minimized and how to use technology to maximize any new opportunities for such teams. The present research adds a new dimension to the existing literature by examining the relationship of EI and empowerment climate with leadership style in projects with varying degree of virtuality. This is the first research to highlight how the empowerment in the environment of the workplace affects virtual leadership. Moreover, few studies have examined the effects of partially distributed teams but none have examined their impact on virtual leadership (Cohen & Prusak 2001; Walther, 1995; Kiesler, & Cummings, 2002). Other research studies provides only high level approach to overcome the inherent challenges of leading a virtual team like it discusses how high level of trust; media richness and leadership processes lead to positive team outcomes (Avolio & Kahai, 2003; Avolio et al., 2001; Bell & Kozlowski 2002; Spreitzer, 2003). Kayworth & Leidner (2001) discuss the nature of virtual leadership in experimental laboratory settings. Malhotra & Majchrzak (2006) in their research outline strategies for virtual team leaders. However, to understand the nature of leadership behaviour in managing challenges of dispersion and culture in virtual projects is yet to be reported. The present research bridges this gap by studying human competencies at actual workplace in virtual projects instead of the experimental laboratory settings with student sample.

5.4 Project Leadership Style

Organizations involved in projects are now focusing on effective leadership as an important success factor (Pinto 1986; Pinto & Slevin 1988). Crawford (2000) suggests that project leadership is the highest ranking category among project management competence factors. Project management leadership style affects overall project performance. Factors contributing to effective project management and the characteristics of effective project managers were studied by Zimmerer & Yasmin (1998), Kim & Yukl (1995), Yukl (2002) and Hyvari (2000, 2002).

In various studies on project success or failure, effective leadership (Ammeter & Dukerich, 2002), good communication, (Pettersen, 1991; White & Fortune, 2002), the ability to operate under pressure, in a complex environment (Pettersen, 1991; White and Fortune, 2002) were
found to be important skills required by project managers. Recent research supports the idea that successful projects are led by individuals who possess not only a blend of technical and management knowledge, but also leadership skills that are internally compatible with the motivation of the project team (Slevin & Pinto, 1988; Turner et al., 1998). Zimmerer and Yasin (1998) found that positive leadership contributed almost 76% to the success of projects. Negative or poor leadership contributed 67% to the failure of projects.

Verma (1995) lists the following people skills that are important for project managers, apart from the technical knowledge and decision-making skills that they require: communication, motivation and negotiation, self-confidence, reliability, maturity and emotional stability, a constructive, positive attitude, and flexibility and tolerance for ambiguity and uncertainty. Projects which virtual in nature and are rapidly changing their structure make project leadership more challenging. Project leaders need both relationships and task oriented leadership styles to cope up with the challenges of different phases of project (Slevin & Pinto, 1991). In the current research, the researcher will examine how far this is true for projects with varying virtuality and what leadership style is preferred?

Drawing upon from literature, it is evident that Managerial Grid constitutes issues regarding concern for people and task, which are very much inherent in project management. The project manager has to achieve the tasks of project as well as manage his team members (Pheng & Lee, 1997). Moreover, the concern for task involves quantitative dimension (cost) of a project as completing tasks within time and budget would result in profit. The tasks are completed through people thus making concern for people as an indispensable resource for a project.

5.5 Hypotheses

In the third phase of research, first effective project management is explored in the context of leadership behaviour (concern for task and people) in more and less global projects. Factors based on leadership behaviour are identified and a model for effective project management is proposed.

The researcher proposes that high concern for both task and people would result in better management of these factors in projects thus resulting in effective project management. Virtual teams tend to have more of a task-focus and less of a social-focus than traditional teams although, over time, virtual teams appear to lessen their task-focus (Chidambaram & Bostrom,
1993; Walther, 1995). Previous studies suggest that project managers prefer task-oriented to
people-oriented leadership styles. However, Kayworth and Leidner (2001) found that highly
effective on line leaders exhibit relationship-oriented behaviours (e.g., mentoring the members
and demonstrating understanding of them) as well as task-oriented behaviours (e.g.,
communicating with the members promptly). Strang (2007) proposed that effective project
leaders in a dynamic project environment display more relationship and change behaviours.
Based on above arguments, the following hypotheses are proposed:

**H3:** *Concern for people is equally important for both less global and more global virtual
projects.*

**H4:** *Concern for task is equally important for both less global and more global virtual projects.*

### 5.6 Social Intelligence

Now after introducing the concept of SI, the researcher will review its relationship with
effective leadership. Moreover, the rationale for taking SI will be justified.

Goleman’s theory adapted Salovey and Mayer’s emotional intelligence model to develop
emotional and social competencies. He described Emotional Intelligence skills in terms of four
clusters: self-awareness, self-management, social awareness, and relationship management
(Cherniss & Goleman, 2001; Boyatzis et al., 2000). Goleman called these last two clusters of
social awareness and relationship management as Social Intelligence. Social awareness can be
defined as “sensing what people are feeling, being able to take their perspective and cultivate
rapport with a broad diversity of people-our social radar” (Watkin, 2000). The competencies
associated with this cluster are prevalent in our relationships with others and includes empathy,
organizational awareness, and service orientation (Boyatzis, 1982; Boyatzis et al., 2002;
Goleman, 1998; Sala, 2002). Albrecht (2006) defines social intelligence as “the ability to get
along with others and to get them to cooperate with you.”

Relationship management cluster captures the management aspect of our social interactions.
Competencies associated with relationship management include conflict management,
developing others, influencing others, being a change catalyst, being an inspirational leader,
and developing the ability to work and collaborate as a team (Boyatzis, 1982; Boyatzis et al.,
2002, Goleman, 1998; Sala, 2002).
In various studies on project success or failure, effective leadership (Ammeter & Dukerich, 2002), good communication, (White & Fortune, 2002; Pettersen, 1991), the ability to operate under pressure, in a complex environment (White & Fortune, 2002; Pettersen, 1991) were found to be important skills required by project managers. Verma (1995) lists the following people skills that are important for project managers, apart from the technical knowledge and decision-making skills that they require: communication, motivation and negotiation, self-confidence, reliability, maturity and emotional stability, a constructive, positive attitude, and flexibility and tolerance for ambiguity and uncertainty. Most of these skills required by project managers, which are important for project management success fit into the social intelligence framework of Cherniss and Goleman (2001).

Projects which are virtual in nature and rapidly changing their structure make project leadership more challenging. Project leaders need both relationships and task oriented leadership styles to cope up with the challenges of different phases of project (Slevin & Pinto, 1991). The present research therefore, examines the role of SI with leadership style in virtual project management to find what leadership style is effective in projects with varying degree of virtuality. The researcher claims it to be the first effort to examine this relationship in projects with varying degree of virtuality where technology plays a predominant role.

As discussed above, competencies of SI seem highly critical for leadership effectiveness in virtual project management in terms of empathy, service orientation, developing others etc. The reason for taking SI as independent variable is based on the findings of second phase of research which shows that project managers demonstrate strong social awareness and relationship management in VPM environment thus contributing to effective VPM.

5.7 Social intelligence and Leadership

Recent work has stressed the importance of ‘emotional intelligence’ to leadership. EI is a vital factor in an individual’s ability to be socially effective (George, 2000; Mayer et al., 2000) and is viewed in leadership literature as a key determinant of effective leadership (George, 2000; Ashkanasy & Tse, 2000). Writings of Cooper & Sawaf (1997), Salovey & Shietyer (1997) & Goleman (1996a, 1998b, 2004c) suggest that emotional intelligence is essential for effective leadership. Boal and Hooijberg (2000) highlighted the argument that behavioural complexity is a core element of leader effectiveness. They argued that social intelligence was the underlying
ability that governed the behavioural complexity of leaders. Day (2000) also reinforced the importance of SI in leader effectiveness. Based on the aforementioned discussion, it can be said that SI is viewed as a primary variable that affects leader effectiveness.

Previous research highlights that EI plays a very decisive role in the performance of managers at workplace. However, most of the research has been conducted in laboratory settings using student sample population (Lopes et al., 2004). The studies that considered the relationship between EI and leadership in organizational contexts have found mixed results (Weinberger, 2002; Bass & Avolio 1995). These two studies using the MSCEIT, and the multifactor leadership questionnaire respectively found no significant correlations between EI and transformational leadership.

Palmer et al. (2001) administered a self-report EI measure to 43 managers in order to evaluate the link between EI and leadership style. They found significant correlations with several components of the transformational leadership model. Specially, the inspirational, motivation and individualized consideration components of transformational leadership correlated with the ability to monitor emotions and the ability to manage emotions. Since this research is focused on social awareness and relationship management which are strongly demonstrated by project managers in virtual project management, therefore, transformational leadership questionnaire was not found suitable for the present research.

In summary, the available research supports the hypothesis that EI is linked to leadership style; however no research has been conducted examining this relationship in virtual projects. This gap in literature provides us the motivation to conduct research focusing on relationship of social intelligence and leadership behaviour in an actual project management setting.

5.8 Hypotheses

Past research has demonstrated relationships between leadership style and emotions but no study has attested the validity of this relationship in project management environment. Mäkilouko (2004) found that project managers who focused most on tasks, showed low relationship concern and exhibited poor cross-cultural empathy skills. Virtual teams tend to have more of a task-focus and less of a social-focus than traditional teams although, over time, virtual teams appear to lessen their task-focus (Chidambaram & Bostrom, 1993; Walther, 1995). These studies suggest that project managers prefer task-oriented to people-oriented
leadership styles. Kayworth and Leidner (2001) however found that highly effective on line leaders exhibit relationship-oriented behaviours (e.g., mentoring the members and demonstrating understanding of them) as well as task-oriented behaviours (e.g., communicating with the members promptly) (Kayworth & Leidner, 2001). Strang (2007) proposed that effective project leaders in a dynamic project environment display more relationship and change behaviours (Strang, 2007). Previous study suggests that EI plays a significant role in coping with the challenges of virtual project management thus contributing to effective virtual project management (Nauman et al., 2005). Moreover, project managers demonstrate strong social awareness and relationship management in VPM environment thus contributing to effective VPM. The researcher contend the findings of Chidambaram and Bostrom (1993), Walther (1995), and Mäkilouko (2004) and propose that the current research supports and extends the work of Kayworth and Leidner (2001) and Strang (2007).

Based on the aforementioned discussion, several hypotheses are proposed to explore the significance of relationship between social intelligence and leadership style:

**H5:** Concern for task will be positively related to social awareness.

**H6:** Concern for task will be positively related to relationship management.

**H7:** Concern for people will be positively related to social awareness.

**H8:** Concern for people will be positively related to relationship management.

**H9:** Social awareness is higher in truly global virtual projects as compared to partly global virtual projects.

**H10:** Relationship management is higher in truly global virtual members as compared to partly global virtual members.

### 5.9 Empowerment

After proposing the hypotheses examining the relationship of SI with leadership style, the researcher will now introduce the concepts of empowerment and empowerment climate. The rationale to take empowerment climate will be argued. The researcher will further review its significance and relationship with effective leadership style.
Cartwright. (2002) define empowerment as the process of releasing the full potential of employees to take on greater responsibility and authority in the decision making process and providing the resources for this process to occur. Employee Empowerment is the process of sharing information, training and allowing employees to manage their jobs in order to obtain optimum results.

Empowerment\(^9\) implies giving power to others, or creating in others the sense of personal power: power to achieve, accomplish and succeed. Empowerment is often defined as the act of giving people the opportunity to make workplace decisions by expanding their autonomy in decision making (Vogt, 1997). Also, empowerment has been described as the breaking down of traditional hierarchical structures (Blanchard, 1997). From a service perspective, empowerment gives employees the authority to make decisions about customer service. In industrial and organizational psychology and management, empowerment is the enhancement of the autonomy of employees in their work or increased involvement that results in increased decision making more generally within the wider agenda and interests of the organization (Wall et al., 2004). An empowered and committed workforce is generally claimed to be essential for the effective functioning of modern organizations (Bowen & Lawler, 1992; Sparrowe, 1995; Corsun & Enz, 1999; Kirkman & Rosen, 1999). Empowerment have been proposed and found to facilitate a worker’s commitment to the organization (Kirkman & Rosen, 1999; Locke & Schweiger, 1979; Spreitzer, 1995).

