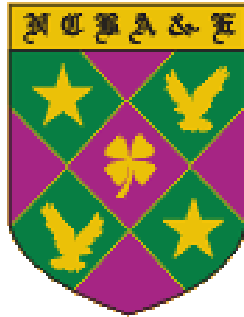


*National College of Business  
Administration & Economics  
Lahore*



**STRATEGIES FOR INNOVATION:  
MANAGEMENT PRACTICES AFFECTING  
INNOVATIVE BEHAVIOUR  
IN KNOWLEDGE ORGANIZATIONS**

**BY**

***SAMIAH AHMED***

**MASTER OF PHILOSOPHY  
IN  
BUSINESS ADMINISTRATION**

**AUGUST, 2014**

# **NATIONAL COLLEGE OF BUSINESS ADMINISTRATION & ECONOMICS**

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**BY**

**SAMIAH AHMED**

**A dissertation submitted to  
School of Business Administration**

**In Partial Fulfillment of the  
Requirements for the Degree of**

**MASTER OF PHILOSOPHY  
IN  
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**August, 2014**



***In the Name of ALLAH,  
The Most Beneficial,  
The Most Merciful,***

**NATIONAL COLLEGE OF BUSINESS  
ADMINISTRATION & ECONOMICS  
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**Dissertation Committee:**

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**Chairman**

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National College of Business  
Administration & Economics

## **DECLARATION**

It is to declare that this research work has not been submitted for obtaining similar degree from any other university/college.

**SAMIAH AHMED**  
**August, 2014**

**DEDICATED**  
**TO**

*My Beloved Grand Father*  
*&*  
*My Family*

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All praises to Almighty Allah who has given us the wisdom and knowledge to identify the right path and reach the truth.

I would like to articulate my heartily thanks to my Parents, Grand Parents, and family who worn-out their energies in grooming me to do all what I am capable of contributing today. They have always supported me and encouraged me with their best wishes.

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# **RESEARCH COMPLETION CERTIFICATE**

Certified that the research work contained in this thesis entitled **“Strategies for Innovation: Management Practices Affecting Innovative Behaviour in Knowledge Organizations”** has been carried out and completed by **Samiah Ahmed** under my supervision during her **M.Phil. Business Administration** Programme.

*(Dr. Suleman Aziz Lodhi)*  
*Supervisor*

## SUMMARY

Organizations are operating in a fast paced and competitive environment. Therefore, organizations are continuously looking for ways to gain competitive advantage. This can only be possible if employees, the productive resource, add value to the organization, by making use of their creative minds and bringing up their creative ideas. The survival and the growth of the organizations depend on the creativity or innovative behavior of its employees.

This study attempts to empirically investigate the impact of climate for innovation, inter role conflict and work life balances on employee innovation in the Knowledge organizations including universities and research institutions.

The empirical findings have been drawn through a survey questionnaire from the research scholars attending the Conference in Karachi, who came from various cities of Pakistan, excluding the province, Balochistan. It was a purposive sampling, where 80 questionnaires were distributed to the M.Phil. and Ph.D. Scholars excluding all other participants. The total usable questionnaires returned were 59.

The study revealed that the higher climate for innovation, lower inter role conflict and more work life imbalances increase the research scholars' innovation at their universities or research institutions.

The study is an effort that contributes to literature by putting its importance on the three important variables for innovative behavior of the research scholars. For the first time, this is certainly an important step towards employee innovation in Pakistan universities or research institutions. The research institutes face problems like lower employee creativity and stagnant growth due to many factors.

Researchers and practitioners are looking at ways to eradicate these aforementioned problems. To extract innovative behavior it is essential to manage the Human Resources by focusing on the innovative factors of the organizations.

The study also provides implications for theory and practice. Limitations and future directions have also been discussed.

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# CHAPTER 1

## INTRODUCTION

### 1.1 STUDY BACKGROUND

A rapidly changing economic environment, globalization, and changing customer and investor demands have become the norms for most business establishments. Ghamin and Rasheed (2006) describes in his/her research that due to the pressures and challenges emerging with increasing societal needs, it has become of uttermost importance to generate to the profitability and productivity of the organizations.

In the fast paced and competitive environment, innovation has become a prerequisite for business and organizational success (Hamel, 2006; Jamrog, Vickers and Bear, 2006). In order to respond to these increasing customer demands and for organizational survival, organizations must continually improve the performance by bringing innovative ideas; they should improve the organizational processes which primarily involves the quantity and quality of its resources. These resources available to the organizations include physical resources i.e. plant and equipment, and also human resources i.e. knowledge, skills and employees experience. Furthermore, the management of all the organizational resources includes management of the Human resources. Researchers had discovered that management of the human resources still persists in the organizations (Johns, 1993; Murray and Dimick, 1978), consequently, this call for managing human resources efficiently to deploy creative behavior in employees.

Human capital is the product capabilities of people (Becker, 1964) having a value in the market place. In the open systems view of the HRM, The human capital comprise of the diverse skills as inputs and their employee behavior are processed into positive performance outcomes (Wright and Snell, 1991) which definitely add value to its organization.

The importance of the employees is further elaborated in the role theory by (Katz and Kahn, 1978) where employees are embedded in an organization system characterized by defined multiple roles, so as to yield a predictable outcome. This was further supported by (Kozlowski, 1987) as employees are distinctly embedded in the organizational strategy to facilitate innovation. Therefore, the role of the human resource is crucial for organizational performance and competitive advantage (Arthur, 1994) which competitors

cannot imitate and sustain (Barney, 1991). That is why Understanding of Human resources with further exploration of new HRM approaches have become important. In support for this exploration of new HR approaches, another research was conducted by Smith et al., (2011) where it reported how Australian enterprises improves the role of human resource and development practices for their innovative behavior.

Becker and Houselid (2006) focused on the development of the workforce in order to stimulate innovation. Research suggests that neither of these identifies the exact HR practices and processes which might trigger innovative behavior in the employees. To foster innovation, the right mixture of HR practices is very important which should be flexible during the changing environments (Wright and Snell, 1998). With this statement, Laursen and Foss (2003) argued that the impact of adopting of package of complementary HR practices could affect innovative performance much more strongly. Also, De Leede and Looise (2005) have indicated the further need to research the most appropriate HRM practices in the various innovative stages. So the aim of our research is to explore the right bundle of HR practices conducive to the employees' innovative behavior, and which is also flexible and fit within the organization. This is supported by the recent statement that there is a further elaborate research needed on engagement and involvement in creative work tasks (Carmeli and Schaubroeck, 2007).

Climate for innovation is an important factor which signals the expectations for creative behavior and the predictable outcomes of this behavior (James, Hartman, Stebbins and Jones, 1977). According to the socio political perspective, from the beginning, Organization climate has remained an important contextual factor which can manifest innovative behaviors at work (Amabile, 1988; Kanter, 1988; Scott and Bruce, 1994).

Human resources are essential in creating a climate for innovation, which pertains to the internal environment and which bearing the unique elements of the organization (Maharmah, 1993) and these unique elements are different from the other organizations, which helps the innovative behavior of the employees and polishing their skills and abilities.

In the past, several other researchers have discussed the factors like Autonomy given to the employees, leadership support and sufficient valuable resources, as important for climate for innovation (Kanter, 1983; West and Farr, 1989). Amiable (1996) worked on the factors for innovative climate, which included employee autonomy, sufficient resources and positive challenges and encouragement, which lead to creativity.

Climate for innovation is the degree of support and encouragement an organization provides to its employees so that they could explore innovative approaches and so that they could predict the actual innovation in the organization. It is the promoter of the innovation as per the theory of Akman and Yilmaz (2008). Climate can be more easily modified (Tidd and Bessant, 2009). They further emphasized that there are six factors which are claimed to be important for climate for innovation. These factors include trust and openness, positive challenges, support for the ideas, positive discussions among the employees and lastly autonomy.

A study conducted by Panuwatwanich et al., (2008) identified that the innovative climate includes the availability of time, money, training resources and tools for building creative, original and novel ideas. Sundgren et al., (2005) illustrated that information sharing and intrinsic motivation are important measures for Climate for innovation in the pharmaceutical industry.

Crespell and Hansen (2008) focused between work climate and innovation in a small American wood products company. The same study was conducted after four years by Nybakk and Jenssen (2012) where they worked on the same variables, on the innovative strategy with the working climate and its effect on financial performance, also in the wood industry. Interestingly, all studies found positive relationships. Sanders et al., (2010) studied that employees display innovative behavior due to innovative climate, by illustrated through a theoretical framework.

Furthermore, a research was conducted by (Nusair, 2013) where he highlighted the importance of positive climate in relation to the Job performance in the commercial banks of Jordan. Recently, another research sheds light over the relationship between innovative work behavior and organizational climate among the knowledge workers in Malaysia (Kheng and Mahmood, 2013).

Positive climate can influence creativity. Managers can direct conversations discussing positive outcomes, they can celebrate small wins, pointing out employees' strengths and weakness and not dwelling over their mistakes or problems and telling the success stories of the employees (Elizabeth, 2012).

The climate for innovation helps the organization to achieve its objectives efficiently and effectively together with the employees needs as well (Khaja, 2006). Positivity around us broadens our minds, the creativity of ideas flourish (Fredrickson and Branigan, 2005) giving us the positive emotions of joy, satisfaction, hope, gratitude leading us to experience the

display of creativity behavior (Lyubomirsky, King and Diener, 2005) eventually growing us healthy, mentally, psychologically and socially too. Positive organizational climate experienced by the employees will make them obligatory to reciprocate positively with the extra role creative behavior (Chen et al., 2009).

Past research studies show that studies on the innovation strategy with the working climate in an integrated manner with their effects on the performance remains rather limited (Nybakk and Jenssen, 2012). For instance there has been limited research on the innovation strategy with the working climate in the traditional manufacturing firms (Nybakk and Jenssen, 2012).

Stress has been a popular research topic because of its significant impact on employee well-being and productivity (e.g., Cooper, Dewe and O'Driscoll, 2001). Due to an increasing wave of competition in the market place, employees need to be adaptable to the changing organizational environment. In developed countries, employees get to work long hours (Kodz, Harper and Dench, 2002). This duration of long working hours results in increased workload, job insecurity, high levels of job stress and stress resulting in illnesses.

The frequency of stress and burnout is rising (e.g., Kahn and Langlieb, 2003). This increase in stress and burnout is due to the inter role conflict, rising between work and family domain demands, experienced by most working individuals at work places.

Role stress is consisted of role ambiguity and role conflict. That is probably why the term role stress is widely used to refer to role ambiguity and role conflict in the literature (Leung et al., 2011). Later, Cavanaugh, Boswell, Roehling, and Boudreau (2000) identified two different types of stressors among popular stress measures. Challenge stressors are stressors which result in learning and task accomplishment, whereas hindrance stressors are associated with barriers to goal accomplishment, such as role ambiguity and role conflict. Previous research indicates that negative work family spillover creates work stressors as role overload and role ambiguity (Byron, 2005).

Challenge stressors are conducive to work motivation and increase performance whereas hindrance and role stressors lower work motivation and suppresses performance (Lepine, 2005). Previous studies have shown that subordinates with high quality relationship with the leader experience lower levels of stress (Schriesheim, Castro and Cogliser, 1999).

This is because employees have the full support of their organization and they don't bear role ambiguity, role overload and role conflict (Kacmar, Witt, Zivnuska and Gully, 2003) as compared to the subordinates who have a poor relationship with their leaders. Hindrance stressors including role conflict or role ambiguities have a negative impact on the employees' performance.

Hindrance stressors like Work-family conflict and family work conflict are the types of inter role conflict where pressures associated with the delivery of one role intervenes with the delivery of the other role (Kahn et al., 1964) which was later refined by (Halpern, 2005) as increasing number of work demands hindering the family obligations.

Greenhaus and Beutell (1985) also define work family conflict and family work conflict as an inter-role conflict where both the work pressures and family domain are incompatible with each other.

Netemeyer et al., (1996) defines the constructs in their study work family conflict when the pressures at the work demands hinder the fulfillment of the family responsibilities, whereas the family work conflict is when the family demands interfere the fulfillment of the work demands at the office.

Consistent with the conceptual definition of work-family conflict (Greenhaus and Beutell 1985; Frone et al., 1992) several researchers have reported a two way directional connection between work-family conflict and family-work conflict such that these conflicts often give birth to each other (Carlson and Kacmar 2000; Boyar et al., 2003). This stems from the scarcity hypothesis as individuals have limited amount of energy and time, facing psychological and physical exhaustion (Marks, 1977). The direction of the conflict between work and family has always existed bidirectional (Gutek, Searle and Klepa, 1991). This work may interfere family domain and family may interfere the work domain. These are strongly co related, which are conceptually distinct constructs, and which are supported by empirical evidence (Frone, Russell, and Cooper 1992).

Research has stated that work family conflict leads to the increased burnout and emotional exhaustion (Bacharach, Bamberger and Conley, 1991). This research study was supported when inter role conflict had been examined with the three dimensions of burnout out i.e., high emotional exhaustion, high depersonalization with others, and lower levels of feeling of accomplishment (Jawahar et al., 2012).

Keeping in line with these concepts, recently two years ago, a research paper was written on the U-shaped relationship between role stress and innovative performance. This relationship had been mediated with the low

perceived support for innovation (Leung et al., 2011). In another recent study, the researchers examined role conflict as a mediator of the leader membership exchange and stress relationship and the mediating role Job Involvement and Role Conflict (Lawrence and Michele, 2012).

