IMPACT OF QUALITY MANAGEMENT IMPLEMENTATION ON LEARNING ORGANIZATION TO ACHIEVE IMPROVED NON-FINANCIAL PERFORMANCE IN PHARMACEUTICAL INDUSTRY OF PAKISTAN; AN EMPIRICAL INVESTIGATION

By

NADIA ZAFAR BAKHTAWARI

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I, Nadia Zafar Bakhtawari, PhD, student in the Department of Management Sciences, Bahria University, Islamabad, certify that the research work presented in this thesis is to the best of my knowledge my own. All sources used and any help received in the preparation of this dissertation have been acknowledged. I hereby declare that I have not submitted this material, either in whole or in part, for any other degree at this or other institution.

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DEDICATION

I dedicate this work to my beloved parents,

who have always been a great inspiration, support and motivation in my life,

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enabled me to complete my PhD degree.

PUBLICATIONS

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LIST OF ABBREVIATIONS

QM	Quality Management
QMI	Quality Management Implementation
LO	Learning Organization
KS	Knowledge Strategy
N&C	Novelty and Continuity
FNFP	Firm's Non-Financial Performance
R&D	Research and Development
TQM	Total Quality Management
TQC	Total Quality Control
QWL	Quality of Work Life
PDCA	Plan Do Check Act
SQM	Strategic Quality Management
QC	Quality Control
QA	Quality Assurance
QC	Quality Circle
SPC	Statistical Process Control
JIT	Just In Time
QFD	Quality Function Deployment
CKS	Codification Knowledge Strategy
PKS	Personalization Knowledge Strategy
KM	Knowledge Management
KMO	Kaiser Meyer Olkin
PCA	Principle Component Analysis
CFA	Confirmatory Factor Analysis
SEM	Structured Equation Modelling
EFA	Exploratory Factor Analysis

SPSS	Statistical Package for Social Sciences
AMOS	Analysis of Moment Structure
CR	Composite Reliability
AVE	Average Variance Extracted
MLE	Maximum likelihood Estimation
GOF	Goodness of Fit
RMSEA	Root Mean Square Error Approximation
CFI	Comparative Fit Index
CV	Convergent Validity
GFI	Goodness of Fit Index
SE	Standard Error
SD	Standard Deviation
NFI	Normed Fit Index
VIF	Variance Inflation Factor
AGFI	Adjusted Goodness of Fit Index
TLI	Tucker Lewis Index
Df	Degree of Freedom
GOF	Goodness of Fit
BOF	Badness of Fit
FL	Factor Loadings
CR	Construct Reliability
IFI	Incremental Fit Index
$\chi 2$	Chi-Square

ABSTRACT

The present study examines the relationship between quality management implementation and non-financial performance through mediating impact of learning organization, knowledge strategy and novelty & continuity to gain comprehensive understanding of the phenomena. After the industrial revolution, it was recognized that quality issues need to be addressed at a wider scale by preventing the problems at the first place through quality management. Quality Management Implementation (QMI) is an approach to planning, organizing and understanding each activity in which organizations engage, and according to some observers, its success as a management philosophy depends on each individual actor at each level of the system. The gap existed in the form of black box phenomena regarding the mediating relationships among the variables of the present study.

In this context, a quantitative research methodology was used to examine the relationships between the constructs of the study. Pakistan is going through rapid advancement and growth in pharmaceutical industry. A set of hypotheses were developed based on the conceptual framework. The study used a positivist, deductive approach using time lag survey design to avoid the common method bias. The research instrument was used for pre-testing and pilot testing to measure validity and reliability. 50% response rate was achieved and sample size was 400.

The central question is to study the QMI and does it lead an organization towards a learning Organization. Furthermore, to find out, how the QMI transforms the organizational product, process and managerial practices into Novelty & Continuity, by examining the underlying conception. Analysis of Moment Structure (AMOS) version 17.0 was used to test the measurement model through exploratory factor analysis (EFA), Confirmatory factor analysis (CFA) and to test the structural model through structural equation modelling (SEM), and Haye's method for serial mediation. The results showed a good fit based on the cut off values, with good construct validity and reliability. The findings of the present study showed that successful implementation of quality management leads towards learning organization, improve novelty and continuity and enhanced knowledge strategy with improved non-financial performance as predicted. The findings of the study confirm that there is a significant positive relationship between QMI and firm's non-financial performance through mediation.

This research explores an area of practical significance to those who have started or might be interested in, or planning to start a QMI program in order to progress towards a learning organization through novelty and continuity. Moreover, the results may contribute to those pharmaceutical firms which are deciding to become learning organization as policy guidelines. Understanding the nature and strength of the relationships among the constructs can help and support future QM implementations attempts. Furthermore, the present study has contributed in the form of empirically tested scale and a model for an organization to progress towards learning organization to seek enhanced non-financial performance. Further it has theoretically contributed towards the dynamic capability theory of organization. This study may provide theoretical foundations for the future research in the area of learning organization and pharmaceutical industry in Pakistan.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The purpose of the present study was to advance the understanding of QMI and LO and their impact on the firm's non-financial performance (FNFP) through the empirical evidence. An in-depth survey of literature showed that there is no substantial study that has already examined the relationship empirically between QMI, LO and FNFP. The present study is the first holistic study that attempted to explore the relationships between these variables and hence determining the impact of mediating variables learning organization, knowledge strategy and novelty & continuity on the dependent variable FNFP. The present study attempts to develop research knowledge and theoretical knowledge from an impartial point of view. The rationale is to understand that QMI or the goods manufacturing practice (GMP) practice and policy is the only ingredient to achieve the title of a learning organization for any firm. The better understanding of the nature and strength of the relationships of these variables may help organizations to understand and implement those quality management aspects that are beneficial for an organization to progress towards the title of a LO. The replication of the present study in future with different organizational setting, context and industry might help in creation of a new and improved model of QMI.

The present study is based on the theories of organization including Resource based view(RBV), Knowledge based view (KBV), Dynamic Capability theory (DCT) and Human Capital Theory (HCT). Although, RBV, KBV, DCT and HCT presents various perspectives but they are helpful in explaining the concept of the present study. With few limitations, present study attempted to integrate the concepts of these theoretical approaches in order to

enrich the conceptual framework. RBV and DCT provides the main theoretical foundation of the present study.

The extensive literature review provides the theoretical justification for the present research in terms of problems and the linkages among the constructs which are not properly addressed in this manner. The contemporary problem has falsified the previous findings about the role of QMI in the progression of an organization towards a LO. The present study provides a new perspective in terms of mediating role of a LO through serial mediation, among the relationship of QMI and FNFP.

The QM implementation literature shows, it is all about organizing and controlling the organizational processes (determinant of competitive advantage), whereas LO is all about disorganizing and making the organizational product, process and management more innovative and creative (foster innovation) (Jackson, Gopalakrishna-Remani, Mishra & Naiper, 2016; Bisbe & Malagueno, 2015; Hung, Lien, Yang, Wu and Ku, 2011; Rogers, 1995; Egan, Yang and Bartlett, 2004). However, it needs to be explored whether a relationship exists between QM implementation and LO. Nevertheless, how do these relationships between QM implementation and LO, promote novelty & continuity and knowledge strategy which facilitate the innovation in products and processes which affect the performance of the organization particularly pharmaceutical industry in Pakistan.

A number of management scholars agreed that successful implementation of QM foster innovation and creativity in organizational product and processes (Bayraktar, Hancerliogullari, Cetingue & calisir, 2017; Verwaal, 2017; O'Neil, Sohal & Teng, 2016; Hung et al., 2011; Rogers, 1995; Egan et al., 2004). On the basis of extensive analysis of the relevant literature the present study hypothesizes the QM implementation in both products and processes to promote novelty & continuity and knowledge strategy through LO, which is

important to gain a competitive edge to enhance the performance of Pakistani pharmaceutical industry. The proponents of QM predicted real organizational improvement depends on learning which means feedback from results, progressing towards new goals and methods (Lukman, 2017; Ruiz-Moreno, Haro-Dominguez, Tamayo-Torres & Ortega-Egea, 2016; Fang, Li & Lu, 2016; Kareem, 2016; Evan and Lindsay, 2011). The learning cycle in the present context of QM implementation consist of planning, execution, assessment and then modified plans on the basis of the outcomes.

The concept of LO is not new and is based on the organization theory and system dynamics developed in 1950 and 1960 and learning theories from organizational psychology. Senge (1994) defines the LO as;

> *"An organization that is continuously expanding its capacity to create its future. For such an organization, it is not enough merely to survive; Survival Learning or what is more often termed as Adaptive Learning is important, indeed necessary. But for a learning organization, Adaptive Learning must be joined by Generative Learning, learning that enhances our capacity to create" (p.14).*

This definition is based on a conceptual background that expects consideration and incorporation of various ideas and philosophies that are basis of quality management. The QM implementation in the context of present study is continuous improvement in products and processes, and LO is a concept to practice daily at individual level, department level and organizational level compelled by prospects to impact significantly throughout the organization by focusing on change and sharing (Caliser, Gumussoy, Basak & Gurel, 2016; Dulger, Alpay, Bodur & Yilmaz, 2016; Yang, Yu, Liu & Rui, 2016; Evan and Lindsay, 2011).

This study intended to study the logical conjecture about the nature of the relationship among QMI, LO and firms's non-financial performance by following the positivist paradigm. To achieve the study objectives, the target population were organizations which have been using QM programs within the pharmaceutical industry in Pakistan in terms of ISO standards and GMP's. As discussed in the later section, it was quite challenging for this study in Pakistan to find the respondents who hold the answer of the predetermined set of survey questions.

It is contended that the critical success factors of an organization in terms of knowledge strategy and novelty & continuity lead to competitive advantage in terms of better non-financial performance that is being discussed for the purpose of discovering and supporting the argument of the present study. The contextual over view of pharmaceutical industry and QM implementation is also examined in this chapter. The first part of this section examined the historical progression of QMI and the dominant perspectives in the field of QM implementation i.e. ontological, epistemological and methodological assumptions of the study.

As the stakeholder's expectation has raised a focus on quality that has pervaded other key industries of the economy most importantly pharmaceutical industry (Khan & Ahmad, 2017). These views discussed above build up the base for understanding the QM successful implementation and its successful transition towards a learning organization. This section ends with the question, why the QM Implementation is unable to transform the organizations into a learning organization particularly in pharmaceutical sector of Pakistan.

An individual, organization or even a nation can create wealth and prosperity through knowledge which constitutes the basis of the third industrial revolution (Yazdani, Attafar, Shahin & Kheradmandania, 2016; O'Neil et al.,2016; Cegarra-Navarro, Soto-Acosta &

Anthony, 2016; Ruiz-Moreno et al., 2016; Liao, Fei and Liu, 2008). After the industrial revolution in the early nineteenth century it was recognized that quality issues must be addressed extensively to prevent the problems and to improve the overall performance of an organization (Panzitta, Ponti, Bruno, Cois, D'Arpino, Minghetti, Mendicino, Perioli & Ricci, 2017; Lukman, 2017; Moliner, Eva, Tari, Lopez & Molina, 2016; Ahmed et al., 2008). Chang and Sun (2007) argued QM success as a management philosophy depends on each individual actor at each level of the organizational system . The QM literature is replete with anecdotal account of successful QM implementation. Many researchers have examined a wide range of factors (e.g. focus on customer and stakeholders, employee involvement and team work, process focus, continuous improvement and learning) which from time to time have been proposed as critical to successful QM implementation (Lukman, 2017; O'Neil et al., 2016). However, the literature is less endowed with explanations as to why a given factor is critical in this process (Rahman, 2004). It is not the apprehension of present study to discuss all the factors and issues that may hold back an organization to progress with the implementation of QM due to time constraints. The aim is to study the QM implementation and how well it leads an organization towards a learning organization. Furthermore, to find out, how the QM implementation transforms the organizational product, process and managerial activities into Novelty and Continuity, and examine to what extent Knowledge Strategy facilitate the underlying conception.

Pedler & Burgoyne (2017) described learning organization, where individuals continuously develop their ability to produce set results, where ability for critical thinking is induced and individuals are learning together the new paradigms of learning. A LO is being expert at generating, acquiring and sharing knowledge and then adapts the behavior in order to reflect this acquired knowledge(Valaei, Rezaei & Ismail, 2017; Kareem, 2016; Fang et al., 2016). As

a result of a learning organization, innovation is fostered and a knowledge Strategy (codification and personalization) is enhanced (Valaei et al., 2017).

This study discusses that the QM implementation forced the organization towards the learning organization which ultimately led to novelty & continuity, and enhancement of knowledge strategy. The QM philosophy may be grouped into the following areas of organizational management which are common to any type of organization (e.g. services, manufacturing, healthcare, pharmaceutical, education and etc.);

1. Commitment to Leadership
2. Customer loyalty and acquisition of knowledge
3. Workforce and process management
4. Strategic planning and design of organization and work system
5. Information and knowledge sharing (Moliner et al., 2016; Ruiz-Moreno et al., 2016; Zack, 2002; Rogers, 1995; Egan et al., 2004; O'Dell & Grayson, 1998).

This classification of the QM philosophy as discussed above is implemented within the organization through various techniques and methods to plan, collect and analyze results through progress monitoring and solutions of problems (Yazdani, Attafar, Shahin & Kheradmandnia, 2016; Mehralian, Nazari, Zarei & Rasekh, 2016; Egan et al., 2004; Barrow, 1993). These techniques and tools help individuals to make the work practices or activities more effective and innovative in terms of products and processes. As discussed previously the real and continuous improvement depends on learning. Senge (1997) pointed out the long run performance depends on superior learning. Senge's view clearly indicates that organization cannot count on being successful in the long run if they merely have committed leadership who use QM practices for strategic planning, policy deployment and daily operations. They

may need to use QM philosophy for continuous improvement of the current organizational processes and have to become capable in developing, acquiring and sharing knowledge through knowledge strategy and in adapting the behavior of their employees consistent to novelty & continuity in organizational or managerial practices, processes and products (Muqadas, Ilyas, Aslam & Rehman, 2016; Obeidat, Al-Suradi, Masadeh & Tarhini, 2016; Arawati, 2005).

This study argued, when QM is effectively implemented within the organizational function and it may lead firm towards a learning organization (Lakman, 2017; Yazdani et al., 2016; Chinowsky and Molennar, 2007). From this argument, it is evident that there is need for innovation and creativity (learning) in all organizational processes. However, most QM efforts or implementation focuses mainly on the conformance of QM standards rather than moving towards learning (Panzitta et al., 2017; Lindsay & Evan, 2011). The new trends of businesses are closing the loop on a more complete performance excellence system with increasing emphasis to create learning organization (Valaei et al., 2017; Song, 2008; Sila, 2007). Based on these views, it is contended, if QM is successfully implemented in all organizational functions and individuals complying the required practices and if this compliance of QM practices unable to progress the firm towards LO in terms of novelty & continuity in product, process, daily managerial practices and knowledge strategy (codification and personalization) is a question mark for an organization.

The epistemological assumption of the present study, as described previously the present study is quantitative in nature whose epistemological assumption holds that the researcher's views do not influence the research.

A learning organization promotes novel ideas, practices and activities whereas quality is considered as the main component of achievement in dynamic and aggressive environment (Kareem, 2016; Caliser et al., 2016; Deming, 1986). Hence, organizations can maintain a competitive edge by continuously improving quality in product, process and management practices. As Argote & Hora (2017) stated that LO is the major outcome of the QM Implementation within the organization. Furthermore, some QM Implementations have been proven unsuccessful, but few empirical researches shows that QM implementation has a positive association with organization's non-financial performance through LO and novelty (Yazdani et al., 2016; Arumugam, Ooi & Fong, 2008). There are few empirical researches which showed significant relationship between LO and novelty & continuity (Baker & Sinkula, 1999; Bowen, Rostami and Steel, 2010; Hung et al., 2009; Cingoz and Akdogan, 2011; Jimenez and Sanz, 2011 & Bisbe & Malagueno, 2015). Consequently, it is being discussed in present study that QM implementation and LO individually and effectively promote organization's performance particularly pharmaceutical industry in terms of novelty and continuity.

The comprehensive examination of literature reveals that LO is permanent and a vigorous process (Bontis, Crossan & Hulland, 2001). It is further contended that learning process may prompt organizations to alter their activities owing to the knowledge acquisition (Edmondson, 2002). The novelty and continuity may transpire in three general areas which includes product, process, and managerial practices (Rogers, 1995 & Bowen et al., 2010). It is argued that novelty & continuity and knowledge strategy (personalization and codification) are all finely interconnected and coexist in the routine actions of the firms (Han, Jo & Kang, 2016; Muqadas et al., 2016; March, 1991). Novelty is the exploration of the new ideas such as; discovering, risk taking, experimenting and innovating (Mir, Casadesus & Petnji, 2016; March, 1999). The personalization knowledge strategy is related with innovation because new

ideas are usually ignited from one's intuition, metaphors and experiences (Laitinen, Lansiluoto & Salonen, 2016; Crossan, Lane & White, 1995). Consequently, continuity is built upon codification knowledge strategy which is retained in firm's memory eg; rules procedures and systems (Morris and Empson, 1998; Choi and Lee, 2002 and Johansson, 2006). Hence, it is argued in the present study that relationship among knowledge strategies (codification and personalization) is also very critical to exploration because when a novel idea (product/process/management) is produced, this competence needs to be shared throughout the organization without being leaked to competitors (Masadeh, Gharaibeh, Tarhini & Obeidat, 2016; Obeidat et al., 2016; Hansen, Nohira &Tiemey, 1999).

The continuity is the exploitation which includes refinement, production, choice, efficiency, implementation and execution (March, 1999). It is stated that exploitation is built on explicit knowledge because as routines are imitated in novel context, they do not remain the same. Consequently tacit knowledge fills the gap that routines and explicit knowledge leave out. Bierly and Chakrabarti (1996) introduced for the first time the conception of knowledge strategy. They further stated that consistent Knowledge Strategy is considered as a requirement of managers for the tactical learning needs. Bierly and Chakrabarti (1996) identified few distinctive basic knowledge strategies for the pharmaceutical organizations such as innovators, loners, exploiters and explorers. A perfect combination of knowledge strategy is required for successful QM implementation (Honarpour, Jusoh & Long, 2017; Ali, Tretiakov, Whiddett & Hunter, 2017; Conner & Prahalad, 1996 & Dalkir, 2011).

The QM implementation and learning organization establishments offer an organization a systematic approach to adapt to its environment and the capacity to nurture and learn as an organization (Caliser et al., 2016; Kareem, 2016; Nadi and Damadi, 2009). Barrow (1993) precisely contended that QM and LO are intricately linked together. It was further stated that

LO is a cause of quality management implementation and both concepts have a systematic positive relationship. This relationship allows the organizations to examine how they thoroughly perform tasks, to acquire and implement new visions and share new knowledge within the organization (Yazdani et al., 2016; Sohal & Morrison, 1995). Further, they argued that QM implementation is a first step of the ladder towards learning organization.

Senge (1992) contended that firms cannot achieve a sustainable excellence without continuous learning through QM implementation. Barrow (1993) pointed out that QM implementation is closely related with learning organization, and LO is an expected product of QM. It was further claimed that QM implementation also helps an organization to improve its performance (O'Neil et al., 2016; Jackson et al., 2016; Kuruppuarachchi and Perera, 2010). The organizations which are able to successfully implement QM, they foster a culture which enhance knowledge strategy (O' Dell & Grayson, 1998 and Lin, 2007). Martinez-Costa and Jimenez-Jimeneze (2008) demonstrated QM implemented organizations learn faster than other organizational settings. Therefore, based on these views of different QM and LO experts and theorists the present study contended that QMI has a positive relationship with learning organization to improve the non-financial performance of pharmaceutical organizations in Pakistan.

It is evident from the literature the importance of QM implementation and its positive association to competitiveness through enhanced productivity, performance and low costs (Sohal & Morrison, 1995). The discussions do not appear very often among the theorists and experts about the relationship between the QM and LO. A small portion of the research studies regarding the causal linkages between the QM implementation and LO is supported by the empirical evidences or through logic and authority. The QM implementation constitutes the environment necessary for creating learning organization (Smith et al., 2003). Some

authors including Senge (1994), Ortenblad (2004) and Soleimani and Mohammadi (2009) claimed that QM Implementation is the first wave in building the learning organizations that serves the knowledge strategies.

Baker and Sinkula (1999) and Prajogo (2006) demonstrated that the learning organization inclination of an organization impacts the performance directly and in directly. Therefore, an organization's learning capabilities impacts the performance indirectly by refining the market-oriented activities and directly through enabling the generative learning that progresses towards innovations and knowledge creation.

The innovations, new technologies and increased competition require knowledge sharing and its utilization at organizational level if they want to survive. Hendricks and Singhal (1999) and Li et al., (2004) suggested that knowledge possessed by an organization creates the increased opportunity for a maintainable competitive edge. It was further stated by Nonaka and Von (2009) that if an organization has a compatible knowledge strategy, it might have a greater chance of survival in the long run.

The knowledge strategy is classified as tacit and explicit (codification and personalization). The explicit knowledge is which has been clearly explained, documented or recorded (McInerney, 2002). Therefore, it can be easily communicated, officially documented and easily shared with individuals within an organization. Tacit knowledge is considered intuitive guided by experience, and is built on mental models and perceptions that are so intensely entrenched in an individual. It is further stated that developing and sharing an employee's tacit knowledge an organization is able to increase the value that employee augment to an organization (McInerney, 2002; Dalkir, 2011; Ngah, Tai & Bontis, 2016). The organizations

performance excels above the competitors if an organization is able to share tacit knowledge clearly and comprehensively as compared to them.

The methodological assumption focuses on analysis of the methods used for gaining the data (Moilanen, 2005). The methodology to choose is based on the research paradigm that would guide the research activities, furthermore opinions about the type of reality is ontology, the background theory that inform research is epistemology and the procedure to gain that knowledge is known as methodology.

The extensive literature survey showed various methodologies that have been previously used. Most of the studies in the literature have adopted qualitative paradigm. Therefore, on the basis of literature review of the study postulated a framework with several hypotheses which are essential to test.

The quantitative method is used to collect and analyze data from respondents in the pharmaceutical industry of Pakistan. This research is considered as deductive employing positivist paradigm. The present study relates to positivist approach as it started from conceived idea form the theory and then tests the theory with collected data (Saunders et al., 2007). The data was gathered from the pharmaceutical organizations of Pakistan that truly represents the population and organization as a unit of analysis. The probability sampling was used for data collection through questionnaire with time lag survey design. The instrument for the present study was adapted and formulated based on the comprehensive review of available literature and the variables were used to create suitable measures. The Likert scale (five point) was employed for all measures . The present study assesses the measurement model on the basis of unidimensionality of the constructs, discriminant validity and convergent validity.

The pilot and pretesting in the study was incorporated for the purpose of external validity. Furthermore, the feedback for the questionnaire was gathered from the quality professionals, academicians and quality managers. The research survey was personally managed by explaining and discussing the questions through time lag method and data was collected from 400 pharmaceutical firms of Pakistan. The data validity was conducted through missing data analysis, linearity, normality, outliers, reliability and descriptive test. The analysis of moment structure (AMOS) 17.0 is being used for the exploratory factor analysis (EFA), Confirmatory factor analysis (CFA), structured equation modelling (SEM) and Haye's method for mediation .

In Pakistan, Pharmaceutical industry is acknowledged as crucial and most important key industries in manufacturing sector. The pharmaceutical is a highly innovative knowledge-based manufacturing industry, and it has considerable impact in development and economic growth of Pakistan. In terms of more services and revenues for the prosperity of the country, Ahmed et al. (2008) argued that the pharmaceutical industry in Pakistan is in front of challenges such as global competition, enhanced buyer-cost sensitivity, and advancement in technologies. Nonetheless, creativity and innovations is the main stake of accomplishment for organizations having high tech products; consequently, keeping the organization alive in terms of quality is needed. The pharmaceutical industry has invested hugely in research and development (R&D) for QM implementation like; ISO 9000, two and three Sigma, Team Management, Performance Excellence and Balance Score Card to take cutthroat compensation over competitor in the market. This pharmaceutical industry is well thought-out as high research oriented, well impartial in case of technology and human interference, highly innovative and most notably it is based on quality implementation for a source of business performance and renewal (DeVol, Wong, Bedroussian, Wallace, Murphy and Koepp

2004; Isaac, Herremans & Kline, 2010; Khalique, Isa & Shaari, 2011; Mehralian et al., 2016; Mir et al., 2016; Fang et al., 2016; Bayraktar et al., 2017) .

There is a legitimate apprehension among Pakistani Pharmaceutical Industry. Pakistan is not talented to fight the huge and well competitors of India, China, and USA as they own economies of scale that bequeathed with superior technology resources. The aspects which pose threat to the manufacturing output are; lack of financial resources for upgradation, inconsistent policy, high duties and taxes, lack of R&D, poor policy framework, lack of state of the art machinery, discriminatory policies, high costs of raw material and inflexible price control are the general factors which are the reason of weak performance of pharmaceutical industry of Pakistan.

The Pakistani pharmaceutical industry is an under research area and there is a lack of empirical evidence. Pakistani pharmaceutical industry represents a win-win situation for the government as it contributes remarkably in the socio-economic development of the country. Pakistani pharmaceutical plays a significant role in terms of employment, as 90,000 people are employed directly and 150,000 are indirectly employed. Increase in the per capita income of Pakistan in the year 2016-2017 according to economic survey of Pakistan 2017, is $1629 and it would be the major driving factor for the pharmaceutical industrial growth in Pakistan. The pharmaceutical industry of Pakistan reports a growth rate of 8.74% in 2017 according to economic survey of Pakistan 2017. The Pakistani pharmaceutical industry is facing a challenging situation, whereas the sales are increasing and number of firms are likely to decline. The capital and quality is mostly concentrated in top 50 firms. Whereas, the profit has to come from the volume of the production of medicines, rather than any new innovations. Hence, based on the above commentary it is argued that pharmaceutical industry of Pakistan is an ideal choice for various research avenues.

The organization's competitive edge is based on collective learning within the organization; consequently, the strategy should be driven by learning. Therefore, the building of organization's competitive edge supposes the generation of unique, innovative knowledge and learning organization process (Mehralian et al.,2016; Muqadas et al., 2016; Jackson et al., 2016; Han et al., 2016; Tsai, 2011) . The literature lacks the hypothesization of QM implementation and LO to achieve optimum non-financial performance through novelty and continuity and knowledge strategy in the pharmaceutical industry in Pakistan. Hence, it is also recognized by Pakistani government at various levels to enhance the national pharmaceutical organizations by extensively imposing the regulatory laws.

1.2 Problem Statement

An extensive analysis of literature showed that there are number of studies on the relationships of QMI, LO, KS, NC and FNFP with one or two of the variables. Despite of comprehensive search, there were no specific studies located in the body of knowledge that has examined all these specific set of relationships among these constructs. These critical observations led to the following gaps in the present body of knowledge regarding quality management implementation and firm's non-financial performance through mediation;

- The lack theorization of these constructs (Altman & Iles, 1998; Daniel, 2018)
- The evidence based model (Boyle, 2002; Jashapara, 2003; Kim et al., 2017)
- The empirical research (Thomsen & Hoest, 2001; Du et al., 2016; Inkinen, 2016)
- Lack of rigorous case studies (Easterby-Smith, 1997; Pedler, 2017)

Based on anecdotal evidences from the literature the relationship of learning organization, knowledge strategy, novelty & continuity and QMI needs further research empirically regarding the theorization, model and case studies in the field of QM. The purpose of the current study was to fill the gap in existing empirical research by investigating the association between QMI and role of mediating variables which are LO, KS and N&C and their impact directly and indirectly on the dependent variable which is firm's non-financial performance of pharmaceutical industry of Pakistan.

The key argument of the present study is that QM implementation and the benefits which proponents claimed it generate is only when it is effectively and successfully implemented. When quality management is effectively implemented; then the organization is transformed into LO as the proponents of QM claimed (Bacoup, Michel, Habch & Pralus, 2017). The most influential expert of quality management, Deming (1986), Juran (1989), Crosby (1989) and others claimed that majority of the benefits are ensured from successful QM implementation. These benefits include; improved productivity, improved market share, profitability, high level of employee and customer satisfaction, reduced costs, reduced waste and reduced defects (Daniel, 2018). However, the literature is endowed with many instances of organizations particularly pharmaceutical industry which have QM implementation in the shape of ISO certifications, Balance Scored card and two & three Sigma, etc. but yet achieved negative results in pharmaceutical sector of Pakistan (Ahmed et al., 2008). Hence, it does not mean implementation of QM only leads to success that is a learning organization. In addition, it is argued that successful QM programs of implementations may be inconsequential as they matched with insignificant implementations (Parry, 1993, p.29). The incidences of failed QM implementation in literature led Mathew, Jay and Katel (1992) to term them as "miscarriages and abortions".