Sigler (1997) discovered that formal and informal social structural characteristics, specifically the performance of work environment, organizational culture and leadership are significantly

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\(^9\) Empowerment and TQM: Empowering employees is an important component of total quality management (TQM). TQM has been defined a set of organizational strategies, practices, and tools for organizational performance improvement. (Lawler et al., 1995, p. 45). TQM advocates argue that it cannot be successful without employee involvement (Deming, 1986). Empowered employees support TQM efforts by (1) calling attention to quality problems in the work place and (2) continuously trying to improve the way they do their jobs (Sigler & Pearson, 2000). Zeitz et al. (1997) in one review of the TQM literature found that empowerment or employee involvement was identified as a TQM-related dimension in a large number of studies (Berry, 1991; Dean & Evans, 1994; Denison, 1996; Hofstede, 1984; Hunt, 1992; Juran, 1995; Lawler et al., 1995; Litwin & Stringer, 1968; Payne & Mansfield, 1973; Ross, 1993; Schmidt & Finnegan, 1992; Scholtes, 1988; Weatherly & Beach, 1994).
related to employees’ empowerment. In the present research, the relationship of leadership style with empowerment climate is explored in more and less global projects.

5.10 Empowerment Climate

Seibert and colleagues defined “Empowerment climate in terms of employees’ shared perceptions of managerial structures, policies, and practices related to empowerment. Empowerment climate is composed of the three dimensions identified in the previous literature—information sharing, autonomy through boundaries, and team accountability which are critical for management of virtual projects. As the effectiveness of virtual projects is very much dependent on these structures, policies and practices, thus the need to investigate empowerment climate in projects with varying degree of virtuality is very much required.

A degree of consensus exists regarding the organizational structures and policies associated with empowerment (Bennis & Nanus, 1985; Blanchard, Carlos & Randolph, 1999; Block, 1987). Blanchard and his colleagues (Blanchard, Carlos & Randolph, 1995; Randolph, 1995) identified three key organizational practices associated with empowerment: information sharing, autonomy through boundaries, and team accountability.

Information sharing involves providing potentially sensitive information on costs, productivity, quality, and financial performance to employees throughout an organization. Autonomy through boundaries refers to organizational structures and practices that encourage autonomous action, including the development of a clear vision, and clarity regarding goals, work procedures, and areas of responsibility. Team accountability involves the perception that teams are the locus of decision-making authority and performance accountability in organizations. Teams are also supported through individual and group training and selection decisions. These three practices make up the empowerment climate construct used in this research.

5.11 Empowerment and Leadership

Increased productivity, higher quality products and services, improved teamwork and customer service, increased speed and responsiveness has led to the eminence of empowerment (Shelton, 1991; Brown, 1992; Von Dran, 1996; Appelbaum & Honegger, 1998). However, there is a need to understand the role of empowerment in virtual projects. Only Kirkman, Rosen, Tesluk and Gibson’s (2004) work on virtual teams suggest that team empowerment is positively
related to process improvement and customer satisfaction in virtual teams. Previous research has demonstrated a positive relationship between team empowerment and collocated team performance (Burpitt & Bigoness, 1997; Kirkman & Rosen, 1999; Wellins, Byham, & Wilson, 1991). To date, however, little attention has been paid to virtual team empowerment (Kirkman et al., 2004). Virtual teams can rapidly respond to business globalization challenges (Kayworth & Leidner, 2001; Maznevski & Chudoba, 2000; Montoya-Weiss et al., 2001) and their use is expanding exponentially (Kirkman et al., 2002). Cohen & Bailey (1997) suggests that empowerment research should also be conducted on various types of teams, including management teams, project teams, and virtual teams, to determine if the results of their findings with permanent work teams are generalizable (Cohen & Bailey, 1997). Kirkman et al. (2004) suggest that researchers who build models of virtual team effectiveness should include empowerment as an important predictor variable. This research supports the growing body of research on empowerment suggesting that it is a very important construct for building models of virtual project teams.

Organizations involved in projects are now focusing on effective leadership as an important success factor (Pinto 1986; Pinto & Slevin 1988). Crawford (2000) suggests that project leadership is the highest ranking category among project management competence factors. Project management leadership style affects overall project performance. Recent research supports the idea that successful projects are led by individuals who possess not only a blend of technical and management knowledge, but also leadership skills that are internally compatible with the motivation of the project team (Slevin & Pinto, 1988; Turner et al., 1998). Zimmerer & Yasin (1998) found that positive leadership contributed almost 76% to the success of projects. Negative or poor leadership contributed 67% to the failure of projects. However, Bell and Kozlowski (2002) stated in their recent theoretical review of virtual teams, “There is little current theory to guide researchers on the leadership and management of virtual teams”. This research therefore provides motivation to study leadership in projects with varying degree of virtuality.

Projects which are virtual in nature and rapidly changing their structure make project leadership more challenging. Project leaders need both relationships and task oriented leadership styles to cope up with the challenges of different phases of project (Slevin & Pinto, 1991). In projects, project leaders must lead his or her team towards completing the defined goal with in a fixed
time scale. Verma (1997) states “Achieving the goal or final aim is the ultimate test of leadership”. Goals or tasks are achieved through people thus making people an important resource for projects. The aforementioned discussion provides researcher the rationale to take the style approach to study leadership behaviour in project environment.

Based on the nature of virtual teams’ tasks, it can be argued that empowerment is inherent in virtual project management as compared to collocated project management. Marks et al. (2001) suggest empowerment as a key emergent state important to virtual team performance. The researcher proposes that empowerment climate is critical predictor for project teams having varying degree of virtuality. In the present thesis, relationship of empowerment climate with concern for task, concern for people and customer service is examined taking virtuality as a moderator and it is proposed that empowerment is a critical predictor of effective project management. Figure 7 depicts the model of effective virtual project management. Empowerment at the workplace can be examined through various perspectives. For this research in less and more global virtual project environment, the Empowerment Climate Construct is developed in which more and less virtual project teams work.

Leadership fosters empowerment, and an empowered organization is one in which managers supervise more people than in traditional hierarchies and delegate more decisions to their subordinates (Malone, 1997). The most important factors that contribute to empowerment, engagement and satisfaction of employees are based on their relationship with the leader (Sheridan & Vrendenburgh, 1978; Eisenberger et al., 2002; Rhoades et al., 2001).

**Figure 7: Model of Effective Virtual Project Management**

Leadership fosters empowerment, and an empowered organization is one in which managers supervise more people than in traditional hierarchies and delegate more decisions to their subordinates (Malone, 1997). The most important factors that contribute to empowerment, engagement and satisfaction of employees are based on their relationship with the leader (Sheridan & Vrendenburgh, 1978; Eisenberger et al., 2002; Rhoades et al., 2001).
Bell & Kozlowski (2002) emphasize the important role of leadership for the effectiveness of virtual teams. Bell and Kozlowski (2002) expect a leader of a virtual team to create more explicit structures and procedures. A leader’s role in a self-managed team is to facilitate the development of self-controls so that team members can lead themselves. Few studies in the literature (Avolio et al., 2000; George et al., 1990; Kahai et al., 1997), have actually measured the amount or type of leadership present in VTs. The leadership literature that compares traditional and virtual teams indicates that the former experience more effective leadership than the latter (Burke & Aytes, 1998; Eveland & Bikson, 1988). This provides us the motivation to explore what leadership style is effective for virtual projects and how it is related with empowerment. In the present research, the work of Malone is extended and it is proposed that empowerment climate fosters effective leadership.

Early evidence suggests that an effective leader in a virtual team has to lead in ways that differ from established practices designed for the traditional environment. An effective leader of a virtual team needs to be more flexible and willing to let others take the lead when necessary (Jarvenpaa et al., 1998; Jarvenpaa & Leidner, 1999; Kayworth & Leidner 2000). Leader style is a behavioural oriented approach to understand leadership. It suggests leadership can be categorized into two types of behaviours: task and relationship behaviours (Northouse, 2004). This categorization emerged from three primary studies conducted in the 1950s and 1960s at Ohio State University and the University of Michigan (Blake & Mouton, 1968). These studies suggested that the most effective leaders are those who engage in both task and relationship behaviours. Perhaps the most popular approach to understanding leadership based on style is Blake and Mouton’s Managerial Grid which has since been refined and revised by Blake and McCanse and named the leadership grid (Blake & McCanse 1991). On the X side of the grid is Concern for People, and on the Y side is Concern for Task.

Relations behaviours include listening carefully to others to understand their concerns, providing support and encouragement, helping. It is characterized by sharing of information, participation, consultation, delegation, and joint decision making focused on employee orientation and consideration (Vecchio & Appelbaum, 1995). Task behaviours include organizing activities and resources, clarifying role expectations and standards for task performance, marshalling information, and solving problems (McColl & Anderson 2002). It is also characterized by a more directive, authoritarian style of management that focuses on the
task and initiating structure (Vecchio & Appelbaum, 1995). In order for the latter style (favorable to an empowerment process) to exist, it is imperative that each member of the team be empowered individual. Only then they can be effective leaders in guiding employees towards empowerment (Quinn & Spreitzer, 1997). The behavioural view of leadership focuses on actual leadership behaviour as opposed to innate qualities. Under this view, effective leadership can be characterized in terms of specific sets of observable activities that can then be used as a basis of comparison for leadership effectiveness (Hoy & Forsyth, 1986). Kayworth and Leidner (2001) suggest that leaders perceived as effective were attentive to both the relational as well as the task-related features of their jobs. This leads us to discover how this leadership behaviour is practiced and observed by the team leaders and team members in projects with varying degree of virtuality and its relationship with empowerment climate.

5.12 Hypotheses for Patterns of Empowerment and Leadership Style

5.12.1 Empowerment Climate and Leadership Style

Leadership is considered crucial for facilitating team effectiveness (Cohen & Bailey, 1997; Hackman & Walton, 1986; Kozlowski, et al., 1996), and some researchers argued that it is the most critical ingredient (Sinclair, 1992; Zaccaro, et al., 2001). However, most existing research on team leadership has focused narrowly on the influence of an individual team leader thus largely neglecting leadership provided by team members (Kozlowski & Bell, 2003; Stewart & Manz, 1995). In virtual teams that rarely meet face-to-face, team leaders often have no choice but to distribute and delegate leadership functions and responsibilities to team members (Bell & Kozlowski, 2002). Virtual team members will more likely assume these responsibilities and functions if they are provided with highly empowered working environment. In short, empowerment in a virtual team may function as a substitute for many of the leadership functions that are normally executed by a team leader who is physically present and interacting face-to-face with a team (Kerr & Jermier, 1978). Virtual teams are demanding because they frequently empower members to act more independently from direct supervision (Grenier & Metes 1995). Virtual team is a collection of task-driven members behaving as a temporary group, whose members are separated by geographic or temporal space (Delisle, 2003). The project manager has to achieve the tasks of project as well as manage his team members (Pheng & Lee, 1997). Therefore, the following hypotheses are proposed:
**H11a:** Concern for task is positively related to empowerment climate in virtual projects.

**H11b:** Concern for people is positively related to empowerment climate in virtual projects.

**H12a:** The relationship between concern for task and empowerment climate is moderated by the level of virtuality.

**H12b:** The relationship between concern for people and empowerment climate is moderated by the level of virtuality.

### 5.12.1 Empowerment Climate and Customer Service

To meet higher standards of service, prompt response and a high degree of customer satisfaction is a prerequisite. Empowering employees to accept additional responsibilities and become more autonomous can be one of the best ways to enhance organizational effectiveness and satisfy customers. Moreover, when more employees are fully empowered, fewer service failures may occur (Sparks, Bradley & Callan, 1997). In the present research, customer service is taken as a project performance indicator and explored how it is influenced by empowerment climate.

Since virtual teams increasingly span departmental boundaries or organizations, satisfying key internal and external customers is paramount to virtual team success (Kirkman et al., 2004). Empowerment climate should enable virtual teams to better satisfy customers and provide high quality customer service. Further, empirical research in collocated teams has demonstrated that team empowerment is positively related to customer service (Kirkman & Rosen, 1999). Given the nature of their tasks and the challenges of virtuality, it is expected that this relationship may be even stronger in project teams having varying degree of virtuality.