Work and family responsibilities have become major challenges which often reinforce inter role conflict within an individual. It has been experienced by many managers and has negative consequences including job satisfaction and life satisfaction. A study where the relationship between role stress and innovative performance was examined, also reported inconsistent findings (Tubrea and Collins, 2000).

Innovative performance had been overlooked in the role stress literature (Scott and Bruce, 1994). While many antecedents of innovativeness have been studied (Zhou and Shalley, 2003), the impact of role stress has rarely been examined. This type of innovative performance is important in a knowledge economy, as knowledge workers are often asked to engage in non-routine tasks that call for creativity.

Another important variable which is considered in the present study is the work life imbalances with the employee innovative behavior at work. Work life imbalance is termed as the occupational stressor based on the lost resources of time, energy and feelings toward work and personal life (Fisher, Bulger and Smith, 2009). When employees expect that they would win positive image gains in the organizations by being innovative, they expect to derive satisfaction from their work. This satisfaction from work neglects the other areas of life including health, leisure activities and relationships (Snir and Harpaz, 2009).

Innovative or creative behavior refers to a set of behaviors which generate new or novel ideas either by oneself or by others together with the realization and implementation of these ideas. This definition had been recognized by (Kanter, 1988; Scott and Bruce, 1994 and later by Shalley, Zhou and Oldham, 2004). Novel or original means new to the organization even though it necessarily does not have to be new within the industry, creating a sustainable value, drawing on the available talents to do things better and differently (Francis and Bessant, 2005) creativity is when new ideas replace old ideas refining diversified paths for innovative behaviors (Binyamin and Carmeli, 2010).

Long ago, innovation had been conceived as a process, bringing into use or non-trivial (Kanter, 1988). This allowed the researchers to investigate what constitute the activities of the innovation processes (Meyer and Rowan, 1977). Two phases are recognized with the innovation the idea generation phase and the implementation phase (Axtell *et al.*, 2012), these two phases include

activities that the organizations undertake to develop new and innovative ideas (Gupta and Singhal, 1993). There has always been a link between idea generation and idea implementation as more ideas being generated mean an increased number of these ideas being implemented.

According to the socio political perspective innovation is a fad or fashion which is adopted for the symbolic meaning and not to boost the organization s economic performance (Abrahamson, 1991). This symbolic meaning of innovation leads to the creative behavior or the employee innovative behavior.

Research predicts that there are many antecedents of employees' innovative behavior. (West and Farr, 1989) theoretical framework identified five major factors for the assessment of employees' innovative behavior at work. These antecedents included organizational support for innovation, high supervisor relationship, innovativeness as a job requirement, with performance efficiency gains counted as the mediating factor. Later (Scott and Bruce 1994) discovered how leader-member exchange affects support for innovation, which in turn affects innovative behavior. Training has been also considered as an important factor to trigger creativity behaviors as it enhances knowledge regarding the tasks, skills, competencies of the employees, enabling them to develop creative ideas and innovative suggestions (Anderson, De Dreu and Nijstad, 2004).

## **1.2 SIGNIFICANCE OF THE STUDY**

With fierce competition entering into the vast industry, firms want to produce innovative ideas into the organizations and win the markets. This could be done by efficiently utilizing labor as labor itself is a valuable resource to the economy. Firms want to enhance their HR competencies and capabilities, by introducing HR practices, which motivate them, polish their expertise, knowledge and skills. For this, existing learning practices must be improved and new learning practices need to be explored (Pierce and Delbecq, 1997). Many multinational organizations strive for managing innovation by managing people (Laurent, 1986).

A range of studies have suggested that human factors within the enterprise are critical to innovation (Farr and Ford, 1990). The ability of the organizations' to innovate depends on the management of the human resources which multiply the quantity and the quality of the workforce skills and creativity. Some firms are not broadening their core technologies instead they are retaining the talented the staff or human resources to gain a competitive edge (Hamel, 2006).

Various work conditions that may foster employee creative and innovative behaviors have been researched (Amabile, 1988; Scott and Bruce, 1994), but studies and evidence about various practices which leads to creative and innovative behaviors has only begun (Carmeli and Spreitzer, 2009).

Many organizations with sustained innovation describe their success by finding out the best people (the employees) converting ideas into successful products and services. Without people innovation will not occur. Capabilities of the employees need to be harnessed effectively to implement a change (De Leede and Looise 2005).

In our research thesis, our aim is to seek the right bundle of HR practices that are conducive to the innovative behavior of the employees. To support this statement, (Miles and Snow, 1984) proposed that the right blend of the HR practices depends on the business strategies that the organizations adopts where the HR practices are more compatible with their own business strategies, making them more successful in achieving their goals (Bird and Beechler, 1995).

Innovation is all about bringing a change but the employees are resistant to change and routines. Employees are confronted with the problems of adapting habits and routines in order to display creativity (Oakley, 2002).

To support this view, Baker and Sinkula (2002) explored that there are different sets of HR practices needed for different innovation. HR practices are a bundle consisting of management practices for employees, which give them the knowledge, expertise, skills, confidence and motivation to behave in an innovative behavior. These practices include intensive investment training in human resource, employees involvement and communication programs, job rotation and delegation (Pfeffer and Cohen, 1984), recruitment of the best employees, training, mentoring, incentives and knowledge sharing mechanisms (Horgan and Muhlau 2006), self-managed teams, employees decentralized decision making, flexible job assignments and open communications (Evans and Davis, 2005). These practices are most effective when applied in bundles because of their combined effect on performance (Appelbaum et al., 2000).

Due to fast paced environment, being inflexible and not adaptable to change is a step towards disaster, whether we are dealing within any sector, be it an academic institution. It is to be believed that that the University of the future will be very apparent or advanced from the University which exists today in every aspect, even in the research area.

Universities are knowledge organizations where individuals can change their environment, where there is commitment to constant and lifelong learning and growth. Universities that want to be innovative have to flourish knowledge mechanisms, so that they do not stagnate in the long run (Friedman and Pollack, 2005).

To be an innovative university, diversity is seen as a plus point since it allows for stimulation of new ideas. There should be new researches and the most exciting research is often existent when two research disciplines collaborate, and when two researchers merge and share their expertise in order to write a paper. This creates a synergy that can result in truly innovative and research. There is nothing wrong with collaboration if it produces exciting research.

Universities could establish an online archive. This would be utilized by the faculty for posting their papers, so that the papers could be reviewed by colleagues, before they submit them to journals. Their reviews and opinions would be considered as helpful criticism.

Establishing a paradigm of constant lifelong learning and growth in knowledge gain and sharing it with other is not easy especially, in academe. First step could be transforming universities into knowledge organizations, which could be the first ladder to solve problems in academe.

In this study, we aim to determine the impact of three factors influencing employee innovation in the knowledge organizations in Pakistan. The three independent variables are climate for innovation, inter role conflict and work life imbalances.

We began this research by asking how research scholars stimulate creativity at their university and in research environments. The construct or the items to measure the employee innovation is very distinguishing in the study and the application setting is the Universities in Pakistan. As per social networks theory, researches also argued that interpersonal interaction in research environments is extremely vital for the creative activity (Chen and Kaufmann, 2008). For this sharing ideas during academic or research meetings and seminars is very essential. Also, imaginative hunches and spontaneous discussions are very important for research creativity for the innovative scholars.

### **1.3 RESEARCH QUESTIONS OF THE STUDY**

HRM has become a touchstone of modern management practice. (Guest, 1987) model worked on the HR practices for outcomes like higher levels of innovation. To achieve these and investigate related organizational strategies, our research questions of the study are:

- i) What is the impact of climate for innovation on employee innovation?
- ii) What is the impact of inter role conflict on employee innovation?
- iii) What is the impact of work life imbalances on employee innovation?

## **CHAPTER 2**

### **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

#### **2.1 EMPLOYEE INNOVATION**

Creativity, innovativeness, and innovation are all related concepts that are frequently used interchangeably. There is still no universally accepted definition of innovation. Ambiguity in the meaning of innovation stemmed in the literature where there are many diverse definitions, some specific and some broad (Cummings and Oldham, 1996). Defining innovation meant allowing researchers to investigate that what constitutes the activities during innovation process (Greve and Taylor, 2000).

Past Research shows that in the realm of research and development labs innovation was where new knowledge was discovered (Romer, 1990). Initially scientific problems and hunches and existing knowledge give birth to new ideas which then feed the beginnings of other innovative explorations (Machlup, 1962). Schumpeter (1934) defined innovation as the introduction of a new product, process, method, or system. Innovation is also an outcome in terms of a product, process, software, idea, concept, which is considered new in the environment into which it is introduced (Damanpour, 1991). These new idea or knowledge is sometimes adopted from outside the organization which is also known as Tacit Knowledge (Cohen and Levinthal, 1990). An innovation comes from a process of knowledge exchange and recombination (Galunic and Rodan, 1998). Innovation is indeed knowledge intensive (Kanter, 1988) as knowledge plays an important attribute in fostering innovation (Dougherty, 1992b).

In another Research conducted, innovative behavior was explored through empowerment practices adopted by the employees in the US Federal government. The empowerment practices explored were (sharing authority, resources, information, and rewards) that influence performance (effort, productivity) where employees take corrective measures and learning from these mistakes and generate innovative proposals (Fernandez and Moldogaziev, 2013).

Also empowered practices like offering financial and other rewards for performance will cause employees to feel like displaying innovatively. Training and professional development also help diffuse innovations and delivering ideas creatively.

Literature reveals that innovation is a multistage process. Innovation is exploring new ways of doing things, make mistakes and step out of the normal ways of doing things. This cycle of innovation includes when employees step into the phase of idea generation and getting drivers of innovation, trying to acquire the power of turning the ideas into reality or idea realization (Kanter, 1988). Their idea creation leads to the idea implementation (Amabile, 1996). There has been a link between the stage of idea generation and idea implementation as a bunch of increasing fresh ideas leads to an increased number of innovations being implemented (Clegg *et al.*, 2002).

Increasing number of scholars and academicians have focused on determinants of individual innovation in the organizations and tried to answer the questions like, what drives employees to be creative? According to the research, 80% of ideas are initiated by their employees and only 20% are the result of planned innovation activities, through strategy or structure etc. (Getz and Robinson, 2003).

Organizations constantly seek methods to facilitate creative innovative behaviors of employees for the competitive edge and organizational survival. This has led to us to dig into empirical and theoretical literature to explore what hinders or enables creative performance in Human resource Management, psychology, sociology and organizational science (Hunter, Bedell and Mumford, 2007).

There are several other factors as antecedents of individual innovations. At organizational level, the factors included are work organization and organization's environment or climate. Climate and leadership are the factors which support creative performance of individuals (Shin and Zhou, 2003). In another study conducted the researchers explored innovative behavior through expected image outcomes and expected positive gains, employees are more inclined to behave innovatively. Expected image outcomes and expected positive performance gains are indeed directly positive related to innovative behavior (Cingoz and Akdogan, 2011). This also supports the efficiency oriented perspective, where employees behave innovatively to gain positive image in the organization and to achieve positive performance outcomes. This leads them to be efficient in their work role or units (Abrahamson, 1991).

Individual Innovative work behavior has been found to exhibit through intrinsic motivation. This is because when employees feel that their work or job is considered meaningful, valuable and rewarding; they are more likely to exercise creativity during their performance (Fuller et al., 2006).

Questions have always remained as to how leaders can support creative behaviors in employees (Reiter-Palmon and Illies, 2004). When the leaders maintain a supportive behavior to employees, they circulate the knowledge around the organizations, whereby giving the employees a chance to address problems at hand creatively and to increase their creativity performance in terms of originality and fluency (Carmeli et al., 2013).

In another research paper, ethical leadership had been a predictor of individual innovation through the mediating factor of intrinsic motivation at the individual level (Yidong and Xinxin, 2013). This research briefed us how individuals get motivated when their leaders support or back up their ideas, making them deliver their best of creative outcomes.

Creativity is a novel/complex process which requires the structuring of the required jobs processes tasks as a useful means to enhance creative or innovative behaviors (Binyamin and Carmeli, 2010). Job design characteristics are important antecedents of learning and employee innovation. Holman et al., (2012) concentrated on the relationship between job design characteristics and innovation. This relationship in their study was strengthened by the mediating factor of work based learning strategies.

These work based learning strategies cultivates new ideas circling in the organization. Furthermore they facilitate employee learning and innovation (Bond and Flaxman, 2006; Taris and Kompier 2005).

## **2.2 CLIMATE FOR INNOVATION AND EMPLOYEE INNOVATION**

The Organizational climate is considered very important as it directly affects the employees' behavior, satisfaction and performance, which is vital for the success of the organizations and their ability to continue (Francisco *et al.*, 2004). Solomon et al. (2004) also found organizational climate to be an essential factor that affects the individual's innovative behavior. This was later proved in another study where the impact of Organizational climate on the innovative work behavior was tested through open system model and rational goal model (Imran et al., 2010). The results were significantly high.

The climate for innovation refers to the working environment, which includes the formal organization, which includes the organizational communication and the pattern communication and which also includes the catering to the special needs of the employees (Zoubi, 2006). This working climate also includes a set of properties describing the organization,

differentiating it from other organizations, where stability of the workers is important so that it could affect their values, their attitudes and their behavior.

There are various antecedents of Climate For innovation. Pablo (2008) identified that team cohesion, supervisor encouragement, autonomy, Challenge and resources were an important part for the working environment for innovation, Supervisor encouragement, team cohesion, and resources appeared to have the highest ranks among the factors. Foote and Tang (2008) further contributed that self-managed teams are vital to employ creativity for the organizational success.