Many pharmaceutical firms in Pakistan implemented QM programs but still they are unable to progress towards a learning organization. This raises some questions which need to be answered;

Why quality management oriented organizations are unable to progress towards LO?

Is the QM not implemented in true spirit?

Study the factors that how QMI leads to improved non-financial Performance through LO, Novelty & Continuity and Knowledge strategy in pharmaceutical firms in Pakistan**?**

The above observations and the questions raised after the literature review the following critical gap is identified in relation to quality management implementation and firm's non-financial performance through mediating impact of learning organization, novelty & continuity and knowledge strategy:

There are various quality management implementation models that have been developed but none of them has investigated the role of learning organization, novelty & continuity and knowledge strategy as mediators in the relationship between quality management implementation and firm's non-financial performance in the context of Pakistani pharmaceutical industry through serial mediation. Hence, there is a need to investigate the relationships in order to achieve enhanced firm's non- financial performance through mediation by LO, N&C and KS.

This gap identified needs an empirical evidence for the nature of relationship among QMI and FNFP in order to understand the progression of QM implemented pharmaceutical organizations towards LO. This acquired knowledge of the present research will help organizations by providing them guidelines to progress towards the title of a learning

organization with enhanced firm's non-financial performance. A conceptual framework was developed for the purpose to study.

1.3 Research Questions

The precise research questions that relates to aims and objectives of the present study might be broken into the following discrete but related parts, articulated as questions:

1. Are quality management practitioners conversant in any meaningful way, with the knowledge of QM implementation programs and if so, how do they go about implementing quality management programs towards Learning organization in the pharmaceutical industry?

2. Does quality Management Implementation programs are really helping in the progression of an organization towards a learning organization and does learning organization characteristics are associated with novelty & continuity and knowledge strategy to improve the non-financial performance of pharmaceutical industry?

3. Does novelty & continuity and knowledge strategy contribute to enhance the non-financial Performance of pharmaceutical organizations?

4. Does direct and indirect effect of QM and LO contribute to enhance non-financial performance of pharmaceutical firms?

1.4 Research Objectives

The objectives of current study are the foundation of comprehensive research (Saunders et al., 2007). The QM implementation and LO are both managerial approaches, which stresses the long term development and growth of the organization on the basis of novelty and continuity, knowledge strategy and non-financial performance of the firm. There is a lack of practical model about QM implementation and LO in pharmaceutical industry. As a result, current study endeavor to fill this gap by providing empirical evidence that might be of help to researchers and quality practitioners.

Furthermore, the current study recognizes the complexities and problems, and for suggesting the factors which are critical for QM implementation and its transition towards a learning organization in pharmaceutical industry of Pakistan. The present study has following formal and specific objectives.

1. To identify the relationship between the QM implementation and learning organization in a pharmaceutical industry and to study the transitional factors which lead QM oriented organization towards a learning organization.
2. To study the role of novelty and continuity in the product, process and management practice of pharmaceutical organizations and does knowledge strategy facilitates to improve the firm's non-financial performance.
3. To develop a theoretical model by making clear nature of the interface among variables (QM implementation, learning organization, novelty & continuity, knowledge strategy and firm’s non-financial performance).
4. The fourth and final objective is based on the outcome of current study, and is concerned with building realistic guidelines for pharmaceutical organizations to

improve their non-financial Performance and be competitive in the dynamic environment.

1.5 Significance

The need for pharmaceutical firms to move from traditional management emphasizing quality, to quality management emphasizing the quality of products is very critical. It is obvious that organizations throughout the world over the past decade have expanded vast sums of money and efforts, and committed substantial resources in attempting to adopt QM implementation as a solution to the many problems, which they encounter in manufacturing. Despite the number of pharmaceutical firms pursuing the new philosophy and implementing the principle, failure is a major characteristic of QMI therefore empirical research is needed if QM implementation is to survive and become the underlying assumption for developing a learning organization in future and to enhance firm's non-financial performance.

An increasingly critical focus on the implementation of QM and LO; the need for further research is the primary justification for this research. There are not many evidences encountered in the review of the literature for present study variables.Thoroughly, multiplicity of different causes has been recognized, evidence at empirical level is needed to support the role of effective implementation of QM efforts from achieving the intended results. Therefore the present study has added significantly to the overall body of knowledge by studying the interaction of study's constructs and its impact on firm's non-financial performance.

The current research investigated an area of practical connotation for those who have started or planning to implement QM in order to progress towards a learning organization through novelty and continuity and KS. By providing the summary of the literature of the variables of

the study helped to clarify the QM implementation and provided essential elements that transform organization into the learning organization. The present study emphasized the role of behavioral and organizational factors, which have been acknowledged in literature as essential elements for QM implementation to develop a learning organization. Moreover, the results have contributed to those pharmaceutical firms which are deciding to become learning organization as policy guidelines for enhancing their non-financial performance.

The importance of the current study is deduced from the rigorousness of the problem that is being faced not only by the pharmaceutical firms, but industries and indeed nations as a whole. There was a need to investigate the relationship between QMI and firm's non-financial performance mediated through learning organization, novelty & continuity and knowledge strategy, therefore, this need provides the rationale for this study.

The theoretical and practical contribution in terms of present study is significant. The previous studies on QMI and FNFP mainly focused on how QMI leads to improved firm's performance. This study introduced a new perspective on the mediating effects of LO, KS and NC among the relationship of QMI and FNFP. The present study further investigated QMI as an essential requirement for an organization to progress towards the title of a LO. This joint effect of QMI, LO, KS, NC on FNFP has not been studied before. Therefore, the present study makes a comprehensive contribution to the theory of organization specifically to resource based view and dynamic capability theory. The study attempted to develop theoretical and research knowledge from a relatively impartial point. The rationale is to understand and change the quality management practices and policy, and the underlying learning ideologies of the pharmaceuticals firms of Pakistan.

The present study provides findings to policy makers to evaluate how well pharmaceutical industry can be leveraged through QMI, LO, KS, NC and FNFP in order to contribute towards economic growth of Pakistan. Policy makers in Pakistan recognize the importance of the pharmaceutical industry for long term economic development. The findings of the present study will contribute towards the needs assessment and thereafter design and implement programs and techniques that effectively address any quality management, learning and performance gaps. The present study contributes towards the new knowledge in both practical and academic research. The result of the present study provides clear understanding of the relationships between QMI and FNFP while clarifying the mediating interactions of LO, KS and NC. The researchers and the students may use the findings as a basis for the future research particularly in the areas of QMI, LO, KS, NC and firm's performance. The limitations of the present study will also reveal areas for future research. The future research might consider factors as corporate social responsibility, R&D and legislative and regulatory reforms.

1.6 Structure of the Study

The current study attempts to deliver a comprehensive and detailed conceptual and empirical investigation of QM implementation and learning organization, novelty & continuity, knowledge strategy and firm's non-financial performance in the context of pharmaceutical industry of Pakistan, and an empirical test of the model for successful transformation into a Learning Organization .

The **chapter two "Literature Review"** of the study provided the extensive examination of the relevant literature. The key variables were conceptually connected by the means of model

provided. It studied the theoretical foundation of the variables based on literature and developed testable hypotheses.

The **third chapter "Methodology"** described the procedural phases of the study, comprising the development of operational and conceptual definitions of current study constructs, selection of samples, collection of data, and the systematic method to be used in data examination.

The **fourth chapter "Data Analysis"** included the data analysis and final outcomes which presented to the purpose of the research.

The **chapter five "Findings and Discussion"** arguments the major findings obtained from the data analysis. It includes the discussion regarding the main implication of the research and acknowledged areas for further research. It also conjectures as to the new body of knowledge of research towards the existing body of knowledge. It also discusses the further refinements of the methodology for the future investigations.

Next chapter describes comprehensively the intellectual background and the philosophical assumptions/ assertions and hypothesis of the present study.

CHAPTER 2

LIERATURE REVIEW

This chapter offers a comprehensive examination of literature and advocacy of the arguments. A necessary beginning of the study lies in presenting the evolution and a theoretical evaluation of the major concepts of QMI based on assessment of the available literature. This chapter first describes the discussion regarding the theories which underpin the study followed by the evolution and historical development of QM, LO and firm's non-financial performance and reviews the work of the more prominent authors in the field. This gives a base for considering the major implementation characteristics of the respective QM and LO philosophies.

The structure of this chapter broadly divided into five main parts, which includes; over view of quality management, various definitions, core concepts, constructs, principles, theoretical framework and hypotheses. It further includes the scope of QMI, provides the modified nature of quality management and finally it discusses the core elements of QMI which sets the stage for the rest of the thesis.

2.1 Theoretical Foundation

The present study is based on the theories of organization including, resource based view (RBV), knowledge based view (KBV), dynamic capabilities theory (DCT) and human capital theory (HCT). The RBV of an organization focuses on its resources which are directly related to the competitive advantage of a firm. The KBV describes that knowledge is an important asset and it focuses on its development and knowledge sharing across the organization for firm enhanced performance. DCT focuses on the idea that organization has to improve continuously for the competitive edge, and employees in the organization are an

important asset possessing knowledge, abilities and skills which are important for an organization's financial and non-financial performance.

The present study is consistent with the framework of RBV, which proposes that the firm's enhanced performance is an outcome of its internal resources (Wernerfelt, 1984). The major contribution of the RBV is the notion that firm should always focus on its internal assets and processes (Grant, 1991). QMI and LO comprises of the principles, characteristics and the systems that learn collectively for firm's superior performance. The learning organization is an idea conceived as a resource based approach which is primarily based on organization's ability to turn the resources available into competences which are novel and not easily imitated (Hitt, Zu and Carnes, 2016). The present study proposed that the quality management implementation and a learning organization practices may lead an organization towards superior non-financial performance. The classical view of strategic management paradigm holds focus on the industrial environment, whereas the RBV emphasize on internal resources, linkages among the strategies and firm's performance (Wright & McMahan, 1992; Hitt et al., 2016).

According to the strategic view of RBV of a firm, it is an assimilation of unique capabilities and competences impacting on its evolution and continuous improvement (Barney, 1991). The resources a firm has in terms of its processes and competencies are the foundation of this theory and explain the patterns of firm's performance of various organizations. Whereas, firms with higher competencies hold better competitive advantage in terms of higher financial and non-financial returns as compared to others. The present study conceptualized the idea that QMI, LO, KS, NC jointly leads to superior firm's non-financial performance, hence lending support to the RBV proposition (Hitt et al., 2016).

The knowledge based view is an extension to the RBV and it stemmed out of it. According to KBV firm's knowledge strategies, based on knowledge development and knowledge sharing is the main component of competitive advantage and enhanced firm's performance. According to Amin and Cohendet (2004), knowledge strategy is a theoretical construct and it is valued as basis of an enhanced performance in various organizational manifestations. Firm's non-financial performance depends on its ability to create and share its knowledge, in combination with other resources and competencies of an organization. The present study examined how knowledge strategy as a mediating variable helps an organization to acquire, apply and share knowledge in order to achieve enhanced non-financial performance as an outcome of QMI.

The DCT refers to the capacity of an organization to continuously change and improve in terms of competencies, product and processes in order to cope with the dynamic business environment and sustain firm's performance. Hence, DCT view focuses on continuous improvement with the emphasis on changing environment. The present study focuses on the notion that how quality management implementation leads an organization towards a learning organization, and it is only possible with the continuous improvement and novel ideas in order to achieve superior firm's non-financial performance (Laaksonen and Peltoniemi, 2016).

The human capital theory (HCT) suggests that core competence of an organization lies in the employee skills and their uniqueness. It is argued that employees of an organization possess abilities, skills and knowledge which provide an organization with competitive advantage (Barney, 1991). Therefore, the importance of human capital is based on the potential to contribute to FNFP. Based on the above proposition, the present study conceptualized that the

QMI and LO helps in skill development, knowledge development and competence development in order to contribute to enhanced firm's non-financial performance.

Although, RBV, KBV, DCT and HCT present various perspectives but they are helpful in explaining the concept of the present study. With the few limitations of each theory, the present study attempted to integrate the concepts of these theoretical approaches in order to enrich the conceptual framework of the study. Since, QMI, LO, NC, KS, FNFP are intangible assets of an organization which are consistent with the conditions namely valuable, rare, non-substitutable and imperfectly imitable, resource based view and dynamic capability theory provides the main theoretical foundation for the present study.

2.2 The Evolution of Quality Management

Over the years the idea of quality has developed into an arrangement of standards and accepted truths that depict how the nature of products is to be evaluated and guaranteed. The idea of quality has existed for couple of decades, however its importance has advanced and grown after some time. In the mid twentieth century, quality management was just meeting the requirements through assessment. Measurable strategies were utilized to assess the product's quality through quality control guidelines. The quality in the beginning was taken as something that incorporates the entire procedure, not only the manufacturing process (Daniel, 2018). Since the 1970's, competitors taking into account the quality, it expanded its significance and has produced wonderful concerns and interests.

The significance of quality for organizations has changed significantly in the late 1970's. In1970's and 1980's a large number of the US commercial ventures lost share of the overall industry to the outside competitors. To be more aggressive and to recover the share of the

overall industry, US put emphasis on the idea of Quality Management. The quality management was introduced in America and was vigorously taken after and followed by Japan. The idea of quality control and improvement in quality through quality control guidelines was produced in the Bell Laboratories of the USA in 1920's and 1930's.

The names Walter A. Shewhart, Harold F. Evade, George Edward and W. Edward Deming are the fundamental originators of the idea of quality. Shewart (1931) composed a book "Monetary Control of Quality of Manufacturing Product" setting down the essential idea and the rationale of value control.

A few quality managers and theorists and specialists including W. Edward Deming and Joseph M. Juran investigated and brought quality standards to Japanese industry. Sit, Ooi, Lin and Chong (2009) contended that QM beginnings can be sought once again from 1949, when unification of Japanese specialists and researchers shaped a group of researchers to enhance the Japanese profitability and improve their personal satisfaction after war. It was then when American firms began to take genuine notice and activities of QMI during 1980 . It can be verbalized that a large number of the QMI practices were being utilized by organizations before the QM development formally showed up, so it is difficult to recognize the definite date of conception of the term QMI (Daniel, 2018). Stuelpnagel (1993) contended that in the book of Ford and Crowter "My life and Work", distributed in 1926, sources of QMI are available. Consequently, it is cleared that the term and the entire logic of QMI showed up in the mid-eighties .

Bemowski (1992) contended that the term QM was at first presented in 1985 by the Naval Air Systems Command to clarify its Japanese-style administration methodology of value upgrade . The vital intention for the root of the term QM could be a replacement in the

already utilized term Total Quality Control (TQC), "control" by "administration" with the thinking that quality is not simply an issue of control, it must be overseen . It is further contended by Deming (1990) perspective that examining investigation ought to be kept away from. Crosby (1992) additionally upheld the perspective and makes a point that control is a bit much when a deformity level of zero is accomplished.

The advancement of QM program in USA came about because of the dispersion of its business sectors by Japanese administrations and items which began in the 70's and begin of 80's in mix with the impact of the rationales and works of Crosby (1979), Deming (1986), Feigenbaum (1961) and Juran (1989) . As needs be, scholastics and organizations got motivated from the works of these creators, for example, Ishikawa (1985), coordinating their methodologies with quality administration, gave a thought to the idea of TQM. This quality upgrade was exchanged to nations, and among them the UK being one of the first.

In 1958, Dr. Kaoru Ishikawa (1985), with an organization Japanese control group went to Armand V. Feigenbaum (1961) in the USA to take in the new standards of Total Quality Control (TQC). Researcher took back Feigenbaum (1961) standards back to Japan, and from there it proved to be very effective skeleton for management practice of Japanese firms. Total quality control extended the quality concept comprising quality of design including quality performance and product development. Total quality control needs that all employees and managers should contact in quality improvement tools from down to upwards hierarchy like chairman, president, low level employee and outward suppliers as well (Gitlow and Gitlow, 1987).

In 1960’s, Japanese media played an important responsibility in scattering the worth of quality management and the need to adopt the concept (Juran and Gryna, 1988). According

to Juran (1989) Japan got 20 years of exploring statistical techniques, implementing these techniques and encouraging these techniques to become quality leader in the world. The situation in the other world including, Western World and US were totally distinct to that of Japan. During 1950s, 1960s and 1970s quality, its techniques and its implementation was being ignored effectively in the Western World and USA.

In 1970s productivity in the Western World and USA refused the competition increased and USA was critically susceptible. The USA rejoinder to this adverse situation was the creation of a Quality of Work Life movement (QWL), the improvement and expansion of productivity enhancement techniques.

These profound efforts produced positive results, but it took Japan more than two decade of uninterrupted effort to become the leader in the quality. Moreover, neither US and nor Japan is likely to cease with Quality Management efforts. Certainly, manufacturers and the service providers throughout the world will continue to pursue quality and prepare for the next century. The implication for Pakistan is that there is a critical need to increase quality management improvement efforts, to accomplish a competitive status in the world market, and this position can only be achieved with enormous and focused effort. According to Fatima and Ahmad (2006) the issue of quality management has not been studied properly in both manufacturing and business segment of Pakistan, and both sectors have to propose dedicated efforts to cut down the gap between existing and expected quality status to rematerialize as market leaders in competitive intensive global marketplace.

2.3 Quality Management Implementation (QMI)

The attainment of economic advantage initiated with the quality management implementation methods in the beginning of 20th Century, where more volumes meant methods of inspection had to be entrenched into the production phase to enhance and maintain quality (Montgomery, 1989 and Taylor, 2003). The noteworthy distinction among early and late twentieth Century quality management implementation approaches were the expansion of product/operational quality to the concept of total quality(Feigenbaum, 1961, 1983). This philosophy assumed that quality management may be applied to each aspect of an organization (Ishikawa, 1985). The economic development achieved by Japanese in late twentieth Century provided the basis for extensive improvement to technology and managerial principles of quality management throughout the Western world (Daniel, 2018).

Quality is defined as a degree to which a set of essential characteristics satisfy the stated requirements of a product or a service (Zeng, Zhang, Matsui and Zhao, 2017). This definition reveals general application of the term by incorporating both a user-based and fitness for use definition of quality . Even though Deming never offered a proper definition of quality, the philosophy was represented in the Deming's Chain Reaction Theory (Deming, 1986). A chain reaction may be created if a firm first improves its quality, and then decrease costs because of less errors and delays. This would then result in less rework, efficient use of time and materials, and eventually enhancement in overall plant productivity (an argument to support QMI practices).

It is argued that the firm should be able to achieve market growth with improved quality, lesser costs, and with the objective to raise employment level rather that only staying in business. Deming (1982) and Juran (1988) argued that quality is a fundamental driver to enhance performance and productivity. Deming (1982) and Juran (1988) works, combined with the Japanese post-War success, established quality management implementation as a foundation for many production philosophies and techniques such as Lean manufacturing,

just-in-time (JIT), Total Quality Management (TQM), Total Productive Maintenance (TPM) and in recent times to address issues of environmental sustainability, Lean Green and Six Sigma (Agarwal et al., 2013; Dhalgaard-Park et al., 2013; Klingenberg et al., 2013).

However, the evolution of quality management has not been without discrepancies and controversies Many studies have tried to demonstrate the positive relationship among QMI practices and firm's non-financial performance (Abdullah and Tari, 2012; Duarte et al., 2011; Klingenberg et al., 2013; Zatzick et al., 2012). Furthermore, in review of 25 years of the QMI literature, Dhalgaard-Park et al. (2013) and Daniel (2018) revealed that philosophies such as QMI had been considered a management fad, and have led to a less number of published studies, whereas other QMI concepts such as JIT and Lean are trending.

While studying the associations among QMI practices and firm's non-financial performance, researchers such as Wilkinson et al. (1998), Evans and Lindsay (1999), and Kaynak (2003) have emphasized on direct/indirect impacts of hard (tools) and soft (people) practices. Abdullah and Tari (2012) and Daniel (2018) provided a detailed review of these practices, while highlighting their direct/indirect effects on firm performance. Other studies have grouped QMI into universal and contingent practices (Agarwal et al., 2013; Chen, 2013; Duarte et al., 2011), in an attempt of explaining why (dependent) outcomes vary from firm to firm.

In particular, Chen (2013) argued that the huge variety of TQM tools may have led numerous firms to select inappropriate tools for their business and/or had implemented those tools at an inappropriate time. Zeng et al. (2017) described the concept of time in terms of a delay, which is commonly associated with the short-term negative long-term positive results that accompany the implementation of certain QMI practices. Managers and practitioners are particularly interested in finding out if the QMI practices have any impact on their business

performance. Measuring the performance is generally assumed as an intricate problem in organizational studies (Lentz, 1981; Venkatraman and Ramanujam, 1986).

Earlier studies on QMI practices studied their critical impact on firm's non-financial performance and business competitive advantages. Studies of Saraph et al., (1989) and Flynn et al., (1994) developed frameworks involved eight measurable eight QMI practices . Few recent studies on the impact of QMI on innovation (Kim et al., 2012 and Daniel, 2018) have followed those two frameworks . Many frameworks of QMI practices were empirically developed (Zeng et al., 2017; Ahire et al., 1996; Black & Porter, 1996; Kaynak, 2003; Motwani, 2001; Powell, 1995; Samson & Terziovski, 1999; Zeitz et al., 1997) . These studies examined various relationships regarding QMI. For example, relationship among QMI and operational performance (Jayaram and Xu, 2016; Samson & Terziovski, 1999), firm non-financial performance (Kaynak, 2003) and firm competitive advantage (Herzallah, Gutierrez and Munoz, 2017)

2.4 Learning Organization (LO)

LO is a phenomena developed by Peter Senge in the early 1990's . The basis of the idea development was because of the current conditions, theories and evolution in organizational environment. Before that decade all the organizations were rigorously working for their survival in order to save themselves from the unstable conditions and the environment. For that purpose all the organizations were working to get out of non dynamic frameworks and to strive towards the title of a learning organization (Kim, Watkins & Lu, 2016). A LO is an organization which has no formal authority, equal performance rewards and shared culture with a flexible structure (Kim, Watkins and Lu, 2017). Various theorist and experts have developed several definitions for this concept. Watkins (2017) argued that LO is an

organization which has the ability of developing, obtaining and transforming knowledge and justifies its behavior so as it reflects the new knowledge and ideas. Kim et al. (2017) argued that LO is a process which takes time to change the organization with improved performance. An organization may claim to be a LO that may alter and improve the its behaviors by relationship process(Watkins, 2017).

In other words, organizations which create knowledge are organizations in which everyone think and work creatively for enhanced firm's performance. According to Kim and Watkins (2017), LO actually described as a change in organizational model and paradigm. The appearance of this new organizational model has altered many of the basic concepts and dimensions of organization and management. In the traditional model of organization, short term goals are dominant, but in LO, individual and shared vision is important (Tuggle, 2016).

Pedler & Burgoyne (2017) argued that a LO has the following important features:

• Dominance of learning sprite all over the organization, encouraging its members to learn and develop their skills

• Development of learning culture increases the number of benefactors particularly customers of organization increasingly

• Having human resources development management unit which helps the employees according to a clear approach to choose appropriate job and learn accordingly

Garvin (1993) argued that LO have the following characteristics;

• Solving issues systematically

• Learning ways from the new approaches

• Learning from past experiences of the organizational events

• Learning from other's past experiences and perfect measures

- Effective and effecient distribution of knowledge to all

Senge (1990) developed five essential characteristics necessary for LO and presented them as dimensions of a LO. These five characteristics of LO includes; team learning, intellectual models, individual competency, common vision and systems thinking (Heidari & Tafreshi et al., 2002). These five characteristics of LO works at three levels; individual, team and organization wide.

- Individual level: Intellectual models, personal skills

- Team level: working and collaborating in the organization

- Organizational level: Working with common intuition and systematic way of thinking

Watkins and Marsick (2017) developed seven dimensions for LO and argued that LO is created and is based on these seven dimensions. These dimensions include:

• Creating continuous learning opportunities: Learning in organization is designed in their study so that they can learn while working

• Promoting inquiry and dialogue: People obtain creative reasoning skills for stating their viewpoints and the hearing capacity and talent and asking questions about other people's ideas increases and organizational culture moves towards protecting questioning and providing feedback.

• Encouraging collaboration and team learning: The tasks are assigned as teams in the organization, so that people work and learn together.

• Establishing systems to capture and share learning: Technological systems are created in the organization to ensure learning in the organization and to combine it with work.

• Empowering people: Employees participate in establishing and performing new ideas in the organization, so that they are encouraged to learn.

• Connection to the environment: The organization keep a direct relationship with its environment. People in organization may observe the impact of their learning on all aspects of organization and use the information existing in the organization to arrange their working activities since the organization provides necessary information to the staff easily.

• Provides strategic leadership: Leader in organization protects and supports learning and use learning strategically.

Learning organization in the context present of study's is an organization which is an outcome of successful quality management implementation. It is argued that learning organization is a continuous improvement in terms of organization wide performance.

2.5 Novelty and Continuity (N&C)

The difference between novelty and continuity has been defined as the tradeoff between exploration and exploitation (March, 1991), double-loop and single-loop learning(Argyris & Schon, 1978), distant and local search(Rosenkopf & Nerkar, 2001), revolutionary and evolutionary change (Tushman & O'Reilly, 1996), and feed-forward and feedback flows of learning (Crossan, Lane & White, 1999). The essence of this is that exploiting existing capabilities may deliver short-term success, whereas capabilities exploitation can become a problem to the firm's long-term viability by stifling the exploration of new competencies and radical innovations (Levinthal & March, 1993; March, 1991). Atuahene-Gima (2005) examined this relationship in product innovation, arguing that firms need to simultaneously opt for incremental innovations to improve non-finacial and financial performance both.

Crossan and Berdrow(2003) argued that the firms need to create new competencies while simultaneously exploiting the existing ones as the fundamental issue of strategic renewal.

This idea is consistent with Zack's (1999) description of a KS in which firms compete by creating and acquiring new knowledge and by leveraging the knowledge that already exists within and across different competitive niches.

A paradox exists because the same process that enables the firm to develop efficient transactions with its market tight coupling restricts environmental inquiry and limits available options (Danneels, 2003). Similarly, Gabora (2017) test the consequences of aging for innovation and highlight the paradox that as firms improve the functioning of their routines and increase their innovation rates, they lose touch with environmental demands and their innovative outputs become obsolete.

Novelty and continuity in the context of present study is the exploration and exploitation of the ideas in terms of product, process and management practices which has a positive impact on FNFP. Novelty is an outcome of exploration, that includes search, variation, risk taking, experimentation, play, flexibility, discovery and innovation (March, 1999). Tacit knowledge is at the heart of innovation as new learning is usually sparked from individual intuition, experiences, metaphors, and trial and error (Crossan et al., 1999). Whereas, novelty is based on explicit knowledge embedded in the firm's memory (rules, procedures, and systems) because the larger and the more diverse the set of routines the more alternatives for developing new combinations of ideas (Gabora, 2017;Amabile, 1996). The interaction between tacit and explicit knowledge is also critical to exploration because when a new practice or product is developed, this competence needs to be learned and transferred throughout the firm without it being leaked to competitors.

Whereas, continuity is an outcome of exploitation, which includes such things as refinement, choice, production, efficiency, selection, implementation, execution (March, 1999). Explicit knowledge is at the heart of stability because existing knowledge is communicated to individuals and groups through institutionalized non-human repositories such as strategy,

culture, systems and procedures (Tuggle, 2016; Watkins, 2017; Crossan et al., 1999). Whereas, exploitation is based on tacit knowledge because as routines are replicated in novel contexts, they do not stay the same. Individuals make continuous sense of existing routines, and use their intuition to interpret and adapt them as contextual shift (Ngah, Tai & Bontis, 2016). Hence, tacit knowledge bridge the gap that routines and explicit knowledge leave out.