**H13:** Customer service will be positively related to empowerment climate of virtual projects.
Chapter 6

6  Research Methodology

6.1  Presentation of Research in three Phases

It is to be recalled here that the objectives of the current research spans over three phases. In the first phase, challenges of virtual project management are identified and a factor reinforcing relationship between various elements is proposed. The second phase of research gives an insight on the overlapping relationship between EI and factors of virtual project management. The objective of the third phase is to examine the role and relationship of SI, Empowerment Climate and Leadership behaviour in partly global and truly global virtual project set-ups. Hence, the research methodology adopted is quantitative in nature. Questionnaires were developed for all the three phases of research.

After discussing the research questions, the researcher will state the procedure, participants and content validity of questionnaires for all the three phases of research.

6.2  Research Questions

The objectives of the present study are to identify the factors contributing to effective virtual project management with respect to behavioural aspects. Thus the research questions are first understood with respect to behavioural challenges of VPM and how they contribute to effective VPM. Role of EI in effective VPM is identified. Further, relationship of SI and leadership style is examined in the context of effective VPM. In the end, relationship of Empowerment Climate with leadership style and customer service is studied with respect to their contribution towards effective VPM.
1. What are the challenges of virtual project management with respect to Pakistan’s IT industry?
2. What are the contributing factors towards effective VPM?
3. What role emotional intelligence plays in coping up with the challenges of VPM?
4. What is the preferred leadership style (concern for task, concern for people) in partly global and truly global virtual projects?
5. What is the relationship of social intelligence with leadership style in partly global and truly global virtual projects? How do these variables contribute to effective VPM?
6. What is the relationship of empowerment climate with leadership style and customer service in partly global and truly global virtual projects? How do these variables contribute to effective VPM?

6.3 Procedure

Survey technique has been found to be best suited for the purpose. A survey has been defined as a measurement process used to collect information. For the purpose of the current study, three comprehensive questionnaires were developed, the details of which are given later in the measures section. In the first questionnaire challenges of virtual project management were identified. This research utilized a plural methodology (qualitative and quantitative) to complement one another and identify the challenges of virtual project management in Pakistan. In addition to questionnaire, 7 interviews were conducted to validate the findings.

The second questionnaire was designed to examine the role of EI in virtual project management taking Goleman’s model of EI as basis. This research used quantitative method only.

The third questionnaire developed examined the relationship of social intelligence and empowerment climate with leadership behaviour in partly global and truly global virtual projects. The goal of the survey is to derive comparable data across sub sets of the chosen sample so that the similarities and the differences can be found (Cooper & Schindler, 2006). It is to be recalled here that the survey instrument aims to examine relationships between the
independent variables (IVs) and dependent variables (DVs) and further compare the two data sets- partly global and the truly global with respect to virtual project management. Keeping in view the nature of research, quantitative method was used.

Face validity of all the three questionnaires was administered. First questionnaires were given to the experts who rate it. They gave their opinion about whether the question is essential, useful or irrelevant to measure the construct under study. Second face validity requires a personal judgment of the respondents, by asking them whether they thought that a questionnaire was well constructed and useful. The feedback from respondents was useful in streamlining the wording of the questionnaires. Before launching all the three questionnaires, 5-6 questionnaires were pre tested and improvements were made accordingly regarding utility of content, clarity and comprehension of questionnaires.

6.4 Participants

In the first phase of research, the responses were drawn from 72 participants who were working in IT project oriented environment and, therefore, were competent to answer the questionnaire. The respondents were from three main cities of Pakistan including Lahore, Islamabad and Karachi. The sample group constituted of 98% men and 2% women. Data were collected over the Internet as well as paper surveys were sent to fourteen software houses of Pakistan. A friendly reminder to fill the questionnaires was sent after seven days to those who didn’t send the survey back. It was again followed with a second reminder after fifteen days. Snowball sampling technique was used to enhance the sample size.

In the second phase of research, the sample group constituted of only men 85% of whom were in the 20-30 age bracket representing evenly project managers, team leaders and team members working within a virtual project environment where no projects are outsourced and the team develops for clients that are separated by geographical and cultural boundaries. The 87 participants were from eleven IT companies of three main cities of Pakistan including Lahore, Islamabad and Karachi. Data were collected over the Internet as well as paper surveys were sent. A friendly reminder to fill the questionnaires was sent after ten days to those who didn’t send the survey back. It was again followed with a second reminder after a
month’s time period. Snowballing sampling technique was used to enhance the sample size.

In the third phase of research, the responses were drawn from participants who are currently working in project oriented environment and therefore are competent to answer the questionnaire. Demographic profile of the participants was also included in the questionnaire. Participants were 117 project management professionals working in IT companies in Pakistan, Australia, Saudi Arabia, Malaysia and USA. The projects of these professionals were either partly global or truly global; the distinction is made on the basis of distance and use of technology. Sixty-seven respondents describe their project as partly global and fifty respondents explicate their project as truly global. The characteristics of respondents are given in table 2. For the purpose of this research, the respondents are required to consider their current project as a reference.

Out of 117, 22.2 percent respondents were females and 77.8 percent were males (S.D 0.418) and an educational level of at least 32.5% a graduate degree and 56.4% a master’s degree. Most Respondents had been with the company between one and five years (33.3%) and six to ten years (35%) and others more than ten years 31.7% (S.D.1.599). The entry level professionals participated in this survey were 7.7%, middle management professionals 59.8%, executive management professionals 23.9% and top management 8.5% (S.D.743).
### Table 2: Characteristics of Respondents

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</tr>
<tr>
<td>Australia</td>
<td>13</td>
<td>11.1%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>17</td>
<td>14.5%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9</td>
<td>7.7%</td>
</tr>
<tr>
<td>USA</td>
<td>13</td>
<td>11.1%</td>
</tr>
</tbody>
</table>
Data were collected over the Internet as well as paper surveys were sent through personal contact. Response rate was low as out of 1000 questionnaires sent, only 123 were received. Out of 123, 117 were used for data analysis. The questionnaire was sent to project management professionals who were either members of Project Management Institute or working in the IT/software sector asking them to participate in the research. A friendly reminder to fill the questionnaires was sent after ten days to those who didn’t send the survey back. It was again followed with a second reminder after a month’s time period. Snowballing sampling technique was used to enhance the sample size.

6.5 Measures Used in First and Second Phase of Research

Measure developed for first phase of research was based on questions specific to challenges of VPM in a developing country like Pakistan derived from literature review. Preamble explains the purpose of the research and the expected outcome. Questions were framed taking into account trust, communication, motivation, documentation, information redundancy, security measures, most common drawbacks, importance of face to face contact in VPM. Further questions were asked in the qualitative part asking respondents about cultural differences, language barriers, time zone differences and processes for effective management of projects in virtual environment.

In the second phase, questionnaire was developed to measure emotional intelligence in virtual projects taking Goleman’s model of EI as a basis. Preamble explains the purpose of the research and the expected outcome. In the first part, questions related to Self Awareness, Self Management, Social Awareness and Relationship Management were framed for respondents considering VPM. In the second part, questions were framed to measure EI without considering the VPM influence. The two parts were then compared to see what EI factors are demonstrated by respondents strongly in virtual projects.

6.6 Measures Used in the Third Phase of Research

There are five main parts to the survey instrument plus a preamble that explains the purpose of the research and the expected outcome.
The first part of the survey instrument contained demographic information related to the classification of the participants; job title; job level; professional experience; industry and location of work. This background information was needed in order to establish the potential credibility of the data. Second part comprises of definition of terms used in the questionnaire like partly global and truly global projects, SI, empowerment climate and managerial grid. Third part measures virtuality. In the fourth part questions were framed to measure independent variables, Social Intelligence and Empowerment Climate. Fifth part measures dependent variables leadership style using Clark’s managerial grid (concern for task, concern for people) and customer service in projects with varying degree of virtuality.

Likert rating scales was adopted for appropriate ratings. Likert rating scales are one of the most useful psychometric scaling for establishing behavioural or attitudinal measures (Carmine and Irvine, 1988). The conventional five-point rating scale was used as the evidence suggests that more complex scoring systems possess no significant advantage (Oppenhiem, 1992)

Likert rating scale of 1-5 and 1-7 was adopted to avoid common source bias. While Likert rating scales are often described as ordinal measures, they can be assumed as interval measures if the spacing between them is uniform (Blaikie, 2003). In this sense, statistical tools such as the t- test could then be used to analyze the variables.

6.6.1 Measure of Social Intelligence

A measure of Social Intelligence was developed based on Goleman’s theory of SI after discussions with project management professionals for research purposes attached in Annexure C. It was pre tested using six project management professionals working on partly global and truly global projects. The respondents provided feed back about the complexity and wording of questions, which was used to clarify and streamline the questionnaire. Relationship management was measured using seven point likert scale (1 = “strongly disagree,” to 7 = “strongly agree”) and social awareness using seven point likert scale (1 = “Not Important,” to 7 = “Very Important”).
6.6.2 Measure of Leadership Style

For measuring leadership style, Clark’s (2004) five-point Managerial Grid scale (1, = “never,” to 5 = “always”) was used that measured task oriented behaviour and relationship oriented behaviour. The questions of this scale are found to be pertinent for measuring leadership style in a project environment as projects involve both people and tasks. Respondents rated the current project on these variables.

6.6.3 Measure of Virtuality

Questions related to the demographical information about the respondents such as age, professional experience, industry, and locations of the work were asked. A measure of partly global vs. truly global was developed using a combination of questions such as:

“On your current project, what percentage of the team members is working in other locations /other countries?”

“How frequently your team use VPM tools e.g. telephone, fax, email, and video conferencing for project communication and coordination?”

“Would you say that your current project is partly global or truly global?”

6.6.4 Measure of Empowerment Climate

Empowerment Climate is defined in project environment on three dimensions identified in literature: information sharing, autonomy through boundaries, and team accountability. In truly and less global projects, communication acts as autonomy through boundaries. The existing empowerment measures don’t cover standardization of processes and procedures which are vital for empowerment in partly global and more global projects because of their unique nature.

Practices such as Clear understanding of individual roles and responsibilities, Open communication among team members, Standardization to reduce rework in project documentation, Emphasize important issues when appropriate, Comprehension of the end
user requirements are taken which are associated with *Autonomy through Boundary*. Similarly practices such as Delegate responsibilities, Team work (Important to you), Encourage professional growth training, Encourage Participative decision-making among team members, Surveys of your customers wants, needs, frustrations and ways to improve service and Encourage brainstorming to improve customer service are associated with *Team Accountability*. Practices such as easy access to project information and project data and Circulate pre-drafts of your documents for comments are associated with *Information Sharing* dimension of Empowerment Climate.

For measuring empowerment climate, a twenty six – item scale was developed after discussions with project management professionals for research purposes. Empowerment was measured by using seven- point Likert scale (1 = “Never,” to 7 = “always”) and (1 = “strongly disagree,” to 7 = “strongly agree”). Respondents rated the current project for empowerment.

6.6.5 *Measure of Customer Service*

For measuring Customer service, a 2-item scale developed specifically for this research. Scale includes the extent project professionals understand customers’ needs and match them to services or products and seek ways to increase customer's satisfaction and loyalty. It was measured by using seven- point Likert scale (1, = “never,” to 7 = “always”).

6.7 *Analysis of data*

In the first and second phase of research, the analysis of quantitative data from the questionnaires survey was conducted using descriptive statistics, (mainly percentages) to make meaning out of the data.

In the third phase, the analysis of quantitative data from the questionnaires survey was conducted using independent sample t-test, multiple regression and moderated step wise or hierarchical regression. The data was initially collected and entered into Microsoft excel and thereafter transferred into SPSS 13 for further analysis. The statistical techniques were selected based on the nature of data and the hypotheses proposed. Both dependent and
independent variables are measured on continuous interval scale.

Prior to conducting any analysis of the data, a reliability test was conducted to check normality and reliability. The Cronbach alpha reliability analysis was conducted. All scales in the third phase had acceptable reliabilities, with their alphas above 0.70 criterion (Nunnally, 1978).

In order to check the potential influence of multicollinearity, two diagnostic tests, tolerance and variance inflation factor (VIF) were undertaken and both tests indicate that the data lacks multicollinearity. The details of the tests are given in the next chapter.

The standard error is the standard deviation of sample means and is a measure of how representative a sample is likely to be to the population. A large standard error (relative to the sample mean) suggests that there is a lot of variability between means of different samples. A small standard error suggests that most sample means are similar to the population mean and so the sample is likely to be an accurate reflection of the population (Field, 2005). The standard error associated with all the means is relatively close to zero suggesting that the sample chosen is an accurate reflection of the population (Appendix E).