Organizational support theory states that with the contribution of innovation relevant resources provided by the organization and with the support of the supervisors and co-workers, employees feel obligated to reciprocate in an innovative behavior (Eisenberger et al., 2009). Some researchers say that the innovative climate is important in the implementation stage of the innovation process as the involvement of others heavily counts (Axtell et al., 2000).

Supervisor support and coworker support are critical influencers of innovative behavior which help develop psychological conditions of meaningfulness, safety and availability in the employees at work. (Arora and Kamalanabhan). This perceived support by one's supervisor and co-worker support stimulate positive emotions which make employees grow mentally, socially, psychology and physically. Another study showed that employees who reported being the happiest received higher supervisor evaluations and pay increases 18 months later (Staw, Sutton and Pelled, 1994).

Positive moods broadens our mind and behavior, whereby the creativity of ideas flourish (Fredrickson and Branigan, 2005). This is because employees feel more secure and safe, thinking of more divergent ways by going out of the box, without feeling threatened. This organizational support will boost the communication around the organization, maintaining the organizational values and norms and employees will elicit innovative behaviors to gain positive image around their bosses (Yuan and Woodman, 2010).

A study conducted by Khaja (2006) revealed that the impact of organizational climate on the empowering the employees in the Federal Government of UAE was positively high. Also, DiLiello and Houghton (2006) identified that individuals who receive organizational support in the form of self-leadership, were more capable of creativity and innovation in the German Industrial organizations.

Another study was conducted later on to investigate the factors influencing the innovative behavior in the Government departments of South Jordan (Awad, 2007). Staff training and development through knowledge exchange had been found to be co related with Innovation in Italian companies (Italian Food and beverages and fashion markets (Mate et al., 2010).

Perceptions of Employees regarding the work environment at Jordanian Private Universities were explored and their impact on the organizational creativity (Arabiyat, Balqaa and Al Saleem, 2011). This area of research was further carried out when a study was conducted to find out the impact of organizational climate on the innovative behavior at Jordanian private Universities which turned out to be significantly high (Al-Saudi, 2012). The creative behavior fueled due to the factors like the desire to solve problems, capacity of communication, and ability to change at the universities in Jordan. This highlighted the notion that the organizational climate is considered as one of the stimulating effects to generate new ideas.

Climate for Innovation is where the organization provides the support and encouragement to its employees to explore innovative ideas (Martins and Terblanche, 2003). The leadership factors like loyalty, affect and professional respect had been proved to predict an innovative climate in Estonian enterprises (Alas, Ubius and Vanhala, 2011). This was proposition developed by the authors was consistent with Scott and Bruce (1994) where individual innovation was thought to be influenced by co-workers and leaders. Supporting Leaders provide resources to achieve innovative thinking caps. This gives the employees the confidence to express and implement their innovative ideas. Leadership factor had the highest ranking among the other factors like team climate and organizational culture for innovation in Jordan Commercial banks (Nusair, 2013)

Climate for innovation also includes time and freedom empowered to the employees together with the resources provide to them (Yuan and Woodman, 2010). Innovative work behavior increases when worker believe that there new ideas will be encouraged and accepted,(Axtell et al., 2000) without any blaming of the mistakes, punished or criticized. Groenveld (2010) also revealed later that pro innovation climate is really important for individual innovation.

Proactive personality is a potential resource with its theoretical and practical significance. Proactive personality refers to the tendency for the people to take actions to influence the environment, thereby initiating a change, rather than waiting for something to happen on its own (Bateman and Crant, 1993). Proactive personality deters every form of burnout and

moderates the relationship between work family conflict and family work conflict. They are resourceful and better at networking and leveraging their social capital (Thompson 2005), whereas less proactive personalities are passive and reactive and tend too adaptively rather than exploring new opportunities to succeed.

### **2.3 INTER ROLE CONFLICT AND EMPLOYEE INNOVATION**

Researchers have measured work–family conflict in many ways. Traditionally, researchers have measured work–family conflict unidirectionally. Greenhaus and Beutell, (1985) defined the conflict when work interferes with family. Researchers then began to study inter role conflict in two way directions. Duxbury, Higgins and Mills, 1992; Frone et al., 1992; Gutek, Searle, and Klepa, 1991) this was because the researchers had to understand both directions of inter role conflict (Frone et al., 1992; Greenhaus and Beutell, 1985).

Research also suggested that there are three types of inter role conflict. When the two way direction inter role conflict occurs, hindering each other's performance, these three types of inter role conflict exist, (Gutek et al., 1991). Time based conflict is when time devoted to one role makes it difficult to participate in another role, Strain based conflict is when strain caused in carrying out one role intrudes and declines the performance in the other role / roles, and behavior-based conflict occurs when specific behaviors required in one role hinders the behavior expected in the other role (Greenhaus and Beutell, 1985).

One study examined the differential effects of inter role conflict on turnover intention, turnover, and absenteeism across Jewish, Muslims and Christians nurses at three Israeli hospitals (Cohen and Kirchmeyer, 2005) which revealed that the higher the inter role conflict between the work and home demands, the higher the stress and burnout leading to turnover intention and absenteeism.

Inter role conflict lead to many outcomes such as job dissatisfaction, psychological distress, turnover and life dissatisfaction (Frone, Russell, and Cooper, 1992). This is consistent with the findings of (Karatepe and Mehmet, 2006) who also reported that inter role conflict leads to increased emotional exhaustion and reduced job satisfaction, among the frontline bank employees.

Also, an individual with a high inter role conflict is likely to face all three dimensions of burn out (high emotional exhaustion, high

depersonalization with others and lower levels of feeling of accomplishment) as compared to the individuals with lower levels of inter role conflict (Jawahar et al., 2012).

In the same study, it was revealed that when both forms of conflict are high, the less proactive individuals report significantly higher level of emotion exhaustion relative to proactive individuals. Proactive individuals display lower levels of depersonalization of others and higher levels of personal accomplishment than less proactive individuals.

Male and female employees hold both work and non-work roles (Barnett and Hyde, 2001) and considerable evidence supports that having these multiple roles, is generally beneficial to health and well-being. To help these employees manage their multiple roles, organizations give the facilities such as flextime, telecommuting, and on-site day-cares. They also provide gyms, which allow employees' non-work lives to enter the workplace. Alternative work arrangements, for instance, telework, and technological advances, such as the internet, allow work to enter the home domain which could create greater conflict between work and family (Chesley, 2005). These care facilities make many employees to enjoy their work at office (Sandeep Krishnan, 2011) as work and life are mutually dependent upon each other and play an important part in life.

In another research study conducted, workaholism had been associated with job stress and inter role conflict (Taris and Verhoeven, 2005), as working excessively depletes the time and energy for non-work activities and create depletion of mental resources including burnout and exhaustion.

Stress can be defined as an unpleasant and emotional psychological state emerging from the adverse work demands, these work demands become out of control (Judge and Colquitt, 2004) and employees become emotionally involved with their work, thereby bringing unfinished tasks home and thinking about them, about how to complete the remaining task the next day (Janssen, 2003). This emotional attached with the work can result in a high level of work family conflict (Parasurman and Simmers, 2001).

Having a good leader member exchange relationship lessens the occupational stress. Employees who are involved in high-quality LMX relationships experience lower levels of inter role conflict than low-quality LMX members as these members receive adequate information, communication, and assistance from their supervisors to prioritize their roles (Lawrence and Michele, 2012). This positive relationship with the leaders also positively affects the job involvement.

This research is aligned with the previous study where Leader Member exchange had been negatively related to role conflict and positively related to job involvement (Harris and Kacmar, 2006).

Both men and women are sandwiched between early child care and household responsibilities, hence leading them to experience work to family conflict (Barrah et al., 2004). A growing body of research suggests that women experience more stress and burnout during the life stage of child care and then elder care or household responsibilities (Dilworth, 2004).

An increase in the flexible work arrangements by women and men in the last two decades had taken place (Bond, Galinsky, Kim and Brownfield, 2005). Workplace flexibility is considered important for both men and women in all life stages to meet personal and workplace needs (Hill, Jackson and Martinengo, 2006).

Workers with more flexibility arrangements reported less inter role conflict in a study of large sample of employed and self-employed workers (Bond and Flaxman, 2006) fewer mental health problems and even death. Work family programs or flexibility arrangements including flexitime, compressed work weeks, telecommuting, part time employment, job sharing were initiated for women with small children so children, so that they could be retained in the workforce, reducing their work family conflict, stress and burnout so that they could carry out their jobs effectively and could stay with their employer after childbirth (Jacob, Bond, Galinsky and Hill, 2008). It is to be noted that these flexibility programs are utilized by both men and women at their different life stages which reduces the inter role conflict, stress and burnout as well to meet the employees needs and workplace flexibility (Hill, et al., 2008).

Work and family are the two central domains forming the back bone of an individual's life. Historically, these two domains have co-existed discreetly, but with the passing of decades have faded with changing societal demographics. Researchers have found that carrying out these dual roles often leads to work family conflict for both men and women. Employees cannot engage in innovative behavior if they bear inter role conflict. They would bear workload with work exhaustion and will be less committed to work. To Eliminate the inter role conflict, it is important that employees receive positive climate for innovation, role resilience and marriage and spousal support (Barnette and Marshall, 1991) leading to greater commitment with work and lower intention to leave.

Also, Job autonomy, Job involvement, Organisational climate also reduces the inter role conflict (Aiswarya and Ramasundaram, 2012) among the women employees in IT and ITES firms located in Chennai city.

Role salient is a role which is central to an individual with its commitment and personal involvement, providing individuals with its meaning, purpose and self-worth. Individuals have many roles with various identities attached to them (Noor, 2004) but it is not necessary that every role would be central. The more the role is salient or central, the more time, energy and emotions are devoted to the role (Stryker and Serpe, 1994). Every role helps to define and shape the other role.

This is supported in another study where role salient reduces the inter role conflict and increases the satisfaction of dual earner couples with their work and family (Bhowon, 2013).

Work role resilience also increases the work satisfaction, whereas, work-family conflict is positively correlated to family-work conflict and negatively to work satisfaction. This is again consistent with another study, where the higher the degree of role resiliency, the more reduced the impact of intra role conflict on job stress among the salespeople, leading to positive attitudes and increasing performance in terms of productivity and employee innovation (Krush et al., 2013).

Prior decades have witnessed a small body of research pointed to role conflict and stress and psychological strain but studies of this caliber are still few (Achour and Boerhannaeddin, 2011; Kebelo, 2012).

Occupational or role stressors refer to the patterns of reactions to the work demands by the employees thereby creating an imbalance between demands and personal / environmental resources. This occupational stress leads to psychological strain including lack of concentration, loss of sense of worth and depression which leads the intention to leave (Idris, 2011).

Regarding literature of academics, there is clear evidence that academicians do experience role overload and inter role conflict and role ambiguity (Taris et al., 2001). A great number of scholars had the tendency to quit working in Higher educational institutions due to inter role conflict (Kinman, 2001) or they regret selecting academics as their career. In another study, job insecurity, lack of control and communication issue was the predictors of the occupational stress among UK university staff (Ricketts et al., 2005).

Also, Sun, Wu and Wang (2011) revealed that role overload is a predictor of occupational stress among Chinese university teachers. This had been consistent with Kebelo (2012) who stated that 24.6% of total strain stem from role overload, role ambiguity and role conflict. In another research, the stress predictors including role conflict, role overload and role ambiguity were all related to psychological strain among university lecturers in the University of Dammam, Saudi Arabia (Jdaitawi et al., 2014). This is consistent with the previous study of Idris (2011) who contented that role stressors are related to psychological strain.

In another study, teacher assistants faced role ambiguity and role conflict leading to job dissatisfaction and intention to leave. Results found out that role ambiguity and role conflict negatively affected satisfaction and positively affected the intention to leave. Teacher assistants are assigned to the research scholars for assisting them in their research and teaching related activities and if they face problems including heavy workload put by their seniors, which would affect their commitment towards their research work. Eventually role conflict account for 70% variation in the intention of the employees to leave the organization (Fatima and Rehman, 2012). To motivate them and retain them, these assistants may be either paid or work on gratis, and universities could provide training programs to the teaching assistants, which attracts the TA ships (Carol, 1980).

Workplace ostracism is a hindrance stressor to innovative behavior. Workplace ostracism is a stressor where an individual feels he is being ignored in the organization (Ferris, Brown, Berry and Lian, 2008). Social support has to be there. Research has depicted that ostracism affects self-esteem, control, feelings of belonging, and senses of meaningful existence (Zadro, Williams and Richardson, 2005). It results in the dark side variables like affect humans and their work contributions (O'Reilly and Robinson, 2009) or result in Negative outcomes including anger (Chow, Tiedens and Govan, 2008), negative mood (Gonsalkorale and Williams, 2007) and levels of anxiety and depression (Ferris et al., 2008).

Research has shown that negative work experiences often spill over the family domain (Greenhaus and Beutell, 1985) creating an inter role conflict. When employees behave ironically at the workplace, they transfer the same behavior at home leading to behavior based WFC. Family role expectations require the display of care, warmth and a radiant behavior towards the family. This is again consistent with another study where workplace ostracism results in increasing work to family conflict and declining family satisfaction (Liu et al., 2013).

This is because stressor like workplace ostracism intrudes the pleasant atmosphere of the family domain (Shockley and Singla, 2011). Work-home segmentation preferences moderate the mediating effect of work-to family conflict in the workplace ostracism. This is because no matter how much the workplace ostracism is, creating a boundary between work and family domain, employees with high work home segmentation will not let the work stress spill over to family, thus mediating the role of WFC in the relation between the work place ostracism and family satisfaction. Workplace ostracism is a depressor, which reduces employees' productivity (Parasuraman and Simmers, 2001) and family satisfaction (Aryee et al., 1999).