2.6 Knowledge Strategy (KS)

The knowledge strategy is considered as the most important strategic resource for ensuring an organization's long-term success and survival, because it is unique and difficult to imitate (Inkinen, 2016; Grant, 1996; Kogut and Zander, 1992; Penrose, 1959). Whereas, it is also strategically important for inducing novelty in an organization. The Knowledge Strategy (KS) of a firm is based on the best possible strategic design to create, maintain, transfer and apply organizational knowledge to reach competitive goals (Serenko, 2013; Grant, 1996; Liebeskind, 1996). The development of a KS includes all the operations related to the creation, acquisition, integration, storage, transmission, protection and application of knowledge (Day and Wendler, 1998). KS is increasingly regarded as an important factor in contributing to a firm's pursuit of competitive advantage through innovation (Inkinen, 2016). A firm may also achieve enhanced non-financial performance on the basis of its ability to generate new knowledge and utilize the existing base more effectively and efficiently than its competitors (Ngah et al., 2016).

The formulation of strategies based on organizational knowledge and its effect on economic results is a new lineof research, which has not yet generated notable findings. Watkins (2017) point out that there are very few works which have found a clear association between

knowledge and the enhanced FNFP and that only a few studies have investigated how competitive advantage based on KS may be sustained. Some studies have attempted to discuss the influence of innovation efforts on firm non-financial performance (Jain & Moreno, 2015; Bierly and Chakrabarti, 1996; Hansen, Nhoria and Tierney, 1999; Schulz and Jobe, 2001).These studies identified the importance of knowledge strategy for novelty & continuity and firm's non-financial performance.

However, the efforts to formalize and measure KS and its importance for innovation efficiency and firm performance has not been satisfactory, due to the difficulty of measuring knowledge (Nonaka, 1994; Inkinen, 2016).

The empirical study of Bierly and Chakrabarti (1996) identifies clusters of KM strategies with different implications on firm performance (explorer, exploiters, loners and innovators). There are studies which analyzed KS (Hansen, Nhoria and Tierney, 1999; Schulz and Jobe, 2001) but only consider the way in which knowledge is stored and transmitted (codification or personalization). For the purpose of present study the dimensions of knowledge strategy are codification and personalization.

The codification strategy of Hansen et al. (1999) is similar with the system strategy of Choi and Lee (2002). They define a system strategy as a KM strategy where the emphasis is laid on codifying and storing knowledge. Hansen et al. (1999) argued that firms should keep their focus on one specific strategy. However, in practice, firms may utilize both KM strategies together (Bierly & Chakrabarti, 1996; Jordan& Jones, 1997) .

The next dimension of KM strategies described by Hansen et al. (1999) is personalization. Personalization strategy provides the opportunity to create customer value by offering novel and customized solutions to unique problems (Hansen, et al., 1999). The difference between codification and personalization is that the tacit knowledge, central to personalization strategies, is not accessible to every employee (Delio, Luisa & Sergio, 2018). In the context of

present study suitable knowledge strategy is critical for improved firm's non-financial performance.

2.7 Firms Non-Financial Performance (FNFP)

The non-financial performance of firms have achieved greater theoretical prominence since the promotion of the balanced scorecard (Kaplan and Norton, 1992, 1993, 1996) and other related ideas such as the performance prism (Neely et al., 2002) and the value chain scoreboard (Lev, 2001). Measuring, capturing and attending to nonfinancial performance measures also reflect a long-term business strategy. The research on the non-financial performance measures is receiving a great deal of notice in the recent literature (e.g., Keating 1997, Ittner et al. 1997; Strives et al. 1998; Ittner and Larcker 1998, 2001). The purpose of judging managerial performance by financial and nonfinancial indicator is to better align incentives with a firm's strategic objectives.

The theoretical basis attending to non-financial performance measures is rooted in agency theory (e.g. Holstrom 1979; Banker and Datar 1989; Feltman and Xie 1994). Most extant literature in the area of nonfinancial performance indicators focuses on customer satisfaction and TQM.

According to Said et al. (2003) examines non-financial measures from a different perspective by examining the relationship between the inclusion of FNFP in managerial compensation contracts and firm performance. Their results indicated that the combined use of both financial performance incentives and FNFP significantly improves short- and long-term ROS, and long-term ROA. Further, their results suggested that the use of FNFP is significantly associated to an innovation-oriented strategy, a quality-oriented strategy, the extent of industry regulation, and relative firm health. For the most part, extant literature indicates that

the combination of financial and non-financial indicators sends a robust and comprehensive set of performance signals to managers (Watkins, 2017). In the context of present study the FNFP is being measured on the individual performance, process level and organization level performance. It is argued here that QMI leads and organization towards elevated non-financial performance in terms of process, individual and organization wide performance.

2.8 Transition of Quality Management towards Learning Organization

Senge (1994) described quality development under three waves of advancement since 1960's. It was further portrayed as the first wave of QM. The second wave describes the truth implanting adaptability and flux inside an organization to accomplish over all dynamic performance for continuous learning and knowledge improvement. The third wave states the truth standardization of learning for capability improvement. Senge (1994) contended that; LO is an organization where individuals always grow their abilities to make results that they really crave, where new and broad examples of intuition are supported, where aggregate aspiration is free and where individuals are consistently figuring out how to learn.

Pedler & Burgoyne (2017) and Garvin (1993) portrays LO, as an organization gifted at making, getting and exchanging information, and changing its conduct to reflect new information and knowledge. Garvin(1993) further contended that there is an evident connection between a learning organization and the quality development by suggesting to become a learning organization, organizations should be capable of five activities; in particular, deliberate critical thinking, exploring different avenues regarding new methodologies, gaining from past experience, gaining from others and exchanging information rapidly and productively all throughout the organization.

Liao (2006) portrayed LO an approach firms fabricate, enhance, and sort out information and arrange around their tasks within the culture and adjusts to create organization effectiveness by enhancing the utilization of the competencies of their workforce. Though Huber (1991) described that learning in an organization just happens how information is processed through the scope of its (organization's) potential conduct change. Nonetheless, Kim et al. (2016) underscored that learning need not be cognizant or purposeful and learning does not generally expand the learner's viability or even potential adequacy . Kim and Watkins (2017) contended that it is the task of the leadership and administration in an organization to guarantee participatory methodology and ought to support conceptualizing open door for any critical thinking.

Watkins (2017) showed that four constructs that are vitally connected to learning organization, to be specific, knowledge obtaining, knowledge dispersion, data elucidation, and organization memory. As per Wanto and Suryasaputra (2012) proposed that learning organization is created when the firm cooperates with the environment and this can be accomplished through knowledge processing. It was further contended that Information is an operator to lessen instability and along these lines help an organization to continue to move towards a learning organization. Nevis, DiBella and Gould (1995) contended that organizations ought to have both formal and casual structures and procedures for securing, sharing and use of information and aptitudes. Du, Yin and Zhang (2016) further accentuated that adapting persistently inside different organizations to add to certain center capabilities that were inconceivable if learning organization components were not set up.

Learning organization literature proposes that the relationship among QM and learning organization can be described under the impression of three waves of quality movement as outlined in the following figure 2.1.

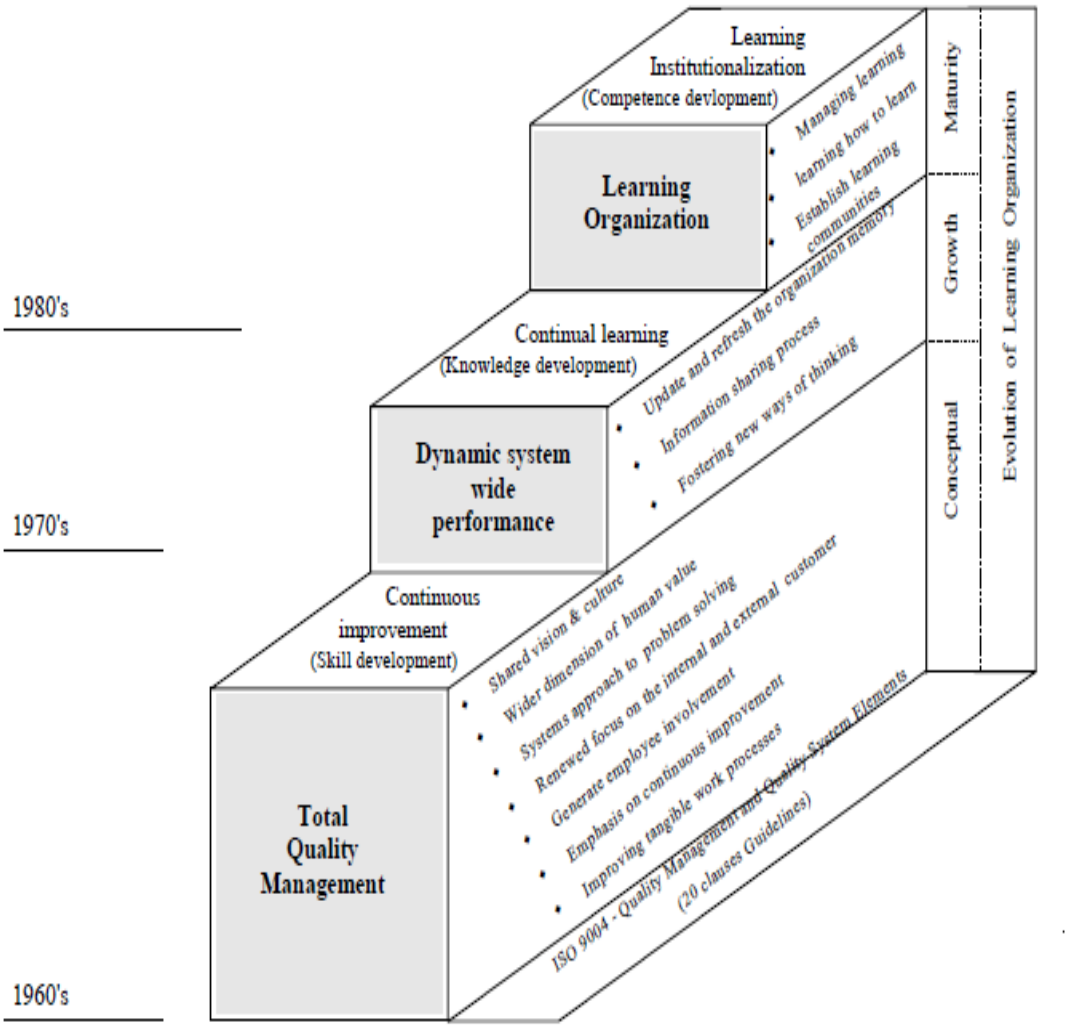


Figure 2.1

(Adopted: Hafeez et.al, 2006)

2.8.1 First Wave of QM

The first wave organization emphasize on QM tools, for example, shared vision and culture, employee participation, single loop learning, critical thinking, benchmarking, activity learning, constant improvement and learning cycle. As indicated by Argyris (1974) SLL focuses on particular action or direct impact. Dodgson (1993) contended that SLL is like task

and exercises that enhances the information or firm-particular abilities or schedules without changing the basic way of the its practices. The SSL has likewise been indicated to as lower-level learning by Foil and Lyles (1985), versatile learning or adapting by Senge (1994), adaptive/support learning; handling by Dixon (1993) and gaining from experience by Barrow (1993).The SLL spotlights on quick issues and opportunities, subsequently, it may restrict information improvement and conduct adjustment activities, these regularly require generally more time span.

2.8.2 Second Wave of QM

The Double loop learning (DLL) is explained as the second or the elevated level learning (Foil & Lyles, 1985), generative learning or believing how to extend an organization's capacities by Senge (1990), anticipative/novelty by (Dixon, 1993) and experiential learning by (Barrow, 1993). The DDL may be considered as a feature of the second wave of quality or dynamic system wide performance as perceived by Senge (1990). As per Hafeez et al. (2007) second wave of QM is changing the organization's information base and firm-particular abilities. Argyris and Schön (1996) contended that DLL is when deviations are tracked and rectified, and organizations consolidate changes in its basic rules and standards including activity and conduct. Moreover, DLL questions the general adequacy of current standards, values and rehearses, and proposes that essential changes may be obliged to enhance performance in the organization (Wang and Ahmed, 2003).

2.8.3 Third Wave of QM

The third wave of quality describes the truth about meta-realizing that is how to implement SLL and DLL (Hafeez et al., 2007). It was contended that it incorporates manage learning,

figuring out how to learn and setting up learning groups. Moreover, third wave is critical when the current knowledge is inappropriate to reach hierarchical targets in the organization. Senge (1994) contended that this kind of learning is an important condition for an organization to be qualified as learning organization. Hence, it may mean a radical change and replenishment, obliging individuals to ponder mental models consequently figuring out how to learn new things, and for organizations to start new culture and structures (Argyris and Schon, 1996). Further contended that Deutro learning often known as triple loop learning (TLL) includes figuring out how to learn and it requires individuals to inquire about the way of their learning framework and its impacts on their process of inquiry (Tsang, 1997).

Argyris and Schon (1996) recognized three levels of learning, single, double and tripple learning cycles inquiries how things are done"; DLL speaks the truth asking the fundamental purposes and why things are done; and TLL addresses the vital standards on which the organization is based and testing its market position.

The DLL and TLL are connected with the why and how to achieve the radical change inside of an organization. While, SLL is concerned with tolerating change in regards to presumptions and center convictions of the organization without questioning. Every learning procedure offers distinctive quality to an organization, whereas the deutero learning may be more essential to innovative organizations for their survival (Bontis et al., 2002). It was further argued that the evolution of the LO into three levels as portrayed in the figure 2.5; the first wave (Total quality management) as the conceptual stage, the second wave (Dynamic system wide performance) as the development stage and the third stage (learning Organization) as the maturity stage (Hafeez et al., 2006).

The QM activity is effective only if the environment has been developed in which individuals have the capacity to learn. The associations between preparing, aptitudes, learning and capability advancements (Hafeez et al., 2002a-c) are the basic ingredients in a learning procedure. The continuous learning is the basis of QM philosophy (Pool, 2000; Powell, 1995 and Prajogo and Cooper, 2010). Herzallah et al. (2017) attributed that the three essential means of continuous improvement are to concentrate on the client, comprehend the procedure, and include the individuals. Along these lines, the organizations need to make an interpretation of constant change into continuous improvement through dynamic system wide execution (Watkins, 2017; Senge,1994). It includes sharing knowledge within the organization, embracing a system approach for critical thinking, mastering better approaches for considering, and updating and invigorating the organization memory (Han et al., 2016; Obeidat et al., 2016; Hafeez & Abdulmaged, 2003).

2.9 Relationship between QMI and LO

The effective Quality Management Implementation moves an organization towards a LO (Yazdani et al., 2016; Moliner et al., 2016; Corredor & Goni, 2011). Hand truck (1993), Chang and Sun (2007) and Sohal and Morrison (1995) found both QM and learning organization activities gives an organization, an efficient methodology, adjusting to one's environment and the capacity to learn as an organization. Barrow (1993) particularly expressed that QM and learning organization are inseparably linked. The relationship among QMI and LO permit an organization to inspect how they deliberately perform assignments, to create and execute new experiences and transmit new information within an organization (Sohal and Morrison, 1995; Marquardt, 2010; Song, 2003; Kumar, 2005 & Dulger et al., 2016). It was contended that QMI is a first stride towards a LO (Hafeez et al., 2006).

A LO is comparatively a new concept, however nowadays each organization wish to move towards this (Jamali et al., 2009). Whereas, the main objective is to improve an organization's capacities in order to improve efficiency, productivity and profitability of an organizations. Hence, it is evident that the best organizations in the world are those which has followed the idea of "Learning organization" (Caliser et al., 2016; Liao et al., 2010 & Prajogo, 2006). As Charles Darwin says:

> *"It is not the strongest of the species who live on, nor the most intelligent; rather it is those most responsive to change"*
>
> *—Charles Darwin*

This quotation has been incorporated by the best organizations of the business world today. One of the basic feature of a LO is that they offer significance to authoritative adapting as they trust that learning can support in creating hierarchical viability (Kim et al., 2017; Stella, 2012). Furthermore, LO show it with support of its solid vision for advancement and with help of procedures that accentuate on learning of individuals at each level (Kassim & Nor, 2007 and Ramires, Morales & Rojas, 2011). Hence such methods may assist an organization in accomplishing its vision and mission.

LO is a new concept in organizational studies (Jamali et al., 2009 & Valaei et al., 2017). It is by and large trusted that learning organization and organizational learning are similar concepts. On the other hand, as a general rule organizational learning (SLL, DLL, and TLL) is an instrument that is being used by organizations to become organizations which aspire to improve continuously (Marquardt, 2010). Therefore, LO is a more extensive area of which organizational learning serves as a part of. Subsequently, it is contended that organizational

learning is an action and the procedure by which organization in the end achieve the title of a learning organization (Kareem, 2016; Garvin, 1993).

Garvin (1993) described that if QM is followed as a belief (i.e. continuous improvement) and an arrangement of strategies (i.e. Plan, Do Check, Act cycle, and others), then it might be an instrument for Learning Organization. Lam, Lee, Ooi and Lin (2011) contended that LO is based on the premise of organizational improvement and QM execution.

The literature discovered various authors who firmly argued over the interdependence QMI and LO. According to Ebrahimi and Sadeghi (2013) QMI creates an environment that is vital for LO to develop. The accomplishment of QMI is identified with an organizations capacity to learn, to engage, to adjust and to incorporate changes within an organization (Hafeez et al., 2006; Nadi & Damadi, 2009; O'Neil et al., 2016 & Yazdani et. al., 2016). Dump cart (1993) and Alipour et al., (2011) attributed that this association is obvious in two ways. To begin with, there is a causal relationship, i.e. LO is considered as an expected result of QMI. Secondly, there exist a relationship among two effective frameworks; process improvement and organizational learning (SLL, DLL), that are working in a simultaneous and integrative pattern . Senge (1994) contended that the QM philosophy has been established on the concept learning. Hence this "learning wave" theory conceptualizes the ideas of numerous authors, academicians and specialists who believe that QM is the initial step toward a LO. Senge (1994) further contended that the evolution of LO can be considered in waves as discussed previously. The first wave concentrate on front level workers and managers rigorously using continuous improvement, enhancing employees, training and Deming's (1982) PDCA Cycle, and making aggressive standards to benchmark. The second wave concentrates on how leaders foster methods for pondering the dynamic and complex issues of system execution.

The third wave is an amalgamation of the initial two waves in which learning turns into an inevitable lifestyle (known as LO).

2.10 Relationship between Quality Management Implementation and Firm's Non-Financial Performance

In the recent few decades quality management has been a key factor for organization success in terms of its performance. Moreover, most of the organizations have moved ahead from the traditional quality management implementation techniques to the newer one (Yazdani et al., 2016; Lukman, 2017; Hao, Kasper and Muehlbacher, 2012). Furthermore, quality management implementation is an approach for the continuous improvement in an organization (Hackman and Wageman, 1995). According to Kaynak (2003) QMI is an approach to meet quality standards only with the commitment of employees within the organization. Many previous studies have argued that QMI serve as a competitive edge and they outperform as compared to the other organizations (Corredor and Goni, 2011 and Bowen et al., 2010). Many large organizations have been benefitted from the successful implementation of quality management such as IBM, Motorola, Google, Nestle and Xerox which are considered as benchmarks in the industries (Ford, 1991; Calantone et al., 2002; Huarng and Chen, 2002; Jabnoun & Sedrani, 2005; Hung et al., 2011). Quality management implementation is closely linked with firm's performance (Arwati, 2005 and Kaynak, 2003). Martinez-Costa, Martenez-Lorente and Choi (2008) emphasized the relationship of QMI and firm's performance on the basis of these factors; leadership, system approach, customer focus, realistic approach to decision making, employee involvement, continuous improvement, process approach and supplier relation. It was further argued that employee management, firms process management, strategic planning, customer focus, and strategic planning, information and analysis and supplier management are the main factors which describe the

relationship between QMI and firm's performance (Sila and Ebrahimpour, 2002) . According to Ho (2011) performance measurement is an approach to quantify the effectiveness of actions. Furthermore, it refers to how well organizations can pursue their financial and non-financial objectives (Kim & Patel, 2017; Bayraktar et al., 2017; Islam and Sulaiman, 2011; Hult, Hurley and Knight, 2004).

There exist a literature that has investigated the positive association between QMI and various performance measures. Different researchers have measured performance in various ways. Brah, Wong and Rao (2000) argued that firm's performance can be measured in terms of organizational performance, operational performance, financial performance, employee performance and non- financial performance.Zakuan et al. (2010) have argued that employee satisfaction, business results and customer's satisfaction are the sources of firm's performance. Based on the previous literature, the scope of present study is to investigate the performance of an organization in non-financial terms based on process level performance, individual level performance and organization level performance.Fening (2012) investigated the impact of quality management implementation on FNFP.

Prajogo (2005) argued that if an organization implements quality successfully they seek to have high non-financial performance. Various studies have emphasized the nature of positive relationship among quality management implementation and firm's non-financial performance (Bayraktar et al., 2017; Sila & Ebrahimpour, 2002; Yang, 2006; Kuruppuarachchi & Perera, 2010 and Kaynak, 2003).

2.11 Relationship between Learning Organization and Knowledge Strategy and Innovation

In today's competitive environment, knowledge strategy and novelty and continuity in organization's products and processes have a positive association with organization performance. It is argued that innovation in products and processes are based on extensive analysis of customer's needs, supply chain and scan of internal and external resources of an organization (Jackson et al., 2017; Liao, 2006; Lin, 2008 and Lin, 2006). An innovation is defined as improvements to the existing products or developing novel ideas. Furthermore, organizations have to improve considering the competitive environment for their survival (Verwaal, 2017; Fotopoulos and Psomas, 2010). Moreover, innovation may be categorized as outcome based approach through which ideas are converted to valuable outcomes (Bisbe & Malagueno, 2015; Hurley and Huly, 1998; Hao et al., 2012 and Hung et al., 2011). There is a common understanding that innovation is a product of efficient knowledge management strategy. It is argued that knowledge strategy is a key for novelty and continuity (March, 1991; Henrich, 2007; Bowen et al., 2010 & Han et al., 2016).

According to McLure and Faraj (2005) knowledge is a combination of experiences, values and information that offers a framework for encompassing such experiences in the form of information embedded in documents, organizational processes and norms. It was further argued by Dalkin (2011) that knowledge management is a responsibility of everyone in the organization in terms of creating and sharing it within the organization. Furthermore, it is vital for an organization to effectively share knowledge. Additionally, from learning organization perspective, the tangible output through efficient knowledge strategy promotes novelty and continuity in firm's product and process (Han et al., 2016; Mir et al., 2016; Mohanty and Kar, 2012).

It is argued that research and design plays a critical role and originates from knowledge sharing with in an organization (Jensen, Bosch, Frans and Volberda, 2006; Cabrera and Cabrera, 2002; Cohendt and Steinmueller, 2000 and Griffiths & Moon, 2011). Lee, Ooi, Tan and Chong (2010) argued that learning abilities of employees within the organization are important to assimilate the internal information. Further argued that it also enhances organization's novelty, capabilities and efficiency (Dodgeson, 1993). Lee et al., (2011) added that promoting learning and knowledge with external stakeholders positively impacts novelty and continuity. Learning organizations are better at scanning the environment for novel ideas that result in exploration or exploitation of the ideas (Baker and Sinkula, 1999; Naidoo, 2011; Mol & birkinshaw, 2009; Baer & Frese, 2003 and Ar Baki, 2011). Consequently, learning organization impacts novelty directly and through the efficient utilization of knowledge strategy. Additionally, the free knowledge flow within the organization, leads to efficient utilization of information and consequently results in novelty (Kontoghiorghes, Awbrey and Feurig, 2005). Many empirical researches emphasized the positive relationship between learning organization, knowledge strategy, novelty and continuity and firm's non-financial performance (Damanpour, 1991; Hamel, 2009; Lin and Chen, 2007 and Damanpour and Aravind, 2011) .

2.12 Pakistani Pharmaceutical Industry (Contextual Overview)

Pakistani pharmaceutical industry is an infant industry as compared to the other competitors of the world. The Pakistan's economy has endured a considerable measure in the most recent couple of years because of awful monetary conditions furthermore because of the war against terrorism and energy crisis. Besides this, economy likewise saw the household expansion, moderate monetary development and considerable degrading of the rupee against the

significant currencies. The government is developing the basic steps to uplift the economy, yet it does not have the required intensity.

The global Pharmaceutical business sector has a market of 650 billion US$, with a yearly development rate of 8% and proceeding with the rate would cross the estimation of 1.1 trillion US$ by 2015. On the premise of quality, the global pharmaceutical market is represented by USA, EU and Japan with an offer of 48%, 28% and 12%, individually. Whatever remains of the world has just 20% of the aggregate world Pharmaceutical business market.

The Pakistani pharmaceutical industry is exceptionally intensive and stimulating. Around 600 Pharmaceutical firms are functioning in Pakistan including national and multinational organizations. The 386 are working units out of the total. As evaluated before depreciation of currency have an extremely radical effect on the operating margins. This may likewise be a noteworthy reason that Pharmaceutical industry is facing intense difficulties recently. The Pakistan pharmaceutical industry has been developed drastically. In the mid 90's there was a time that the Pakistan Pharmaceutical industry was possessed by the MNCs, but recently in last two decades the picture has totally changed. Out of the 386 working units, 30 are MNCs producing the medications. The present proportion of MNCs and national organizations is 45% and 55%, individually. It is a challenging mark for local investors that the share of the national pharmaceutical firms is expanding. The total size of the Pakistani Pharmaceutical industry is 1.64 billion US$, with a yearly development of 11%, that is greater than the yearly development of the world pharmaceutical industry as a whole.

The Pakistan pharmaceutical business sector is developing at a consistent rate yet there are certain threats which represent an incredible risk to the business. The principal challenge which the pharmaceutical business faces is the aggregate government control on the prices of

all products. Secondly, because of the cut throat competition in the industry each pharmaceutical organization has to keep themselves current in terms of quality, R&D, innovation and creativity. Every organization is implementing the quality management techniques and the programs but still struggling on the ladder to reach the "Learning Organization". Every other pharmaceutical is following the quality management techniques and standards but still what they lack to reach the absolute point, is the main objective of this present study . Pharmaceutical firms have to be competitive and have to invest hugely in the R&D, to be more creative and innovative following the basic principles of the quality management. The advocates of the LO believe that it empower organization to anticipate and react to today's globally competitive business environment (Kareem, 2016; Fang et al., 2016; Rivera et al., 2011).

The present chapter has offered an exhaustive review of quality management implementation and its transition towards a learning organization. It provides a critical synthesis of comprehensive nature through rigorous scanning of literature. It began with the evolution of quality management and its implementation, its development over the years by different researchers and then discussion on the role of QMI to become a learning organization. QM and LO has been defined as the all-encompassing management philosophies that stresses the association of each worker at all levels of an organization in trying to meet the customers desires and non-financial performance through continuous improvement . Quality Management implementation is a fundamental component and the initial move towards the business performance through the committed employees to completely fulfill customer's requirements through embracing proper business procedures and figuring out how to learn together. QMI involves a lot of time in exertion and persistence by an organization.

Therefore, organizations that have resources and capacities to execute QMI gain a successful method for accomplishing major competitive advantages in the pharmaceutical sector of Pakistan. The concept of QM has become embraced as a way of doing business through involving everyone at every level of an organization (jablonski, 1992).

The literature shows that QM implementation has the potential to create remarkable performance improvements in manufacturing organizations. Thus, as more of the businesses are implementing QM programs and the amount of literature advocating the integration and transition of QM towards LO is increasing. It is demonstrably true that QM cannot be effectively implemented without the cooperation and involvement of employees.

From the argumentations and discussion in this chapter, it can be inferred that Quality Management Implementation is an important factor for progressing an organization towards learning organization, improved Knowledge Strategy, innovation and enhanced non-financial performance in terms of processes, individual and organization. The Asian countries particularly Pakistan is growing and improving at a good pace as compared to other countries in this region. Therefore, organization in this region such as Pakistan, as it may differ from other industrialized and developed countries, there is a need to focus on the beginning of the journey, journey of quality management evolution that takes an organization towards learning organization. Therefore, country like Pakistan or others in this region need to improve from grass root level from where quality implementation starts. It is reasonable to propose here that successful quality management implementation would lead an organization towards the heights of continuous improvements and improved performance. As stated earlier quite a few studies are present in the literature on these topics but none was in the context of an organization leading towards a learning organization on the basis of successful quality

management implementation with outcomes of improved Knowledge Strategy, increased innovation through R&D and enhanced non-financial performance.