To check the variability in the two data sets, t test was conducted. A summary of the t test results are shown in Appendix E. The standard deviations in these results are all less than 1.0 thus indicating that there is little variability in the data. Standard deviation values of less than 1.0 indicated consistency in agreement among the respondents of the reported level of results (Field, 2005).

Prior regression analysis, it was important to have a fair idea of how closely a change in one variable is tied to a change in another variable and vice versa and also whether multicollinearity existed among the predictors. In particular, predictors that correlate highly with each other (i.e. \( r > 0.9 \)), where \( r \) is Pearson’s correlation coefficient) should be a source of concern (Blaikie, 2003; Field, 2005). The Pearson’s correlation (\( r \)) as shown in Appendix E revealed that reasonable correlations existed amongst all the variables (i.e. \( r < 0.9 \)) and thus were rationally acceptable to be included in the regression analysis.
Influence of outliers was checked through regression. The Std (Standardised) Residual (see Appendix E) shows that the minimum and maximum values do not exceed ±3. Here, the data do not have any outliers. Next, independence of data was checked using Durbin-Watson Estimate. The Durbin-Watson Estimate ranges from zero to four. Values around 1.5 - 2.5 show that the data points are independent. Values near zero mean strong positive correlations and four indicate strong negative. Here, the independence assumption is satisfied as shown in Appendix E.

Now in the next chapter, research findings and analysis of the three phases of research will be discussed.
7 Research Findings and Analysis

In this chapter, major findings and analysis of the three phases of research will be discussed in detail.

7.1 Research Findings of Challenges of Virtual Project Management

7.1.1 Findings Supporting Proposition One

It is found from the analysis of this research that tacit knowledge is not shared in VPM. The lack of mutual knowledge and shared language among team members impede communication.

The studied data warehouses have an infrastructure, which provides real-time project information, via the internet or telephone that connects team members, management and customers. E-mail is most commonly used for sharing information with team members in different time zones and working commitments.

Most virtual project teams prefer basic tools such as phone, e-mail, and standard project management software like Microsoft Project/Prima Vera. Dedicated network connection and teleconferencing, a common feature in large software houses is absent in small software houses and only e-mail and telephone are the main modes of communication. In case of communication deadlock in virtual projects, physical visits bridge the communication gap. The language problem in Pakistan warehouses is overcome by agreeing upon a common standard language that is English.

The researcher observed that great team communication also serves as the basis for building the trust, group synergy and espirit de corps required to be successful. The aforementioned findings support proposition one that effective communication implies effective virtual project
management.

7.1.2 Findings Supporting Proposition Two

The findings show that 75% of the organizations operate as pure geographically distributed teams using VPM tools. There is not usually enough time or close bonding between members in a project involving virtual teams, for building and maintaining a team culture. It is found that members in teams with a temporal nature usually appear less loyal to the team and its goals. There is low homogeneity among global virtual team members.

The above-mentioned finding supports proposition two that greater the degree of Virtual Project Management greater will be the degree of multi-organization culture/ distributed organization control.

7.1.3 Findings Supporting Proposition Three

The results show that multiple communication channels although results in excessive documentation yet it aid decision-making. 75% companies agree that excess documentation is produced as a result of VPM. This supports proposition three that information redundancy is a side effect that is produced as a result of documentation and multi-channel communication.

7.1.4 Findings Supporting Proposition Four

To insure proper security, the project infrastructure uses industry standard security approaches. Firewalls and encryption software are the most commonly used security measure. The findings support proposition four that in order to have effective virtual project management, the VPM must have the presence of all the three factors namely multi channel communication, documentation and measures for information security.

7.1.5 Findings Supporting Proposition Five

The findings show that non-existence of face-to-face interaction is a disadvantage for virtual projects and it lowers motivation level among team members. Furthermore, motivation level is lower in small organization where ICT support is insufficient and effective communication is absent.

The aforesaid supports proposition five that greater the geographical distance (time zone
differences) or no face-to-face interaction will lower the motivation among team members.

7.1.6 Findings Supporting Proposition Six

Cultural differences are overcome by nourishing the belief of equality among all the resources of a company. A company handbook is provided to them, which evidently emphasizes bringing-in no points of cultural/religious issues within the office premises. Honesty and delivering the product up to contract and in time is regarded important everywhere regardless of cultural differences.

75% of project teams function in a multi-organizational culture with a moderate degree of organizational control. Most virtual project organizations have functional team structure. 80% of the organizations have high level of trust among their teams implemented through formal procedures, visual templates and documentation.

It is also noted that building trustworthy relationships among virtual project managers is dependent on the level of face-to-face communication support. Pakistan’s large software houses have recognized the need of personal contact and training workshops are now organized not only for top executives but for other team members as well. Lack of trust tends to discourage communication amongst team members.

The above stated findings support proposition six that greater one to one interaction and flexibility among parties and greater level of trust implies high level of motivation among team members.

7.1.7 Findings Supporting Proposition Seven

The results show that time zone difference is an advantage for some software houses while a disadvantage for others. Delayed responses and a short window of opportunity to discuss issues are the disadvantages of time zone difference. Standard documentation, templates for each activity and deliverables help in resolving the issue of time zone difference in large software houses whereas lack of standard documentation in small companies result in productivity loss and conflict. Moreover, teleconferencing at mutual convenient time and good documentation help in resolving this issue.

The aforementioned findings support proposition seven that time zone advantage leads to high
profitability of an organization.

7.2 Research Findings of Role of EI in VPM

EI is vital for VPM keeping in view Goleman's competencies model. The findings show that managers having more personal and social awareness competencies performed better in the VPM environment as compared to those who demonstrated a lower level of social awareness. Findings support the proposed hypothesis that there exists a multi tier relationship between EI and VPM.

7.2.1 Self-Awareness

Demonstrated self-awareness was comparatively (83%) low when working within VPM environment though the individual’s EI self-awareness quotient was comparatively higher (100%). This may be because the decision-making role in VPM is underplayed due to definite predefined rules.

Though the individuals had (83%) self-awareness but lack of decision-making and confidence was found within a VPM environment. It may be concluded that EI in terms of self awareness is though high but it did not contribute towards good management in VPM setting.

7.2.2 Self-Management

Though trustworthiness, conscientiousness, achievement orientation and optimism were sufficiently high in the individuals (70%) but the demonstrated self management was proportionately much higher (91%) within the VPM context. This implies that the team members in VPM environment must employ more self-management skills if the environment is virtual rather than in a conventional project implementation environment.

7.2.3 Social Awareness

Empathy, service orientation and organizational awareness were found 100% among individuals whereas demonstrated social awareness of managers was found 95% in VPM. This implies that high EI contributes towards effective VPM.
7.2.4 Relationship Management

Communication and collaboration, change, teamwork and building bonds was 87% in the managers and the demonstrated relationship management in VPM environment was 86% which implies that this aspect of EI is strong in VPM context and contributes towards good virtual project management practices.

7.2.5 Proposed Model

It can be proposed from the current research that EI affects positively towards VPM and there is an overlapping relationship between the two as shown in figure 8. Further, the factors of EI and VPM have been identified which positively impact each other have been summarized in figure 9 below.

![Figure 8: Proposed Overlapping Relationship Between EI & VPM.](image)
7.3 Results of Patterns of Leadership for Effective VPM

7.3.1 Analysis Method

Independent sample T test is employed to compare concern for people and concern for task in less global and more global projects.

7.3.2 T test

No difference is observed for concern for task and concern for people between professionals working in less global (M=4.28, SD = .506), t (115) = 1.435, p>.05 and more global projects (M=4.30, SD = .492), t (115) = 1.370, p>.05. The findings support hypotheses H3 and H4.

7.3.3 Leadership Style

Using the formula given by Clark, first the leadership style among project management professionals is calculated as shown in table 3. It is found that 98.3 percent project management professionals fall in the category of team management leader (high concern for both task and people) and 1.7 percent fall in the country club.
Table 3: Leadership style of Project Professionals

<table>
<thead>
<tr>
<th>Authority compliance management</th>
<th>Country club management</th>
<th>Middle-of-the-road</th>
<th>Impoverished management</th>
<th>Team management</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1.7%</td>
<td>0%</td>
<td>0%</td>
<td>98.3%</td>
</tr>
</tbody>
</table>

7.4 Results of Patterns of Social Intelligence and Leadership Style

7.4.1 Analysis Method

Correlation is conducted to have an initial look at the relationship among variables. The researcher employed multiple regression to test H5, H6, H7, and H8 hypotheses by taking social awareness and relationship management as independent variables and concern for task and concern for people as dependent variable. Regression analyses were run to check multicollinearity issue. To test hypotheses H9 and H10, t test was employed to compare the significance of social awareness, relationship management, concern for people and concern for task in partly global and truly global projects.

7.4.2 Cronbach’s alpha

Chronbach alpha internal reliabilities were assessed for each scale. All scales had acceptable reliabilities, with their alphas above 0.70 criterion (Nunnally, 1978). Reliabilities were: relationship management, $\alpha = .755$; social awareness, $\alpha = .758$; concern for task, $\alpha = .836$ and concern for people, $\alpha = .827$ thereby indicating high internal construct consistency and reliability.

7.4.3 Multicollinearity

To check the two independent variables, social awareness and relationship management for collinearity, regression was run taking concern for task and concern for people as dependent variables. Collinearity is assessed by using the tolerance (TOL) (Belsley et al., 1980) and variation-inflation factor (VIF). Collinearity is found if TOL is less than 0.2 and the VIF more than 5, respectively.
The results of regression show that maximum VIF is 1.507, which is lower than ten, a number that is used as a rule of thumb as an indicator of multicollinearity problems (Marquardt, 1980; Belsley, 1991). In addition, TOL is .663 well above 0.2. Thus, these results support the lack of presence of multicollinearity in the research model. The results of the regression analysis can, therefore, be interpreted with a greater degree of confidence.

### 7.4.4 Correlation Results

Table 4 presents the means, standard deviations, and correlations for all variables. The correlations of the constructs were all below the .90 threshold indicating the distinctness of each construct (Belsley et al., 1980). As expected, social awareness is significantly positively related to both concern for task (r = 0.356, p<0.01) and concern for people (r = 0.449, p<0.01) in projects. The association between relationship management and concern for task (r = 0.361, p<0.01) and concern for people (r = 0.410, p<0.01) is positive and significant.

**Table 4: Means, Standard Deviations and Correlations**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Awareness</td>
<td>5.9</td>
<td>0.91</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Relationship Mngt</td>
<td>5.6</td>
<td>0.74</td>
<td>0.58**</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Concern for Task</td>
<td>4.2</td>
<td>0.66</td>
<td>0.35**</td>
<td>0.36**</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>4. Concern for People</td>
<td>4.2</td>
<td>0.57</td>
<td>0.45**</td>
<td>0.41**</td>
<td>0.67**</td>
<td>0.83</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed). Coefficient alpha reliabilities are reported on the diagonal.

### 7.4.5 Multiple Regression Results

The table 5 shows the results of a multiple regression analysis designed to test Hypotheses H5 and H6. The results show that concern for task is significantly related with social awareness (H5: β=.22, t =2.1, P<0.05) and with relationship management (H6: β=.23, t =2.2, P<.05) in project environment. Thus, hypotheses H5 and H6 are supported.
Table 5: Results of Regression analysis for concern for task on Social Awareness and Relationship Management

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>b</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Awareness</td>
<td>0.160</td>
<td>0.221*</td>
</tr>
<tr>
<td>2. Relationship Management</td>
<td>0.208</td>
<td>0.233*</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.163, \Delta R^2 = 0.015, *P<0.05 \text{ (two-tailed)} \]

The table 6 shows the results of a regression analysis designed to test Hypotheses H7 and H8. The results show that concern for people is significantly positively related with social awareness (H7: \( \beta = 0.319, t = 3.2, P<0.05 \)) and with relationship management (H8: \( \beta = 0.225, t = 2.2, P<0.05 \)) in project environment. Hypotheses H7 and H8 are, therefore, accepted.