Another study concentrated on the curvilinear effects of role stress, a type of hindrance stress, on the innovative performance of employees in Taiwan and mainland China, a novel but important outcome variable for the role stress literature (Leung et al., 2011). Also their study hypothesis was based on whether Perceived support for innovation will moderate the relationship between role stress and innovative performance or not. The results illustrated that the U-shaped relationship between role stress and innovative performance will exist only when perceived support for innovation is low.

Flexible work arrangements lead to many advantages. Flextime and compressed workweek create work to family enrichment. These flexibility arrangements also create job satisfaction and lower turnover intentions (McNall et al., 2010). Consequently, individuals experience more positive emotions at work leading to positive spillover at home (Greenhaus and Powell, 2006; Hanson, Hammer and Colton, 2006).

Flextime is more effective in preventing a clash between family and office domains (Shockley and Allen, 2007). Flextime schedules is when the employees can select work hours with a certain convenience and compressed workweek schedules is when employees often work more hours per day but allocate fewer days per week (Lambert et al., 2008).

Research on the antecedents and consequences of work family enrichment remains scarce (Beham, 2008). Work family enrichment occurs when resource gains in one role (e.g., work) promote improved performance in another role or family domain (Greenhaus and Powell, 2006). A variety of resources could drive work family enrichment process including interpersonal skills, coping skills, respect for individual differences, social-capital resources (e.g., networking, information), flexibility (e.g., flexible work arrangement) and material resources (e.g., money, gifts).

When resources are available to the employees, his participation in one role (Flexibility) directly improve his or her parenting role, producing positive affects (e.g., enthusiasm, alertness, high energy), which, in turn, benefits the employee's interactions with his or her family.

## **2.4 WORK-LIFE IMBALANCE AND EMPLOYEE INNOVATION**

Previously, the Research has investigated a surge of definitions for work family imbalance. When an individual fully focuses on the work domain or is a workaholic, he fails to consider the other aspects of life including family life, family duties and obligations and other household responsibilities and his personal interests.

This work and life imbalance was first introduced by Lewin (1951) who proposed that work and “non-work” are distinct domains that is separated by a boundary. Kanter (1977) also stated that work life imbalance is a “myth of two separate worlds.

Work life imbalance occurs when the employees are captivated by work and this excessive work hinders one or more life functions (Porter, 2001). The employees constructively use their time on the job and off the job and dedicate themselves to work productively, which make their family life suffer increasingly (Bonebright et al., 2000). This is consistent with Fisher (2001) who also reported that after a full day of work there remains a loss of time and to pursue non-work activities.

Highly Educated individuals have increased responsibilities, heavier workloads, and high work drive with compulsive behavior (Flowers and Robinson, 2002), thereby leading to work life imbalances (Aziz and Zickar, 2006; Aziz et al., 2013). Hence, Researchers are more qualifying on workaholism and work Addictions (Griffiths, 2005) leading to a work and life imbalance. Employees with work involvement, drive to work and work enjoyment are positively engaged workers, who are indeed intrinsically motivated to work long hours because of an inability to disengage. This trend of working longer hours hinders the work life balance (Danna and Griffin, 1999).

Employees with a passion and dedication to work and high work drive, seek great love and fun at work, so they will keep on working and would eliminate the division between work and life to attain the sweet success and satisfaction from work (Premuzic, 2013). Satisfaction and happiness derived from work no longer remains a job, but becomes a career with a higher sense of purpose and a career with dedication and hard work pays for what you love.

Research illustrates that there is a positive relation between work involvement and work enjoyment (Mudrack and Naughton, 2001).

Literature illustrates that when employees have depleted resources available to them to fulfill family roles, they experience decreasing boundary strength at home, and when employees have fewer resources to fulfill their work roles, they experience decreasing boundary strength at work, psychologically and/or behaviorally (Hecht and Allen, 2009).

Research predicted that Work life balance occurred when school teachers experienced long working hours with disproportionate number of working days (Madipelli, Sarma and Chinnappaiah, 2013), whereby they could not spend as much time at home, due to work demands.

There is a clear relationship between work intensification, job induced stress and work life imbalances (Macky and Boxall, 2009) suggesting that work intensification typically creates greater levels of stress and work-life imbalance among union members.

The growing number of dual-earner couples with busy and hectic lifestyle and the recent developments in technology has gradually blurred the boundaries between work and home (Jones, Burke and Westman, 2006; Ng, Sorensen and Feldman, 2007). People may work long hours for many reasons such as economic problems, poor marriage, organizational culture, pressure by their superior, or a strong desire for career development (Schaufeli, Shimazu and Taris, 2009).

Enthusiastic and well engaged have three properties of workaholism. These properties include work involvement, drive (a feeling of being compelled to work), and work enjoyment. These are the Properties found in the researcher as well. When an individual does more work than is expected, strictly for the fun of it, then it is treated as an enjoyment of work (Tabssum and Rahman, 2012). Research depicts that workaholism is positively related to work life imbalances.

Researchers are well engrossed in their research work and are workaholics or enthusiastic people with an opportunity cost to their success. There are evidences that workaholic people suffer in diminished sleep quality (Kubota, Shimazu, Kawakami, Takahashi, Nakata and Schaufeli, 2010) increased marital problems (Robinson, Flowers and Carroll, 2001), lower family satisfaction (Burke, 1999b), lower relationship satisfaction (Bakker et al., 2009). They become eventually burned out as they spend all the energy at work, which they cannot counterbalance properly in other spheres of their lives (Schaufeli, Bakker, van der Heijden and Prins, 2009).

## 2.5 STUDY HYPOTHESES

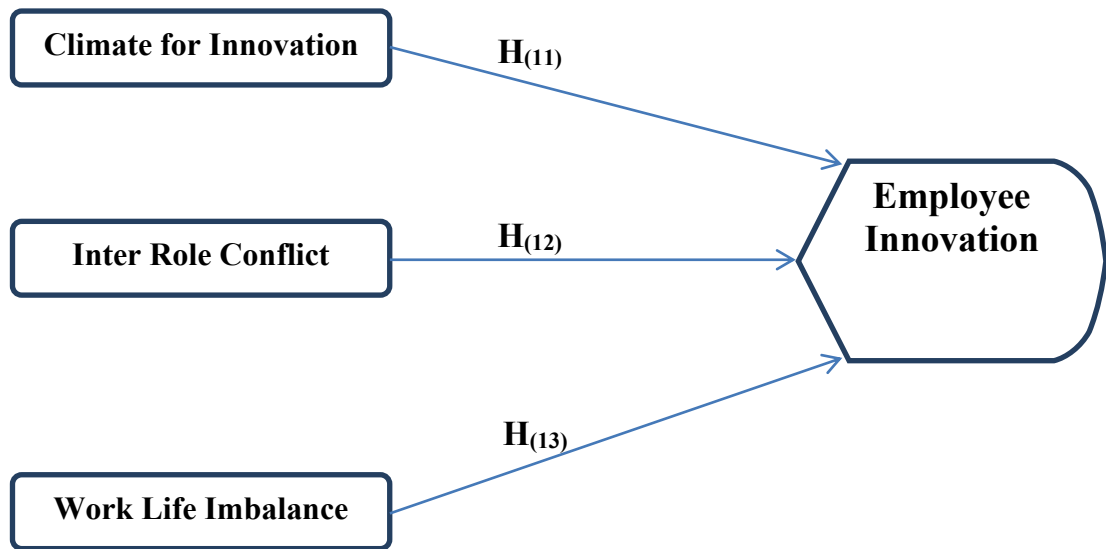
Therefore, based on the aforementioned study background, the objectives, prior theoretical and empirical research rationales; this research proposes the following list of hypotheses

The hypotheses needed to be tested are

- H<sub>(01)</sub>**: All else being equal, organizations with lower Climate for Innovation has lower employee innovation
- H<sub>(11)</sub>**: All else being equal organizations with higher Climate for Innovation has higher employee innovation
- H<sub>(02)</sub>**: All else being equal, organizations having higher inter role-conflict has lower employee innovation
- H<sub>(12)</sub>**: All else being equal, organizations having lower inter role-conflict has higher employee innovation
- H<sub>(03)</sub>**: All else being equal, organizations having work-life balances have lower employee innovation
- H<sub>(13)</sub>**: All else being equal, organizations having work-life imbalances have higher employee innovation

## 2.6 THEORETICAL FRAMEWORK

The theoretical framework (Figure 1) is the foundation on which the study is conducted. This shows the analytical framework for the hypothesized relationships of the three independent variables with one dependent variable. The three independent variables are climate for innovation, inter role conflict and work life balance and the dependent variable is employee innovation. The Figure below elaborates the set of variables and their relationships.



**Figure 1: Theoretical Framework**

# **CHAPTER 3**

## **METHODOLOGY**

### **3.1 RESEARCH DESIGN ELEMENTS**

The research design will look at the issues regarding the purpose of the study, study setting, the type of the investigation, the extent of interference in gathering data, the unit of analysis and the time horizon of the study. These six elements are a part of the research design for the current study.

After developing theoretical framework and framing the hypothesis, we now seek to design the research in such a way that would help us gather data in a more systematic way to arrive at a solution to answer the research problem. A Research design is used to structure and to address the central research questions. To gather primary data on variables defined and research problem, we would follow six basic aspects that are explained as under.

The purpose of the study is descriptive in nature where we describe the characteristics of a bundle of management practices affecting innovative behaviour in knowledge organizations. This would be the hypothesis testing stage where we would examine whether the relationships have been substantiated and answers to the research questions have been obtained to further the research.

This is a cross sectional study. We collected the data over the time horizon of three days of the 12<sup>th</sup> International Conference on Statistical Sciences that was held at Dow University of Health Sciences in collaboration with ISOSS, in Karachi, Pakistan. Then interviews of the scholars were conducted in all the conference sessions held throughout the conference tenure. Cross sectional studies are reliable and are cost effective and are the simplest of the forms (Neuman, 2000).

The population for the study is the M.Phil./Ph.D. scholars from all over Pakistan. Since the frame (list) of scholars is not available, all scholars attending the conference at Karachi have been considered as the population.

During the three days survey, the M.Phil. and Ph.D. Scholars answered questions and responded with minimal interference. The Scholars either gave the responses during the on-going sessions or at the end of each session and

some of the Scholars responded by mailing the questionnaires during the conference and/or after the conference as per their promise.

Some basic, descriptive and inferential statistical techniques have been used to analyze the data and test the hypotheses.

The type of the investigation in study is the correlation analysis where we identify whether variables are associated with the innovative behaviour of the employees in knowledge organizations or not and to find out how M.Phil. and Ph.D. faculty members from various cities of Pakistan display their innovative behaviour.

## **3.2 STUDY VARIABLES**

In order to proceed with research, it is necessary to identify the network of variables and to understand what are the variables in study of interest and how we measure variables in the theoretical framework. If variables are not measured in, we won't be able to test hypothesis or unable to find answers to complex research issues. So we must operationally define all variables with its dimensions or elements so that we could observe the variable, measure it so as to develop indices of measurements.

This section describes the study variables i.e. dependent, independent and control variables.

### **3.2.1 Dependent Variables**

In the study, the dependent variable or criterion variable is the employee innovation. Here, the term employee innovation is described as the concept from its level of abstraction in easier terms as the creativity of the employees where there is a generation and development of novel and useful ideas. Employee innovation is the creative behaviour, which is defined as behaviour consisting of activities that generate ideas that are novel and useful (Amabile, 1988; Oldham and Cummings, 1996). The aim is to highlight what are the antecedents to the employee's innovation.

### **3.2.2 Independent Variables**

The first hypothetical independent variable is climate for innovation which is measured as the degree of support and encouragement an

organization provides to its employees to take initiative and explore innovative approaches, which predicts the actual innovation in the organization (Sarros et al., 2008).

The second independent variable is the inter-role-conflict which is observed as a situation where the role pressures of the two different domains are not compatible to each other (Greenhaus and Beutell, 1985). Inter role-conflict has two important types. Work Family Conflict (WFC) is a stress that many individuals experience. Work family conflict states that involvement in the work disturbs the involvement in the family whereas the family work conflict (FWC) states that involvement in the family hinders the progress in the work of the organisation (Greenhaus et al., 1985). Also, the role theory suggests that the inter role conflicts arise when pressures of one role hinders the progress of other roles or multiple roles because of constrained resources of time and energy (Jawahar et al., 2012). Various researches show that inter role conflict influences many different types of outcomes such as emotional distress, job satisfaction, organizational commitment, including life satisfaction (Frone et al., 1992), Thus inter role conflict has become a much investigated topic in organizational behaviour research.

The third independent variable is Work Life Imbalance. Work Life Imbalance is the inability to balance the family life/activities with the work life/activities (Netemeyer, et al., 1996). Work life imbalance is an occupational stressor where there is a loss of resources in time and energy, feelings of commitment or emotions towards work and family life (Fisher, 2001).

### **3.2.3 Control Variables**

Several control variables were taken into account for our collection of data. These variables are important as they put impact on the dependent variable (Guidice and Mero, 2012). First, we consider the personal background characteristics of gender, age and sector. Gender was measured using (1 = male, 2 = female). Age was measured on interval scale (1 = “Less than or equal to 29” to 5 = “Above 59”). We distinguished between Private sector and Public sector using (1=public, 2 =Private). We also included the name of the institution and the teaching experience measured as well. Marital status was also measured as (1=single, 2=Married). We also measured Qualification using (1=M.Phil., 2=Ph.D.) and lastly, ordinal scale was used for Designation and was measured by coding (1= Lecturer, 2= Assistant Professor, 3= Associate Professor, 4= Full Professor).