The above ideas and the argumentation provide a basis for the foundation of an empirical model, which is presented next. The conceptual model focuses on the QM implementation and its transition towards the learning organization and their impact on FNFP. It would also describe the nature of mediating relationships of LO, knowledge strategy, novelty & continuity and its impact on FNFP.

2.13 Theoretical Framework

To create the present knowledge and relevant theories and constructs into stronger focus, a theoretical framework for the transition of QM implemented organizations towards Learning Organization through Novelty & Continuity and Knowledge Strategy is discussed in this study. The theoretical framework in this section is explained in order to help in the discussion of key points of the investigation, and guides the study to answer the research questions through empirical analysis.

One of the intended results of this study is the progression of a system for anticipating, at a commendable level of conviction, the likelihood of QMI towards a learning organization in the pharmaceutical industry of Pakistan . In such manner, the present study intends to develop a possible practical framework, which will direct this comprehensive study during the empirical phase. Various hypotheses are extracted from the literature regarding the associations among the constructs of the present study during the process of developing the theoretical framework. These hypotheses are tested empirically in the next chapter of the present study .

The model and the resultant suggestions and working proposition are critical components of the present study. The proposed framework consists of five variables, which are labeled as QM implementation as independent variable, learning organization, novelty & continuity, knowledge strategy as mediating and firm's non-financial performance as a dependent variable. The model presented in this study may not claim to be a comprehensive model for the explanation of factors contributing to the QM implementation towards a LO.

The next section of the present study discusses the relationships among the key variables of the present study . Based on these relationships among independent variable (IV), mediating variables (MV) and dependent variable (DV) various testable hypotheses are drawn.

2.14 Hypothesis 1

In the light of literature reviewed earlier, it would appear that previous studies have shed little light to the factors through which an organization propels towards a learning organization. Although, several studies have discussed the individual importance of all these constructs. The QM concept constitutes a learning organization process which includes the presentation of modifications in the organizational functions (Sen et al., 2017; Moliner et al., 2016; Soleimani & Mohammadi, 2009). As a result, these types of alterations are the consequence of the new techniques of making the organization tasks meaningful regarding QM aims and objectives (Lee, et al., 2003). The evolutionary advancement and theory supports the QM and LO discrimination; however, they apparently have a lot more in shared as compared to what they possess in distinctiveness (Nadi and Damadi, 2009). Garvin (1993) contended that, LO as an organization which is gifted at creating, obtaining and sharing information, and changing its behavior to reflect new knowledge and understanding. Garvin (1993) contended

that there is an evident connection between a learning organization and the quality management by suggesting that to transform into a learning organization , organization should be expert at five skills; precise critical thinking, trying different things with new methodologies, gaining from past experience, and gaining from others and exchanging information productively throughout the organization.

The association of the LO with QMI is recognized by Sohal and Morrison (1995), Calantone (2002), Lopez et al. (2005), song et al. (2003) and Yazdani et al. (2016) they argued that QMI, if practiced as a philosophy as well as a set of techniques, it can be a vehicle for learning organization. Senge (1999) considers that the quality movement is in fact the first wave in building learning organizations, giving credit to the fact that QMI can be seen as an initial phase in the path of the LO. Furthermore, Martenez-Costa and Jimenez-Jimenez (2008) and Prajogo & Sohal (2006) states that modern quality management is the basic ingredient in the learning organization.

McAdam and Armstrong (2001)**,** Tippins and Sohi (2003), Rahman (2004), Sohal and Morrison (1995), Terziovski et al. (2000), Zhang (2000), Moreno, Frnandez and Montes (2009), Nadi & Damadi (2009),Soleimani & Mohammadi (2009), Marquardt (2010), Fening (2012) and Song et al. (2003), Wingarten, Fynes, Cheng and Chavez (2013) and Yazdani et al. (2016) suggested in their studies that a direct relationship between QM usage and a learning organization exist, and underline the chance to utilize both rationalities together keeping in mind the end goal to enhance organization's non-financial performance. As indicated by them, the QMI gives an ideal domain to encourage learning inside of an organization and consequently a step closer towards a learning organization. Taking into account the above studies and the argumentation following hypothesis is developed:

H_1: The quality management implementation program positively leads an organization towards a learning organization that improves the non-financial performance of the pharmaceutical organizations in Pakistan.

2.15 Hypothesis 2

Based on the previous discussion, the characteristics of learning organization include several facets, such as transfer of knowledge , benchmarking, shared vision, continuous learning, team learning, innovation, creativity, system thinking, mental models, empowerment and so forth (Senge, 2003; Calantone et al.,2002; Darroch, 2005; Prajogo and Sohal, 2003; Jackson et al., 2016; Laitinen et al., 2016; Bisbe & Malagueno, 2015).

Learning organization shares many characteristics of the individual learning as well, that learning is mainly about the changes that tend to persist and measuring those changes would establish that change has occurred (Lien et al., 2004). The novelty & continuity may allow organizations to thrive parallel with modifications in the organization (Naidoo, 2010 and Ar-Baki, 2011). The N&C is the main strategic key in reacting to the most dynamic environment (Moreno et al., 2009). For an organization innovation is the initiation of novel ideas and practices which are brought through the learning organization (Maria, 2003; Egan et al., 2004; Liao et al., 2008 and Bowen et al., 2010).

Novelty is closely related to learning organization (Maria, 2003 and Chaveerug, 2008). Argyris and Schon (1978) argued in their work that learning organization would strengthen the innovative capability of an organization. Ussahawanitchakit and Chaveerug (2008) stresses the agreement in the literature on the correlation between learning organization and novelty & continuity capabilities . Moreover, Liao et al. (2008) argued novelty & continuity

is a prerequisite of knowledge creation and an essential key of knowledge management. Single and double loop learning forms a Meta learning process, learning for the whole organization is improved and this contributes to the novelty in product, process and managerial processes (Liao et al., 2008). Most studies considers that learning organization instill new ideas and enhances the creativity and novelty and the ability to discover new challenges & opportunities.

Moreover, it is further argued in the literature that learning that leads to novelty are a significant characteristic of the LO (Mavondo, Felix, Chimhanzi, Jacqueline and Stewart, 2005; Gardiner & Whiting, 1997; Tohidi, Seyedaliakbar and Mandegari, 2012; Teo and Wand, 2005 and Senge, 1994). Hence, learning organization may enhance novelty & continuity in the product, process and the managerial processes of the organization. Main arguments of the current study are that N&C might be an important outcomes and benefits that come from the learning organization with in the organization (Maria, 2003; Movondo et al., 2005; Ussahawanitchakit and Chaveerug, 2008).

Most successful innovations (Novelty & Continuity) are the outcome of gradual and consistent changes in concepts and methodology implemented continuously over a period of time (March, 1991; Drucker, 2002; Ho, 2011, and Liao et al., 2008). This gradual process is based on the creation, search, and acquisition and sharing of knowledge which in result provides learning organization and constitutes the base of successful novelty & continuity (March, 1991 and Jemenez & Sanz, 2010). Moreover, as a result of the successful implementation of numerous learning organization models to some aspects of novelty processes, the new meaning of Novelty & Continuity concepts starts to be reshaped as the process of learning organization by the organizations (Maria, 2003; Alipour et al., 2011; Movondo et al., 2005; Kalsom and Ching, 2012; Ho, 2011; Mol & Birkinshaw, 2009; Naidoo,

2010; Mir et al., 2016; Sen et al., 2017; Polder et al., 2010). The above discussion reflects the interaction between learning organization and novelty & continuity, hence developed the following hypothesis;

H_2: Learning Organization is positively related with novelty & continuity of an organization that improves the non-financial performance of pharmaceutical firms.

2.16 Hypothesis 3

Based on previous studies and extensive literature review, it is hypothesized that a positive association between LO and knowledge strategy exist. A knowledge Strategy is the precise way an organization to optimize the conversion of knowledge into a competitive benefit (Kogut & Zander, 1992 and Conner & Prahalad, 1996). Learning organization is pivotal for knowledge creation which is the basis for a knowledge based strategy (Carrillo and Chinowsky, 2007; Ramires et al., 2011: Akhtar et al., 2011; Singh, 2011; Ali et al., 2017; Honarpour et al., 2017). Therefore, in order to have competitive edge in the market organization need to have a dominant knowledge strategy that is a consequence of a learning organization .

The knowledge strategy is complex and itself cannot turn into a competitive advantage; an organization should implement a KM strategy to create and transfer knowledge between employees (Nonaka, 2002; Dalkin, 2011 and Griffiths & Moon, 2011). Nonaka (1998) contended that information dependably has unequivocal and implicit measurement. Organizational knowledge is made through a constant dialog between tacit and explicit knowledge(Scarbrough and Swan, 2003). Hansen et al. (1999) and Goh (2005) found that real

organizations use codification knowledge strategy (CKS) and personalization knowledge strategy (PKS) to manage and share knowledge within the organization.

The learning organization (LO) is the dynamic procedure of making new information methods and making the best use of it for the enhancement of organizational performance (Loermans, 2002; Hanna, 2010 and Liao et al., 2008). LO is related to the concept of knowledge strategies (CKS & PKS), however, knowledge strategies emphasize the static stock knowledge while LO emphasizes the dynamic process (Inkinen, 2016; Zack, 1999; Hamel, 2009; Lyles and Gudergan, 2005 and McLure & Faraj, 2005).

The noteworthy relationship between these two variables proposes that an organization can enhance knowledge strategy by giving careful consideration to particular attributes of its learning orientations (Pool, 2000; Choi & Lee, 2002; Popadiuk and Choo, 2006; Becheikh, Landry and Armara, 2006; Jansen et al., 2006; Zhou and Wu, 2010 ; Von Nordenflycht, 2010; Muqadas et al., 2016; Cegarra-Navarro et al., 2016). Based on the above discussion following hypothesis is formed ;

H_3: Learning organization is positively associated with knowledge strategy to improve the non-financial performance of pharmaceutical firms.

2.17 Hypothesis 4

A plethora of researches have been done to observe the effect of QM implementation, (Hendricks & Singhal, 2001), and the impact of LO (Merino-Diaz, 2003; Sila, 2007; Hoque and James, 2000; Raja, Bodla and Malik, 2011 and Pitt, Caruana and Berthon, 1996) on FNFP. On the other hand, the literature provides less information regarding the joint impacts

of QMI and LO, in spite of the fact that they have been viewed as correlative business approaches for improved performance (Kaynak, 2003). Several authors (Sila, 2007; Choi & Eboch, 1998; Samson & Terziovski, 1999; Brah et al., 2002; Brah and Lim, 2006; Fening, 2012; Bergman & Klefsjo, 2007 and Khan, 2010) identified the relationship of quality management implementation and learning organization on the firm's non-financial performance. Khurram and Jafri (2011) examined the impact of QM implementation and LO on non-financial performance of firms , that began their QM implementation, hence concluded that organizations which are truly learning organizations and have implemented all quality standards do yield higher monetary and non -monetary profits. The success of Harley-Davidson, Motorola, AT&T and many other have been noted anecdotally in the literature for their profound non-financial performance through QM implementation. According to Bergman and Klefsjo (2007), quality management implementation is a constant effort to excel customer's needs by continuous improvement through focus on processes within the organization .

Karani and Bichanga (2012) argued that quality management implementation is a holistic approach that combines all activities of an organization to satisfy customer expectations and achieve improved firm's non-financial performance. In the literature there are several studies which has emphasized the positive relationship between QMI and FNFP (Kaynak, 2003; Lin et al, 2005; Arawati, 2005; Prajogo& Sohal, 2006; Yang, 2006; Sila, 2007; Arumugam et al., 2009; Arumugam and Mojtahedzadeh, 2011; Abdullah et al., 2009; Sit et al., 2009; Kuruppuarachchi & Perera, 2010; Al-Swidi & Mahmood, 2012; Verwaal, 2017; Bayraktar et al., 2017).

On the above-mentioned argument, following hypothesis is formed;

H_4: Quality management implementation has a positive impact on non-financial performance of pharmaceutical firms.

2.18 Hypothesis 5

The tacit knowledge (personalization strategy) is viewed as more vital for innovation (March, 1991). Firms having exceptional abilities of captive and sharing tacit knowledge are more inclined to be novel through the formation of new knowledge and learning that translates into exclusive products for the customers (Katz and Preez, 2008; Hensen et al., 1999; Choi & Lee, 2002; Darroch and MaNaughton, 2002 and Polder, Leeuwen, Mohnen and Raymond, 2010). Hence, the development of knowledge based strategy for firms lead to more novel ideas, product and services. Darroch (2005) stated that a firm capable in knowledge acquisition, knowledge dissemination and responsiveness to knowledge is more innovative.

The novelty & continuity process is closely linked with knowledge strategies (Davenport and Prusak, 1998; Gloet & Terziovski, 2004), specially the tacit knowledge (Du Plessis, 2007; Ismail, 2005; Lundvall and Nielson, 2007; Lin and Chen, 2007). New and valued knowledge is transformed into novel products, services and activities (Choi et al, 2006). Moreover, takes a shot at information technique consider learning as a fundamental imperative for curiosity & progression and company's intensity (Nonaka, 1994 and Nonaka, Toyama and Nagata, 2000). The knowledge management framework that grows the imagination envelope is considered to enhance the innovation through effective access and sharing of knowledge (Yang, 2005; Zhang, 2006 and Darrouch, 2005). Moreover, viable knowledge strategies are a key success factor while developing new products and ideas. In this sense, present study supports that one of the key elements affecting novelty in organization is knowledge acquisition and sharing. Organizational significance for KS is inspired by the likelihood of resultant

advantages , for example, more imagination, innovation and improvement in the products (Jackson et al., 2016; Bisbe & Malagueno, 2015; Polder et al., 2010; Darroch, 2005; Naidoo, 2010 and Liao et al., 2008).

The knowledge strategy also helps in creating novel ideas and innovations in the existing products (Huarng, 2009). That is the reason novelty is seen as the base of most noteworthy result from KS (Markus, 2001). Darroch (2005) offers an empirical base to support the perspective that a firm with strong knowledge strategy has higher capabilities to innovate in products, processes and managerial activities. Weiss & O'Driscoll (2002) expressed the account of a real organization which executes a KS and accomplish enhancement in novelty and continuity that improves the firm's performance as a result.

Therefore, there exists a clear connection between the organizations KS and its ability to be more novel (Madhavan and Grover, 1998 and Beliveau, Bernstein and Hsieh, 2011). Along these lines, codification and personalization KS may improve novelty and improvement in the products. Beliveau et al. (2011) state that it is generally exploration through sharing of knowledge that permits the improvement of development since it emphasize on tacit knowledge , whereas Rademaker (2005) and Polder et al. (2010) propose a positive impact of explicit knowledge reuse for fundamental advancement in products and processes.

The development of KS includes all procedures which are related to creation, integration, storing, transmission and utilization of knowledge (March, 1991; Day & Wendler, 1998). The KS is progressively viewed as a vital attribute adding to an organization's quest for competitive edge through novelty (Wang and Wang, 2012; Lopez-Nicolas and Merono-Cerdan, 2011; Majchrzak, Cooper and Neece, 2004; Lee, 2004; Liao et al., 2010;Zhou et al.,

2007; Marshall, 1997; Bertot et al., 2010; Han et al., 2016; Ngah et al., 2016). Following hypothesis is offered on the basis of discussion from the above literature;

H_5: Knowledge Strategy is positively associated with novelty and continuity to improve the non-financial performance of pharmaceutical firms.

2.19 Hypothesis 6

A positive relationship between LO and firm's non-financial performance is expected on the basis of various studies (Hung *et al*., 2010). Related with the literature on LO in relation with firm's non-financial Performance; LO is considered as the source of unique knowledge creation and supreme and unfathomable asset of the resource based theory, is emphasized as the variable in the accomplishment of competitive edge (Calantone, 2002; Chang & Lee, 2007 and Song et al., 2003). The literature revealed that LO is the premise of feasible competitive advantage and a key to firm performance (Mahmoud, Blankson, Owusu-Frimong, Nwankwo & Trang, 2016; Yang et al., 2016; Martinez-Costa & Jimenez-Jimenez, 2009).

On the other hand, there is restricted empirical evidence in the industrial context that has been directed to examine the linkage between LO and FNFP . Whereas, few studies in the literature have reported a positive relationship among LO and FNFP (Huber, 1999; Lopez et al., 2005; Murray & Donegan, 2003; Tippins & Sohi, 2003, Khandekar & Sharma, 2006 and Davis & Dale, 2008). Additionally, from international perspective, few non-US empirical studies conducted in Taiwan, Spain, Singapore, Canada, have stated that there is a strong linkage between LO and FNFP

The organizations that incorporate strategies consistent with the LO are thought to achieve elevated performance (Ellinger, Elinger, Yang and Howton, 2003 and Calantone et al., 2002). Ellinger et al. (2003), Akhtar et al., (2011), Liao et al., (2010), Klene (2010), Ramirez et al., (2011), Song et al., (2003), Valaei et al., (2017), Kim et al., (2017), Kareem (2016) and Fang et al., (2016) explored and highlighted the positive nature of relationship between LO and FNFP. Following hypothesis is drawn on the basis of above discussion;

H_6: Learning Organization has positive relationship with the non-financial performance of pharmaceutical firms in Pakistan.

2.20 Hypothesis 7

Innovation is examined as advancements and new applications, with the intention of developing newness in terms of products , processes and managerial activities (March, 1991; Stella, 2012; Singh, 2011 and Caliser et al., 2016). Consequently, novelty & continuity has extraordinary suitable significance because of its potential for expanding the proficiency and the productivity of organizations in terms of financial and non-financial performance. Besides this, the connection between novelty and continuity and FNFP is evident and numerous researchers have neglected to study an immediate connection between particular sort of development and organization's non-financial performance. Metcalfe and Rees (2005) discussed that when the intensity of novelty & continuity becomes inactive, firms' financial and non-financial structure settles down in a latent state with little development and less performance. Therefore, the novelty assumes a critical part in making competitive edge and enhanced non-financial performance (Lin, 2006; Wanto and Suryasaputra, 2012; Damanpour et al., 2009; Mol & Birkinshaw, 2009; Mohanty and Kar, 2012; Ar and Baki, 20011; Aragon-Correa, Garcia-Morales and Cordon-Pozo, 2007 and Bowen et al., 2010).

In the literature, there are numerous studies which emphasize on firm's non-financial performance through innovation, novelty and continuity (Grawe, Chen and Daugherty, 2009; Gunday, Ulusoy, Kilic and Alpkan, 2011; Damanpour & Arvind, 2011). Furthermore, it has been argued that novelty & continuity is an organization's ability to improve in terms of product, process and managerial practices that enhances organization's performance as an output (Calantone et al., 2002; Camison and Villar-Lopez, 2012; Tsai, 2004; Jimeneze & Sanz, 2011; Ussahawanitchakit,2008 and Yang et al., 2009).

Additionally, Terziovski (2010) argued that the development of an organization suffers more when it begins losing the idea of novelty and uniqueness. Besides, novelty & progression has a reason for originality in the economic aspect or it is considered as conversion of knowledge into business use (Damanpour et al., 2009 and Jimenez & Sanz, 2010). Zhou et al., (2007) further contended that for an organization to be successful and competitive, the main key is innovation in its products and procedures. The present literature gives an evidence that organizations with inclination towards novelty are in much better position to meet the outside challenges of the changing markets when compared with other non-innovative organizations (Carol and Mavis, 2007; Chen, 2007; Lee, 2005; Cefis and Marsili, 2005; Camison & Villar-Lopez, 2010; Damanpour et al., 2010; Mir et al., 2016; Verwaal, 2017; Mahmoud et al., 2016; Fang et al., 2016). Thus, these various types of novelty are fairly interlinked and vigorously impacts non-financial performance. Hence, one need to investigate at this connection comprehensively as it prompts better and enhanced yields. Based on the above literature review the following hypothesis is formed;

H_7: Novelty & Continuity has a positive relationship with the non-financial performance of pharmaceutical firms.

2.21 Hypothesis 8

A KS is the precise manner an organization enhances the conversion of knowledge into a diverse competitive advantage (Dalkin, 2011). Numerous studies have assessed the impact of knowledge strategy on the firm's non-financial performance . The use of knowledge strategies facilitates organizations to have better effectual decision-making processes and allows firms both to develop new knowledge and to apply this knowledge to generate novelty in products, strategy, and processes (Hung et al., 2009; Nonaka, 2002; and Al-Faouri, 2010). The more prominent levels of advancement and enhanced procedures thusly prompt improved business sector and monetary and non-monetary performance both. The KS additionally empowers better key strategies that empower the organizations to have more noteworthy than normal long term advantages. Besides, it is contended that knowledge is shared generally within an organization and empowers better decision making (Chaung, 2004 and Beliveau et al., 2011).

A knowledge strategy permits both tacit and explicit knowledge to be developed, collected and shared utilizing various technology tools and other methods (Choi and Lee, 2002; Nonaka, 2003 and Zhou et al., 2007). Additionally, a KS is not just a data handling framework since codified knowledge is only one segment of information (Ngah et al., 2016; Hung et al., 2009). Consequently, explicit based strategies are difficult to imitate and hence not evident that it shape the basis for competitive advantage (Behery, 2008; Fatt and Khin, 2010 and Griffiths & Moon, 2011).

In order to develop effective knowledge strategy, organizations need to create specific knowledge management system to build a competitive advantage over others (Delio et al., 2018). In any case, regardless of expansive interests in KS, a significant number of the performance results are not evident and the causal association among what is essential and

what is not has not been built up observationally (Awad and Ghaziri, 2004; Fatt and Khin, 2010 and Chaung, 2004). It is further contended that organizations with more prominent level of overseeing information methodologies, and particularly tacit (PKS), must accomplish higher than normal returns (Inkinen, 2016).

Moreover, an organization general financial, economic, strategic and novel performance is subject to the extent to which the firm can utilize the greater part of the knowledge created by the firm and transform this knowledge into quality making exercises (Mavondo et al., 2005; Nonaka, 2003; Hanna, 2010; Dalkin, 2011; Han et al., 2016;). Jayaram & Xu (2016), Lin and Lee (2004), Goh (2005) and Bierly and Chakrabarti (1999) argued that knowledge strategies of the firms are the basis for competitive advantage, and that lead an organization towards optimum non-financial performance. Based on the discussed literature resulting hypothesis is produced;

H_8: Knowledge strategy has a positive relationship with the non-financial performance of pharmaceutical firms.

The literature reviewed reveals that there are wide ranges of factors which are critical in QM implementation in order to progress an organization towards a learning organization and to achieve improved non-financial performance . The role each factor plays in determining the success of an organization through achieving learning organization title, has been examined in the foregoing discussion and a few research hypotheses have been developed. From both practical and conceptual standpoints, it is of considerable importance to recognize the successful transition towards LO, firm's non-financial performance is conditioned by direct impact of QMI and mediation of LO, KS and novelty & continuity.

2.22 The Conceptual model

A conceptual model is manifestation of a wider and a general description of the phenomena. Quinn (1990) argued that conceptual model helps to share ideas and comprehensive consideration of more complicated phenomena . In a management perspective, a model is a set of speculations, general way of conceiving about observing things and phenomena (Byrne, 2010). The conceptual model is offered in figure 2.2 and dimensions of the variables in table 2.1.

This study has been designed to investigate few promulgated patterns of relationships concerning the interdependency of QMI, LO, KS, novelty & continuity (NC) and firm's non-financial performance (FNFP). Various theories about the associations among the present study constructs have been persuaded out of the conceptual model, for the purpose of testing them empirically. The model and the resultant propositions and working hypothesis are very vital component of the present study.

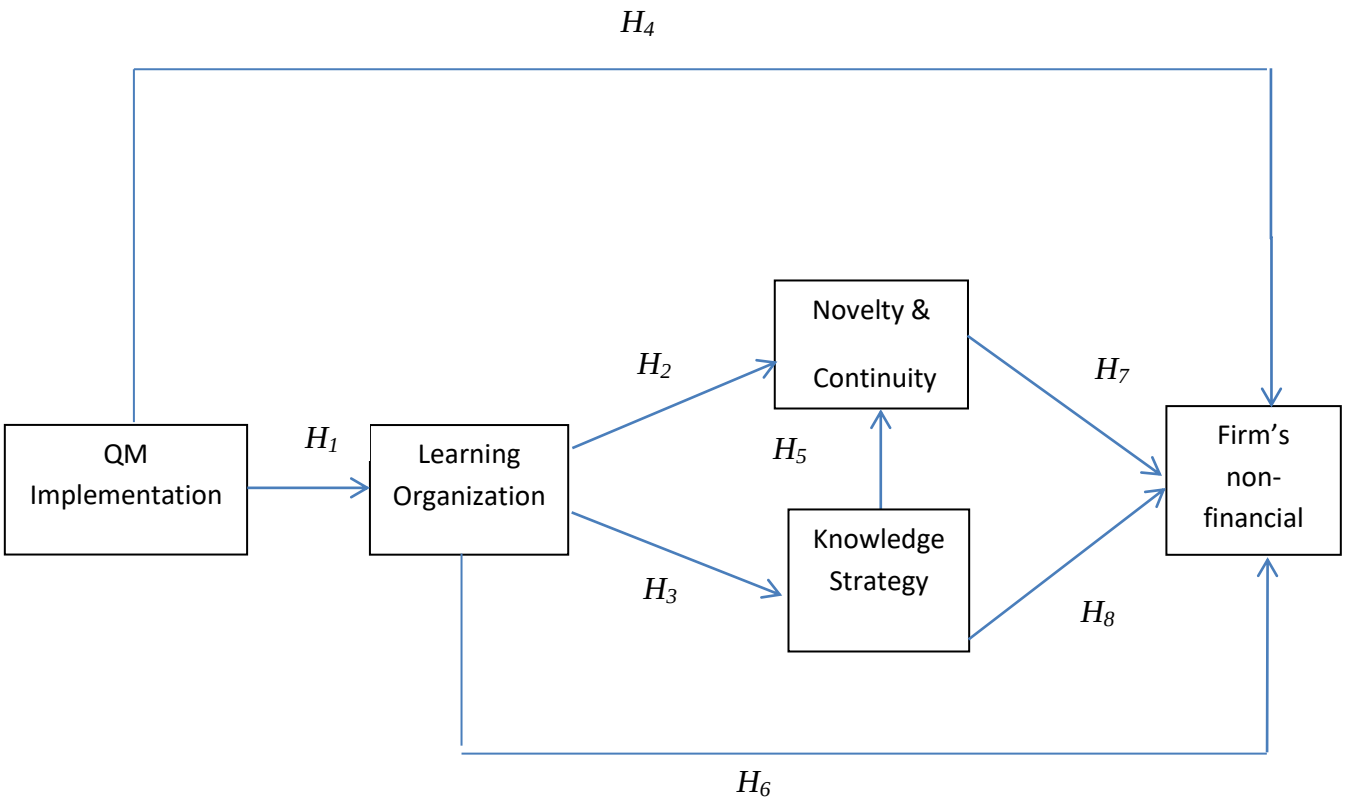


Figure 2.2: The Theoretical Framework of study

Table 2.1 Dimensions of the variables of the theoretical framework

QM Implementation	**Learning Organization**	**Novelty & Continuity**	**Knowledge Strategy**	**Firms Non-financial Performance**
1.Leadership	1.Shared vision	1.Product	1.Codification	1.Process level performance
2.Customer focus	2.System thinking	2.Process	2.personalization	2.Individual level performance
3.Workforce & process management	3.Continuous learning	3.Management practice		3.Organization level performance
4.Strategic Planning	4.Connection to environment			
5.Information & Knowledge sharing				
6.Employee participation				

2.23 Causality in Modeling

In the debate of the aims of this study, and the system utilized in that, the causality is required. The causality is normally assumed if a change in a variable X delivers change in variable Y (Hair, Black, Babin and Anderson, 2010). Likewise, it is generally perceived that causality may be interpreted yet not observed. It is thus stated that one causes another. The source of idea in the presence of causal relationship is certain in some of the studies where researcher tries to manipulate the casual effects of one on other variable with intention of yielding desired outcomes (Asparouhov and Muthe, 2010).