Table 6: Results of Regression analysis for concern for people on Social Awareness and Relationship Management

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>b</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Awareness</td>
<td>0.202</td>
<td>0.319*</td>
</tr>
<tr>
<td>2. Relationship Management</td>
<td>0.175</td>
<td>0.225*</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.235, \Delta R^2 = 0.013, *P<0.05 \text{ (two-tailed)} \]

7.4.6 T- Test

The results show that social awareness is higher in truly global project professionals as compared to partly global project professionals (M=6.29, SD =. 604), t (115) = 4.250, p<.05. Hypothesis H9 is, therefore, accepted. Relationship scale is higher in truly global project professionals as compared to partly global project professionals (M=5.96, SD =. 578), t (115) = 3.920, p<.05. Hypothesis H10 is, therefore, accepted.
7.5 Results of Patterns of Empowerment Climate and Leadership Style

7.5.1 Analysis Method

Correlation is conducted to have an initial look at the relationship among variables. Linear regression is employed to test H11a and H11b and H13 by taking empowerment climate as independent variable and concern for task, concern for people and customer service as dependent variables. Linear regression analyses are also run to check multicollinearity issue. To test hypothesis H12a and H12b, hierarchical regression is employed to observe the effects of virtuality on the relationship between empowerment climate and concern for people and concern for task in less and more virtual projects.

7.5.2 Cronbach’s alpha

Chronbach alpha internal reliabilities were assessed for each scale. All scales had acceptable reliabilities, with their alphas above 0.70 criterions (Nunnally, 1978). Reliabilities were: empowerment climate, $\alpha = .94$; concern for task, $\alpha = .836$; concern for people, $\alpha = .827$ and customer service, $\alpha = .73$, thereby, indicating high internal construct consistency and reliability.

7.5.3 Multicollinearity

The independent variable empowerment climate is checked for collinearity through regression taking concern for task and concern for people as dependent variables. Collinearity is assessed by using the tolerance (TOL) (Belsley et al., 1980) and variation-inflation factor (VIF). Collinearity is found if TOL is less than 0.2 and the VIF more than 5, respectively.

The results of regression show that maximum VIF is 1, which is lower than ten, a number that is used as a rule of thumb as an indicator of multicollinearity problems (Marquardt, 1980; Belsely, 1991). In addition, TOL is 1 well above 0.2. Thus, these results support the lack of presence of multicollinearity in the research model. The results of the regression analysis can, therefore, be interpreted with a greater degree of confidence.

7.5.4 Correlation Results

Table 7 presents the means, standard deviations, and correlations for all variables. The
correlations of the constructs were all below the .90 threshold indicating the distinctness of each construct (Bagozzi & Phillips, 1991). As expected, empowerment is significantly positively related to both concern for task (r = 0.355, p<0.01) concern for people (r = 0.46, p<0.01) and customer service (r = 0.506, p<0.01) in projects.

Table 7: Means, Standard Deviations and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Virtuality</td>
<td>1.4</td>
<td>.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Empowerment</td>
<td>5.6</td>
<td>.96</td>
<td>.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Concern for Task</td>
<td>4.2</td>
<td>.66</td>
<td>.355**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Concern for People</td>
<td>4.2</td>
<td>.57</td>
<td>.462**</td>
<td>.677</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Customer Service</td>
<td>6.2</td>
<td>.83</td>
<td>.506**</td>
<td>.371**, .410**, .73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed). Coefficient alpha reliabilities are reported on the diagonal.

7.5.5 Linear Regression Results

The table 8 show the results of a linear regression analysis designed to test Hypotheses H11a, H11b and H13. Results show empowerment climate is significantly related with concern for task (H11a: β=0.35, t =4.0, P<0.05) and with concern for people (H11b: β=0.46, t =5.5, P<0.05) in project environment. Moreover, results show empowerment climate is significantly related with customer service (H13: β=0.51, t =6.2, P<0.05). Hypotheses H1a, H1b and H3 are, therefore, accepted.
### Table 8: Results of Regression Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>β</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Concern for task</td>
<td>0.244</td>
<td>0.355*</td>
<td>0.126</td>
<td>0.008</td>
</tr>
<tr>
<td>2. Concern for people</td>
<td>0.278</td>
<td>0.462*</td>
<td>0.213</td>
<td>0.006</td>
</tr>
<tr>
<td>3. Customer Service</td>
<td>0.438</td>
<td>0.506*</td>
<td>0.256</td>
<td>0.007</td>
</tr>
</tbody>
</table>

*P<0.05 (two-tailed).

### 7.5.6 Interactions

The moderating role of virtuality on the relationship between empowerment climate and concern for task

Following Aiken and West’s (1991) methods for plotting interactions, these relationships are graphed. The interaction between empowerment climate and level of virtuality is plotted in Fig 10.

Here, empowerment climate is independent variable, concern for task is dependent variable and virtuality is a moderator. The researcher predicts that there will be an interaction between concern for task and virtuality on empowerment climate. In order to test the interaction, the researcher first created the interaction term. Because of concerns with multicollinearity, empowerment climate and virtuality were centered first. To do this, the means for each variable involved in the interaction was first computed. Thus, two new variables were created by subtracting out these means. Now the interaction term was created by computing the product of empowerment climate and virtuality (these are the centered variables). The statistical results are shown in Appendix E.
Figure 10: The Moderating Effect of Virtuality on the Relationship between Empowerment Climate and Concern for Task

This interaction is consistent with Hypothesis 11a that empowerment is significantly positively related to concern for task in less global and more global projects. However, it was found that virtuality (partly global, truly global) has no significant moderating affect on the relationship between empowerment and concern for task. Therefore, H12a is not accepted.
The moderating role of virtuality on the relationship between empowerment climate and concern for people

Hypothesis 11b predicts that empowerment climate is significantly positively related to concern for people in less global and more global project environment and this is supported by the interaction effect as well. The graph shows that empowerment climate is higher in more global projects than less global projects thus supporting hypothesis H12b. Moreover, the researcher found that virtuality (less global, more global) has a significant moderating effect on the relationship between empowerment climate and concern for people. Empowerment is higher in more global projects as compared to less global projects. This result leads us to conclude that higher the virtuality, the higher the empowerment in project environment.

Figure 11: The Moderating Effect of Virtuality on the Relationship between Empowerment Climate and Concern for People
8 Discussion and Implication of Results

In this chapter, the focus is on the discussion as well as theoretical and practical implications of the results of the third phase of research. Models proposed as an outcome of this research are also presented. Furthermore, limitation of research and conclusions are discussed and future course of research is recommended.

8.1 Discussion of Patterns of Leadership for Effective VPM

This research had two primary objectives. First is to explore the prevalent leadership style in project environment. Secondly, to propose a model for effective project management.

The results of t test in this research found that concern for task is not higher in more global projects as compared to less global projects p>.05, thus negating the work of earlier researches (Chidambaram & Bostrom, 1993; Walther, 1995). Moreover, the results show no significance for concern for people in less global than more global projects thus negating the work of previous research p>.05 (Chidambaram & Bostrom, 1993; Walther, 1995). The research findings indeed extend the work of Kayworth and Leidner (2001) that both relationship oriented and task oriented behaviour are important for more global as well as less global leaders in virtual project environment. It can, therefore, be concluded that both leadership behaviours are equally important and practiced in more global and less global projects thus leading to project management effectiveness.

8.1.1 Proposed Model for Effective Project Management

In various studies on project success or failure, effective leadership (Ammeter & Dukerich,
good communication, (Pettersen, 1991; White & Fortune, 2002), the ability to operate under pressure, in a complex environment (Pettersen, 1991; White & Fortune, 2002) were found to be important skills required by project managers. Verma (1995) lists the following people skills that are important for project managers, apart from the technical knowledge and decision- making skills that they require: communication, motivation and negotiation, self-confidence, reliability, maturity and emotional stability, a constructive, positive attitude, and flexibility and tolerance for ambiguity and uncertainty. Kerzner (2003) states that effective leaders are not completely task or relationship focused in their action rather they maintain a balance between the two. These findings augment this research that team management leader is the predominant style of leadership for effective virtual project management. Indeed this style constitutes factors which are critical for effective project management like participative decision making, open communication, conflict management, delegation of power, task monitoring, time management, coaching, and team work. Based on Clark’s (2004) managerial grid, a model for effective virtual project management is proposed in the context of leadership behaviour as shown in fig 12.

![Figure 12: Model for Effective Virtual Project Management in Leadership Context](image-url)
8.1.2 Implications

Leadership behaviour is particularly important for project’s success. The present research supports this in the context of project management and identifies factors which foster effective project management. Another implication of this research is that leadership behaviour is the same regarding concern for both task and people for less global and more global projects. This research provides evidence on project management effectiveness with the intent of contributing to a better understanding and improvement of project management practices in the leadership behaviour context. The findings of this research have also implications for teaching virtual project leadership as within the project management literature; there is a lack of studies with a virtual leadership perspective in general.

8.2 Discussion of Patterns of Social Intelligence and Leadership Style

This research has two primary objectives. First, to explore the relationship of social intelligence and leadership style in project environment. Secondly, to see the differences of patterns of SI and leadership in the partly global and truly global teams. Results support Goleman’s findings of importance of social intelligence theory at work place.

When compared to traditional team members, virtual team members generally report weaker relational links to team mates (Burke & Chidambaram, 1996; McDonough et al., 2001). These results are attributed to the significant reliance of virtual teams on electronic communication and the difficulties associated with such communication modes (Sproull & Kiesler, 1991). However, the results of t test and the above finding suggests that relationship management is imperative and critical for both truly global and partly global projects. Further analysis of relationship management through t test shows significant results suggesting that open communication, information sharing, teamwork and collaboration are found to be higher in truly global projects as compared to partly global. These finding suggest that with the improvements in technology such as Internet facilities, communication has improved in truly global project teams. Project professionals take advantage of technology like messenger services (for chatting), phone, and emails etc to communicate openly and quite frequently. Moreover, in truly global projects, more emphasis is on open and detailed communication as
a key to avoid conflicts and understand requirements. Project professionals take this part as a challenge as this is considered one of the key factors for success / failure of the projects. The virtual team member not only try to collaborate for work, but try to learn about each other culture, their personal traits, environment, challenges, nature etc. This lead to more cohesiveness in truly global projects as compared to partly global projects, where they take a lot of things for granted.

The results of t test in this research found that social awareness is higher in truly global project professionals as compared to partly global. Further analysis of social awareness through t test shows that sensitivity to cultural differences found to be higher in truly global projects than partly global. This finding thus broaden recent meta-analytic evidence, which shows that while leaders can recognize some emotions to some degree in cross-cultural interactions, their recognition is much poorer than with domestic interaction partners (Elfenbein & Ambady, 2002). Research findings implies that exposure to various cultures is a learning experience for project professionals and they become more cognizant to cultural differences over a period of time than partly global project members. Moreover, partly global project members are familiar with the culture they are interacting with thus not conscious or aware of cultural sensitivity. This research, therefore, extend findings of Elfenbein and Ambady (2002) by suggesting that sensitivity to cultural differences is higher in truly global projects than partly global because of exposure to various cultures. These findings are supported by cultural learning perspective (Albas et al., 1976, Allport & Vernon, 1933), according to which, culture-specific elements of emotional behaviour can be learned, either by growing up in the culture or by later exposure to the culture.

Moreover, empathy, understanding customers’ needs and services found to be higher in truly global than partly global projects. This addresses the reason for the existence of virtual project teams. Successful companies use information technology as a primary enabler and are organized as dynamic networks with globally distributed operations, which allow them to adapt more quickly to ever-changing competitive landscapes and customer requirements (Jarvenpaa & Ives, 1994).
Few studies assumed that leadership behaviour which works in a collocated environment have the same impact in virtual environment (Lee-Kelly, 2002). However, recent research has negated this assumption and proposed that leadership behaviours, which are established to be effective in collocated environments, are sometimes not most effective in virtual environments (Balthazard et al., 2004). The current research findings support and extend the later study thus proposing that partly global project leadership behaviours are not the same for truly global leaders for effective project management. It is evident from the above discussion that truly global project environment demands high social intelligence than partly global.

Finally, results suggest that it is timely and critical to distinguish between partly global and truly global leadership and highlight the significance of social intelligence in leadership behaviour. The results have several interesting implications for both research and practice on social intelligence and leadership in both partly and truly global projects.

8.2.1 Theoretical Implications

The present research makes at least three noteworthy contributions to the literature. First it helps to refine the literature by revealing relationships between social intelligence and leadership style (task oriented, people oriented) in both partly global and truly global project environments. Second, it identifies the differentiation in two types of projects based on the relationship between social intelligence and leadership style. Third, this research raises many interesting research questions regarding the effects of social intelligence on leadership behaviours in project environment as how a particular behaviour would lead to effective project management in truly global project environment.