### **3.3 METHOD**

#### **3.3.1 Data Collection**

The primary data was collected through the self-administered questionnaire distributed during the conference sessions to all the M.Phil. or Ph.D. scholars. The scholars could fill in the questionnaire at their discretion and return it to the research coordinators. The respondents then returned both their questionnaires to the research coordinators. Also, some of the scholars mailed the questionnaire and they eventually returned it within a week as per their promise. Out of the total population, 59 respondents returned the questionnaires.

#### **3.3.2 Target Population**

Target population was all the participants in the conference held in Karachi. We targeted the conference, because different participants appear from various cities of Pakistan, representing their universities and creative performances by presenting their research work during the conference sessions. These participants also represent different cultures and their differences in culture also create distinguishing creativity in the employees.

#### **3.3.3 Actual Sample**

Therefore, all the M.Phil. and Ph.D. scholars from all over Pakistan comprise the population for the study. The researcher considered the scholars attending the conference as a purposive sample from Pakistan and administered 80 questionnaires to the sampled scholars during the conference sessions, skimming all the M.Phil. and Ph.D. scholars and excluding all the other participants present at the Karachi conference. The total complete and useable questionnaires returned back were 59, i.e. the response rate was quite high.

#### **3.3.4 The Instrument**

The primary data is collected through self-administered questionnaire from all the M.Phil. and Ph.D. scholars during all the conference sessions which were the actual site of occurrences of events for collection of data on variables of interest.

The main advantage of the self-administered Questionnaire was that we were able to organize the distribution of the questionnaire in every conference session very easily. Every conference room was under a research co coordinator who distributed the questionnaire and also collected all the completed responses within a short period of time.

### **3.3.5 The Development of the Instrument**

A personally administered survey questionnaire presents a little problem with almost 100% response (Neuman, 2000; Sekaran and Bougie, 2013). The survey questionnaire is divided into five sections. First section accounts for the control and demographic variables which had already been discussed above in the control variables section. The second section consists of the questions or items related to dependent variable i.e. 'employee innovation'. There are 11 items for employee innovation. Nine of these questions are based on point Likert scale, with answers ranging from 0 to 7. This likert scale was also coded with (1=0 to 8=7). One question was based on the dichotomous scale with a Yes or a No. This scale was also coded as (1=Yes, 2=No). Another question also consisted a dichotomous scale with (1= M.Phil., 2 =Ph.D.). Last question was an open ended question pertaining to the different techniques or methods used by the scholars to deliver their lectures innovatively.

The third section of the questionnaire consists of questions or items relating to work life imbalance. All the five questions in this section are based on five point Likert scale, ranging from (1= 1-6 hours; to 5= above 9 hours).

The fourth section consists of questions relating to Climate for innovation. Eight questions are based on a five point likert scale with 1 as the lowest and 5 the highest in strength. The last question is an open ended question which pertains to the resources accessible to the scholars at their university.

The last section of the questionnaire relates to the questions or items for the inter role conflict. There are eight items for this variable of interest, measures again on the five point Likert scale ranging from (1=strongly Disagree to 5 = Strongly Agree).

### **3.3.6 Pilot Study**

After making the aforementioned changes in the questionnaire, a pilot survey was conducted in NCBA&E to further examine the comprehension of

each data item in the instrument from the present M.Phil. and Ph.D. scholars and the faculty members of the National College of Business and Economics, Lahore. From the feedback it was recognized that there was no ambiguity in understanding the terminologies or items. Therefore, no more changes or customization was needed in the questionnaire development which meant that instrument was ready for administration and collection of data on relevant variable of interest.

### **3.3.7 Administration Procedure**

For the data collection, the researcher first approached the Director of Research of Dow University of Health Sciences, visited the main campus where all the conference sessions were to be held. The researcher explained the objectives and aims of the survey research and asked for Director Research's approval to commence the distribution of the questionnaire after the inauguration of the conference ceremony. After the inauguration ceremony at the conference, for the next three days, the conference started from 9.30 am till 5 pm which covered all the conference sessions. The Director Research assigned a research coordinator in every conference room and during every conference session, who distributed the questionnaires and collected the useable questionnaires after a short period of time (which was either during the conference session or at the end of the session). During all the conference sessions, this procedure was followed, which proved helpful and systemic in collecting a high response rate.

### **3.3.8 Content Validity**

A content validity was also done for the development of questionnaire, which made sure that the scale items represented the domain or the universe of the concept being measured. A panel of experts attested the content validity of the instrument at NCBA&E and made sure that the scale items measure adequately the concept which intended to be measured.

### **3.3.9 Measurement and Scales Employee Innovation (EI)**

We operationally defined employee innovation as the creative performance in terms of original and novel ideas. Furthermore, we wanted to research over the innovative behaviour of the M.Phil. or Ph.D. scholars in their respective universities, so we constructed the items as per requirement. Sample items include 'How many research papers have you published so far?', 'How

many conferences have you attended so far?’ The Cronbach Alpha of 0.839 showed the reliability of these items which was successful in capturing the consistence in the degree of innovative behaviour of the scholars.

### **3.3.10 Work Life Imbalances (WLB)**

We also created the items for work life imbalances to measure the imbalance created in the scholars’ lives due to their work load and creative behaviour which drive these individuals away from their homes and family duties and obligations. Sample items include ‘on average, how many hours/day do you dedicate to research?’ The Cronbach Alpha appeared to be 0.550.

### **3.3.11 Climate for Innovation (CI)**

Items for climate for innovation were also developed to measure the degree of innovative or creativity which these scholars display due to the favourable changes in the Climate for innovation. Sample items include ‘Does your institution allow flexible working hours?’ The internal consistency of these items was measured through Cronbach Alpha (0.703).

### **3.3.12 Inter Role Conflict (IRC)**

We selected the inter role conflict scale from past research study (Carlson, Kacmar and Williams, 2000), which combined work–family conflict (WFC) and family–work Conflict (FWC) scales into one measure which also included the three types of inter role conflict(time based conflict, strain based conflict and behaviour based conflict) meaning that this scale represents the six dimensions of inter role conflict which is also versatile and comprehensive which was first developed and validated in their prior study. One of the items included ‘My work keeps me from my family activities more than I would like.’ All the questions for the inter role conflict construct use a five point Likert scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5).

The advantage of this scale is that additional validation of the scale across organizations and occupations is needed to further establish the scale and provide generalizability. That is why we use this scale to see the complex nature of the conflict and to measure the inter role conflict, among the scholars, as being a researcher does lead to inter role conflict. This is because carrying out research work and being innovative requires a lot of hard work and time which automatically means giving up one’s family life.

### **3.3.13 Data Analysis Methods**

First we check the internal consistency of data before it is analyzed. In the theory of reliability, it is not easy to compute internal consistency exactly. Instead, we estimate it. One of the methods is the Cronbach's alpha ( $\alpha$ ) measure for detecting internal consistency. In addition to Cronbach Alpha, we have used Average Inter-item Correlation for internal consistency. For the average inter-item correlation, we first compute the correlation between each pair of items. The average inter-item correlation is the average of all the correlations. In split-half reliability measure we randomly divide all items into two sets, calculate the total score for each randomly divided half and find the correlation between these two total scores. Cronbach's Alpha ( $\alpha$ ) is computed on the basis of randomly split-half samples from the data set. Since it is easily computed using a software, we use only Cronbach's Alpha ( $\alpha$ ) in this study. Thus the internal consistency is measured through Cronbach's alpha which in this study ranges from .5 to .75.

The data is then analyzed in terms of respondent's demographics, descriptive statistics, and simple, multiple regression models including single-sample t-test, paired-sample t-test, multiple comparison test (using Least Significant Difference) and independent-sample t-test.

## **CHAPTER 4**

### **DATA ANALYSIS**

In this section, the data is analysed in terms of respondent's demographics, descriptive statistics, simple, multiple regression models including single-sample t-test, paired-sample t-test, and multiple comparison test and independent-sample t-test.

The respondents are all professionals with at least Master of Philosophy degrees, who attended the International Conference on Statistical Sciences held in Karachi in March 2014. All professionals were expected to attend the conference and we considered these professionals as our target population. A sample of 80 M.Phil./Ph.D. professionals was considered as purposive sample, who were present and out of these, 59 respondents returned the questionnaires.

#### **4.1 RESPONDENT'S CHARACTERISTICS**

Some salient features of demographic characteristics of the respondents are in place in this section. Of these 59 persons, 61% are males and 39% are females; 36% are single and 64% are married. 66% of the scholars belong to the public sector universities and 34% belong to the private sector. Since these persons come from all over Pakistan, 32 are from Sindh, 19 from Punjab and 9 are from Khyber Pakhtunkhwa and none from Baluchistan. Of 59 respondents, 61% have M.Phil. degrees and 39% are holding Ph.D. degrees. Moreover, 25% of males hold Ph.D. degrees and 36% males have M.Phil. whereas only 04% of females are having Ph.D. degrees and 25% of females have M.Phil. degrees.

The average age of respondents is about 36 years whereas the average age of males is about 39 years and of female is 35 years.

Among all respondents, about 47.5% are Lecturers, 52.5% are of professorial ranks and among the professorial ranks, about 35.6% belong to Assistant Professorship, 3.4 % are Associate Professors and 13.6% are full Professors. The average experience by designation is that for all designations, the average experience is 11.2 years whereas for Lecturers the experience is 3.3 years, for Assistant Professors is 8.9 years where as for Associate and Full Professors are respectively 27.5 years and 34.8 years. It is noted that juniors professionals attend the conferences for experiences and learning processes. This tendency needs to be encouraged.

## 4.2 RELIABILITY STATISTICS OF THE STUDY VARIABLES

**Reliability Coefficients**

S#	Variable	Items	Alpha	Level of Reliability
1	Employee Innovation	11	0.839	Very Good
2	Climate for Innovation	9	0.703	Good
3	Inter Role Conflict	8	0.657	Good
4	Work Life Imbalance	5	0.550	Adequate

This Section reveals the Reliability Coefficients of the study variables. The reliability value of Cronbach Alpha,  $\alpha$  of the items for employee innovation is 0.839 which is a very good measure of consistency among employee innovation in the universities. The Cronbach Alpha,  $\alpha$  for the items in Climate for Innovation turned out to be 0.703 which is a good measure as well This Cronbach Alpha shows that faculty members are indeed innovate due to the climate in their university premises. The reliability coefficient of the inter role conflict is 0.657, which is also a good measure for showing consistency and closeness in the responses and the decisions based on the reliability coefficients are reliable and efficient. Lastly, the reliability coefficient of the items for the work life Imbalance is 0.550 which is adequate. Table on Reliability Coefficients shows the details.

## 4.3 INNOVATIVE BEHAVIOUR ANALYSIS OF RESPONDENTS BY SECTOR

The Table below shows Faculty Innovation by public and private sector institution. Faculty members of the public sector teach more courses than the private sector faculty members and difference between them is significant. For other faculty innovation characteristics, like teaching experience, research publications, conference attendances etc., both sectors do not differ much. The difference is insignificant at 5% significant level. No difference between public and private sector faculty members in terms of innovation behaviour (Table 4.1).

**Table 4.1**  
**Employee Innovation by Public and Private Sector**

S#		Public Mean	SD	Private Mean	SD	Wilk's Lamda	F	Significant
1	How many years have you been teaching for?	6.27	2.325	6.00	2	0.996	0.147	0.703
2	How many research papers have you published so far?	5.42	2.996	4.75	2.569	0.986	0.555	0.461
3	How many different courses have you taught so far?	7.23	1.275	5.94	1.914	0.852	6.935	0.012
4	How many conference(s), have you attended so far?	5.88	2.286	5.81	2.639	1	0.009	0.926
5	How many seminar(s) have you attended so far?	5.23	2.597	6.75	2.017	0.909	3.982	0.053
6	How many workshop(s) have you attended so far?	5.04	2.569	5.75	2.38	0.98	0.802	0.376
7	How many academic meeting(s) have you attended so far?	6.42	2.452	6.94	1.879	0.987	0.516	0.477
8	Have you participated or are you participating in joint research projects?	2.92	2.115	3.31	2.676	0.993	0.274	0.604
9	Do you consider yourself innovative?	6	1.442	6.19	1.424	0.996	0.169	0.683
10	How many research students are you supervising at the moment?	1.77	2.065	2	2.828	0.998	0.093	0.762

#### **4.4 EMPLOYEE INNOVATION ANALYSIS BY RESPONDENTS DESIGNATION**

In case of designation, innovative behaviour characteristics are statistically significant, except in the number of courses taught is not significant. All categories of teachers teach same number of courses though it was mentioned that public sector teachers teach more courses than the private sector teachers. In almost all innovative behavior characteristics (Table 4.2)

**Table 4.2**  
**Employee Innovation by Designation of Scholars**

Lecturer		Assistant Professor		Associate Professor		Full Professor		Wilk's Lamda	F	Significant
Mean	SD	Mean	SD	Mean	SD <sup>1</sup>	Mean	SD <sup>2</sup>			
4.84	2.267	6.87	1.598	8	0	8	0	0.655	6.673	0.001
3.68	2.849	5.53	2.295	8	0	8	0	0.671	6.222	0.002
6.11	1.792	7.2	1.146	8	0	7.17	2.041	0.865	1.971	0.135
4.58	2.411	6.33	2.059	8	0	8	0	0.697	5.499	0.003
4.16	2.387	6.73	1.831	8	0	8	0	0.592	8.731	0.000
3.47	1.954	6.47	1.885	8	0	7.33	1.633	0.517	11.837	0.000
5.37	2.753	7.6	0.91	8	0	7.67	0.816	0.735	4.565	0.008
1.68	1.003	3.07	2.017	8	0	5.83	1.722	0.407	18.451	0.000
5.68	1.455	6.13	1.407	7	1.414	6.83	1.169	0.902	1.376	0.265
0.63	1.64	3.33	2.664	1	1.414	2.33	1.633	0.718	4.975	0.005

Note 1. There are only two respondents with the same answers in the cell as such SD gives zero value

Note 2. Zero values are due to identical values in the cell.