One of the intended results of this study is method for predicting, at a satisfactory level of certainty, the level of progress liable to be accomplished in the progression of QMI towards LO for FNFP. While variables can be demonstrated to be connected by statistical analysis, thus level of variable X used to anticipate the level of variable Y, there is slight distinction of supposition about the part of causality in non-experimental social research. Labovitz and Hagedorn (1971) have put it this way:

"The major goal of scientific research is to establish causal laws that enable us to predict and explain scientific phenomena"

The social researchers therefore may explore and study as many reasonable alternative sources of association as is feasible, given the constraints commonly imposed by research design (Hair et al., 2010). While the causal relationship between the QM implementation and the predictors identified in the study is of utmost importance, which is an issue outside the scope of this investigation. The next section of this study discusses the conceptual framework and the operationalization of the study variables.

2.24 General Description of the Model

To provide the theoretical framework, the literature related to the QM implementation and learning organization has been examined. It was therein discovered that the QM implementation leads an organization towards a learning organization and hence achieves improved firm's non-financial performance through knowledge strategy and novelty & continuity. The variables LO, KS and novelty & continuity are regarded as mediating variables, QM implementation as independent variable, firm's non-financial performance as a dependent variable are the subject of investigation. Throughout the present study, a meticulous consideration has been provided to come up with precise conceptual and operational definitions. Some definitions have risen from assessment of relevant literature, while few have been established by the researcher.

However, the logic of their interaction is not unambiguous; these variables are influenced by the QM implementation. It can be assumed based on the literature that QM implementation is a requirement for successful transition towards learning organization, knowledge strategy and novelty & continuity are the basic requirements for improved firm's non-financial performance. Thus, despite the challenge in determining a priori which comes first, they are treated simply as associated variables/constructs because the purpose is to identify the relationship between them for firm's non- financial performance.

2.24.1 Quality Management Implementation

QM Implementation is a construct which function as a vehicle for achieving and maintaining remarkable non-financial and financial performance improvements in manufacturing settings. Thus, more and more businesses are adopting QMI programs and the amount of literature

advocating the integration of QMI in pharmaceutical manufacturing is increasing (Kuruppuarachchi & Perera, 2010 and Fening, 2012). The independent variable in the present study is the QM implementation. Here in this present study the variable QM implementation is being manipulated to demonstrate a positive impact on the learning organization, so that predictions can be made as to the nature of the effect. In this study the quality management implementation has been defined conceptually as:

> *"….. A holistic management philosophy aimed to achieve customer satisfaction and to improve organizational effectiveness through continuous process improvement"*

In addition, the extensive efforts aimed at implementing quality implementation programs through leadership, sharing information with employees and workforce, and provides opportunities for them to give inputs (Hitt et al., 2016). In the empirical phase of the present study, a questionnaire has been designed and the respondents were asked about the implementation of QM programs within the organization. Following are the dimensions to measure this variable which are adopted from the studies of Ho and Fung (1994), Mann and Kehoe (1994), Black and Porter (1996) and Choi and Eboch (1998);

- Leadership
- Customer focus
- Workforce & process management
- Strategic Planning
- Information & Knowledge sharing
- Employee Participation

2.24.2 Learning Organization

It is an organization where employees continuously develop their ability to bring the desired outcomes, where novel and extroverted way of thinking are fostered, where collective goals are set free, where people are continuously learning how to learn together (Senge, 1990). Following are the dimensions for learning organization adopted from the studies of Senge (1990), Pedler (2017), Watkins (2017);

- Shared vision
- System thinking
- Continuous learning
- Connection to environment

2.24.3 Novelty & Continuity

According to Roth (2009) and Gabora (2017); “It is the creation of better and more compelling and effective items, methods, management, progressions and thoughts that are easily available to business sectors, governments, and society". Likewise, novelty is characterized as developing innovative products for customers and the organization by improving and changing one or more aspects of the products and business processes. (Zahavi, Carmeli & Arazy, 2016; Pett and Wolff., 2011). Following are the dimensions of novelty & continuity adopted from the studies of March (1991), Bierly and Chakarbarti (1996);

- Product
- Process
- Management practice

2.24.4 Knowledge Strategy

The Knowledge strategy for the purpose of present study is defined as the set of procedures and rules that form an organization's way of handling knowledge and information (Inkinen, 2016; Serenko, 2013; Kasten, 2006). The manipulation of knowledge means the creation, identification, storage, retrieval, sharing and application of knowledge. Furthermore, a knowledge strategy provides a connection among organization's strategic and knowledge activities and structures. The knowledge structures and strategies in knowledge management system act as a comprehensive guideline to create and share knowledge (Delio et al., 2018; Tuggle, 2016; Daud & Yusoff, 2010).

Mostly organizations emphasize mainly on any one of the two comprehensively characterized KM procedures "codification" or "personalization" (Hansen et al., 1999). The Codification is fundamentally considered as electronic record frameworks that arrange and store information and license its simple dispersal and reuse (Nonaka, 2003). Personalization philosophy, of course, focuses on making frameworks to urge people to people knowledge transfer and sharing (Kamuriwo & Baden, 2016). Therefore, it is considered based on expert economic related matters occupying individual capacity to others with less aptitude that may use it to help the organization's goals (Watkins, 2017).

Ngah et al. (2016) has described distinctive KM frameworks, or "schools of thought" at a point by point level. Based on the dichotomy between tacit and explicit forms of organizational knowledge, the current knowledge management literature also provides a popular classification of KM strategy, initiated by Hansen et al (1999), according to which, every organization will use either codification or personalization strategy. Following are the dimensions of knowledge strategy adopted from the study of Hansen et. al (1999);

- Codification
- Personalization

2.24.5 Firm's Non- Financial Performance

Firm's non- financial performance (FNFP) is defined as the outcome of the processes within the organization in non-monetary terms (Watkins, 2017). The firm's non-financial performance in this study is measured through following dimensions;

- Process Level Performance
- Individual Level Performance
- Organization Level Performance

All of the above discussed variables have been classified as independent, dependent and mediating variables. According to theory the researcher is working with, and need to be tested through data analysis for their impact on the dependent variable (Tabachnick & Fidell, 2012). The following table 2.2 describes each variable/construct with its description, dimension and the reference from the literature.

Table 2.2

Number	Variable	Description	Dimension	Reference
1.	QMI	A holistic management philosophy aimed to achieve customer satisfaction and to improve organizational effectiveness through continuous process improvement	Leadership	Crosby (1979), Deming (1986), Juran (1988), Hong and Fung (1994), Mann and Kehoe (1994), Anderson (1994), Gryna (1995), spencer (1994), Berry (1991), Saraph et al.(1989), Oakland (1989), Shoal (1989), Collier and Esteman (2000), Dale (2003), Evans and Dean (2003), Kanji (2002), Pun and Hui (2002), Richard et al. (2010), Lee et al. (2012), Lam et al. (2011), Kocoglu et al. (2011)
			Customer Focus	Mann and Kehoe (1994), Black and Porter (1996), Richard et al. (2010), Kocoglu et al. (2011), Lee et al. (2012), Hung et al. (2011),

				Lam et al. (2011)
			Workforce & process Management	Mann and Kehoe (1994), Kocoglu et al. (2011), Lee et al. (2012)
			Strategic planning	Deming (1986), Crosby (1979), Dean et al. (1994), Berry (1991), Hackman (1995), Oakland (1989), Shoal (1989), Choi and Eboch (1998), Cascella (2002), Claver et al. (2001), Lee et al. (2012), Lam et al. (2011)
			Information and knowledge sharing	Black and Porter (1996), Choi and Eboch (1998), Lam et al. (2011), Lee et al. (2012)
			Employee participation	Deming (1986), Iman (1986), Mann and Kehoe (1994), Gryna (1995), McAdam (2000), Richard et al. (2010), Hung et al. (2011), Kocoglu et al. (2011)
2.	LO	It is an organization where employees continuously	Shared vision	Senge (1990), Sinkula et al.

		develop their capacity to create the desired results, where novel and extroverted patterns of thinking, which are fostered, where collective ambitions are set free, and where people are continuously learning how-to-learn together		(1997), Kocoglu et al. (2011), Watkins & Marsick (2003)
			System thinking	Senge (1990), Yang et al. (2004), Kocoglu et al. (2011), Gravin et al. (2008)
			Continuous learning	Sinkula et al. (1997), Yang et al. (2004), Giesecke and McNeil (2004), Kocoglu et al. (2011), Lien et al. (2007), Ellinger et al. (2003), Watkins & Marsick (2003)
			Connection to environment	Watkins & Marsick (2003)
3.	KS	The Knowledge strategy for the purpose of present study is defined as the set of procedures and guideline that form an organization's way of handling knowledge	Codification	March (1991), Hensen et al. (1999), Garavelli et al. (2004), Martini and Pelegrimi (2005), Choi and Lee (2003), Moitra and Kumar (2007), Mom et al. (2007), Wu and Lin (2009), Fatt et al. (2010), Al-Faouri (2010), Nonaka

				(2001), Mukherji (2005)
			Personalization	March (1991), Hensen et al. (1999), Garavelli et al. (2004), Martini and Pelegrimi (2005), Choi and Lee (2003), Moitra and Kumar (2007), Mom et al. (2007), Wu and Lin (2009), Fatt et al. (2010), Al-Faouri (2010), Nonaka (2001), Mukherji (2005)
4.	N&C	It is the creation of better or more effective and efficient products, processes, services, technologies and ideas that are readily available to markets, governments, and society"	Product	Baker & Sinkula (1999), Prajogo et al. (2004), Moser (1984), Olsen et al. (1995)
			Process	Baker & Sinkula (1999), Prajogo et al. (2004), Moser (1984), Olsen et al. (1995)
			Management practice	Baker & Sinkula (1999), Prajogo et al. (2004), Moser (1984), Olsen et al. (1995)

5.	FNFP	Firm's non- financial performance (FNFP) is defined as the outcome of the processes within the organization in non-monetary terms.	Process level improvement Individual level improvement Organization level improvement

2.25 Relationship between the variables in the model

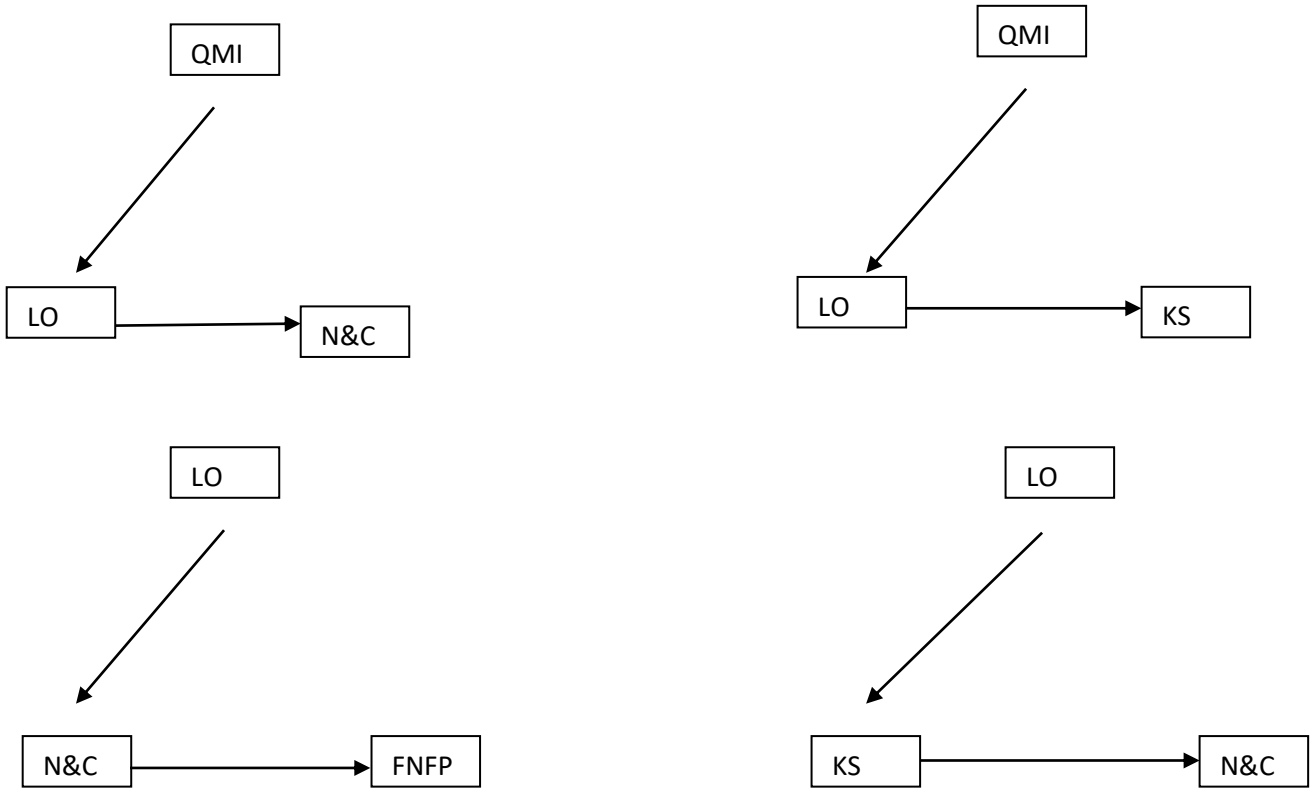
Following variables/constructs are under study in this present research; QM implementation, learning organization, novelty & continuity, knowledge strategy, firm's non-financial performance.

Independent Variable

The independent variable in the present study is the QM implementation. Here in this study the variable QM implementation is being manipulated to demonstrate a positive impact on the Learning Organization, so that predictions can be made as to the nature of the effect.

Mediating Variables

The mediating variables in this study are learning organization, novelty & continuity and knowledge strategy. The mediating variable transmits the effect of another variable (Hair et al., 2010). Two variables may not have a relationship until and unless another variable intervene in the relationship. Following figures shows the mediating relationships and the mechanism of impact in the framework.



**QMI = Quality Management Implementation* *LO = Learning Organization* *FNFP = Firm's Non-Financial performance*

N&C = Novelty & Continuity *KS = Knowledge Strategy*

All of the above associations between the constructs show the nature of relationships and the variables under study. The learning organization, novelty & continuity, knowledge strategies are mediating variables.

Dependent Variable

The firm's non- financial performance in terms of process, individual and organization level is the dependent variable of the study. The dependent variable expresses the presumed effect in a study (Muthen & Asparouhor, 2010). Therefore, it is the variable that is shown to vary as a direct result of the stipulated conditions, and is shown to vary in a predictable manner (Hair et al., 2010).

The conceptual model developed and presented in figure 2.1 (theoretical framework) provides a simple means of illustrating how QM can be communicated with in the organization and how LO is achieved through QM implementation . The logic of this model

suggests that QMI is independent variable and LO, N&C, KS are mediating variables which are causing impact on the dependent variable firm's non-financial performance.

As mentioned earlier one key inclination of the present study to explore QMI and it practices in Pharma industry is that there is a misconception in emerging economies among theorist, researchers, professionals, practitioners, and policy makers that QMI positively linked with firms' financial performance. This view is supported by many studies that have been conducted in the domain of developing economies and unfortunately in these countries the ownership of the business is very much short-term profit oriented on the cost of sustainable competitive advantage. The present study firmly believes QMI is complete philosophy that is based on continuous improvement. One of the key assumption of the present study, the mediating variables impact non-financial performance of the firm whereas financial performance is only key performance indicators apart form that their some other significant parts that are not dealing with finance but heavily contributes to improve the overall performance of the firm (e.g., Balance scorecard). The biases about the key constructs of the present study managed by applying Yin and Yang model of research. For example: to ensure the external validity through the sampling, the construct validity was ensured through the measurement, internal validity is ensured through the design of the study and finally the conclusion validity has been ensured through the analysis of the data by applying various statistical techniques.

In the next chapter, the foremost emphasis is on the discussion about the study's goals, procedure, and research design and to test the hypotheses to fulfill the general purpose of the study .

CHAPTER 3

METHODOLOGY

3.1 Brief Overview of the Research Objectives

The present chapter offers the research strategy and the procedure of data collection keeping in mind the final objective to test the model empirically which was produced in the recent section (see figure 2.2). For this particular objective, proper research strategy and appropriate data acquisition are fundamental issues. The present study examined the impact of QMI in the development towards learning organization with a specific objective to enhance non-financial performance in the pharmaceutical industry of Pakistan. For the purpose of empirically testing the model in order to validate the model in the context of Pakistani pharmaceutical various vigorous procedures are laid out in this part of the study. Every single conceivable step and contemplations are examined in this chapter. Likewise, this section is sketched out into the accompanying components of research design; including determination of research method, sampling, data collection instrument and its reliability and validity. Before the commencement of the discussion regarding research design an overview of research objectives is laid down in the next sections, which have already convened in chapter 1.

The foremost purpose of the present study is to deliver a greater understanding of the association among QM implementation and learning organization, novelty & continuity, knowledge strategy and firm's non-financial performance of the organization in a pharmaceutical industry of Pakistan. As indicated in the literature review, practitioner and the quality management experts and researchers have given a considerable attention with respect

to the above factors and the linkages between them. The emphasis in this investigation is on these factors and their interaction in the pharmaceutical context, rather than more general QM issues and context.

The QM implementation and LO are both managerial approaches, which stresses the long term development and growth of the organization on the basis of customer satisfaction and non-financial performance of the firm (Fening, 2012; Montes et al., 2003 and song et al., 2013). There is a lack of practical model about QM implementation and learning organization and the impact on non-financial performance in pharmaceutical industry. There is lack of research studies in this present context about the progression towards the learning organization. Subsequently, this study endeavors to help satisfy this gap by giving added empirical information that may be of interest to the researchers in this field . Furthermore, the present study pursue to distinguish the issues, and to recommend the factors which are important for effective progression of QMI into learning organization and its impact on FNFP in the pharmaceutical industry of Pakistan. The specific objectives of the study are summarized below;

1. To identify the relationship between the QM implementation and learning organization in a pharmaceutical industry and to study the transitional factors which lead QM oriented organization towards a learning organization.
2. To examine and analyze the role of novelty and continuity in the product, process and management practice of pharmaceutical organizations and does knowledge strategy facilitates to improve the firm's non-financial performance.

3. To develop a theoretical model by making clear nature of the interface among variables (QM implementation, learning organization, novelty & continuity, knowledge strategy and firm's non-financial performance).

4. The fourth and final objective is based on the outcome of current study, and is concerned with building realistic guidelines for pharmaceutical organizations to improve their non-financial Performance and be competitive in the dynamic environment.

3.2 Selection of Research Process

This section of the study discusses the research process and the selection of appropriate elements with rationalization. The discussion continues with the research philosophy, research approach, methods, strategy, data collection, time horizon and techniques to collect and analyze the data.

3.2.1 Research Philosophy

The research philosophy signifies to how a researcher assume and discusses about the evolution and growth of knowledge (Saunders et al., 2007). The research process involve number of philosophies including; positivism, realism, objectivism, subjectivism, interpretivism and pragmatism . However, in the context of business management and organizational behavior research methodology domain there are two appropriate widely used research paradigms including positivism and phenomenology (Hussey & Hussey, 1997 and Easterby-smith et al., 1991).

The positivism is considered as a highly systematized method to follow quantitative analysis to lead towards best empirical solutions (Saunders et al., 2007) . The essential assumption of positivism is that the area of research and researcher are impartial from each other (Remenyi & Williams, 1998). The positivism refers to an empirical quantitative research method which employs and creates mathematical models, theory and hypotheses with respect to phenomena (Saunders et al., 2007).

The positivist philosophy always involves numerical data and the researcher always emphasize on quantifiable results through statistical analysis (Tabachnick & Fidell, 2012). In this specific paradigm researcher link theories to the research curiosities and develop hypotheses. A theory is a well-defined conceptual interrelationship that may employ empirical tests (Zakun et al., 2007). A theory has four necessary properties which includes; conceptual definitions, theory purview, explained associations among constructs and predictions (Wacker, 2004) . The research hypotheses are testable predictive statements about the relationships of the constructs / variables under study in empirical research (Muthen and Asparouhor, 2010).

The positivist paradigm uses deduction, which is to begin with theory as a base and results in describing inferences for supporting or strengthening a theory and pledges to accept or reject the testable statements (Hair et al., 2010). According to Lee and Ling (2008) deduction is described in figure 3.1.

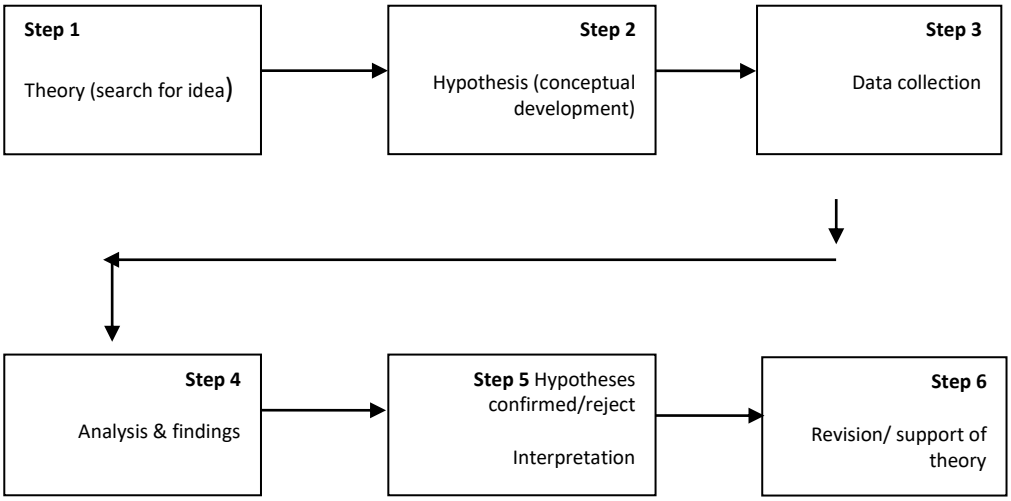


Figure 3.1: The process of deduction in positivist paradigm

Source: Lee and Lings (2008)

Moreover, the term "research design" has a general and a specific meaning as well. The general meaning refers to the plan of study and its methodology. While specific meaning pertains to the types of study (Saunders et al., 2007).

The present study is specifically concerned with the role of QM implementation in the transition of an organization towards the LO and its impact on FNFP. The researcher in the present study has reviewed the literature extensively and argued that there are certain barriers which don't let an organization transit towards a learning organization. There is a lack of research on the impeding factors which don't let QM organizations move towards a learning organization . The model of the present study is developed with the guidance seeked from the literature. To test the model empirically and to validate in the context of Pakistani pharmaceutical industry by testing the stated hypotheses , which required a structured research instrument , therefore positivist philosophy is adopted for this purpose. In this present context deductive approach best represents the positivist paradigm (Saunders et al.,

2007) . According to Hussey & Hussey (1997), the positivist's paradigm tends to have following features;

I. Tends to produce quantitative data
II. Use large sample data
III. Emphasize on hypotheses testing
IV. Data is highly precise and specific
V. The location is artificial
VI. Reliability is high
VII. Validity is low
VIII. Generalizes from samples to population

Based on the research questions outlined in the beginning of this chapter, the appropriate choice was to adopt positivist paradigm. Furthermore, this study uses deductive approach as it started with the theory, developed hypotheses based on the theory to test them. Therefore, positivist paradigm is most appropriate for the present study. However, the rationale to choose the positivist paradigm is based on the considerations recognized by hussy & hussy (1997) in the above mentioned features.

3.2.2 Research Approach

A "research approach refers to the selection of an appropriate path that is used to test the undertaken phenomena, concept, theory or a framework under study (Saunders et al., 2007). There are two approaches to use either deductive or inductive. The deductive approach as previously discussed, starts with a theory and derive hypotheses and design a research

methodology to test those outlined hypotheses . Whereas, induction approach starts with the observations and findings then move towards a theory. The complete process of deduction includes; develop theory, deriving hypotheses, data collection, analyzing data, hypotheses testing, key findings, drawing conclusions and presenting the obtained results in order to enhance and develop the knowledge (Lee & Lings, 2008).

The key features of positivist/deductive paradigm are outlined by Saunders et al., (2007) and Hussey & Hussey (1997) in the following table 3.1.

Table 3.1 Features of positivist/deductive paradigm

Positivism	**Deductive**
	A structured approach that moves from theory to data using scientific principles.
	The quantitative data
	Validity of the data is ensured by applying various controls
	Selection of sufficient samples in order to generalize conclusions

It is important to consider the nature of the research topic while choosing the research approach (Saunders et al., 2007). The purpose of present study is to investigate the factor that leads an organization towards a learning organization, and emphasize the relationship between quality management implementation and a learning organization and how LO, NC and KS mediates the relationship of QMI and FNFP . The logical flow of this research is through deductive approach, as conceptual framework has been developed and associated

hypotheses been defined, hence move from theory towards hypotheses and then towards data. The following figure 3.2 shows the approach adopted in the present study.

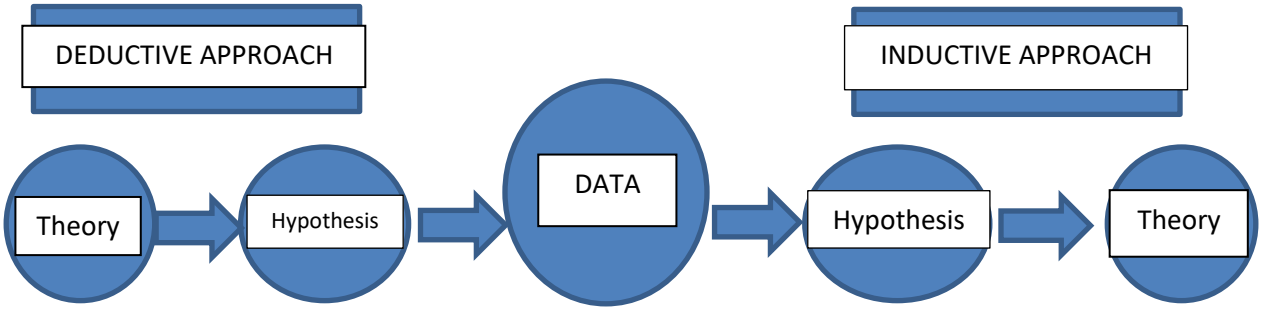


Figure 3.2: Deductive and Inductive approaches

Therefore, the purpose for selecting the deductive model is based on taking into account the accompanying contemplations distinguished by Saunders et al. (2007), yet the main objective was to test the hypotheses.

- The present study obliged an organized methodology which moves from theory to data utilizing scientific standards .

- The data collected for this study required was quantitative .

- The data would benefit by being validated and approved by applying controls and systems .
- An adequate sample size was required to generalize from samples to population .

3.2.3 Research Strategy

There are different research techniques which are utilized based on the nature and aim of the study . The strategies for research include case study, experiment, survey, grounded

theory, action research, archival research and ethnography. These methods can be utilized with explanatory, descriptive and exploratory research (Yin, 2003). To select the pertinent research method the emphasis is on the nature and focus of the study whether they are aligned with the study's aims and objectives. The researcher may employ any of the research methodologies as indicated by the need, research questions, goals, existing information and the philosophical argument of the researcher.

In the present study, identifying the relationship between QMI and LO and how quality implemented pharmaceutical firms leads towards a learning organization through positive impact on FNFP, this is the main premise of the present study based on the research questions and objectives outlined in the beginning of the chapter, to enhance the understanding of the factors leading towards a learning organization . Hence, for data collection and hypotheses testing suggested for the present study, are positivist research philosophy, deductive approach and survey based method. Therefore, time lag survey based research strategy was suitable to use in the present study primarily because of the deductive approach being used .

The time lag survey strategy is useful in collecting large amount of data from a sizeable population in highly economic way. This strategy can produce robust results when the sample size is quiet representative of the whole population (Saunders et al., 2007). It was appropriate to use survey strategy based on the research questions and the aims of the present study . The survey based methodology has been comprehensively used in examining the quality implementation (Kaynak, 2003) and relationships between different quality management aspects (Stock et al., 2006; Zu, douglas and Fredendall, 2008).