8.2.2 Practical Implications

The relationship between SI and leadership behaviour is particularly important for organizational work in relation to performance and productivity. Leaders and managers need to understand the feelings of those around them at the work place to be more successful. The present research supports this relationship and compares it in two project environments, less
global and more global. The results of this research have significant practical implications for this relationship. The research findings show that social intelligence is higher in truly global project professionals than partly global, the reason may be that exposure and working with various people living in diverse cultures is a learning experience for project management professional. This helps them to learn the social and relationship differences thus enhancing their social awareness and relationship management competencies. They are better able to understand the impact of their emotions on others as well as the impact that others’ emotions have on them. When leaders are aware of the emotional side of the workplace along with the technical complexities, they are better able to create a working environment that encourages excellence.

Another implication of this research is that leadership behaviour is not the same for partly global and truly global project teams. Truly global project environment demands high social intelligence than partly global. The findings of this research extend existing literature by suggesting that sensitivity to cultural differences is higher in truly global projects than partly global because of exposure to various cultures.

The findings show how virtuality influences social intelligence in project environment. It can be said that the higher the level of virtuality at a work place, the more there is a need for social intelligence. Social intelligence can be learnt, as emotional intelligence is a developable competency (Cooper, 1997). Thus virtual project organizations need to train their leaders and managers to enhance their social intelligence, which will help them to learn how to work and interact more effectively with teams.

8.2.3 Proposed Model

Based on the above discussion, the following model is proposed for effective virtual project management as shown in figure 12. The results show that professionals follow team management leader (high concern for both task and people) while working in project with varying degree of virtuality. We propose that this management style along with high social intelligence would lead to effective management of more virtual projects.
8.3 Discussion of Patterns of Empowerment Climate and Leadership Style

An understanding of project leadership in less virtual and more virtual project settings is important for two reasons. First, there is a transition from traditional to virtual projects and the trend is constantly increasing. Project-based organizations offering high value service to its clients are becoming more dynamic in nature and there is a need to understand the differentiation of leadership in less virtual and more virtual projects. The results indicate that empowerment is significantly related to both task-oriented behaviours and relationship-oriented behaviours. High concern for both task-oriented and people-oriented behaviour lead to effective leadership behaviour and this is the predominant style found in projects as 98.3 percent project management professionals fall in the category of team management leader (high concern for both task and people). Thus this research augments Kayworth and Leidner (2001) findings that leaders attentive to both the relational as well as the task-related features of their jobs are effective in virtual teams. Moreover, findings of this research support the
research of Grenier and Metes (1995) that empowerment is higher in more virtual as compared to less virtual projects. Malone (1997) suggests that leadership fosters empowerment. The findings of this research extend the work of Malone (1997) by demonstrating that empowerment climate facilitate effective leadership.

Results of moderation in this research indicate that "project virtuality" moderates the strength of the relationships between empowerment and relationship-oriented behaviour and not between empowerment and task-oriented behaviour. This implies that task-oriented behaviour is equally important for both less and more virtual projects where as relationship-oriented behaviour is higher for more virtual than less virtual projects. Thus there is a demand for higher people’s concern initiated by high empowerment in more virtual projects than less virtual projects. Concern for people is based on participative decision-making, teamwork, coaching people on new tasks and procedures, explaining the intricacies and details of a complex task or project, counseling project team members to improve their performance or behaviour and respect for their boundaries which are the critical behaviours for effective leadership (Jessup, 1990; Katzenbach & Smith, 1993). As these behaviours are found to be higher, it may therefore, be concluded that empowerment climate foster effective leadership in more virtual projects.

Townsend and his colleagues (1998) argued that virtual team members must learn to “rebuild interpersonal interaction” because traditional, face-to-face interactions will be replaced to a great degree by remote communication. The novelty of virtual teams thus poses a significant demand on members to learn new ways to behave and interact. The results show that empowerment climate depending on communication as autonomy through boundaries is significantly related with concern for task and concern for people in virtual environment thus supporting the early research of Kayworth and leidner (2000/2001).

Virtual teams consist of cross-functional members working on highly interdependent tasks and sharing responsibility for team outcomes (Malhotra, 2007). The results of this research support this finding as sharing and delegation of responsibilities are found to be important in virtual projects. Teams that are highly empowered should be more likely to develop shared
leadership as a result of the autonomy and meaningfulness of the work they are doing (Kirkman & Rosen, 1997). Shared leadership derives its meaning from concern for task and concern for people (Bales, 1953) and this research supports that both are significantly positively related to empowerment climate in virtual projects.

Researchers have demonstrated positive links between team empowerment and customer service in collocated and virtual teams taking psychological empowerment as a measure (Kirkman & Rosen, 1999; Kirkman et al., 2004). This research has extended their work by establishing link between empowerment climate and customer service in project teams with varying degree of virtuality. In short, it can be stated that both psychological empowerment and empowerment climate enhance customer service. Thus empowerment climate is also imperative for project success in virtual project management.

8.3.1 Proposed Model

Project management effectiveness refers to the success of the project (Hyva¨ri, 2006). Achieving projects’ success depends on people and organizational environment. Nauman and Iqbal (2005) provide insight into the challenges experienced in virtual project management and identify factors including, trust, motivation, multi channel and effective communication, face to face interaction, security, documentation and geographical distance that lead to effective virtual project management. They also propose ways for improving virtual processes. The findings of this research suggest that high empowerment climate and concern for people are highly demanded by more virtual projects than less virtual projects. Thus it is proposed that in addition to the factors suggested by Nauman and Iqbal (2005), high empowerment along with high concern for people would facilitate effective virtual project management as shown in figure 13. The figure shows the items of empowerment climate as well as leadership style (concern for people) and customer service which are found applicable to effective virtual project management.
8.3.2 Theoretical Implications

This research makes two key contributions to the literature on empowerment and virtual leadership. First contribution from this research is that it is conducted with project management professional where as the earlier studies on virtual leadership takes experimental laboratory setting taking students as a sample (Kayworth & Leidner, 2001/2002). The second contribution is the elaboration of the project leader’s behaviour and its relationship with empowerment in less virtual and more virtual projects leading to effective project management. Third, previous research is extended on empowerment by demonstrating the generalizability of empowerment climate-customer service relationship to project teams having varying degree of virtuality. Results suggest for project managers that
to enhance virtual project leadership effectiveness and customer service, they should provide the team an empowerment climate. In virtual teams, almost all communication and coordination occur through electronic media, project teams will have to be trained on using such technology to get the maximum benefit of empowerment climate.

8.3.3 Practical Implications

This research has important implications for project management professionals working in less and more virtual projects. First the findings suggest that concern for people leadership style is important for more virtual projects as compared to less virtual projects. To deal with the challenges of virtuality, project management professionals should be given awareness training on how to deal with people’s issues in virtual environment. Further, the role of empowerment climate in addition to psychological empowerment should also be emphasized in enhancing customer service which fosters project performance. The findings of this research have also implications for teaching project leadership as well as within the project management literature; there is a lack of studies with a leadership perspective in general.

8.4 Limitations

Literature available in the area of virtual teams has mainly followed three research methodologies – case studies, industry survey and experiments. There were 28 academic exercises, 13 industry case studies and only 1 case where input was taken from academic as well as practical environment (Powell et al., 2004).

As in the case of most of the research studies, this research too has limitations. First limitation is that the research uses self-report data, which is very common in management research. These results are based on self-reports of members of more and less virtual project teams in various organizations. This allowed the researcher to include members from a wide variety of teams, organizations and countries, but at the same time the results of this research may be inflated due to common source bias. However, social intelligence, empowerment, concern for task and people and customer service are positive features of behaviour, and self-reporting of these activities may be subject to conscious or unconscious wrong reporting.
Second limitation is that the sample size is not large enough to wash out the affects of culture. Third limitation is to measure virtuality with two dimensions only. The analysis is done at two levels of virtuality in project environment and more levels of virtuality are not identified and analyzed. Moreover, number of face to face meetings, quality of communication and cultural dispersion was not considered to measure degree of virtuality.

In spite of these limitations, the research has a number of strengths. First, this research brings to the fore the underlying relation between EI and Effective Virtual Project Management and thus counter the behavioural challenges in VPM. There is a dearth of research on SI, empowerment climate and leadership style’s role in partly and truly global projects and this research fills the gap that is required in this research field. Further, the human side in project management is analyzed and solutions to the behavioural challenges inherent in VPM environment are suggested.

Self reported measures are used in this research which have been found most suitable for the study of individual human behaviour and when employed as a part of rigorous research design, may even superior to other approaches (Howard, 1994; Schmitt 1994). Future research can be conducted using 360-degree approach for collecting data at the team level.

8.5 Conclusions

The first phase of research provided a deeper understanding of the significant issues of global virtual teams by developing a list of critical success or failure factors in managing virtual project teams. The model proposed was validated through our research findings to conclude that various elements of virtual project management reinforce one another to produce effective virtual project management.

The research yields interesting conclusions that can help organizations to manage their global virtual team projects more effectively in the context of developing countries. This research makes some initial observations regarding the challenges faced by global virtual project teams. There exist several potential directions for subsequent research in this field.

Different forms of virtual projects have become more widespread, as a result of the
increasing focus on globalization and organizational flexibility. It is here to stay. Therefore, a framework for working virtually is essential. Many of the processes, which exist informally in a physical environment, need to be formalized in a virtual one as the potential for tasks to get done by chance is significantly reduced. The virtual team must, however, be quick to modify or discard those processes, which are not generating business value. Some recommendations are suggested for improving the virtual processes:

- Members in a distributed project management environments often have expertise in a specific area, so there is a great need for knowledge sharing via effective communication and knowledge management techniques.

- Initial face-to-face communication is an essential prerequisite in establishing higher levels of trust and motivation among managers working from geographically dispersed locations.

- Managers or team leaders must play as a communication bridge between the two developers of virtual teams in order to minimize conflict.

- A single communication point is a must to avoid redundancy and conflict.

- For effective communication, the appropriate use of telephones, video-conferencing and face-to-face meetings should be considered essential.

- Clear ownership, roles and responsibilities are essential. Leaders should play an effective role to implement these processes.

In the second phase of research, the researcher provided a deeper understanding of EI with respect to significant issues of global virtual teams by developing an overlapping relationship between the two. The model proposed through these research findings was validated to conclude that elements of EI play a critical role in countering the challenges of VPM thus enhancing effective VPM.

The research yields interesting conclusions that can help organizations to manage their global
virtual team projects more effectively by creating EI awareness. This research makes some initial observations regarding the role of EI in effective VPM. There exist several potential directions for subsequent research in this field.

In the third phase of research, leadership behaviour in less global and more global projects was examined. Numerous questions remain, but the current findings advance understanding significance of leadership style, and suggest that continuing research on these lines is likely to yield new theoretical insights as well as practical interventions to enhance effective project management both in less global and more global projects. Based on the aforementioned discussion, some of the basic principles of leadership are proposed which lead to effective project management:

- Encourage participative decision making.
- Practice open communication skills for the flow and easy access of project information.
- Be supportive, advocating, and empowering by delegating authority.
- Resolve conflicts within a team: recognize areas of tension between individuals and apply conflict-resolution techniques.
- Provide coaching on new tasks as well as on improving performance and behaviour.
- Do task monitoring of important tasks based on ranking from most important to least important tasks.
- Inculcate the skill of breaking down a large complicated task into small manageable tasks in team members.
- Be the role model in managing your time to meet the goals and tasks.
- Strengthen team work by determining roles and responsibilities by involving the team.

Furthermore, relationship of social intelligence with leadership behaviour is examined in
partly global and truly global projects. The findings of current research highlight the importance of social intelligence and concern for both task and people in truly global virtual projects as compared to partly global virtual projects. The findings suggest that social intelligence do matter in the management of projects both partly and truly global in nature. SI is imperative as it is demanded higher for truly global projects. Numerous questions remain, but the current findings advance understanding significance of social intelligence in leadership style, and suggest that continuing research on these lines is likely to yield new theoretical insights as well as practical interventions to enhance effective project management both in partly global and truly global projects.

This research adds to the growing body of research on empowerment in more and less global projects and explores the leadership style which fosters empowerment climate thus resulting in effective virtual project management. In view of these findings, it is hoped that project management professionals will be better conscious of both psychological empowerment and empowerment climate and concern for people in their projects with varying degree of virtuality.