#### **4.5 EMPLOYEE INNOVATION ANALYSIS BY DEGREE HOLDERS**

Same is true in case of designation *i.e.* degree holders. The innovative behaviour of faculty members at all levels is highly significant. Both Ph.D. and M.Phil. degree holders significantly attend to all innovation characteristics (Table 4.3).

**Table 4.3**  
**Employee Innovation by M.Phil. vs Ph.D. Holders**

		M.Phil. holders		Ph.D. holders		Wilk's Lamda	F	Significant
		Mean	SD	Mean	SD			
1	Designation	1.42	0.776	2.5	1.043	0.728	14.9**	0.000
2	How many years have you been teaching for?	5.29	2.312	7.33	1.328	0.781	11.2**	0.002
3	How many research papers have you published so far?	3.96	2.866	6.78	1.833	0.751	13.2**	0.001
4	How many different courses have you taught so far?	6.29	1.756	7.33	1.328	0.9	4.4*	0.042
5	How many conference(s), have you attended so far?	5	2.537	7	1.645	0.825	8.4**	0.006
6	How many seminar(s) have you attended so far?	4.96	2.645	6.94	1.731	0.839	7.6**	0.009
7	How many workshop(s) have you attended so far?	4.54	2.502	6.33	2.142	0.871	5.9*	0.019
8	How many academic meeting(s) have you attended so far?	5.88	2.643	7.61	0.916	0.849	7.1*	0.011
9	Have you participated or are you participating in joint research projects?	2.33	2.036	4.06	2.363	0.862	6.4*	0.015
10	Do you consider yourself innovative?	5.88	1.424	6.33	1.414	0.974	1.1	0.307
11	How many research students are you supervising at the moment?	0.96	2.196	3.06	2.043	0.801	9.9**	0.003

#### 4.6 INNOVATION ANALYSIS BY RESPONDENTS MARITAL STATUS

Similar behaviour is present amongst the married and unmarried teachers. The Table 25 below shows that all innovation characteristics for married and unmarried scholars are highly significant (Table 4.4).

**Table 4.4**  
**Employee Innovation by Marital Status of Scholars**

		Single		Married		Wilk's Lamda	F	Significant
		Mean	SD	Mean	SD			
1	How many years have you been teaching for?	4.07	2.018	7.21	1.371	0.529	35.58	0.000
2	How many research papers have you published so far?	2.86	2.214	6.32	2.374	0.658	20.76	0.000
3	How many different courses have you taught so far?	5.93	1.817	7.14	1.433	0.877	5.597	0.023
4	How many conference(s), have you attended so far?	3.64	2.17	6.96	1.621	0.562	31.159	0.000
5	How many seminar(s) have you attended so far?	3.79	2.155	6.82	1.982	0.659	20.668	0.000
6	How many workshop(s) have you attended so far?	3.64	2.341	6.14	2.155	0.771	11.866	0.001
7	How many academic meeting(s) have you attended so far?	4.86	2.852	7.5	1.139	0.683	18.531	0.000
8	Have you participated or are you participating in joint research projects?	1.79	1.188	3.71	2.492	0.843	7.463	0.009
9	Do you consider yourself innovative?	5	1.468	6.61	1.066	0.709	16.433	0.000
10	How many research students are you supervising at the moment?	0.64	1.646	2.46	2.442	0.864	6.313	0.016

#### 4.7 RESULTS OF THE HYPOTHESES TESTING: THE REGRESSION ANALYSIS

Hierarchical linear regression analysis was carried out to test the proposed hypotheses in accordance with the lines of steps given by Bryk and Raudenbush, 1992.

We take the average scores of Employees Innovation (EI) questions in Part 2 as a dependent variable and the average scores of questions on Work-Life-Balances (WLB), Climate-for-Innovation (CI) and Inter-Role-Conflict (IRC) in other parts as independent variables and run simple and multiple linear regressions. For example, the regression between the average scores of Employees Innovation set of Items and average scores of Work-Life-Balances items are insignificant. By deleting some questions that have negative relations with the innovative questions, the regression fitted to the new set of variables has become significant at 5% significance level.

We begin with our first hypothesis which suggests that an organization with the climate for innovation has higher employee innovation. The null and alternative hypotheses are:

$H_{(01)}$ : All else being equal organizations with lower Climate for Innovation has lower employee innovation

$H_{(11)}$ : All else being equal organizations with higher Climate for Innovation has higher employee innovation.

where  $H_{(01)}$  denotes the first null hypothesis and  $H_{(11)}$  denotes the first alternative hypothesis. The numbers 0 in  $H_{(01)}$  stands for “null hypothesis” and 1 stands for the “first hypothesis”. In the alternative hypothesis,  $H_{(11)}$ , the first 1 stands for the “alternative hypothesis” and second 1 stands for the “ first hypothesis”.

The fitted regression model between EI and CI is

$$EI = 17.41 + 1.01CI, \quad (1)$$

where, EI denotes Employees Innovation, and CI denotes Climate for Innovation.

**Table 4.5**  
**Regression Analysis by Fitting Simple Linear Regression**  
**between EI and CI**

Model	Unstandardized Coefficients		Standardized Coefficients	t-values	Sig.
	B	Std. Error	Beta		
(Constant)	17.405	10.841		1.605	.114
Climate for Innovation (CI)	1.006	.474	.282	2.120	.039
a. Dependent Variable: Employee Innovation					
b. Predictor variable: Climate for Innovation					

We find support for the hypothesis, as the independent variable climate for innovation is positively correlated with the dependent variable and is statistically significant at the  $p < 0.05$  level. The regression model with the coefficient beta = 0.282 at  $p = 0.039 < 0.05$  significantly predicts the outcome variable.

For Inter Role Conflict, we then formulated the second Null hypothesis and alternative Hypothesis which is stated below as:

**H<sub>(02)</sub>**: All else being equal, organizations having higher Inter Role-Conflict (IRC) has lower employee innovation

**H<sub>(12)</sub>**: All else being equal, organizations having lower Inter-Role-Conflict (IRC) has higher employee innovation

The fitted model is

$$EI = 46.35 - 1.97 IRC \quad (2)$$

where, EI denotes Employees Innovation, and IRC denotes Inter-Role-Conflict.

**Table 4.6**  
**Regression Analysis by Fitting Simple Linear Regression**  
**between EI and IRC**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	46.345	10.977		4.222	.000
Inter Role Conflict	-1.971	3.502	-.077	-.563	.576

a. Dependent Variable : Employee Innovation  
b. Predictor Variable : Inter role conflict

We regressed the inter role conflict with the employee innovation which enabled us to predict the inverse relation between the inter role conflict and employee innovation. The regression model with the standardized coefficient beta =  $-0.77$  at  $p = 0.576 > 0.05$  predicts that there is an inverse relationship between the inter role conflict and Employee innovation. The negative beta weight indicates that if employee innovation needs to be increased, it is necessary to reduce the Inter role conflict. This means the higher the conflict between the family domain and work domain, the lower the employee innovative behavior and the lower the inter role conflict, the higher the employee innovative behavior.

The last hypothesis testing is about work life imbalances and how it predicts the employee innovation. We constructed the null and alternative hypotheses as:

**H<sub>(03)</sub>**: All else being equal, organizations having work-life balances have lower employee innovation

**H<sub>(13)</sub>**: All else being equal, organizations having work-life imbalances have higher employee innovation

The fitted standardized regression is

$$EI = 25.04 + 1.540 \text{ WLB} \quad (3)$$

where, EI denotes Employees Innovation, and WLB denotes Work Life Imbalance.

**Table 4.7**  
**Regression Analysis by Fitting Simple Linear Regression**  
**between EI and WLB**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	25.038	6.611		3.787	.000
1. Work life imbalances	1.540	.639	.314	2.412	.019
a. Predictors: (Constant), work life balance					
b. Dependent Variable: Employee innovation					

The above regression table reveals Co efficient Beta =0.314 at significance level ( $p=0.019<0.05$ ) which significantly predicts the outcome variable i.e. employee innovation in M.Phil. and Ph.D. professionals.

#### 4.8 ANALYTIC TECHNIQUE-MULTIPLE REGRESSION

We also used multiple regression analysis to test the hypotheses on the lines given by Cohen et al. 2003. The multiple regressions has the combined impact of the three independent variables on the employee innovative behaviour at work.

The fitted standardized multiple regression model is

$$EI = .298 WLB + .017 IRC + .287 CI, \quad (4)$$

where, EI, IRC and CI have already been defined above.

**Table 4.8**  
**Regression Analysis by Fitting Multiple Linear Regression**  
**between EI and WLB, IRL and CI**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.766	17.773		.099	.921
Work life Imbalance	1.473	.646	.298	2.280	.027
Inter Role conflict	.420	3.361	.017	.125	.901
Climate For Innovation	.995	.453	.287	2.198	.033
a. Dependent Variable: Employee Innovation					

The impact of work life Imbalance on employee innovation is at the significant level of 0.027, whereas the impact of Climate for innovation is significant at  $0.033 < 0.05$ . Lastly, in the multiple regression the coefficient beta for the inter role conflict turned positive due to other two independent predictors with the insignificant level at  $p = 0.901 > 0.05$ . This further depicts that the combined efforts of 'climate for innovation' and 'work life imbalances' elicit employee innovation at work. By adopting this analytic technique, both  $H_{(11)}$  and  $H_{(13)}$  got supported by not accepting  $H_{(01)}$  and  $H_{(03)}$  whereas the null hypothesis  $H_{(02)}$  gets accepted and alternative hypothesis  $H_{(12)}$  does not have support from the data.

#### **4.9 MULTIPLE COMPARISONS TESTS AMONG DESIGNATIONS AND M.Phil. AND Ph.D. DEGREE HOLDERS**

We also check the differences in the varying innovative behaviors among the four designations degree holders. The variety of creative display or innovative behavior is marked through the number of research papers an individual has written for publications, number of conferences, workshops, seminars and academic meeting an individual scholar attends, the variety of different courses he or she teaches, the number of Students he or she is supervising at the moment and the number of projects he/she has participated in. The innovative behavior has also been marked in terms of the teaching experience.

This section shows the multiple comparisons among the four designations with the innovative items for the Employee innovation at work. The multiple comparisons among the four designations are done using Least Significant difference (LSD). It determines the smallest difference among the groups means which is also statistically significant (Sekaran and Bougie, 2013). The most important and significant comparisons are shown below.

The most prominent or significant difference in the individual innovation is seen between the Lecturer and other designations. We will start off with the most prominent comparisons of the Lecturer with the other three designations. It is to be noted that Lecturer s innovation is significantly different from the other three designations in terms of teaching experience, research papers, conferences, seminars, workshops, different courses, research projects and number of students in supervision.

The table depicts that the teaching experience of the lecturer in comparison with Assistant Professor, Associate Professor and Full Professor is significant. The lecturers are fresh in the teaching field whereas the Professors

are the players in the teaching experiences with lots of years of hard work, knowledge and skills, the experience of handling all kinds of students. Professors are refined forms of innovative display as they move progressively in their profession or career. It is to be noted that the difference of the teaching experience between the Lecturer and Full professor is vast at significance level of 0.001. This could be because a full professor becomes an expert after a lot of hard work throughout his lifetime in studying and carry out research work and projects. The table depicts that there is no difference in the teaching experience of the Assistant Professors, Associate Professors and Full Professors.

The number of research papers written or research publications by a lecturer is also lower in comparison with the other three designations. This is an important parameter that displays the creativity among the four designations. Full professor is more innovative than the lecturer in terms of his or her research papers or research publications. There is no as such difference of the research publications between the assistant Professor and associate Professor but there is a difference in the research publications between an assistant professor and a Full professor. The Table also depicts that there is also no difference between an associate professor and a full professor regarding the research publications.

Regarding the innovative measure, different mix of teaching courses, there is no as such difference among the assistant professor, associate professor and full professor. They almost take similar courses while teaching M.Phil. and Ph.D., but there is a noticeable difference between lecturer and full professor at significant level 0.079. This shows that a Ph.D. Scholar takes a variety of different courses to teach M.Phil. and Ph.D., than a Lecturer does which makes a Full professor more innovative than a lecturer.

Regarding the conferences, seminars, workshop and academic meetings, a lecturer attends fewer conferences/ seminars than the other three designations. Attending a variety of conferences broadens up the innovative horizons, creative new and original ideas for research publications by the assistant professors, associate professors and full professors. There is no such significant difference of attending a variety of conferences among the assistant professor, associate professor and a full professor. They all attend conferences due to their research demands, research projects and research supervisions of their students.