3.2.4 Research Method

According to Tashakkori and Teddlie (1998), there are three basic methods for research which are extensively used, quantitative, qualitative and mixed methods. The research simply refers in the context of present study to a search for the production of new knowledge in the area of QM implementation and learning organization. A research is an art of scientific investigation (Matveev, 2002 and Tabachnick & Fidell, 2012). Martin (1990) defines research methodology as the method of collecting and analyzing empirical evidence. The quantitative and qualitative researchers have diverse opinions about the nature of the reality, the positivists believe that there exist only one rational reality while Interpretivist perceives multiple, constructed and holistic realities (Field, 2005; Hair et al., 2010 and Franklin, 2012). The fundamental assumptions of the quantitative and qualitative paradigms result in differences which go beyond philosophical and methodological arguments (Muthen and Asparouhov, 2010).

Apparent form the literature reviews that QMI and LO research is not located in any one paradigm. Moreover, both methods have been equally used in order to reach the reality. The present study was based on the positivist paradigm. The primary goal of quantitative exploration is to design and employ numerical models, conjectures and theories relating to phenomena and the examination questions (Zakun et al., 2007). The procedure of approximation is integral to quantitative examination in light of the fact that it gives the key linkages among constructs about exact perception and numerical articulation of quantitative associations (Hair et al., 2010). In this way, quantitative researcher asks a particular, to the point question and gathers numerical data from the respondents to answer the questions and analyze the data by statistical methods.

In this way, as a QM researcher who has particular research questions and hypotheses to measure may utilize the quantitative approach keeping in mind the objectives to discover responses to the specific research problem under study. Being a deductive study, the present study has taken up a scientific procedure where a positive relationship has been theorized between different variables. This was conducively accomplished by quantitative technique that has empowered the researcher to comprehend and understand the connections between the constructs. Nevertheless, exhaustive survey of QM literature specifies a strong evidence for quantitative technique as a most viable research approach in investigations of present kind. The overviews of other alternate methodologies are being discussed in next section.

3.2.4.1 The Quantitative Approach

The use of quantitative approach gives greater value on information that may be numerically employed in a meaningful way. Rubin and Babbie (1993) stated:

> *"Quantitative research methods emphasise the production of precise and generalizable statistical findings. They believe that there is certain objectivity about reality, which is quantifiable. The data which are collected by positivists tend to be numerical and are open to interpretation by use of statistics, thus the data are said to be quantitative. When we want to verify whether a cause produces an effect, we are likely to use quantitative methods".*

If the quantitative approach is employed, it is criticized by the proponents of the qualitative approach and vice versa (Ott, 1989). However, quantitative research methods have been scrutinized for their absence of significance to process angles, for as often as possible social

occasion information just from the highest point of an association, and for their inability to investigate noteworthy associations among variables (King 1990). It was likewise condemned by Schein (1992), he contended that quantitative methods in studies went for recognizing authoritative culture and proposed a clinical methodology that depends on joint investigation through intuitive meeting in the middle of insiders and outsiders. In like manner Schein (1992) for the support of qualitative approach, Van Maanen (1979, 1983) and Sandy (1976) proposed ethnographic systems for examining organizational phenomena.

The quantitative methodology offers different points of interest over the ethnographical methodology. Subsequently, quantitative approach is more suitable for theory testing and generalizing it over the population. Moreover, the positivist paradigm amplifies impartiality and objectivity. The predicament between quantitative and qualitative methods may be outlined as a tradeoff between generalizability and details; along these lines the quantitative methodology places incredible accentuation on generalizability and less on details (Denison 1990 and Karakoyun & Kurt, 2010).

The quantitative method is viewed as more significant in QM research about particularly in view of unwavering quality, forecast and replication, which are fundamental (Karakoyun & Kurt, 2010). Joiner (1994) indicates a scientific methodology, which incorporates figuring out how to deal with the organizations as a framework, creating procedure considering, constructing choices in light of information, and understanding. The investigative way to deal with which Joiner suggests is situated in positivist paradigm.

The aim of the present study is to examine the mediating relationships of LO, NC and KS among QMI and firm's non-financial performance of pharmaceutical industry of Pakistan ,

and for this purpose quantitative research approach is deemed appropriate. It is not proposed, quantitative research method is the only right method for studying the relationships between QM implementation, learning organization, novelty & continuity, knowledge strategy and firm's non-financial performance. Mitchell and Bernauer (1998), refer to a range of authorities supporting the quantitative research approach when the objective is to develop associations among specified variables through hypotheses testing derived from predictive theories (Kerlinger, 1986 and Cobangolu et al., 2001).

Regina (1996) argued that, who used quantitative methods, remarked that "it include the exact estimation of variables and the accumulation of information under institutionalized conditions from an arbitrarily sample, through either a questionnaire or observation". Mitchell and Bernauer (1998) expressed that, in quantitative study the data is analyzed through statistical procedures keeping in mind the objective of the study an extensive number of cross-sectional perceptions with the goal of recognizing possibly strong associations between independent and independent variables. Consequently, the quantitative method is chosen for the present study for the accompanying reasons;

1. The researcher considers that the quantitative approach (where the impacts of an intervening/moderating variable on dependent variable is factually evaluated) would be more applicable to see thoroughly the nature of relationships among major constructs of the study and to present a rich relevant premise for deciphering and approving the outcomes (Cook and Reichardt, 1979; Light and Pillemer, 1982; Van Maanen, et al. 1982; 1983; Maxwell, 1986; Zakun et al., 2007).

2. The quantitative methodology comprises of systems, philosophies and activities which allow the perception, portrayal and classification of organizational phenomena in a manner that the relationship among important variables may be investigated empirically .

3. The present study's research aim identifies with the capacity of the quantitative way to deal with and bring both testability and connection into the research. The collection of data through questionnaires, gives a wide scope that may bring about a genuine impacts of the elements, associations and phenomena under study.

4. The present study identifies with the way that quantitative methodology includes an examination of phenomena in a wide assortment of naturalistic settings. Pinsonneault and Kraemer (1993) contended that the phenomena of interest must be considered in their original setting. The quantitative method in the present study not just permits a thorough study into the authoritative procedures, additionally may clear up the components that are prone to be specific to QMI for progressing an organization into a learning organization to achieve improved non-financial performance.

3.2.5 Data Collection Method

The quantitative method predominantly paired with a data collection technique such as a questionnaire and data analysis techniques which generates numerical data (Saunders et al., 2007). There are several ways to collect data through questionnaire including; paper based survey questionnaire and a web based electronic instrument. In the present research paper based survey instrument was used in order to collect data from pharmaceutical firms. The main reason to choose paper based survey questionnaire was ease of access, ease of

management and administration of the survey because not all of the respondents can have easy access to web .

Before starting the survey, pharmaceutical manufacturing organizations were divided in three groups on the basis of years of implementation of QM (2-5 years, 6-10 years and 10 or more years) and then sample was selected from each strata . The method of data collection which was personal delivery, personally administered questionnaire, personal explanation and collection was adopted in order to gain comprehensive information in order to gain insights through open ended discussions . The researcher first explained the purpose and the length of the questionnaire to the potential respondents and questionnaire was divided in two parts, second part of the questionnaire was administered after almost three months. The researcher then personally administered most of the questionnaire in order to get accurate responses from the potential respondents.

3.2.5.1 The Unit of Analysis

The unit of analysis is the major entity that is being studied. This is the “what” and “whom” that is being studied in the research (Hair et al., 2010). It is any specific context which would include individuals, groups, organizations and social artifacts (Rubin, 1995). For this specific study the unit of analysis is the QM oriented organizations in the pharmaceutical sector of Pakistan. The pharmaceutical industry develops, produces, and markets medications authorized for utilization as medicines. The pharmaceutical manufacturing organizations are permitted to produce generic, brand medicines and therapeutic devices. They are liable to an assortment of laws and regulations with respect to the protecting, testing and guaranteeing wellbeing and adequacy and promoting of medications.

The purpose here is to make a refinement, between pharmaceutical organizations for which quality adherence is the most critical aspect. Consequently, in this study, a pharmaceutical manufacturing organization is any organization out in the open segment, non-revenue driven segment and in addition for private for-benefit mechanical organization which have executed quality administration programs (populace over 100 workers) that are given particular obligation regarding quality management activities in the organization

The present study investigates a set of pharmaceutical manufacturing organizations that have been engaged in quality management implementation programs and continuously working towards transforming their processes, products and managerial practices into learning organization (becoming continuously creative & innovative). The participants in this investigation were pharmaceutical firms with their specific number of years in quality management implemented organization. These pharmaceutical firms were surveyed and data was gathered using structured research instrument with the time lag method and then information collected was used to answer the central research questions of the present study .

3.2.5.2 Response Rate

It was expected that non reaction rate would be one of the real issue of data collection. The sampling bias may be accelerated through low response rate. The survey quality is determined through the response rate. Consequently, numerous researchers trust that higher responses may guarantee more exact survey results (Aday, 1996; Babbie, 1990; Rea & Parker, 1997; Hair et al., 2010 and Tabachnick & Fidell, 2012).

In addition, phone calls and appointments were made prior to the questionnaire survey in order to increase the response rate. The researcher developed the questionnaire look simple and easy to fill , arrange the questions topic by topic and a covering letter to address the respondents. In turn, these simple methods are believed to increase the response rate, if all are employed together (O'Sullivan & Rassel, 1995 and Tabachnick & Fidell, 2012). Hence, the method of data collection ensured the achieved sample as good in terms of response rate. In the present study almost 50% response rate was achieved.

3.2.6 The Time Horizon

The next most important issue is regarding the time frame of the study. The ideal option is a longitudinal study to achieve the best result which involves detailed records over an extended period of time (Hair et al., 2012). However, the time constraints are always present secondly the indeterminate duration of quality management programs make this virtually impossible to do, within the scope of this research. For this purpose time lagged approach to collect data was followed . Therefore, the best alternative was to study organizations in detail at two different points in order to reduce the common method bias . The approach adopted here intends at maximizing the informative power of the data collected and to gain insights about the organizations through time lag by informant's opinion .

3.3 Sampling Method

A sample is a small subset of the whole population under study which holds all the true characteristics of the population (Zikmund, 2003; Saunders et al., 2007 and Tabachnick &

Fidell, 2012). In most business management research, it is not possible to analyze all the components of the population under study. Subsequently, the utilization of sample gives enough essential information to investigate the idea under inquiry which truly represents the population. In this way, it was intended to gather data from enough samples from the pharmaceutical firms in order to make generalizations of the findings.

The extensive literature review revealed that a theoretical foundation of QM has been long established, though practical implementations are still in its early phases in Pakistani organizations. The task of identifying the pharmaceutical manufacturing organizations that are implementing QM programs in true spirits and are in attempts to transit towards the title of a learning organization was not easy. Gaining access to such organizations was one of the greater challenges of the present research .

The major classification for sampling design are; probability and non-probability sampling . The probability sampling allows all the sampling units to be included in the sample whereas; in non-probability sampling all sampling units are not included in the sample (Neuman, 2004 and Saunders et al., 2007). Nevertheless, the data was collected based on stratified probability sampling theory to achieve the best possible results and the representation of pharmaceutical industry .

3.3.1 Sampling Plan

A sampling plan is a comprehensive outline about which measurements were taken at what time, on which material, in what manner, and by whom (Saunders et al., 2007 and Hair et al., 2010). The sampling plan should be designed in such a way that the resulting data contains a representative sample of the parameters of interest and allow for all questions, as stated in the

goals, to be answered. For the present study respondents were contacted prior to distributing questionnaire, then survey was personally administered through time lag survey design. It was also ensured that the maximum numbers of questionnaires were personally administered with open ended discussions. The prior approval of senior managers were taken in advance, and this approval was specifically mentioned to the respondents in order to get the true experiences and perceptions. The purpose of the study was explained by the researcher; the length and nature of questionnaire and confidentiality of the results were ensured. Furthermore, this approach ensured the clarification of any issues which may arise from respondent's efforts to complete the instrument, and may additionally generate valuable open ended responses on the concerned issues .

3.3.2 Sampling Process

The sampling process is choosing respondents from a population in order to make generalizations about the phenomena under study from sample to population (Pinsonneault & Kraemer, 1993; Saunders et al., 2007 and Muthen & Asparouhov, 2010). The most crucial element of sampling procedure is the choice of sampling frame so that subset of population holds all the true characteristics of the population, from which the sample is selected. The sampling frame must properly represent the unit of analysis (Pinsonneault & Kraemer, 1993 and Smith, 2001). As stated number of times, the present study was conducted in the pharmaceutical manufacturing organizations which have implemented quality management programs and trying to move towards a Learning Organization. In the present study, ISO 9000 and GMP's is considered as closely related to QMI because the latest version of ISO help companies to bridge the gap between quality assurance and QM, and it was further

argued that ISO 9000 closely reflects the basic principles of QMI (Kartha, 2004). Sampling process is described in detail in the following section.

3.3.3 Sampling Population

A population is defined in every study's context in terms of elements, sampling unit, extent and time. Population of the present study is defined in the following terms as:

Table 3.2

Element	Quality managers of the pharmaceutical manufacturing organization
Sampling unit	Pharmaceutical manufacturing organization either national or international
Extent	Those organizations which have implemented quality management programs
Time	In the past (2-5 years, 6-10 years and 10+ years)

Eliminating any of the above specifications would give an incomplete definition of population to be sampled. Incomplete and incorrect definition of sample would lead towards the meaningless and misleading results.

3.3.4 Sampling Frame

The sampling frame for the present study was all listed pharmaceutical manufacturing organization with Security and Exchange Commission of Pakistan (SECP) with in Pakistan

who have implemented QM. From this sampling frame the potential respondents were selected through stratified probability sampling. Contacts were made first on the senior management levels in order to let their employees participate in the study. The quality managers who were involved in the QM Implementation programs were the potential respondents and they were contacted on the premises of their organization.

3.3.5 Sampling Unit

The sampling unit which contains the elements of the population to be sampled, in this present study both national and international pharmaceutical manufacturing organizations were considered . In order to encapsulate the perceptions of the potential respondents and their experience with QM implementation programs, numbers of participants were selected through stratified probability sampling technique.

3.3.6 Sample Size

The planned sample size for the present study was at least 50% of the sample population. Sample population is all the pharmaceutical manufacturing organization in Pakistan. Total sample population is 750 pharmaceutical manufacturing organizations currently operating with in Pakistan. The total numbers of respondents for this study were 400, with almost 50% of response rate achieved. The number of organizations to be sampled in order to get the data must be sufficiently large as to provide stability in the response about their perception and experience, however no predetermined sample size was imposed, which is also consistent with the Bayesian approach to sample-size determination (Shi and Lee, 1998).

3.4 Purpose of the Research

The present study aimed to provide detailed and comprehensive information about pharmaceutical manufacturing organizations and their quality operations, in addition, information about the perceptions of the participants in this study regarding quality management implementation and its transition towards the learning organization for the maximization of non-financial performance and also considering the mediating impact of LO, NC, KS between the relationship of QMI and FNFP through serial mediation.

3.5 Anticipated Challenges to the Research

The theoretical foundations of quality management implementation have been long established, the practical implementation of the various quality management methodologies are still in its early stages. As a result, especially because of the nature of this form of managerial processes unobservable and confidential, it is challenging to identify the organizations which have been involved in the process of transition towards learning organization . Consequently, due to extreme competition gaining information from such organizations was a greater challenge.

3.6 Operational Definitions of Key Variables

The utmost attention has been given throughout the whole study towards the concise conceptual and operational definitions. Few definitions have been evolved from the literature review, whereas, other were developed by the researcher. In the present study, QM implementation is an independent variable, learning organization, knowledge strategy and

novelty & continuity are mediating variables and firm's non-financial performance a dependent variable. More specifically, the relationship between these variables are hypothesized as cause and effect relationships. The operational definitions of all the variables and their measurement instrument with scaling are presented below .

3.6.1 Conceptual and Operational Aspects of QM Implementation

The present study is concerned with the factors which are important in the successful implementation of QM programs which are critical to transform the firm into a learning organization (LO) . The term "implementation" is used here in a context which refers to quality management processes which constitutes a QM program. The term implementation may be considered in following ways;

1. QM implementation is considered as a synonym for the word "started", this can be described as a time lagged view of implementation at two points of time.
2. QM implementation may also be considered as longitudinal process of implementation, as in this sense it spans the period from initial planning and development of QM programs till the point where it is complete in some sense.
3. QM implementation may also be considered as the "processes", which may include specific acts, strategies and tactics in order to bring about specific change in an organization.
4. QM implementation may also be considered as "structural", which may include bringing changes in the structure of an organization in order to accommodate the QM programs.

5. QM implementation may also be viewed as a comprehensive or a system's view point, which integrates all the processes, functions and structures occurring over a specific period of time, aimed at achieving quality objectives.

Operationally, the approach adopted here in the present study is comprehensive or systems view, taking into consideration the integration of all aspects in an organization. Operationally, it would be apparent in the data collection phase where respondents were asked to describe and evaluate QM programs in their organization. This approach is consistent with work of Flagman (1954), Corbally (1956) and Camarero (2007) where the choice of what to report is left to the judgment of the respondent, rather than being imposed by the investigator.

Throughout the present study, focused attention has been given to succinct conceptual and operational definitions . Some definitions have been developed from the literature while others have been developed by the investigator during the process of investigation . The factors which have been identified in the present study are QM implementation, learning organization, novelty & continuity, knowledge strategy and firm's non-financial performance. The operational definition of independent, mediating and dependent variables are presented below .

3.6.2 Operational Definitions of QM Implementation

In the present study the QM implementation has been conceptually defined as:

"*…….a holistic approach of management philosophy that directs a firm in its daily management operations, requiring continuous individual effort and continuous process improvement, in order to achieve organizational quality goals".*

The important theory of QMI is the involvement of every employee at different levels and departments in the organization. The present study included all the employees who are a part of quality management directly/indirectly.

3.6.2.1 QM Implementation Dimensions, Items and Scale

In this context 30 items were used to measure the six common dimensions (leadership, customer focus, work force & process management, strategic planning, information & knowledge sharing and employee participation) of the factor QM implementation discussed in the literature review section (chapter – 2). These dimensions of QM implementation were identified by the number of academicians and practitioners from the literature. These dimensions are widely accepted for devising a basis for implementing a quality management programs in the pharmaceutical manufacturing organizations. The measures/dimensions have good theoretical foundation and a strong indication of construct validity and reliability (Prajogo & Cooper, 2010). These QM implementation factors/dimensions are applicable to any type of an organization and encompass a set of key determinants for the successful transition towards the title of a "learning organization". Following are the dimensions for QM implementation:

1. Leadership (5 items)
2. Customer focus (5 items)
3. Work force & process management (5 items)

4. Strategic planning (5 items)
5. Information & knowledge sharing (5 items)
6. Employee participation (5 items)

These dimensions and their items have been carefully chosen after the extensive review of literature from the quality management works. Following table states the items of each dimension which are adapted from Quality improvement implementation survey II by Stephen M. Shortell (1992) and Questionnaire on QM implementation by Md. Syduzzaman (2004).

Table 3.3

Items
Leadership
1. Top management strongly encourages employee involvement in quality management activities in the organization .
2. Top management empowers employees to solve quality problems within the organization .
3. Top management arranges adequate resources for employee education and training in the organization .
4. Top management actively participates in the quality management and improvement process in the organization .
5. Top management is committed to the QM implementation in the organization and set clear goals for quality improvement .
Customer Focus
1. The organization refers to customer needs to develop business strategies .
2. The organization refers to customer needs through market research for developing new products .
3. The organization always conducts market research in order to collect suggestions for improving the products .

4. Quality related customer complaints are treated with top priority in the organization .
5. The organization collects extensive complaint information from the customers .

Work Force & Process Management

1. The organization has knowledge of lost customers and investigates the reasons .
2. The employees work as team but guided by clear goals in the organization .
3. The employees understand their respective roles in the organization .
4. The employees are encouraged to develop new and innovative ways for better performance .

Strategic Planning

1. The organization has a comprehensive and structured planning process which regularly sets and reviews short and long term goals .
2. The employees believe that strategic plans and the tactical plans are linked to quality values of the organization .
3. The organization has a written statement of strategy covering all business operations which is clearly articulated and agreed by the senior managers .
4. The organization has a QM oriented mission statement which has been communicated throughout the company and is supported by the employees .
5. The organization always incorporates supplier capabilities, and needs of the other stake holders including the community when the organization develops its plans, policies and objectives .

Information and Knowledge Sharing

1. There is availability of key performance figures for the analysis and decision making in the organization .
2. There is knowledge, availability, access and collection of data in the organization .
3. The organization analyses all work processes and systems .
4. There is availability of regular strategic planning in the organization .
5. There are regular reviews on organization's quality performance in the organization .

Employee Participation

1. There is strong commitment to quality at all levels of the organization .
2. Employees are encouraged to verbalize how things could improve supervisory reinforcement in the

organization .

3. Employees have relatively high level of authority over their work related decisions in the organization .
4. Employees constantly look for ways to improve their work in the organization .
5. The employees are supportive towards QM implementation programs in the organization .

The respondents were asked to measure each of the items on a 5-point Likert scale. These items have been carefully chosen in order to assess the status of QM implementation and the level of participant's knowledge and understanding of quality management issues. Respondent were asked to rate these items on the following scale:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

3.6.3 Operational Definition of Learning Organization

Learning organization in the present study has been conceptually defined as an organization which is continuously modifying, creating, acquiring, improving, innovating and transferring knowledge to individuals within the firm . The present study contended that Learning Organization is a state which is achieved through successful implementation of quality management . Learning organization is considered as a direct consequence of successful QM implementation. This construct is measured through four dimensions adopted from previous studies (Senge, 1990; Sinkula et al., 1997;Watkins & Marsick, 2003;Yang et al.,

2004;Rhodes et al., 2008 and Kocoglu et al.,2012). For the learning organization measurement items were adopted from the dimensions of learning organization questionnaire (DLOQ) developed by Watkins & Marsick (2003) and Senge (1990).

3.6.3.1 Learning Organization dimension, items and scale

In this context 16 items were used to measure the four chosen dimensions of Learning Organization. The respondents were asked to evaluate the degree to which their organization relates to shared vision, system thinking, continuous improvement and connection to the environment. Following are the dimensions of the learning organization adapted from the studies of Watkins & Marsick (2003) and Senge (1990):

1. Shared vision (5 items)
2. System thinking (5 items)
3. Continuous learning (3 items)
4. Connection to the environment (3 items)

The following table gives the item details of each dimension of the construct.

Table 3.4

Items
Shared Vision
1. There is total agreement on our organizational vision across all levels, functions and divisions of an organization.
2. My organization gives a chance to everyone to share organization's vision and objectives.
3. I have clear vision and objectives regarding my organization.
4. There are regular meetings with stake holders of the organization about the vision of my organization.
5. A shared vision statement serves as a source of inspiration for all the employees in the organization.
System thinking
1. My organization encourages employees to think from a global perspective .
2. My organization works together with the outside industry to meet mutual needs .
3. My organization encourages employees to get answers from across the organization when solving problems .
4. My organization recognizes and encourages employees for taking initiatives .
5. My organization supports and encourages employees who take logical decisions .
Continuous learning
1. In my organization, people help each other to learn new techniques to resolve work related issues .
2. In my organization, people are rewarded for learning new techniques and tools to achieve the set goals .
3. In my organization, top management develop and support the learning activities.
Connection to Environment
1. My organization works together with the outside community to meet mutual needs .
2. My organization encourages people to get answers from across the organization when solving problems .
3. My organization encourages people to think from broader perspective in order to compete with the competitors .

The respondents were asked to measure each of the dimensions on a 5-point Likert scale. These items have been carefully chosen in order to assess true spirit of a Learning Organization and the level of participant's knowledge and understanding of learning issues. Respondent were asked to rate these items on the following scale:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

3.6.4 Operational Definition of Novelty & Continuity

The novelty & continuity is operationally defined in this context as the improvisation in the spontaneous and creative process by attempting to achieve an objective of an organization in a new and improved way. The difference between novelty and continuity has been described as the tradeoff between exploration and exploitation. novelty refers to the exploration as discovering the newness while continuity refers to exploitation of the existing ideas in order to improve them.

3.6.4.1 Novelty & Continuity dimension, items and scale

In the present context 15 items were used in order to measure the construct. In measuring Novelty & Continuity, Baker & Sinkula (1999), Prajogo et al., (2004), Moser (1984) and Olson et al., (1995) determined the novelty & continuity by measuring innovation in product,

process and management practice using quantitative indices. Following are the dimensions in order to measure the construct:

1. Product (6 items)
2. Process (5 items)
3. Management practice (4 items)

The following table shows the items of the construct.

Table 3.5

Items
Product
1. The speed of R&D of our organization is faster than our competitors .
2. The speed of process & production improvement is faster than our competitors .
3. The speed of innovating a new logistic way is faster than the competitors .
4. R&D has improved production innovation skills within the organization .
5. Compared to our competitors, production in our company is more customized according to the customer's needs .
6. Compared to our competitors, the production in our company offers more innovative products to the customers .
Process
1. The company has continuously used innovative technology to improve the quality of products for our customers .
2. The latest human resource practices are adopted in this organization .
3. The job design innovation is more diversified than our competitors .
4. The organizational structure innovation is more flexible than competitors .
5. During the last three years our patent registration has increased significantly .
Management Practice
1. During the last three years, the comparative advantage of our company has improved significantly .

2. During the last three years, the employee productivity has improved significantly .
3. The innovative managerial & work practices are adopted in our organization .
4. The management practices for innovation processes are developed by the organization .

The respondents were asked to measure each of the dimensions on a 5-point Likert scale. The respondents were asked to rate these items on the following scale:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

3.6.5 Operational definition of Knowledge Strategy

Knowledge strategy is operationally defined as; organization's business strategies that are related with intellectual resources and capabilities, these knowledge strategies identifies the knowledge gaps and surpluses then through implementation of required Knowledge Strategy, these gaps are managed to enhance organizational performance. In the present context of the study knowledge strategy is being taken as a strategy for sharing the knowledge in the organization. For this purpose, two knowledge strategies are being studied; codification knowledge strategy and personalization knowledge strategy used by Garavelliet et al.(2004), Martini & Pelegrimi (2005), March (1991), Hensen et al. (1999), Wu & Lin (2009), Moitra & Kumar (2007) and Mom et al. (2007) in their studies. The codification knowledge strategy is about transforming tacit knowledge into the explicit knowledge and is technology related.

The personalization knowledge strategy emphasizes the tacit nature of knowledge and is related to people-to-people approach (Wu & Lin, 2009).

3.6.5.1 Knowledge Strategy Dimensions, Items and Scale

In the present context 18 items were used in order to measure this construct. The dimensions "Codification" and "Personalization" of the construct were measured on the basis of questionnaire items which were adapted on the basis of previous studies (such as Fatt et al., 2010; Al-Faouri, 2010; Mukherji, 2005; Nonaka et al., 2001; Hansen et al., 1999; Muqadas et al., 2016). In the present context codification means how well the organizational knowledge is put up in a black and white or codified. Whereas personalization strategy means how that knowledge is shared that is present in the mental models of the superior employees. Following are the dimensions in order to measure the construct:

1. Codification (9 items)
2. Personalization (7items)

Following table states the items of the construct;

Table 3.6

Items
Codification
1. My skills to perform the routine tasks are well detailed & codified.
2. The problem solving methods are well detailed & codified.
3. Results of the different projects are well documented.
4. Results of the regular meetings are detailed & documented.

5. Knowledge is shared in formal documents like manuals, memos, minutes and write ups.
6. Knowledge in my organization can be acquired easily through formal documents or in databases.
7. Information about different projects is usually acquired afterwards through formal and informal manner.
8. Training courses are designed in a way that individuals share their knowledge among each other.
9. Training contents can be retrieved afterwards by means of recorded memos, minutes and other documents.

Personalization

1. It is easy to get face to face advice from specialized individuals within the organization.
2. We sufficiently arrange informal meetings for knowledge sharing among individuals within the organization.
3. Knowledge is shared through one-by-one mentoring of individuals within the organization.
4. In our organization, experienced employees guide younger employees.
5. We frequently set up client meetings per project in our organization.
6. Knowledge can be easily acquired from experienced employees within the organization.
7. It is hard to acquire knowledge from co-workers within the organization.

The respondents were asked to measure each of the dimensions on a 5-point Likert scale. The respondents were asked to rate these items on the following scale:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

3.6.6 Operational Definition of Firm's Non-Financial Performance

In the present context firm's non-financial performance is operationally defined as measuring the performance of a firm's policies and operations in non-monetary terms. These results are reflected in firm's overall performance.