8.6 Future Research

Wilemon (2002) argues that the ‘people’ aspects in project management have not been studied from the team members’ perspective. Further, Henrie and Sousa-Poza (2005) emphasize the need to consider soft issues in project management such as human resource practices, leadership, and communication, by incorporating the relevant theories from other disciplines in project management. The current research is focused on these issues at an individual level. Future research may be conducted at team’s level. The objective of this thesis is to study the research questions on partly global and truly global projects and further research is needed to assess the impact of these findings on project based and product based virtual teams. In addition to this, cultural aspects affecting the effectiveness of project management need to be explored and compared in less and more global project management setting.
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Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups. 


### ANNEX A: FORMS OF COLLABORATIVE TECHNOLOGY

<table>
<thead>
<tr>
<th>Tool</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Conferencing</td>
<td>Holding meetings usually by means of a standard telephone line with parties able to call in from different locations at the same time. An example would be a typical telephone conference call.</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>Holding meetings in a conference room and using a telephone system along with live video to add a visual component.</td>
</tr>
<tr>
<td>Desktop Videoconferencing</td>
<td>Provides two-way audio/video conferencing using a PC based system with near-broadcast quality. Allows point to-point, spontaneous communication.</td>
</tr>
<tr>
<td>Electronic White boarding</td>
<td>Computer application that allows end-users to create, sends, and receives messages. File transfers are also possible.</td>
</tr>
<tr>
<td>Electronic Mail</td>
<td>Computer application that allows end-users to create, sends, and receives messages. File transfers are also possible.</td>
</tr>
<tr>
<td>Group Authoring</td>
<td>Software that allows several individuals to collaborate and share the responsibility of writing and editing a document or report.</td>
</tr>
<tr>
<td>Group Decision Support System (GDSS)</td>
<td>Interactive computer-based system designed to support the decision process, especially in meetings. These systems typically support aspects of the decision process such as brainstorming, idea organization, evaluation,</td>
</tr>
<tr>
<td>Service Type</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Group Scheduling and Calendaring</td>
<td>Software that supports personnel and facilities event scheduling. Also, meeting management support, including meeting facilitation, and support for virtual, remote, or distributed meetings.</td>
</tr>
<tr>
<td>One-Way Bulletin Boards</td>
<td>System that allows posting of information for other individuals to access.</td>
</tr>
<tr>
<td>Project Management</td>
<td>Software that automates workforce management and project coordination, including distributed project management, support for mobile working, sales force automation.</td>
</tr>
</tbody>
</table>

Source: adapted from Ballentine, Becker, Lee & Townsley, 1999.
Annex B: Primary Research Survey on Organizations Involved In Virtual Project Management (VPM) In Pakistan

We are doing a qualitative/quantitative primary research survey on organizations in Pakistan providing outsourcing services or employing virtual projects management techniques. Your assistance in this survey will help us identify the positive and negative aspects of VPM in Pakistan. Please read the questionnaire thoroughly before answering the questions. Thanking you.

1. **Tick the option which is true for your organization**
   - Does your organization provide outsourcing i-e implement projects for a client abroad?
     - Yes/No
   - Does your organization outsource part of their projects to organizations abroad?
     - Yes/No
   - Do geographically distributed teams work on the same project (using VPM tools)?
     - Yes/No

2. **Tick the option, which is true for your case. The level of trust in virtual project teams is as follows**
   - Formal procedures, visual templates and documentation results in increased level of trust among virtual project team members.
   - Formal procedures along with Communication Barriers result in a moderate level of trust among virtual team members
   - Excess Documentation, Cultural Differences, Communication Barriers and Lack of instant approval results in low levels of trust among virtual team members.

3. **Tick the option, which is true for your case. The level of motivation in virtual project teams is as follows**

   The level of motivation is high
o The level of motivation is moderate
o The level of motivation is low

4. **What are the most commonly used tools used for communication**

o White boards
o Visual templates
o Emails
o Informal chats
o Telephone
o Teleconferencing
o Others
o If others please specify___________

5. **Tick the option that is true for documentation in Virtual Projects**

o Detailed documentation is a by product of Virtual Project Management
o Excess documentation is produced in Virtual Project Management
o Documentation results in slow pace of progress in Virtual Project

6. **What are the most commonly used security measures**

o Firewalls
o Information Replication
o Encryption software
o Others
o If others please mention___________

7. **Tick the options, which are true for Information redundancy**

o Information Redundancy is a result due to excess documentation
o Information Redundancy is a result due to lack of effective communication
o Information Redundancy is a result due to multi channel communication I-e emails, templates, documentation etc.
o Information Redundancy is inherent in Virtual Project management
8. Tick the options, which are true for your case. What factors are the most common drawbacks in virtual projects

- Excess documentation / Information Redundancy
- Formal procedures/ Visual Templates
- Lack of trust due to geographical distance
- Absence of instant approval
- Slow pace of progress due to excess documentation, version control etc.
- Low motivation levels due to lack of one to one interaction
- Communication overheads
- Cultural Differences
- Language Barriers
- Misunderstandings created due to exchange of informal emails/chats

9. Face-to-face contact was important. Tick the options, which are true for your case.

- Face-to-face meetings were important in creating ties and relationships.
- Face-to-face contact was important in order to understand each other.
- Face-to-face contact was important in order to address controversial issues.
- Face-to-face contact was important to resolve conflict among team members.
- Face-to-face contact was important for planning.
- Face-to-face contact was important for problem solving.

10. A sufficient budget should be established to ensure an effective team start-up process to include a face-to-face initial team meeting and team member training in virtual teaming techniques and practices.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree
- Comments if it’s established
Qualitative Analysis

12. Are there any legal problems (or issues) and any other legal document required in VPM which is not required in normal project management, (as different countries have different laws and a company deals with different countries)?

___________________________________________________________________________

___________________________________________________________________________

13. How do you deal with the following aspects while implementing your projects?
   - Cultural differences
   - Language barriers
   - Time Zone differences

14. Is face-to-face contact important? Please comment.

___________________________________________________________________________

___________________________________________________________________________

15. How do you increase the level of motivation of teams in Virtual Project Management?

___________________________________________________________________________

___________________________________________________________________________

16. Is time gap between countries a benefit or disadvantage for your projects?

___________________________________________________________________________

___________________________________________________________________________

17. Every effort should be made to convene the team in an initial face-to-face meeting to build rapport between team members. Please comment.

___________________________________________________________________________
18. For a global team, no single time slot is convenient for all members. How this is resolved in
your organization?

___________________________________________________________________________

___________________________________________________________________________

19. Do you think a training module on virtual teaming techniques and practices helps to acclimate
and sensitize team members to the challenges of virtual teaming — particularly cultural
issues.

___________________________________________________________________________

___________________________________________________________________________

20. The team leaders in your organization to focus on the cultural differences of team members
and take positive measures to heighten team awareness and sensitivity to these differences in
team interaction. Please comment.

___________________________________________________________________________

___________________________________________________________________________

21. If there is any other significant information in VPM or any experience that you might want to
share with us, please use the space below.

___________________________________________________________________________

___________________________________________________________________________
Annex C: Emotional Intelligence and Virtual Project Management Skills of PM

We are doing a qualitative/quantitative primary research survey on organizations in Pakistan providing outsourcing services or employing virtual projects management techniques. Your assistance in this survey will help us in establishing the EI and VPM elements, which contribute towards better decision-making and effective management of virtual projects.

Please read the questionnaire thoroughly before answering the questions. Thanking you.

Form # ______  Gender  [Male] / [Female]

Age bracket  [20 – 30]  [30 – 40]  [40 – 50]  [50 – 60]

Profession  [Project manager]  [Assistant PM]  [Team member]  [Other]

Virtual Projects Completed  [1]  [2]  [3]  [4]  [more]

Time taken to fill survey ______ hours

<table>
<thead>
<tr>
<th>Tick the option which is true for your organization</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your organization provide outsourcing I-e implement projects for a client abroad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your organization outsource part of their projects to organizations abroad</td>
<td></td>
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</tr>
<tr>
<td>Do geographically distributed teams work on the same project (using VPM tools)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PART I VPM- Tick the option which is true for you

<table>
<thead>
<tr>
<th>Serial</th>
<th>Question</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you take decisions on your own?</td>
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<td>2</td>
<td>Do you wish you didn’t have to take decisions?</td>
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<td>3</td>
<td>Do you countercheck information and reports submitted to you?</td>
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<td>4</td>
<td>Do you think it is important to be truthful no matter what in organizations?</td>
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<td>5</td>
<td>Do you believe that trust promotes motivation in virtual environment?</td>
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<td>6</td>
<td>Do you celebrate all religious and cultural festivities with your team members irrespective if they share the same workspace or not?</td>
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<tr>
<td>7</td>
<td>Do you orientate your team members with each other's cultures?</td>
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<td>8</td>
<td>Have you developed or been part of introducing revolutionary or different technology, ways of management etc?</td>
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<tr>
<td>9</td>
<td>Do you think new techniques should be developed?</td>
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<td>10</td>
<td>Work has nothing to do with the way you feel about your job?</td>
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<tr>
<td>10</td>
<td>It is important to offer something more than salary to employees?</td>
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<tr>
<td>11</td>
<td>Do you involve and inform the customer about the project’s progress</td>
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<tr>
<td>12</td>
<td>Customers are satisfied with the end product.</td>
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<tr>
<td>13</td>
<td>As part of the orientation meeting, do you think it is important to learn about each other’s background for project success?</td>
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<tr>
<td>14</td>
<td>Do you follow task clarity as different norms are interpreted differently in different cultures?</td>
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</tbody>
</table>
### Relationship Management (EI)

#### Effective Communication

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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<tbody>
<tr>
<td>15</td>
<td>Do you have appropriate technology at your disposal for effective and timely information sharing?</td>
</tr>
<tr>
<td>16</td>
<td>If internet is not functioning do you have a backup communication strategy?</td>
</tr>
<tr>
<td>17</td>
<td>Do you have predefined templates in place for team members to communicate their project status, updates and other queries that they might put up?</td>
</tr>
<tr>
<td>18</td>
<td>Do you think it is good to have information redundancy as a fall back policy?</td>
</tr>
<tr>
<td>19</td>
<td>Is there an information repository set up at the organization?</td>
</tr>
<tr>
<td>20</td>
<td>Do your team members interact during project execution?</td>
</tr>
<tr>
<td>21</td>
<td>Do you have a self assessment and self monitoring and evaluation system in place?</td>
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</tbody>
</table>

#### Conflict Management

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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</thead>
<tbody>
<tr>
<td>22</td>
<td>A single communication point is a must to avoid redundancy and conflict.</td>
</tr>
<tr>
<td>23</td>
<td>I attempt to find common ground in situations where I face disagreement with others.</td>
</tr>
<tr>
<td>24</td>
<td>Do you often have face to face meetings between team members?</td>
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</tbody>
</table>

#### Team Capabilities

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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</thead>
<tbody>
<tr>
<td>25</td>
<td>Is it true that a capable PM is all it takes to make a project a success?</td>
</tr>
<tr>
<td>26</td>
<td>A PM must cash in on the capabilities of individuals to build an effective team</td>
</tr>
<tr>
<td>27</td>
<td>Do you value other's input and expertise?</td>
</tr>
</tbody>
</table>
**PART II EI- Tick the option which is true for yourself**