This is consistent with another research study, which also focused on when and how research group leaders stimulate creativity in academic institutions and research industry (Hemlin and Olsson, 2011). It was

discovered that leaders stimulate creativity through research meetings, supervisor/ expert advice i.e. more than 50%. Research meetings were more for discussions on research projects or research publications or articles at universities. Expert advice is important as it tells how to improve communication methods, how to generate idea in a research article, seeking alternative approaches or new perspectives and evaluate research process.

The participation in the research projects of the lecturer also seems to be low as a part of their routine. This depicts that Lecturer is not much enthusiastic about participating in research and innovative projects. The table further reveals that there is a significant difference about the participation in research projects of the assistant professor with the associate professor and a full professor. There is also a significant difference between an assistant professor and a full professor's participation in research projects but there is no significant difference between an associate professor and a full professor. This shows that they almost equally participate in the research and innovative projects as a part of their level of innovation.

Considering research supervisions by these professionals, there is a significant difference between a lecturer and other three designations. This shows that the research supervisions by all three kinds of professors are greater in number and more innovative/creative than a lecturer. Full professors' supervision is too more innovative and creative than the other three designations. Their innovation is significant as they could be supervising students with new research topics or new idea or domain. This gives them a competitive edge over the other three designations.

Multiple comparisons through LSD, among the four designations have highlighted the major difference in the delivery of their innovative behavior in many ways. Lecturer's innovation in terms of research publications, difference mix of teaching courses, conferences/seminars/ workshops/academic meetings is low and insignificant in comparison with the other three designations. The table shows no significant difference between Associate professor and assistant profession in terms of their innovation. Their degree of innovation is almost the same. Lastly, Full professors display more innovation in their universities in terms of research publications, participation in terms of conferences or research projects, taking variety of courses and research supervisions.

## **CHAPTER 5**

### **DISCUSSION**

#### **5.1 DISCUSSION OF FINDINGS**

This research is a unique attempt to look at the employee innovative behavior at work among the research professionals in the universities/educational sector situated in the three provinces which were Punjab, Sindh and Khyber Pakhtunkhwa, for the first time in Pakistan. The study contributes to the literature of employee innovation at work by empirically supporting the three independent relationships /variables which are climate for innovation, inter role conflict and work life balances with the dependent variable i.e. employee innovation in the universities in Pakistan.

All hypothesized associations are shown to be true with the support of data. As anticipated, linear regression reveals that there is a strong relationship between climate for innovation and outcome variable which is employee innovation; there is a strong negative relationship between the predictor variable, inter role conflict and the employee innovation; and lastly there is a positive relationship between the third predictor variable i.e. work life imbalances and employee innovative behavior at workplace. Synergic effect or multiple regression reported increased employee innovation with the increased combination of climate for innovation and work life imbalances.

The study also focused on the comparison between male scholars and female scholars' innovative productivity in terms of a few innovative measures. This was done using Odds Ratio to see the difference in their innovative behavior at their universities. Data results reported that male scholars are twice innovative than female professionals who were present in the conference sessions. Males' innovative productivity was more in writing out research papers for publications and carrying out their research projects, attending conferences, seminars and workshops more often and regularly than the female scholars.

A comparison was also made between the innovative capabilities of the scholars in the private universities and public universities. It was seen that the differences in the innovative capabilities of the Professionals in the public universities is higher in terms of research papers and the variety of different courses they teach at the universities. A possible explanation could be that climate of the public universities is much more innovative and supportive of

the individual innovation. This is consistent with the findings of a study conducted in Kuwait about the higher innovative climate in the public universities than private universities for the students (Khaldi and Khatib, 2014). The research staff supports and assists these professionals in their new areas of research and new ways of teaching different and multiple courses. This is a very important factor (Spencer, 1995) which drives the researchers to carry out research and explore new research domains leading them to satisfaction and success.

Statistical Odds Ratio analysis also showed that Ph.D.s are twice innovative than M.Phil. scholars in their research publications and their research projects due to their higher level of experience, knowledge and skills, level of responsibilities in teaching research and supervising students.

### **5.1.1 Climate for Innovation and Employee Innovation**

The alternative hypothesis,  $H_1$  predicted that climate for innovation is positively related to employee innovation. This proved out to be true in our data analysis, thus replicating the finding from past research (Margianti et al., 2004) and also consistent with the findings of (Groenveld, 2010). The practical explanation of this increasing scholars' innovation is that the faculty members are indeed surrounded by a positive Climate for innovation. Another recent study also illustrated the positive relation between innovative climate and innovative behavior at workplace among the Knowledge workers in Malaysia (Kheng and Mahmood, 2013).

During the data collection for this study, many M.Phil. and Ph.D. scholars reported the use of multimedia techniques, with the latest research materials and extensive research books in delivery of lectures. Multiple traditional and non-traditional assessment techniques and the availability of instructional materials (Zehyoue, 1996) provide new insights on how to teach students with excellency. Könings et al., (2007) showed that teacher characteristics and the way of teaching influence the innovativeness of an educational institution.

One respondent pointed out that research workshop itself had been introduced as a subject in her university for the development of the research skills of the research students and every course being taught by her ends with the development of the concept papers. Also, data analysis soft wares as an individual and important subject had been introduced in many universities.

There are interactive lecture sessions and many scholars invite experienced Ph.D. Scholars from other institutions to talk over a research

topics and give pointers for the new research students. Gow and Kember (1993) stated that interactive talk sessions create a learning environment for the students and researchers.

Hunter and Cusherbery (2011) illustrated that making research resources available helps the researchers and teachers participate in the innovative research projects efficiently. Providing research resources by the university administration like access to research sites and research library also contributes to research work and research projects efficiently. Some respondents answered that students are indeed encouraged to extract latest research papers in their interest domains via the website access granted to them. The teachers share reading materials via emails with the students and place their lectures and research materials at the web portal for the students to take advantage of the technology. Few scholars reported that they have developed discussion forums at the web where new topics could be highlighted; any obstacles in the research could be removed. Sharing knowledge has become a vital pillar to the academic innovation (Daud and Abdul Hamid, 2006).

As load shedding has become an economic crisis in Pakistan, many scholars said that generators have been installed in their universities, so that delivering lectures and carrying out research work do not get hindered. Investment in human capital development is argued to be the most important determinant for innovation in education (e.g., Scott, 2006) and skill development (Hoyle and Collier, 2006).

Research assistants play very important role in producing research outputs and in supporting the research in Higher Educational Institutions (HEIs) (Fatima and Rehman, 2012). Research assistance from the seniors, friends and colleagues help a lot in research work, even over a cup of tea could give you a novel and innovative pointer. Research faculty had been allotted research assistants who could help them with majority of their tasks which also builds the skills of the research assistants (Fatima and Rehman, 2012). Many Research scholars are also encouraged by their university to apply for a Post Doc at a university abroad to enhance their teaching and research skills. The institution supports them with the finances.

Vast sums of subsidies have been the topic of attention to stimulate the educational innovation (Giles and Hargreaves, 2006). Finances to conduct conferences/workshops in collaboration with other research or educational institutions are extremely beneficial as it opens new paths for every researcher. Appropriate access to funds, materials, facilities, knowledge, information and sufficient time are important to produce novel work in the domain (Amabile, 1997; Amabile, 1996). Flexible working hours and leaves are also the factors of climate for innovation which benefit the researchers

It was reported that students are encouraged to carry out their research work independently, without any unethical help or spoon feeding by their Supervisors. Innovative climate is supported by supervisory encouragement, team cohesion and openness to innovation (Nybak and Jensen, 2012).

Teachers also conduct research demos for their students so that the maximum questions could be prepared by him for his thesis defense. This would be beneficial for the students as they could hold a strong grip on their topic, thereby increasing their confidence and motivation and become a self-directed learner to complete their thesis within a given duration with a minimum of natural delays, and expressing their new ideas openly without the fear of being directly punished for mistakes or criticized (Axtell et al., 2000).

### **5.1.2 Inter Role Conflict and Employee Innovation**

Hypothesis H<sub>2</sub> predicted that inter role conflict is negatively associated with employee innovation. The result shows significant negative relationship with employee innovation. Inter role conflict is extremely important variable in carrying out research, as research for scholars demand no hindrance stressors.

Fisher (1994) stated that academic staff members endure my job demands where they have to be a teacher, researcher, organizer, and administrator simultaneously. For this, Family support (Lamm, 2010) is extremely vital for a successful scholar to carry on his research projects without any kind of hurdles. High stress from the family domain could hinder the research progress and create natural delays in research work and lead to emotional distress, burnout (Cinamon et al., 2007) and lack of personal accomplishment (Maslach, 1982). Research is an art itself which demands full dedication of time and energy with concentration and much patience.

Inter role conflict could lead to psychological strain including depression (Cooper et al., 2001; Jdaitawi et al., 2014), and intention to leave/withdraw from work (Idris, 2011).

There is always an opportunity cost to any aim or ambition in one's life (Barney and Wright, 1998). Writing a research paper demands hard work of many days and nights, even months, which mean an individual would devote less time and energy to Family responsibilities and have to miss family activities due to the time he/she spends on his/her work activities (Bolino and Turnley, 2005).

### 5.1.3 Work Life Imbalances and Employee Innovation

Hypothesis H<sub>3</sub> posited that the more the imbalance between the Researcher's life and work, the higher the employee innovation. The reasonable explanation towards this relationship would be that a researcher can only be innovative by devoting more time and energy to his research work, lectures, and lesser time to sleep and family. The results revealed that the average number of hours per day spent on institution is 7 hours, on carrying out research projects is 6 hours, average number hours spent with family is 5 hours and average number of hours per day sleep is 6 hours approximately by 59 respondents.

This appeared out to be normal as a researcher can only spend a very limited amount of time and energy with his family while he is loaded with his research responsibilities. These findings are consistent with (Aziz et al., 2010) where workaholicism was significantly correlated with high levels of work-life imbalance. They neglect to pursue non-work activities including household chores and personal hobbies (Fisher, 2001), as they are low on resources of time and energy.

It is true that researchers are highly educated individuals or professionals who are workaholics with an obsessive addiction to work with compulsive tendencies to work incessantly (Oates, 1971) who are engrossed with a rise in hours worked or overtime, due to increased responsibilities and heavier workloads. They are individuals who are captivated by work (Aziz and Zickar, 2006) and neglect all aspects of life. They are overly involved in work when they know that they can complete their tasks in lesser time by working on weekends as well (Porter, 1996).

This work life imbalance is also supported by (Aziz et al., 2011) where researchers are positively engaged workers who have the drive of enjoying work with the emotional feelings of satisfaction without any external rewards. These feelings of work drive and work enjoyment definitely lead to sleep deprivation (Aziz and Zickar, 2006).

The same study also concluded that unengaged or disenchanted workers are low on work involvement with low levels of work-life imbalance, which supports our hypothesis that indeed work life imbalances are positively related to employee innovation.

With the technological advancements, laptops and internet, employees are always connected to work overtime with productively and efficiently on weekends and over holidays (Fassel, 1990). If an individual gains the fun and loves his work, he would keep engrossed in his work and would eliminate the division between work and life to attain the sweet success (Premuzic, 2013).

## 5.2 LIMITATIONS AND FUTURE DIRECTIONS

Current study has recognized few methodological limitations to appreciate the results. The present study has few limitations. First, the results of the current study are grounded on cross-sectional data. Thus, future researchers may benefit from more longitudinal data (Casper, EBay, Bordeaux, Lockwood and Lambert, 2005; Kelly et al., 2008) which can examine the impact of the climate for innovation, inter role conflict and work life imbalances on the innovative behavior of the research scholars in all the public and private universities of Pakistan including the province, Baluchistan. All the research scholars from the three Provinces participated in the Conference, except Baluchistan, so we could not identify to what extent climate for innovation, inter role conflict and work life imbalances affect their innovative behavior of the Scholars working in the research institutions over there.

Secondly, we could not make a comparison between international research scholars and the national scholars and the difference in their varying number of research publications and research projects and their participation in the number of conferences, research or academic meetings and workshops which help them build their research display.

Thirdly, we did not measure the impact of monetary or extrinsic rewards on the innovative behavior of the employees. We recommend that leaders in the universities, whose agenda is to be research oriented institution, should express praise and offer extrinsic rewards to group members in R&D settings as a way to promote creativity.

As high education standards are revolving and becoming challenging, a considerable increase in the administrative burden was also experienced by academic staff members (Abeam and Nazi, 2008). It is noticed that educator's work is generally becoming more complex and demanding (Jackson and Ruthann, 2006) and variables are coming into play with more complexity. To resolve these complexities, Universities or research institutions in Pakistan could reprioritize work objectives and modify work schedules.

Furthermore, this study urges university leaders to facilitate better working environment in order to minimize the conflict in lecturer's or scholars' work. Management should employ steps to control stress and strain in the university environment, which would lead to improving the conditions of lecturers and improving their depleted performance. (Jdaitawi et al., 2014).

As this study focuses on work to family facilitation and family to work facilitation, universities should consider offering specific work policies such as flextime and compressed workweek schedules to facilitate work-to-family enrichment, which may indicate an overall supportive work environment. This is especially important for women scholars so that they don't lack behind in delivering their innovative behavior thereby increasing the creativity of their research institutes or universities.

Personal coping strategies involves workers using their own resources to independently manage the work/non work interface, employers still can play a role by providing workshops and other educational forums aimed at developing life management skills. To devise relevant programs, employers should also consider the support that is available to workers from other sources to manage their multiple roles.

Also, Organisational support for non-work activities, such as being flexible about work scheduling and allowing time off to accommodate personal needs, has been associated with low work/non-work conflict and favorable work attitudes (Kirchmeyer and Cohen, 1999).