3.6.6.1 Firm's Non-Financial Performance dimension, Items and Scale

In the present study Firm's Non -Financial Performance has been measured through the following dimensions;

1. Process level performance (6 items)
2. Individual level performance (6 items)
3. Organizational level performance (6 items)

The process level performance in the present context means the performance of an organization in terms of the production processes. Individual level performance means the performance of the employees in the organization. Organizational level performance means the overall performance of the organization.

The following table states the items of the construct which were developed by the researcher on the basis of the literature review.

Table 3.7

Items
Process Level Performance
1. There is reduction in cycle time of the production process.
2. There is significant reduction in customer complaints.
3. There is reduction in defect rates of product & process.

4. There is improvement in overall process efficiency of the processes.
5. There is improved manufacturing time and customer delivery times.
6. The process of my organization is more efficient & productive.

Individual Level Performance

1. I understand the business vision & goals of my organization.
2. Senior management has communicated a clear plan for meeting our business vision & goals.
3. Managers are rewarded for mentoring & developing their employees.
4. Measures of quality exist to evaluate my job performance.
5. My efforts are recognized & appreciated towards personal improvements & achievements.
6. Decisions about my compensation have been consistent with my performance.

Organization Level Performance

1. There is increase of flow of information among departments within the organization.
2. There is increase in team work and cooperation among employees within departments.
3. The organization has increased the percentage of retained customers
4. The organization owns a competitive advantage over the competitors based on its relationship with customers.
5. The organization has improved its image and quality of products in the market.
6. The customers of my organization are loyal & committed towards our products.

The respondents were asked to measure each of the dimensions on a 5-point Likert scale. The respondents were asked to rate these items on the following scale:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

3.7 The Validity and Reliability of the Research Instrument

The validity and reliability of measures taken in a study reflects the level of confidence which may be achieved in the results yielded by the measures (Griffith, 2010). Furthermore, validity and reliability relates to the rigor of the methods used in the study. The Validity alludes to the degree to which researcher is measuring which is proposed to be measured (Christensen, 1991 and Rubin & Babbie, 1989). The unwavering quality alludes to the degree to which the same results are achieved when same procedure is utilized at diverse point as a part of times (Christensen, 1991 and Rubin & Babbie, 1989). The different tests are used to evaluate the validity and reliability of the scales utilized as a part of the study survey instrument.

A well designed survey was utilized to collect information for the present study including items already validated by various quality management specialists (Tagliaferri, 1991; Saraph et al. 1989). An additional set of items regarding the measurement of the constructs (QMI, LO, N&C, KS and FNFP) of the present study were added.

The researcher utilized various sources as a part of adding to these inquiries in the survey instrument. The published and already validated instruments were found in the literature for QMI and Learning Organization, a pilot and pre-testing was conducted to establish the content validity of the instrument.

Table 3.8: Reliability Analysis in Pilot Testing

Variable Name	No of items	Reliability
Quality Management Implementation	29	.793
Learning Organization	16	.908
Novelty & Continuity	15	.913
Knowledge Strategy	16	.846
Firm's Non-Financial Performance	18	.922
N (sample size) = 80		

The reliability of all the constructs in the questionnaire are very significant and shows that data instrument has a high reliability to achieve reliable data every time it is going to be used.

3.8 The Pilot Test

The purpose of the pilot test is to ensure the general feasibility of the data collection method and precisely assess the validity and reliability of the research instrument (Saunders et al., 2007 and Tabachnick & Fidell, 2012). The questionnaire in the pilot test contains all the intended questions in the wording, sequence and format that pre testing has indicated would be appropriate in the final survey . Tull and Hawkins (1990) proposed:

"A pilot test requires five types of decisions, what items should be in the pilot test, how should the pilot test be conducted, who should conduct the pilot test,

which respondents should be involved in the pilot test, and how many respondents should be used".

For the purpose of pilot test sample was taken as 80, various test for the reliability and validity of the questionnaire were done using SPSS, including Kaiser Meyer Olkin (KMO) and Bartlett's Test for sampling adequacy and sphericity for each variable of the study. The respondents in the pilot test were 20 professors for the content analysis from the various universities, and 60 were quality managers from pharmaceutical firms.

Table 3.9 KMO and Bartlett's Test for QMI

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	1156.080
	Df	406
	Sig.	.000

Table 3.10: Component Matrix Table for QMI

Code	Items	Extraction
QMI11	Top management strongly encourages employee involvement in quality management activities in the organization .	.641
QMI12	Top management empowers employees to solve quality problems within the organization .	.837
QMI13	Top management arranges adequate resources for employee	.717

	education and training in the organization .	
QMI14	Top management actively participates in the quality management and improvement process of the organization .	.642
QMI15	Top management is committed to the QM implementation in the organization and sets clear goals for quality improvement.	.667
QMI21	The organization refers to customer needs to develop business strategies	.570
QMI22	The organization refers to customer needs through market research for developing new products.	.729
QMI23	The organization always conducts market research in order to collect suggestions for improving the products .	.755
QMI24	Quality related customers complaints are treated with top priority in the organization .	.519
QMI25	The organization collects extensive complaints related information from the customers .	**.379**
QMI31	The organization has knowledge of lost customers and investigates the reasons .	.635
QMI32	The employees work as team but guided by clear goals in the organization .	.538
QMI33	The employees understand their respective roles in the organization.	.634
QMI34	The employees are encouraged to develop new and innovative ways for better performance .	.560
QMI41	The organization has a comprehensive and structured planning process which regularly sets and reviews short and long term goals .	.651

QMI42	The employees believe that the strategic plans and the tactical plans are linked to quality values of the organization .	.600
QMI43	The organization has a written statement of strategy covering all business operations which is clearly articulated and agreed by the senior managers .	**.498**
QMI44	The organization has a mission statement which has been communicated throughout the company and is supported by the employees .	**.067**
QMI45	The organization always incorporates supplier capabilities, and needs of the other stake holders including the community when the organization develops its plans, policies and objectives .	.543
QMI51	There is availability of key performance figures for the analysis and decision making in the organization .	.576
QMI52	There is availability of knowledge, and access to the relevant information and their use within the organization.	.504
QMI53	The organization analyzes all work, process and systems.	.799
QMI54	There is availability of regular strategic planning in the organization.	.650
QMI55	There are regular reviews on organization's quality performance in the organization .	.590
QMI61	There is a strong commitment to quality at all levels of the organization .	.658
QMI62	Employees are encouraged to verbalize how things could improve supervisory reinforcement in the organization .	.799
QMI63	Employees have relatively high level of authority over their work	.633

	related decisions in the organization .	
QMI64	Employees constantly look for ways to improve their work in the organization .	.530
QMI65	The employees are supportive towards QM implementation programs in the organization.	.688

The above table shows the result of exploratory factor analysis (EFA). The principle component analysis (PCA) with Varimax rotation was conducted on 29 measurement items to screen them and identify the underlying dimensions . The value for Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.815, the values for Bartlett's Test of Sphericity were: Chi-square = 1287.168, degree of freedom = 406, and level of significance (p) = 0.000 . The Communalities extraction which are highlighted in the above table values is <0.50 in the initial stage and hence these items were not considered for final questionnaire which was distributed at final data collection stage. Here, it is pertinent to mention that KMO ≥0.7, p ≥ 0.05, and communalities extraction ≥0.5 is good for the validity of factor analysis . The PCA produced six factors, those six identified factors underlying explained 60.72% of the total variance. The table 3.10 shows the factors underlying with communalities, these items were further used for confirmatory factor analysis (CFA) and structural equation modeling (SEM) .

Table 3.11 KMO and Bartlett's Test for LO

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	607.700
	Df	120
	Sig.	.000

Table 3.12: Component Matrix Table for LO

Code	Items	Extraction
LO11	There is total agreement among individuals on the organizational vision across all levels, functions and divisions of an organization .	.682
LO12	My organization gives a chance to everyone to share organization's vision and objectives.	.649
LO13	I have a clear vision and objectives regarding my organization.	.670
LO14	There are regular meetings with stake holders of the organization about the vision of my organization.	.638
LO15	A shared vision statement serves as a source of inspiration for all the employees in the organization.	.766
LO21	My organization encourages employees to think from a global perspective .	.688
LO22	My organization works together with the outside industry to meet mutual needs .	.630

LO23	My organization encourages employees to get answers from across the organization when solving problems .	.608
LO24	My organization recognizes and encourages employees for taking initiatives .	.720
LO25	My organization supports and encourages employees who take logical decision .	.598
LO31	In my organization, people help each other to learn new techniques to resolve work related issues .	.739
LO32	In my organization, people are rewarded for learning new techniques and tools to achieve the set goals .	.563
LO33	In my organization, top management, top management develops and supports the learning activities.	.517
LO41	"My organization works together with the outside community to meet mutual needs .	**.478**
LO42	My organization encourages people to get suggestions from across the organization when solving problems .	.573
LO43	My organization encourages people to think from broader perspective in order to compete with the competitors .	.768

The above table shows the results of exploratory factor analysis . The principle component analysis (PCA) with varimax rotation was conducted on 16 measurement items to screen them and identify the underlying dimensions . The value for Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.823, the vales for Bartlett's Test of Sphericity were; Chi-square = 673.930, degree of freedom = 120, and level of significance (p) = 0.000 . The

communalities extraction which are highlighted in the above table values is <0.50, in the initial stage so these items were not considered for final questionnaire which was distributed at final data collection stage . Here, it is pertinent to mention that KMO ≥ 0.7, p ≥ 0.05, and communalities extraction ≥ 0.5 is good for the validity of factor analysis . The PCA produced four factors, these four identified factors underlying explained 64.29% of the total variance. The table 3.12 shows the factors underlying with communalities . These items were further used for confirmatory factor analysis and structural equation modeling .

Table 3.13 KMO and Bartlett's Test for N&C

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.889
Bartlett's Test of Sphericity	Approx. Chi-Square	578.904
	Df	105
	Sig.	.000

Table 3.14: Component Matrix Table for N&C

Code	Items	Extraction
NC11	The speed of R&D of our organization is faster than our competitors .	.670
NC12	The speed of process & production improvement is faster than our competitors .	.655
NC13	The speed of innovating a new logistic way is faster than the competitors .	.608

NC14	R&D has improved production innovation skills within the organization	.520
NC15	Compared to our competitors, production in our organization is more customized according to the customer's needs .	.719
NC16	Compared to our competitors, the production in our organization o more innovative products to the customers .	.546
NC21	The company has continuously used innovative technology to improve the quality of products for our customers .	.601
NC22	The latest human resource practices are adopted in this organization .	.592
NC23	The job design is more diversified than our competitors .	.556
NC24	The organizational structure innovation is more flexible than competitors .	.641
NC25	During the last three years our patent registration has increased significantly .	.537
NC31	During the last three years, the comparative advantage of our company has improved significantly .	.668
NC32	During the last three years, the employee productivity has improved significantly .	.595
NC33	The innovative managerial & work practices are adopted in our organization.	.693
NC34	The management practices the innovative processes which are developed by the organization.	.752

The above table shows the result of exploratory factor analysis . The principle component analysis (PCA) with Varimax rotation was conducted on 15 measurement items to screen them and identify the underlying dimensions . The value for Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.879, the vales for Bartlett's Test of Sphericity were: Chi-square = 621.022, degree of freedom = 105, and level of significance (p) = 0.000 . The communalities extraction which are highlighted in the above table values is <0.50, in the initial stage hence these items were not considered for final questionnaire which was distributed for final data collection stage . Here, it is pertinent to mention that KMO ≥0.7, p ≥ 0.05, and communalities extraction ≥0.5 is good for the validity of factor analysis . The PCA produced three factors, the three identified factors underlying explained 62.35% of the total variance, the table 3.14 shows the factors underlying with communalities . These items were further used for confirmatory factor analysis and structural equation modeling .

Table 3.15: **KMO and Bartlett's Test for KS**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.768
Bartlett's Test of Sphericity	Approx. Chi-Square	525.884
	Df	120
	Sig.	.000

Table 3.16: Component Matrix Table for KS

Code	**Items**	**Extraction**
KS11	My skills to perform the routine tasks are well detailed & codified.	**.487**

KS12	The problem solving methods are well detailed & codified.	.594
KS13	Results of the different projects are well documented.	.586
KS14	Results of the meetings are minuted.	.618
KS15	Knowledge is shared in formal documents like manuals, memos, minutes and write ups.	.577
KS16	Knowledge in my organization can be acquired easily through formal documents or databases	.521
KS17	Information about different projects is usually acquired afterwards through formal and informal method.	**.399**
KS18	Training courses are designed in a way that individuals share their knowledge among each other.	**.314**
KS19	Training contents can be retrieved afterwards by means of recorded memos, minutes and other documents.	.581
KS21	It is easy to get face to face advice from specialized individuals within the organization.	**.406**
KS22	We sufficiently arrange informal meetings for knowledge sharing among individuals within the organization.	.511
KS23	Knowledge is shared through one-by-one mentoring of individuals within the organization.	**.231**
KS24	In our organization, experienced employees guide younger employees.	.588
KS25	We frequently set up client meetings per project in our organization.	**.235**
KS26	Knowledge can be easily acquired from experienced employees within the organization.	.566

KS27	It is hard to acquire knowledge from co-workers within the organization.	**.028**

The above table shows the result of exploratory factor analysis . The principle component analysis (PCA) with Varimax rotation was conducted on 16measurement items to screen them and identify the underlying dimensions . The value for Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.803, the vales for Bartlett's Test of Sphericity were: Chi-square = 562.412, degree of freedom = 120, and level of significance (p) = 0.000. The communalities extraction which are highlighted in the above table values is <0.50, in the initial stage so these items were not considered for final questionnaire which was distributed for final data collection stage. Here, it is pertinent to mention that KMO ≥0.7, p ≥ 0.05, and communalities extraction ≥0.5 is good for the validity of factor analysis . The PCA produced two factors, the two identified factors underlying explained 45.26% of the total variance . The table 3.16 shows the factors underlying with communalities . These items were used for confirmatory factor analysis and structural equation modeling .

Table 3.17: **KMO and Bartlett's Test for FNFP**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.850
Bartlett's Test of Sphericity	Approx. Chi-Square	802.023
	Df	153
	Sig.	.000

Table 3.18: Component Matrix Table for FNFP

Code	Items	Extraction
FNFP11	There is reduction in cycle time of the production processes.	.537
FNFP12	There is significant reduction in customer complaints.	.591
FNFP13	There is reduction in defect rates of the product & process.	.582
FNFP14	There is improvement in overall efficiency of the processes.	.645
FNFP15	There is improved manufacturing time and customer delivery times.	.675
FNFP16	The process of my organization is more efficient & productive.	.672
FNFP21	I understand the business vision & goals of my organization.	.662
FNFP22	Senior management has clearly communicated a clear plan for meeting our business vision & goals.	.600
FNFP23	Managers are rewarded for mentoring & developing their employees.	.709
FNFP24	Measures of quality exist to evaluate my job performance.	.725
FNFP25	My efforts are recognized & appreciated leading to personal improvements & achievements.	.744
FNFP26	Decisions about my compensation have been consistent with my performance.	.606
FNFP31	There is an increase in flow of information among departments within the organization.	.640
FNFP32	There is an increase in team work and cooperation among	.600

	employees within departments.	
FNFP33	The organization has increased the percentage of retained customers	**.482**
FNFP34	The organization owns a competitive advantage over the competitors based on its relationship with customers.	**.479**
FNFP35	The organization has improved its image and quality of products in the market.	**.351**
FNFP36	The customers of our organization are loyal & committed towards our products.	.615

The above table shows the result of exploratory factor analysis . The Principle component analysis (PCA) with varimax rotation was conducted on 18 measurement items to screen them and identify the underlying dimensions . The value for Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.873, the vales for Bartlett's Test of Sphericity were: Chi-square = 834.670, degree of freedom = 153, and level of significance (p) = 0.000. The Communalities extraction which are highlighted in the above table values is <0.50, in the initial stage so these items were not considered these for final questionnaire which was distributed for final data collection stage . Here, it is pertinent to mention that KMO ≥0.7, p ≥ 0.05, and communalities extraction ≥0.5 is good for the validity of factor analysis . The PCA produced three factors, these three identified factors underlying explained 60.63% of the total variance. The table 3.18 shows the factors underlying with communalities. These items were used for confirmatory factor analysis and structural equation modeling .

Table 3.19: Correlation Table

	Mean	S.D	QMI	LO	NC	KS	FNFP
QMI	3.7776	.30439	1				
LO	3.7875	.66088	.532**	1			
NC	3.7208	.61934	-.049	.064	1		
KS	3.7109	.46115	.351**	.210	.428**	1	
FNFP	3.6319	.50989	.463**	.549**	.311**	.553**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The above table shows the relationship of each variable, whether the relationships exist among them or not . Here the relationship among the variables must be less than 0.70; whichever relationship exceeds this level, there is probability to drop them from the test analysis. The results of the data from Pearson R correlation shows that all the variables correlated among them positive or negative, where most are positively correlated . Nonetheless, the level of correlation was below 0.70 at significant level $p<0.05$. The low level of correlation guarantees that there are no issues related to multicollinearity of the variables in the estimated model.

3.9 Data analysis

The statistical package SPSS and AMOS were used to analyze the data in order to come up with a valid hypothesized model. For the purpose of present study and to test the hypotheses analytical and statistical tests were applied. Confirmatory factor analysis was used for the purpose of the present study .

The confirmatory factor modeling normally starts out with a hypothesis that gets represented in a causal model . The concepts used in the model were operationalized to allow testing of the relationships between the concepts in the model. The model was tested against the obtained measurement data to determine how well the model fits the data . The causal assumptions embedded in the model often have falsifiable implications which were tested against the data.

3.9.1 Descriptive Analysis

The descriptive statistics is used to explain the various characteristics of sample and to check the violations of the assumptions of statistical analysis being used to answer the research questions (Pallant, 2007). The descriptive analysis includes mean, median, mode, variations and range. It also provides information regarding the shape of the distribution of the data set by skewness and kurtosis which were used for the present study.

3.9.2 Multivariate Analysis Methods

The present study used factor analysis (exploratory factor analysis EFA and confirmatory factor analysis CFA) , and structural equation modelling (SEM) to investigate comprehensively the dimensional structure of Quality Management Implementation construct and its direct and indirect effect on Learning Organization and Firm's Non-Financial Performance.

3.9.2.1 Factor Analysis

According to Tabachnick and Fidell (2007) factor analysis is used when a researcher aims at understanding the underlying structure of a theory which exists. There are two kinds of factor analysis; exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (Pallant, 2007) . EFA is a statistical approach which is mainly used for data summarizing and data reduction (Hair et al., 2006). Data summarizing is to locate the correct structure of the research variables under study with respect to specific logic factors. (Tabachnick and Fidell, 2007). Whereas, the data reduction is a procedure to reduce the uncorrelated items with in each variable (Pallant,2007). CFA whereas, is the comprehensive method to test the dimensionality and the validity of the measurements (Hair et al., 2006).

3.9.2.1.1 Exploratory Factor Analysis

The objective of exploratory factor analysis (EFA) in the present study was data reduction for the entire sample in order to purify the scale and determine whether the survey questions were loaded correctly on their respective dimensions, and was further confirmed and refined by CFA . There are three basic phases in the conduct of exploratory factor analysis:

Phase 1: Necessary conditions for EFA

There are various issues that are considered important and necessary in using exploratory factor analysis. The issues include adequate sample size, factorability of R, missing data, linearity, multicollinearity, outliers, normality and homoscedasticity (Pallant, 2007).

The foremost issue is regarding appropriate sample size. There is no general agreement between the scholars regarding how large would be the sample size, whereas general

recommendation is larger the better (Pallant, 2007). In smaller samples the correlation coefficient is less reliable and generalizability is limited (Pallant, 2007). Tabachnick and Fidell (2007:613) argued that it is recommended to take at least 300 cases for factor analysis.

The second important issue is factorability of R that is the strength of the relationship and inter-correlation between the items . Tabachnick and Fidell (2007) recommended an inspection of the correlation matrix for evidence of coefficients greater than 0.3 . If some correlations exist above this level, factor analysis may not be employed. The two statistical methods provided by the SPSS to test the factorability of the data set are Bartlett's test of sphericity (Bartlett, 1954) and the Kaiser Meyer- Olkin (KMO) measure of sampling adequacy (Kaiser, 1974). Bartlett's test of sphericity is significant at ($P<0.05$) for factor analysis to be suitable. The KMO index range is from 0 to 1 with 0.6 recommended as the minimum value for a proper factor analysis (Tabachnick and Fidell, 2007). These conditions for the present study were met to conduct EFA and are discussed earlier in pilot test.

The next issue is the missing data. Missing data is when a respondent fails to answer a question and the responses are left blank in a survey questionnaire (Hair et al., 2006:34). The missing data values can create difficulties in data analysis and also lead to dramatic research results. In the present study the missing data was excluded from the analysis.

The outliers are also a concern in data analysis that might affect the results as well. The box plots are used in SPSS to identify the outliers. There might be the several reason for the existence of outliers which are; incorrect data entry, extra ordinary events and uniqueness. The decision to keep and delete such outlier is solely based on researcher's judgement.

The next issue is about the linearity of the relationship among the independent and the dependent variables. Linearity means how much the change in one variable is explained by the other variable. Linearity is examined by the scatter plots and correlation coefficients r. if there are any insignificant relationships among the variables they are ignored (Tabachnick and Fidell, 2007).

The normality of the data is described through the normality or bell shaped curve. The bell shape curve is described as the highest frequency in the middle and less at the both sides (Pallant, 2007:57). Particularly frequency histograms are used to assess the normality of the data (Griffith, 2010). It is argued that in smaller sample sizes the normality issues might have a great effect on the data results but might be ignored on larger sample sizes (Hair et al., 2007).

The final issue of concern is the multicollinearity and homoscedasticity. The issue of multicollinearity exists when the variables are highly correlated (r= 0.9 and above), whereas homoscedasticity shows the equal variances present in the data. This can be identified by looking at the scatter plot (Pallant, 2007). The presence of multicollinearity and homoscedasticity might not develop a good research model (Pallant, 2007). The correlations of the present study are displayed in the next chapter.

Phase 2: Factor Extraction

The factor extraction is to determine the smallest number of factors which may be extracted to best represent the interrelationships among the variables of the study (Pallant, 2007). There are various procedures for factor extraction which are; principal components, principal factors, image factoring, unweighted and generalized least square factoring, maximum likelihood factoring and alpha factoring (Field, 2006). The Kaiser's technique is one of the

most commonly used techniques in EFA. According to this rule the factors with eigenvalue 0.5 or more can be retained for further investigation (darlinton, 2004). In social sciences the appropriate cut-off point is 60% or less (Hair et al., 2006; Sorooshian, 2017).

Phase 3: Factor Rotation and interpretation

After the factors are extracted the next step is to interpret them. The rotation of the factors does not alter the underlying explanations, but it aids in easier interpretations of loading patterns (Tabachnick and Fidell, 2007). The present study has used the most commonly used orthogonal approach, the varimax method, which aids to minimize the number of variables with high loadings. The suggested loadings are ± 0.71 is excellent, ±0.63 is very good, ±0.55 is good, ± 0.45 is fair and ±0.32 is poor (Comfrey, 1973 and Marsh *et al*., 2004). In the present study loading below 0.5 were ignored.

3.9.2.1.2 Confirmatory Factor Analysis

The Confirmatory factor analysis (CFA) is usually performed through structural equation modelling and is a sophisticated statistical technique to test theory about latent processes (Tabachnick and Fidell, 2007). In the present study CFA was employed to achieve two main objectives; to test the dimensionality and the validity of the measurements (Tellefsen and Thomas, 2005).

A) Testing the dimensional structure of the measurement

While developing measures constructs might be employed as uni-dimensional or multidimensional (Hair et al., 2006; Sorooshian, 2017). There are various statistical

techniques to analyze the dimensional properties of the measures; coefficient alpha and exploratory factor analysis. If the researcher does not measure the multidimensional nature of the measure complications might occur about the estimates for the scale and cause erroneous conclusions (Rubio et al., 2001).

B) Testing the validity of the measurement

CFA might be used to test the factor loadings of all observed variables on the latent variable (Byrne, 2010). This is used to assess the convergent and discriminant validities (Kline, 2011). The convergent validity is measured through CFA on the basis of three criteria's. First the factor loadings should be greater than 0.5, secondly composite reliability (CR) should be above 0.7, thirdly the average variance extracted (AVE) should be above cut-off value of 0.5 or more to have adequate convergent validity (CV) (Hair et al., 2006). The composite reliability (CR) is the overall reliability of heterogeneous but similar indicators, whereas individual reliability may be tested using Cronbach alpha. Following formulas are used to calculate composite reliability and AVE;

$$CR = \frac{\text{(squared sum factor loadings for construct items)}}{\text{(squared sum factor loadings for construct items) + (sum of the estimation error variance for a construct)}}$$

$$AVE = \frac{\text{Sum factor loadings for construct items}}{\text{Number of items per construct}}$$

The discriminant validity assess that measure does not correlate with another measure with which no theoretical associations are expected. The CFA provides two common methods for testing discriminant validity (Hair et al., 2006). First is through the correlations and second is through comparing AVE.

3.9.2.2 Structural Equation Modeling

The Structural equation modeling (SEM) is one of the main statistical analysis techniques which are employed to study the complex relationships among the variables. Many scholars from different disciplines are progressively using this technique in data analysis mainly in social sciences (Sorooshian, 2017; Cater and Cater, 2010; Schumacker and Lomax, 2010; Griffith, 2010, Byrne, 2010 and Chang et al., 2010). The term structural equation modelling recommends two main features of the analysis procedure; the causal processes are characterized by a series of structural equations (regression) and secondly, these structural relations can be modelled in a picture to have a clear conceptualization of the theory under study (Tabachnick and Fidell, 2007) . In the present study SEM was employed to conduct the data analysis in order to test the causal direct and indirect relationship between the research variables (Byrne, 2010). Secondly, to test whether the structural model is equivalent to identify the effect of quality management implementation on learning organization and how it leads to the improved firm's non-financial performance.

Furthermore, SEM is only technique that's allows to test the complex relationships of multidimensional and complicated phenomenon (Tabachnick and Fidell, 2007:679). In addition, SEM allows the dependent variables in one equation to become independent variable in the other equation .

SEM has some unique characteristics that are not found in other multivariate analysis techniques . The following table shows the differences between SEM and other multivariate procedures and the reasons why SEM was employed in the present study.

Table 3.20 The preference to choose SEM over other multivariate techniques

Structure Equation modeling	**Other multivariate procedures**
It uses a confirmatory approach in the analysis of the data	It uses exploratory approach to the data analysis
It provides explicit estimates of the error variances parameters	They are incapable of assessing or correcting for measurement error (eg, regression or the general linear model)
It uses both observed and unobserved variables in the data analysis	They are based on observed measurements
It is easy and widely used method to investigate the direct and indirect effect among constructs	They cannot measure the direct and indirect effects among the relationships

Source: adopted from Byrne (2010:pg.3-4)

3.9.2.2.1 Assumptions of SEM

There are various assumptions and issues which are considered before model testing with SEM (Byrne, 2010). The assumptions include, sample size adequacy, missing data, normality, outliers, linearity, multicollinearity, singularity and items per construct.

A) Sample size and missing data

It is suggested that in SEM a good rule is to have at least ten times as many respondents as variables (Nunnally, 1967:355). Hair et al. (2006) suggested that there are some considerations in determining the required sample size for SEM, such as; estimation technique, model complexity, amount of missing data and average variance error among reflective indicators.

In the present study sample size is 400 respondents; according to the discussion it can be considered an adequate sample size for SEM test. The instrument contains 5 variables and total 22 further constructs; therefore according to the general rule explained by Nunnally (1967) the current sample size (400) exceeds the required (220). Secondly, the present study sample (400) exceeds the preferred sample size of 200 as suggested by Hair et al. (2006) to obtain maximum likelihood estimation (MLE). Thirdly, as illustrated earlier the factor loadings were at acceptable level (≥ 0.5) which means no larger sample is required. The missing data has already been discussed in the previous section.

B) Normality and outliers

The SEM estimation technique assumes multivariate normality (Tabachnick and Fidell, 2007). To measure the normality, the shape, kurtosis and the outliers and the skewness of the variables were examined in EFA.