<table>
<thead>
<tr>
<th><strong>Serial</strong></th>
<th><strong>Question</strong></th>
<th><strong>TRUE</strong></th>
<th><strong>FALSE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(EI) Self Awareness</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>Do you read other people's project plans and research papers?</td>
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<td>2</td>
<td>Do you circulate pre-drafts of your documents for comments to your peers/colleagues/bosses?</td>
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<tr>
<td>3</td>
<td>If you make a mistake do you critically evaluate yourself and take corrective measures?</td>
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<td>4</td>
<td>Can you take criticism in your stride?</td>
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<td>5</td>
<td>I balance thoughts and feelings when making decisions.</td>
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<tr>
<td><strong>(EI) Self Management</strong></td>
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<td>4</td>
<td>Would it be appropriate to let the team members know then and there what they have done wrong so that the task is corrected immediately instead of thinking over the situation?</td>
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<td>5</td>
<td>Do your team members/colleagues share their thoughts with you?</td>
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<td>6</td>
<td>If a task is being delayed should you wait for the relevant person to come so that task integrity is not compromised?</td>
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<td>7</td>
<td>Is it easy for you to adjust if you are transferred from your department/project/duty station?</td>
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<td>8</td>
<td>If your boss criticizes your work is it an indication that he wants to remove you from the job?</td>
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<td>9</td>
<td>You always learn to improve your performance.</td>
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<td>10</td>
<td>You hold yourself responsible for meeting your objectives.</td>
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<tr>
<td><strong>(EI) Social Awareness</strong></td>
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<tr>
<td>11</td>
<td>You show sensitivity and understands others perspectives.</td>
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<td>12</td>
<td>You understand customers' needs and match them to services or products.</td>
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<tr>
<td>13</td>
<td>You seek ways to increase customer's satisfaction and loyalty.</td>
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<tr>
<td><strong>(EI) Relationship Management</strong></td>
<td></td>
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<td>14</td>
<td>You acknowledge and reward people's strengths and accomplishments</td>
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<td></td>
<td>You step forward to lead as needed, regardless of position.</td>
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<td>16</td>
<td>You are skilled at persuasion.</td>
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<td>17</td>
<td>You foster open communication and stay receptive to bad news as well as good.</td>
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<td>18</td>
<td>You recognize the need for change and remove barriers.</td>
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<td>19</td>
<td>You handle difficult people and tense situations with diplomacy and tact.</td>
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<td>20</td>
<td>You cultivate and maintain extensive informal networks.</td>
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<td>21</td>
<td>You share plans, information and resources with others.</td>
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<tr>
<td>22</td>
<td>You draw all members into active and enthusiastic participation.</td>
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</table>
Annex D: Virtual Project Management Research on Social Intelligence, Empowerment Climate and Managerial Grid

Research Instrument - Questionnaire to measure patterns of SI, Empowerment Climate and Leadership Style for effective virtual projects.

The objective of this study is to collect data which will help in understanding the Social Intelligence and Empowerment climate patterns in virtual project teams and then establishing its relationship Leadership Style. The questionnaire will take approximately 20 minutes to complete.

By Shazia Nauman

Email: shaznaum@yahoo.com

Under the supervision of

Dr. Azhar Mansur Khan

Email: azharmak@yahoo.com

If you want to receive the results of this survey, please give your email address.

Email:
DEMOGRAPHICAL INFORMATION

Please complete the following Demographical Information about you which will help me to analyze the data in a more meaningful manner. This information is private and confidential and will not be shared with anyone.

1. Age (Please double click the shaded square and choose checked)

- [ ] < 19
- [ ] 19-24
- [ ] 25-30
- [ ] 31-36
- [ ] 37-42
- [ ] 43-48
- [ ] 49-54
- [ ] >55

2. Gender

- [ ] Male
- [ ] Female

3. Level of Education

- [ ] Undergraduate Degree
- [ ] Graduate Degree
- [ ] Masters Degree/
- [ ] PhD

4. What best describes your Job Title (in the IT project)

- [ ] Project Manager
- [ ] Product Manager
- [ ] Architect
- [ ] User-Interface designer
- [ ] End-User liason
- [ ] Developers
- [ ] Quality Assurance(QA)/Testers
- [ ] Build Coordinator
- [ ] Risk Officer
- [ ] User-Interface designer
- [ ] End-User Documentation specialist
- [ ] System Analyst

5. Professional Experience (in Years)

- [ ] 1-5
- [ ] 6-10
- [ ] 11-15
- [ ] 16-20
- [ ] 21-25
- [ ] 26-30
- [ ] >30

6. What is the job level that you work on?
7. What best describes the industry you work in

- Telecommunications
- IS/IT
- Others (Please specify)

8. What best describes the location of your work.

- Asia
- Europe
- Middle East
- Africa
- USA

Country: _______________________

City: _________________________
Definition of Terms Used

The questionnaire is based on the following factors:

Partly Global Project or Collocated Projects

Partly global project being projects where your team work on a given work package and did not interact with other teams working on the same project. Your team is working in the same building.

Truly Global Projects

Truly global projects being projects in which you worked in a single team from start to finish of the project collaborating with other virtual team members.

Relationship Management (Goleman’s Social Intelligence Model)

The study will appraise how good your relationship management skills are in virtual environment taking Goleman’s emotional intelligence model.

Social awareness (Goleman’s Social Intelligence Model)

The study will explore your social awareness and relationship management that helps you to face cultural diversity in your projects.

Empowerment Climate

The study will explore how your project environment empower you and others in your project by involving them in decision making, sharing the information, facilitating team work and professional growth.

Managerial Grid

This section will assess Leadership concern for task and concern for people in the virtual project environment.
8. Tick the option which is true for your organization

<table>
<thead>
<tr>
<th>Frage</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your organization do part of the projects for organizations abroad?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your organization do projects from start to end for organizations abroad?</td>
<td></td>
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<tr>
<td>Do geographically distributed teams work on the same project using VPM tools e.g telephone, email, video conferencing?</td>
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</tbody>
</table>

9. Please select the appropriate option:

<table>
<thead>
<tr>
<th>Option</th>
<th>0-20%</th>
<th>21-40%</th>
<th>41-60%</th>
<th>61-80%</th>
<th>81-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>On your current project, what percentage of the team members is working in other locations /other countries?</td>
<td></td>
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<tr>
<td>What is the percentage of truly global projects in which you worked in a single team from start to finish?</td>
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<td>What is the percentage of partly global projects in which you worked on a given work package and did not interact with other teams?</td>
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</tbody>
</table>

10. Would you say that your current project is

- [ ] Partly Global Project
- [ ] Truly Global Project
### SI - Relationship Management Question I.

<table>
<thead>
<tr>
<th>How important are the following factors on a scale of 1 to 5 in your current projects. Please select the appropriate option on the scale of 1-7.</th>
<th>1 Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. You acknowledge and reward people's strengths and accomplishments</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>12. You are skilled at persuasion</td>
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<tr>
<td>13. You foster open communication and stay receptive to bad news as well as good</td>
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<tr>
<td>14. You recognize the need for change and remove barriers</td>
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<tr>
<td>15. You cultivate and maintain extensive informal networks</td>
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<tr>
<td>16. You handle difficult people and tense situations with diplomacy and tact</td>
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<tr>
<td>17. You share plans, information and resources with others</td>
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<tr>
<td>18. You draw all members into active and enthusiastic participation</td>
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<td>19. Treat people with dignity/ respect.</td>
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<tr>
<td>20. Do your team member/ colleagues share their thoughts with you?</td>
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</table>

### SI - Social Awareness Question II.

<table>
<thead>
<tr>
<th>How important are the following factors on a scale of 1 to 5 in your current projects. Please select the appropriate option on the scale of 1-7.</th>
<th>Not Important</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very Important</th>
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<tbody>
<tr>
<td>21. Cross-cultural communication skills</td>
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<tr>
<td>22. Sensitivity to cultural differences among team members</td>
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<td>23. Thoughtfully consider the feelings of others</td>
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<td>24. You understand customers’ needs and transform them into reality</td>
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<tr>
<td>25. You find ways to increase customer's satisfaction</td>
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<td>26. Team members confide in you with ease</td>
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</tbody>
</table>
**Question 11.** How important are the following factors on a scale of 1 to 7 in your current projects to know the level of empowerment in your projects.

<table>
<thead>
<tr>
<th>How important are the following factors in your current projects. Please select the appropriate option on the scale of 1-7</th>
<th>Never</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7 Always</th>
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</thead>
<tbody>
<tr>
<td>27. Provide clear directions</td>
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<td>28. Information sharing and easy access to project information and project data</td>
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<td>29. Encourage brainstorming to improve customer service</td>
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<td>30. Survey or focus group of your customers wants, needs, frustrations and ways to improve service</td>
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<tr>
<td>31. Recognize team members’ efforts publicly and privately</td>
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<td>32. Networking with other staff, Managers</td>
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<td>33. Encourage participative decision-making among team members</td>
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<td>34. Delegate responsibilities</td>
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<td>35. Document policies and procedures</td>
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<td>36. Ensure understanding of budget and financial key performance indicators by all the team</td>
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<td>37. Team work (Important to you)</td>
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<td>38. Sharing the future development (Important to you)</td>
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<td>39. Establish project teams to focus on top 3 issues and opportunities</td>
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<td>40. Encourage professional growth training</td>
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<td>41. Circulate pre-drafts of your documents for comments</td>
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<tr>
<td>How important are the following factors in your current projects. Please select the appropriate option on the scale of 1-7</td>
<td>Strongly Disagree</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7 Strongly Agree</td>
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<td>42. Clear understanding of individual roles and responsibilities</td>
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<td>43. Comprehension of the end user requirements</td>
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<td>44. Understanding of distant team members emotions</td>
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<td>45. Feed back to team members of the performed work</td>
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<td>46. Standardization to reduce rework in project documentation</td>
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<td>47. Open communication among team members</td>
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<td>48. Prepares adequately before a presentation</td>
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<td>49. Applies the principles of effective listening</td>
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<td>50. Emphasize important issues when appropriate</td>
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<td>51. Excess documentation/ Information redundancy</td>
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<td>52. Training for improving communication skills</td>
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**Managerial Grid Question IV.** How important are the following factors in your current projects.

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<table>
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<tbody>
<tr>
<td>53. More challenging task is enjoyable</td>
<td></td>
</tr>
<tr>
<td>54. Counseling employees to improve performance</td>
<td></td>
</tr>
<tr>
<td>55. Nothing more important than accomplishing goals or task</td>
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</tr>
<tr>
<td>56. Ensuring every detail is accounted for a complex task</td>
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</tr>
<tr>
<td>57. Easy for you to carry out several complicated tasks at the same time</td>
<td></td>
</tr>
<tr>
<td>58. Easy for you to break large projects into small manageable tasks</td>
<td></td>
</tr>
<tr>
<td>59. Managing time efficiently</td>
<td></td>
</tr>
<tr>
<td>60. Enjoy analyzing problems</td>
<td></td>
</tr>
<tr>
<td>61. Practically applying new concepts/procedures in your work learnt through reading articles, books, and trade journals about my profession</td>
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</table>
Please select the appropriate option for Concern for People on the scale of 1-5

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<th>3</th>
<th>4</th>
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<th>Always</th>
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<tbody>
<tr>
<td>62. Encourage team participation in decision making</td>
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<td>63. Mentoring and coaching on new tasks</td>
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<tr>
<td>64. Encourage employees to be creative in work</td>
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<tr>
<td>65. Enjoy reading articles, books, and journals about training, leadership, and psychology; and then putting what have read into action</td>
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<tr>
<td>66. When correcting mistakes, I do not worry about jeopardizing relationships</td>
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<td>67. Explain the intricacies and details of a complex task or project to my employees</td>
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<td>68. Nothing is more important than building a great team</td>
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<td>69. Respect for other people's boundaries</td>
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<td>70. Counsel employees to improve their performance or behaviour</td>
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Please select the appropriate option for Customer Service on the scale of 1-7

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<th>4</th>
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<th>Always</th>
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<tr>
<td>71. You understand customers’ needs and match them to services or products.</td>
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<td>72. You seek ways to increase customer's satisfaction and loyalty</td>
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Thank you for your valuable contribution to this research!
Annex E: Statistical Analysis

Residuals Statistics

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*a Dependent Variable: Projecttaskscale*

Durbin-Watson Estimate

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*a Predictors: (Constant), Relationshipscale*

*b Predictors: (Constant), Relationshipscale, Socialawarenessscale*

*c Dependent Variable: Projecttaskscale*
Correlations

### Correlations

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** Correlation is significant at the 0.01 level (2-tailed).
### Correlations

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**- Correlation is significant at the 0.01 level (2-tailed).
### T-Test

#### Group Statistics

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## Independent Samples Test

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Regression

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<th>Tolerance</th>
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a. Dependent Variable: Projectpeoplescale

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a. Dependent Variable: Projecttaskscale

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a. Dependent Variable: Projecttaskscale
### Coefficients

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a. Dependent Variable: Projectpeoplescale

### Coefficients

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a. Dependent Variable: Customerservice
### Hierarchical Regression

#### Coefficients

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a. Dependent Variable: Projecttaskscale

#### Coefficients

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a. Dependent Variable: Projectpeoplescale
Descriptives

Descriptive Statistics

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