### **5.3 CONCLUSION**

With Globalization and increasing competing demands, Higher education institutions too are becoming responsive to the pressures of competition (Mathew, 2010). These pressures are forcing educational sector to become efficient, effective and innovative simultaneously (Herbs and Comrade, 2011). Education and research work done by the Universities must be of competitive edge satisfying employers' demands and add potential to the M.Phil. and Ph.D. Scholars.

This study demonstrates the importance of innovative behavior of the Research scholars in universities or knowledge organization. The empirical finding confirms significant relationship between climate for innovation, inter role conflict and work life imbalances with the employee innovation. The results indicate that climate for innovation, lower inter role conflict and work life imbalances is important for enhancing the research scholars' innovation at their universities.

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# ANNEXURE-A

## SURVEY QUESTIONNAIRE

This survey requires an honest feedback that will assist us in our research work and will help us to understand and improve an organization/university HR practices for employee innovation. The feedback shall be kept **confidential** and **anonymous**.

### Part 1:

a.	Gender:	<input type="checkbox"/> Male <input type="checkbox"/> Female
b.	Age (years):	_____
c.	Sector:	<input type="checkbox"/> Public <input type="checkbox"/> Private
d.	Institution:	_____
e.	Teaching Experience (years):	_____
f.	Marital status:	<input type="checkbox"/> Single <input type="checkbox"/> Married
g.	Qualification:	<input type="checkbox"/> M.Phil. <input type="checkbox"/> PhD.
h.	Permanent Residence (City):	_____
i.	Designation:	<input type="checkbox"/> Lecturer <input type="checkbox"/> Assistant professor <input type="checkbox"/> Associate Professor <input type="checkbox"/> Full Professor

**Part 2:**

Q#	Please respond to the following statements in 'relation to employee innovation'. (Please tick only one number or add value)	Nil	1	2	3	4	5	6	>7	Any other
1.	How many years have you been teaching for?									
2.	How many research papers have you published so far?									
3.	How many different courses have you taught so far?									
4.	How many conference(s), have you attended so far?									
5.	How many seminar(s) have you attended so far?									
6.	How many workshop(s) have you attended so far?									
7.	How many academic meeting(s) have you attended so far?									
8.	Have you participated or are you participating in joint research projects?									
9.	Do you consider yourself innovative? <b>0 = Not at all; 7 = Highly innovative</b>	0	1	2	3	4	5	6	7	
10.	How many research <b>students</b> are you supervising at the moment?	M.Phil. _____ Students Ph.D. _____ Students								

11. Do you adopt **new techniques** for delivery of lectures? A: No \_\_\_\_\_

B: Yes \_\_\_\_\_

If **yes** then what are those techniques \_\_\_\_\_

\_\_\_\_\_

**Part 3:**

Q#	Please indicate the extent of time spent in 'relation to your work life imbalance'.	1-6	7	8	9	Above 9 hrs.
1.	On average, how many hours/day do you spend on the institution premises?					
2.	On average, how many hours/day do you spend on lectures?					
3.	On average, how many hours/day do you dedicate to research?					
4.	How many hours/day do you spend with your family?					
5.	How many hours/day do you sleep?					

**Part 4:**

Q#	Please indicate the extent of agreement with each of the following statements in ‘ <b>relation to climate for innovation</b> ’. (Please <b>tick only one</b> number); 1= lowest and 5= Highest in strength	1	2	3	4	5
1.	According to you, is working climate important for employee innovative behaviour at work?					
2.	Do you feel that the working climate of your educational institution is positive and favourable?					
3.	Do you feel a part of the educational institution team?					
4.	Do other faculty members assist you and help you in your research work or in your other job / assignments?					
5.	Do you help your colleagues in return?					
6.	Does your institution allow flexible working hours?					
7.	Does your institution allow you to take leaves, when required?					
8.	Does your institution provide finances for your trips to conferences/ seminars/ workshops?					

9. What are the research resources available at your university campus?
- 1) Access to online Research website \_\_\_\_\_
  - 2) Library \_\_\_\_\_
  - 3) Others \_\_\_\_\_

**Part 5:**

Q#	Please indicate the extent of agreement with each of the following statements in ‘ <b>relation to inter role conflict</b> ’. (Please <b>tick only one</b> box)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	My work keeps me from my family activities more than I would like.					
2.	The time I must devote to my job keeps me from participating equally in household responsibilities and activities.					
3.	I have to miss family activities due to the amount of time I must spend on work responsibilities.					
4.	The time I spend on family responsibilities often interfere with my work responsibilities.					
5.	The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.					
6.	I have to miss work activities due to the amount of time I must spend on family responsibilities.					
7.	Do you think that you can manage to have enough time for your family, friends and social engagements?					
8.	In your opinion, does work-life Balance enhance university faculty members’ innovative behaviour?					

**Thank you once again**

## ANNEXURE-B

### Multiple Comparisons

Dependent Variable	(I) Designation	(J) Designation	Mean Difference (I-J)	Std. Error	Sig.
How many years have you been teaching for?	Lecturer	Assistant Professor	-1.564*	.609	.013
		Associate Professor	-2.964	1.523	.057
		Full Professor	-2.964*	.834	.001
	Assistant Professor	Lecturer	1.564*	.609	.013
		Associate Professor	-1.400	1.543	.368
		Full Professor	-1.400	.870	.114
	Associate Professor	Lecturer	2.964	1.523	.057
		Assistant Professor	1.400	1.543	.368
		Full Professor	.000	1.645	1.000
	Full Professor	Lecturer	2.964*	.834	.001
		Assistant Professor	1.400	.870	.114
		Associate Professor	.000	1.645	1.000
How many research papers have you published so far?	Lecturer	Assistant Professor	-1.619*	.764	.039
		Associate Professor	-4.429*	1.936	.026
		Full Professor	-3.554*	1.061	.001
	Assistant Professor	Lecturer	1.619*	.764	.039
		Associate Professor	-2.810	1.958	.157
		Full Professor	-1.935	1.099	.084
	Associate Professor	Lecturer	4.429*	1.936	.026
		Assistant Professor	2.810	1.958	.157
		Full Professor	.875	2.092	.677
	Full Professor	Lecturer	3.554*	1.061	.001
		Assistant Professor	1.935	1.099	.084
		Associate Professor	-.875	2.092	.677
How many different courses have you taught so far?	Lecturer	Assistant Professor	-.857	.554	.127
		Associate Professor	-2.000	1.404	.160
		Full Professor	-1.375	.769	.079
	Assistant Professor	Lecturer	.857	.554	.127
		Associate Professor	-1.143	1.420	.424
		Full Professor	-.518	.797	.519
	Associate Professor	Lecturer	2.000	1.404	.160
		Assistant Professor	1.143	1.420	.424
		Full Professor	.625	1.517	.682
	Full Professor	Lecturer	1.375	.769	.079
		Assistant Professor	.518	.797	.519
		Associate Professor	-.625	1.517	.682

**Multiple Comparisons (Contd...)**

<b>Dependent Variable</b>	<b>(I) Designation</b>	<b>(J) Designation</b>	<b>Mean Difference (I-J)</b>	<b>Std. Error</b>	<b>Sig.</b>
How many conference(s), have you attended so far?	Lecturer	Assistant Professor	-1.864*	.611	.004
		Associate Professor	-3.464*	1.528	.027
		Full Professor	-3.214*	.837	.000
	Assistant Professor	Lecturer	1.864*	.611	.004
		Associate Professor	-1.600	1.548	.306
		Full Professor	-1.350	.873	.128
	Associate Professor	Lecturer	3.464*	1.528	.027
		Assistant Professor	1.600	1.548	.306
		Full Professor	.250	1.650	.880
	Full Professor	Lecturer	3.214*	.837	.000
		Assistant Professor	1.350	.873	.128
		Associate Professor	-.250	1.650	.880
How many seminar(s) have you attended so far?	Lecturer	Assistant Professor	-1.929*	.617	.003
		Associate Professor	-3.357*	1.564	.036
		Full Professor	-3.107*	.857	.001
	Assistant Professor	Lecturer	1.929*	.617	.003
		Associate Professor	-1.429	1.581	.370
		Full Professor	-1.179	.888	.190
	Associate Professor	Lecturer	3.357*		.036
		Assistant Professor	1.429	1.581	.370
		Full Professor	.250	1.689	.883
	Full Professor	Lecturer	3.107*	.857	.001
		Assistant Professor	1.179	.888	.190
		Associate Professor	-.250	1.689	.883
How many workshop(s) have you attended so far?	Lecturer	Assistant Professor	-2.729*	.576	.000
		Associate Professor	-4.179*	1.440	.005
		Full Professor	-3.679*	.789	.000
	Assistant Professor	Lecturer	2.729*	.576	.000
		Associate Professor	-1.450	1.459	.325
		Full Professor	-.950	.823	.254
	Associate Professor	Lecturer	4.179*	1.440	.005
		Assistant Professor	1.450	1.459	.325
		Full Professor	.500	1.556	.749
	Full Professor	Lecturer	3.679*	.789	.000
		Assistant Professor	.950	.823	.254
		Associate Professor	-.500	1.556	.749

**Multiple Comparisons (Contd...)**

<b>Dependent Variable</b>	<b>(I) Designation</b>	<b>(J) Designation</b>	<b>Mean Difference (I-J)</b>	<b>Std. Error</b>	<b>Sig.</b>
How many academic meeting(s) have you attended so far?	Lecturer	Assistant Professor	-1.821*	.635	.006
		Associate Professor	-2.679	1.610	.102
		Full Professor	-2.429*	.882	.008
	Assistant Professor	Lecturer	1.821*	.635	.006
		Associate Professor	-.857	1.628	.601
		Full Professor	-.607	.914	.509
	Associate Professor	Lecturer	2.679	1.610	.102
		Assistant Professor	.857	1.628	.601
		Full Professor	.250	1.739	.886
	Full Professor	Lecturer	2.429*	.882	.008
		Assistant Professor	.607	.914	.509
		Associate Professor	-.250	1.739	.886
Have you participated or are you participating in joint research projects?	Lecturer	Assistant Professor	-1.205*	.567	.038
		Associate Professor	-5.889*	1.387	.000
		Full Professor	-3.639*	.762	.000
	Assistant Professor	Lecturer	1.205*	.567	.038
		Associate Professor	-4.684*	1.407	.002
		Full Professor	-2.434*	.798	.004
	Associate Professor	Lecturer	5.889*	1.387	.000
		Assistant Professor	4.684*	1.407	.002
		Full Professor	2.250	1.496	.139
	Full Professor	Lecturer	3.639*	.762	.000
		Assistant Professor	2.434*	.798	.004
		Associate Professor	-2.250	1.496	.139
Do you consider yourself innovative?	Lecturer	Assistant Professor	-.466	.427	.280
		Associate Professor	-1.370	1.075	.208
		Full Professor	-1.370*	.590	.024
	Assistant Professor	Lecturer	.466	.427	.280
		Associate Professor	-.905	1.085	.408
		Full Professor	-.905	.609	.143
	Associate Professor	Lecturer	1.370	1.075	.208
		Assistant Professor	.905	1.085	.408
		Full Professor	.000	1.159	1.000
	Full Professor	Lecturer	1.370*	.590	.024
		Assistant Professor	.905	.609	.143
		Associate Professor	.000	1.159	1.000

**Multiple Comparisons (Contd...)**

<b>Dependent Variable</b>	<b>(I) Designation</b>	<b>(J) Designation</b>	<b>Mean Difference (I-J)</b>	<b>Std. Error</b>	<b>Sig.</b>
SuperVisions	Lecturer	Assistant Professor	-3.279*	.753	.000
		Associate Professor	-.429	1.882	.821
		Full Professor	-6.179*	1.031	.000
	Assistant Professor	Lecturer	3.279*	.753	.000
		Associate Professor	2.850	1.907	.141
		Full Professor	-2.900*	1.075	.009
	Associate Professor	Lecturer	.429	1.882	.821
		Assistant Professor	-2.850	1.907	.141
		Full Professor	-5.750*	2.032	.007
	Full Professor	Lecturer	6.179*	1.031	.000
		Assistant Professor	2.900*	1.075	.009
		Associate Professor	5.750*	2.032	.007

**Distribution by Gender**

<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>
Male	36	61.0
Female	23	39.0
Total	59	100.0

**Distribution by Marital Status**

<b>Marital Status</b>	<b>Frequency</b>	<b>Percent</b>
Single	21	35.6
Married	38	64.4
Total	59	100.0

**Respondents' Qualification**

<b>Qualification</b>	<b>Frequency</b>	<b>Percent</b>
M.Phil.	36	61.0
Ph.D.	23	39.0
Total	59	100.0

### Respondents Designation

<b>Designation</b>	<b>Frequency</b>	<b>Percent</b>
Lecturer	28	47.5
Assistant Professor	21	35.6
Associate Professor	2	3.4
Full Professor	8	13.6
Total	59	100.0

### Distribution of Gender and Qualification

		<b>Qualification</b>		<b>Total</b>
		<b>M.Phil.</b>	<b>Ph.D.</b>	
<b>Gender</b>	Male	21	15	36
	Female	15	8	23
Total		36	23	59

### Distribution by Sector

<b>Sector</b>	<b>Frequency</b>	<b>Percent</b>
Public	39	66.1
Private	20	33.9
Total	59	100.0

**Table B-8**  
**Distribution by Provinces**

<b>Provinces</b>	
Sindh	32
Punjab	19
KPK	8
Total	59