C) Linearity

The SEM technique only tests the linear relationships among the variables. Linearity is difficult to measure in case of latent variables (Tabachnick and Fidell, 2007). However linear relationships can be determined through the scatterplots as discussed in EFA.

D) Absence of multicollinearity and singularity

In case of perfect linear combinations of the variables with one another (singularity) or highly correlated (multicollinearity), the required matrices could not be inverted (Byrne, 2006). The SEM programs give the warning message if the singularity exists between the covariance matrix (Tabachnick and Fidell, 2007).

E) No. of items per construct

There is no fixed agreement in the literature on how many items are required for each construct in the SEM test (Byrne, 2006). Some researchers prefer large number of constructs to increase the reliability while some prefer using small number of items that adequately represent the construct (Hair et al., 2006). However, the good practice is to have at least three items per factor, preferably four in order to have best test results (Hair et., 2006). In the present study there are five variables and are further divided in various constructs and then few items each, based on the comprehensive literature review, previously discussed in the operationalization of the constructs.

3.9.2.2.2 Model Specification

Model specification is to specify each relationship and parameter in the model that is of researcher's interest (Schumacker and Lomax, 2010:213). The conceptual model and the hypotheses has been developed in the present study through extensive literature review. After the specification of model is correctly done, correlation among the factors can be done using done by SEM through AMOS software. Schumacker and Lomax (2010), outlined set of recommendations for model specifications which are described in the following table 3.21.

Table 3.21 Model Specification Recommendations

Recommendation	How it was fulfilled?
Describe the purpose of the study, including why SEM is preferred over other statistical analysis approaches.	The present study investigates the relationship between QMI, LO and FNFP, and reasons to employ SEM are outlined in section 3.9.2.2.
Describe the latent variable and indicate how to measure it.	This was done in the operationalization of the constructs in the earlier section of the present chapter.
Provide theoretical foundations of the measurement model and structural model.	The present study is based on various quality management gurus and Peter Senge, Watkins & Marsick and Garvin's concept of Learning Organization, extensively supported by literature in chapter 2.
Clearly state your hypothesis	This is done in chapter 2 "Theoretical Framework"
Include a figure of the measurement and structural model, including and describing every parameter in the estimated model.	The structural model is displayed in fifth chapter.

Source: Adopted from Schumacker and Lomax (2010:238-239)

3.9.2.2.3 Model Identification

After the model is specified, the next step is to identify whether the model is identified, under identified or over identified (Schumacker and Lomax, 2010) . The identification issue

deals with whether there is enough information about the data points to identify the solution to a set of equations .

3.9.2.2.4 Model Estimation

There are several factors which might affect the parameter estimation in SEM, such as multicollinearity, missing data, outliers and normality. These greatly effects the estimation and results in error messages relating to Heywood cases (variables with negative variances) (Schumacker and Lomax, 2010) . The data for the present study was entered in AMOS v17 by using MLE technique and AMOS graphic was used to draw the measurement paths . Schumacker and Lomax (2010) outlined a set of recommendations for model estimation in the following table.

Table 3.22 Model Estimation Recommendations

Recommendations	How was it fulfilled?
Edit the data carefully to meet all assumptions.	All the required assumptions to run SEM were met and discussed in earlier section of the chapter.
Estimation technique appropriate for the study	Maximum likelihood estimation (MLE) was employed and justified
Did you encounter Heywood cases, multicollinearity or non-positive definite matrix?	no
Which SEM program version used	AMOS v17

3.9.2.2.5 Model Evaluation

Once the model is estimated next step is to determine how well the data fit the model, or to what extent is the theoretical model supported by the sample data (Schumacker and Lomax, 2010) . There are two aspects of model evaluation; first the evaluation of the measurement model and second evaluation of the structural model . The measurement model specifies the relationships between the observed and the latent variables (Hair ae al., 2006) . Evaluating the measurement model includes the use of factor loadings of each observed variable on latent variable". The essential event in the SEM testing is the evaluation of the model fit (Hair et al., 2006) . There are two methods to think about model fitness; first is examine the fit of each individual parameters of the model, whereas second is to examine the goodness of fit (GOF) of entire model (Schumacker and Lomax, 2010) .

Root Mean Square Error of Approximation (RMSEA)

RMSEA value can better identify how well the model fits a population, not just the sample estimation . However, it is also used to correct model complexity and sample size both (Byrne, 2006) . The lower RMSEA value suggests better fit whereas higher value shows a worse fit, therefore can be characterized as badness of fit index (Hair et al., 2006).

Table 3.23 The recommended cut-off values for SEM fit indices

Fit index	Cut-off values from literature	References
Absolute fit measures:		Byrne, (2010), Hair et al. (2006); Tabachnick and Fidell (2007); Arbuckle,(2008); Chow and Chan (2008); Hooper et al. (2008); Totterdell et al. (2008); Harrington (2009); Schumacker and Lomax (2010).
Chi-square/df	≤ 5.0	
SRMR	≤ 0.08; ≤.05	
RMSEA	≤0.05	
Incremental fit measures:		
NFI	≥ .90	
CFI	≥ .90	
Parsimonious fit measures:		
PCFI	>0.5	
PNF	>0.5	

Source: Adapted from the literature

Shumacker and Lomax (2010) outlined a set of recommendations for model evaluation and are illustrated in the following table 4.24.

Table 3.24 Model Evaluation Recommendations

Recommendation	How it was fulfilled?
Specify separate measurement model and structural model	It was done firstly by CFA and then structural model by using SEM
Report the correct model fit indices, whole model or individual parameter	Was done and explained earlier
Report composite reliability of factors	Done by CFA

Report construct validity of factors	Done by CFA
Present the statistical significance	Was done in model explained earlier

Source: Adapted from Schumacker and Lomax (2010:245)

3.9.2.2.6 Model Modification and Validation

The final stage in SEM is to test the model modification in order to get a better data to model fit . If the model fit indices in the hypothesized structural model are not satisfactory, a researcher might performs a specification search to obtain a better fitting of the hypothesized model to the observed sample variance-covariance matrix (Kline, 2011).For eliminating parameters, one of the generally employed techniques is to compare t-statistics for each single parameter to the tabulated t value (i.e. t>1.96) of statistical significance.

Once the researcher obtains a satisfactory model fit, the researcher then tests the research hypotheses. Each path in the structural model among the latent variable presents a specific hypothesis. The determinant for accepting or rejecting hypotheses is the significance of standardized coefficients. The final step of SEM is to validate the model by repeating the study using a different sample, cross validation etc .

3.10 Limitation of the Research Method

The present study followed the positivist approach in order to answer the research questions. The quantitative approach has recognized few limitations, including the fact that standardized questionnaires reflects the perception and opinions of only those who choose to respond, attitudes and opinions who choose not to respond cannot be considered. Moreover, standardized questionnaire limit the depth of the data which may be collected about the phenomena under investigation (Kerlinger, 1986).

A difficulty may have aroused in attempting to investigate any phenomena which by its nature is undetermined in scope and duration. The quality management implementation programs in Pakistan's pharmaceutical manufacturing organizations, is a relatively new phenomena. Whereas, quite a lot of research is being done and many organizations in Pakistan in manufacturing sector are adopting quality management programs. Furthermore, it is quite difficult to determine whether the programs have been around long enough to adequately and realistically assess the transition of such organizations towards learning organizations. Keeping it into consideration that QM implementation programs proposes long term ongoing planning and implementation which poses a great threat for any researcher who aims to investigate the QM implementation and its transitions towards a learning organization. Therefore, the present study is not exempted from this general limitation.

There are few other specific limitations. First limitation was gaining access to the organizations which were comfortable in sharing their ideas, perceptions, opinions and experiences. Usually quality managers to some extent feel sensitive and restrictive about having an investigator who is encouraging to disclose their perceptions, ideas, opinions,

experiences and evaluations of organizational procedures and policies for handling sensitive quality issues. In addition to personal limitations, bureaucratic limitations were also posed a greater threat in the study. Furthermore, fear of the leakage of confidential information to the competitors was the biggest factor contributing towards their reservations, and a greater challenge to the researcher's method. Further discussion on the limitations is also provided in the later sections of the present thesis.

CHAPTER 4

RESEARCH RESULTS

4.1 Results and Analysis

The present section outlines the findings by presenting the quantitative examination of data set obtained from the questionnaire survey data to test the dimensional structure of the Quality Management Implementation and Learning Organization . The present analysis is conducted in different phases; firstly the preliminary analysis (screening data) to overcome the issues of missing data, outliers, linearity, normality, multicollinearity and homoscedasticity . The preliminary test also includes sample size bias to measure the differences between variables (t-test). Secondly, the descriptive analysis which includes the respondent's demographic characteristics, some central tendency measures, variability measures and some measures regarding distribution shapes . Finally, it includes the multivariate analysis; EFA, CFA and SEM to test the dimensionality of QMI, LO, N&C, KS and FNFP variable, and to investigate the indirect and direct effects among the research variables through serial mediation.

4.2 Preliminary Analysis

There are some issues that affect the quality of the multivariate analysis which are being discussed in this section; which includes missing data, outliers, linearity, multicollinearity, normality, homoscedasticity and adequate sample size and conducting the sample bias test.

The present study is quantitative in nature, hence it needs careful examination of the factors under discussions for testing the hypothesis. The multiple and linear regression are the

techniques used to view link establishment between the dependent variable (FNFP) and other constructs such as mediating (LO, KS, N&C) and independent variable (QMI) are analyzed. The analysis of regression has been performed to predict the variance explored in the dependent variable.

The present study attempted to verify the impact of quality management implementation and learning organization on the firm's non-financial performance in pharmaceutical sector of Pakistan. The multiple regression is used to identify the significance of each variable on the dependent variable. The quantitative analysis started with the preliminary analysis, before verifying the assumption by applying regression, EFA, CFA and SEM for relationship between the, mediating, independent, and dependent variables, the assumptions of regression are tested to verify the outcomes of analysis . These assumptions and issues include testing of independence of observation, missing data, normality, outliers, linearity and homoscedasticity, multicollinearity and singularity .

4.2.1 Independence of Observations

The Durbin-Watson statistical test is performed to test the independence of observations . The Table 4.1 shows the results Durbin Watson coefficient which are found to be within acceptable range of 1.5 to 2.5 (Johnson & Wichern, 2006).

Table 4.1 Analysis of independency of variables with dependent variable (FNFP)

Variables	Durbin Watson
QMI	1.899
LO	1.766
NC	1.646
KS	1.566

4.2.2 Missing data

The SPSS statistical package is used to identify the maximum and minimum data values in order to identify the missing values. There were few missing values identified in 10 cases, occurred in a random pattern, and it was decided to exclude all those missing value cases to avoid the dramatic effect on the results of the present study. These 10 questionnaires are less than 5%, therefore the issue of missing values is less serious in the present study. Hence, 400 valid questionnaires are used for the analysis of present study.

4.2.3 Outliers

The values in the data set whose behavior is extremely different from the other values are called multivariate outliers . Identification of such cases is an important mechanism for normalizing the larger set of data, before applying further tests. The presence of outliers in the data set affects the structural model and perturbs the results of the study. In addition, the regression analysis gets significant effects from the outliers by getting disturbed estimates of adjusted R-square and provides abnormal intercept and slope of the model. Various statistical methods are used to detect the outliers such as cook and leverage method (Griffith, 2010).

The residual plot is the best graphical method to detect the outliers present in the data set (Walfish, 2006).

To test the third assumption of regression about outliers, Cook's distance and Centered Leverage values of the measures are estimated and found within the acceptable range . Therefore, the outliers have no significant effect on the regression and further modeling. The outliers are the observations which deviate from the pattern of the rest of observations . For Cook's distance the acceptable value is < 1 (Everitt, 2001), and for Centered leverage value, the value of the observations near to 0 has insignificant influence on regression model (Field, 2006).

4.2.4 Normality in Data

The next assumption of regression is normality in the data. In social sciences if the sample size is greater than 100, it does not affect the regression analysis . The present study is conducted with a sample size of 400 cases, which is an adequate size as per the formula given by Tabachnick and Fidell (2007) as discussed in chapter 3 . The methods to test the normality of dataset include visual examination of Histogram, P-P plots and skewness and kurtosis . The Histogram and normal P-P Plot of (FNFP) dependent variable for standardized residuals are given in figure 4.1 below. The figure shows the skewness and kurtosis values, which are below 2, which indicates that all values are within acceptable range . The frequencies for all items are also checked to further ensure the normal distribution of the data.

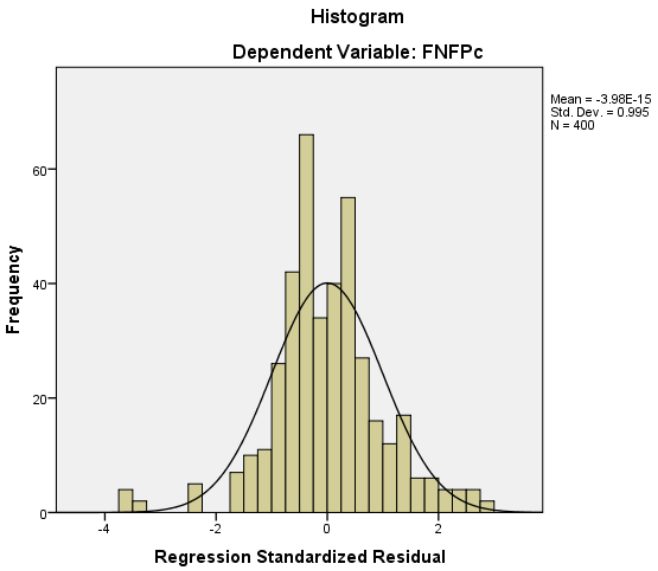


Figure 4.1

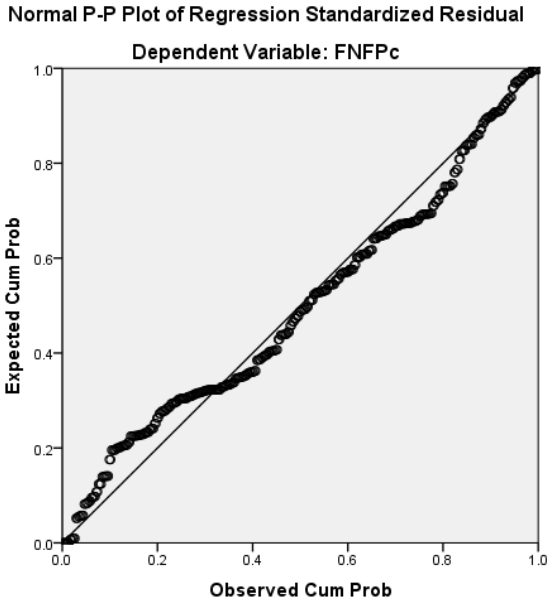


Figure 4.2

4.2.5 Linearity

Linearity is checked through the scatter plots, which also shows the nature of the relationship among the variables . To test the sixth assumption of regression, the linear relationship between independent and dependent variables are examined by the Normal P-Plot of all the independent variables with the dependent variables . Normal P-Plot between Figure 4.2 to Figure 4.8 shows the Normal P- Plot of regression standardized residual for the independent variables and dependent variables . All the P- Plots reflected the observations close to 45 degree line indicating the acceptance of the linearity assumption.

5.2.6 Homoscedasticity

The homoscedasticity for the relationship between independent and dependent variables is examined by the scatter plot of standardized residuals for non-variability . The scatter plots for both the independent and dependent variables are examined. According to Cooper & Emory (1995), the scattered plots are the best way for testing through visual examination . The scattered plots of standardized residuals of independent, mediating and dependent variables shows within range of +/- 2, +/- 3 with normal pattern . Therefore, the assumptions of homoscedasticity have been fulfilled. The scattered plot between Figure 4.2 to Figure 4.10 indicates the acceptance of the assumption .

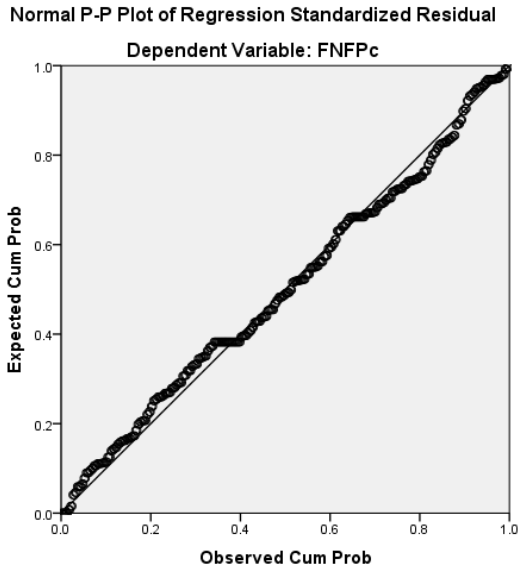


Figure 4.3 Normal P Plot of Regression Standardized Residuals for Dependent Variable (FNFP) and Independent Variable (QMI)

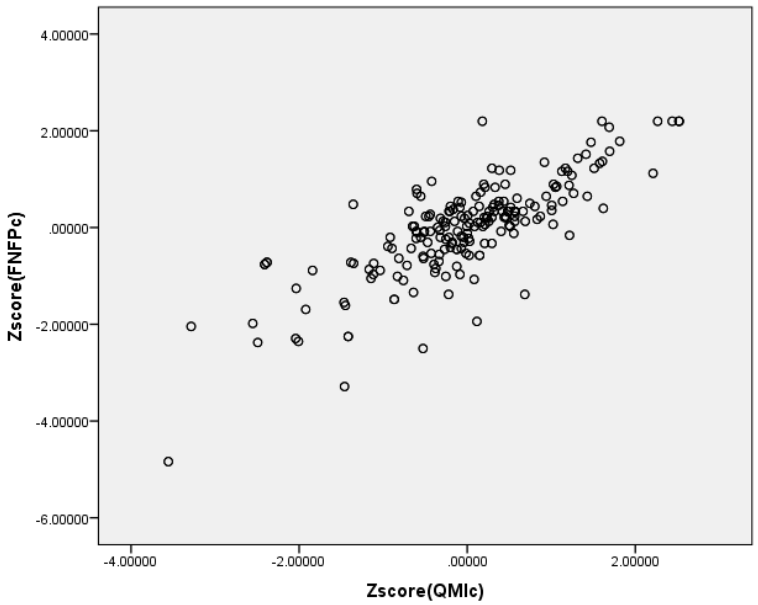


Figure 4.4 Scatter Plot for Dependent Variable (FNFP) and Independent Variable (QMI)

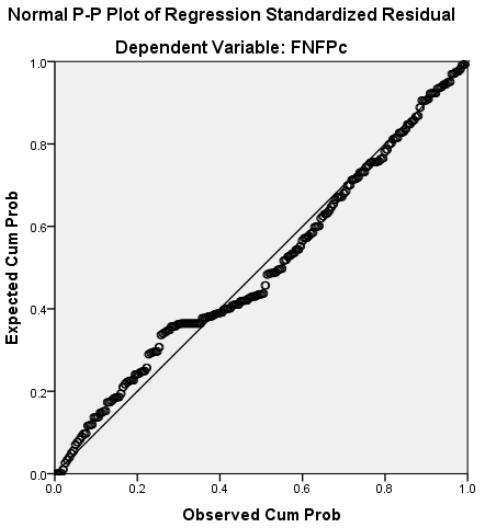


Figure 4.5 **Normal P Plot of Regression Standardized Residuals for Dependent Variable (FNFP) and Independent Variable (LO)**

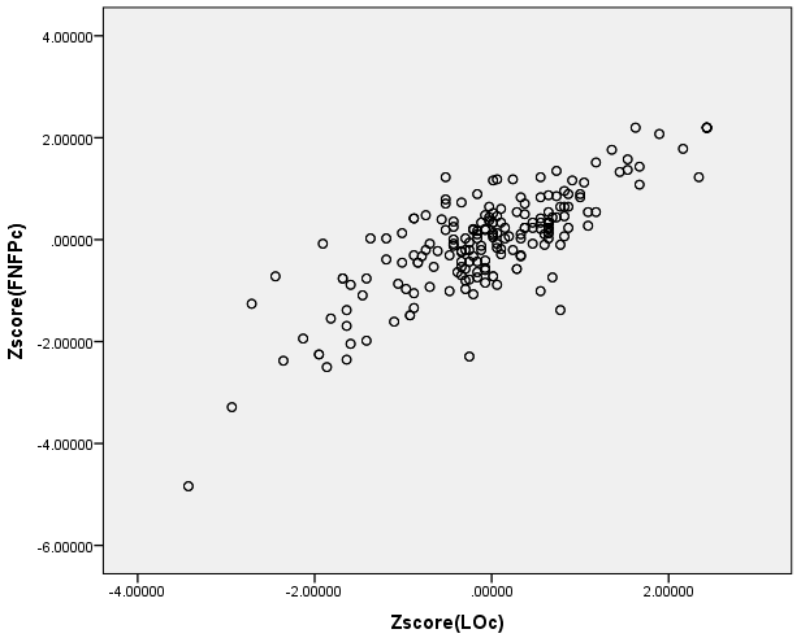


Figure 4.6 **Scatter Plot for Dependent Variable (FNFP) and Independent Variable (LO)**

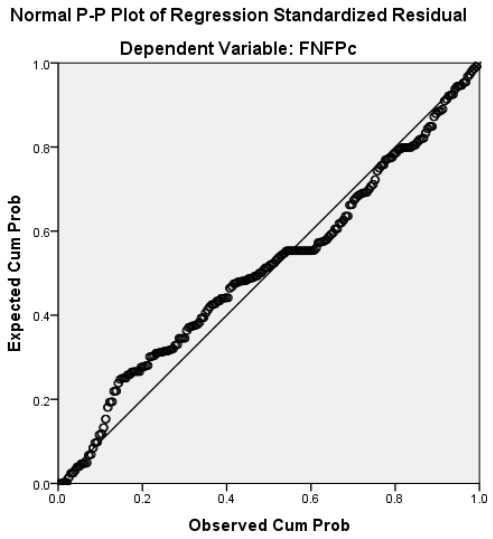


Figure 4.7 **Normal P Plot of Regression Standardized Residuals for Dependent Variable (FNFP) and Mediating Variable (NC)**

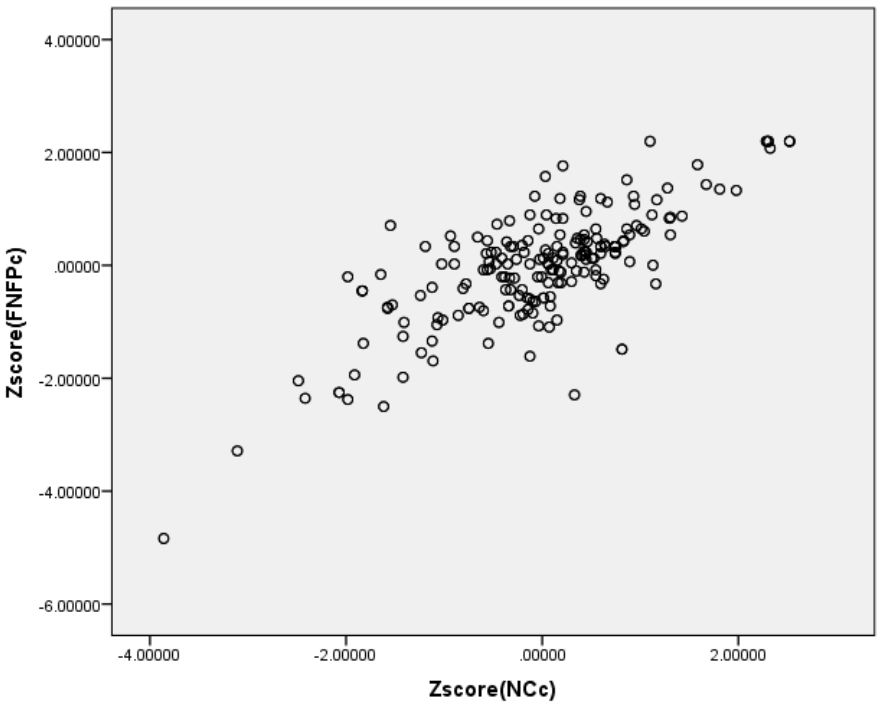


Figure 4.8 **Scatter Plot for Dependent Variable (FNFP) and Mediating Variable (NC)**

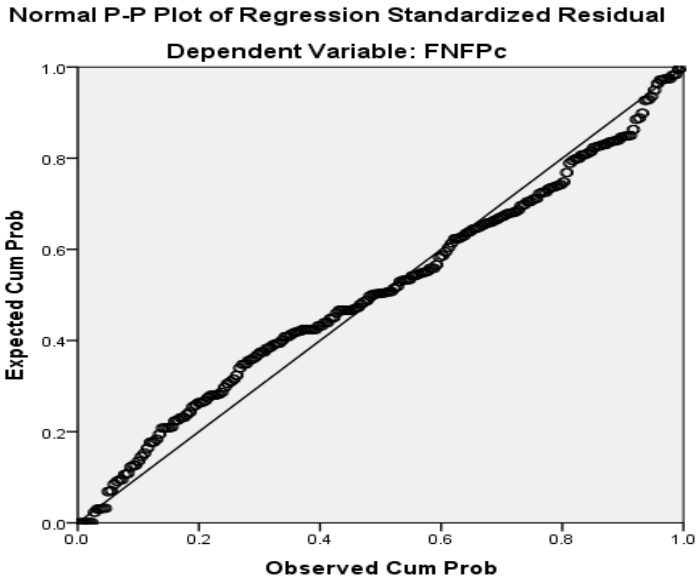


Figure 4.9 **Normal P Plot of Regression Standardized Residuals for Dependent Variable (FNFP) and Mediating Variable (KS)**

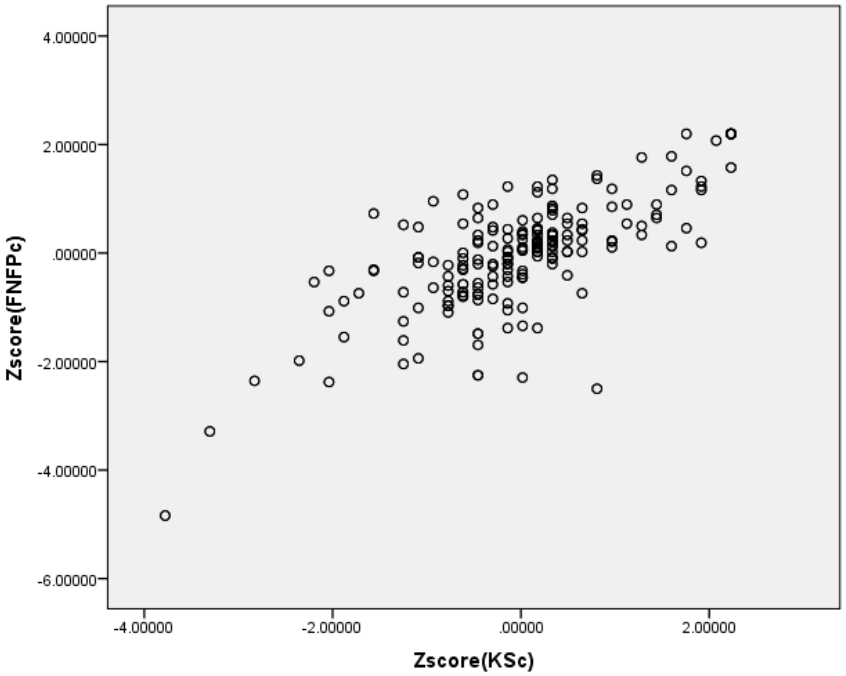


Figure 4.10 **Scatter Plot for Dependent Variable (FNFP) and Mediating Variable (KS)**

4.2.7 Multicollinearity and Singularity

To test the last assumption of regression, the multicollinearity diagnose is performed using correlation coefficient and multiple regression . The cut off values for multicollinearity are; the Tolerance values is less than 0.20 , secondly the Variance Inflation Factor (VIF) greater than 4.0 and third is condition index, the values of conditional index are accepted at less than 30 (Byrne, 2010). The values of the independent variables exceeding theses values indicate the presence of multicollinearity. On the other hand singularity exists when correlation coefficient is equal to 1.0 or -1.0 . This means that the two variables are in perfect linear relationship.

The Table 4.2 indicates that all constructs of the present study has acceptable values of Tolerance and VIF. The value of conditional index is found to be 23.551, which is also at acceptable level.

Table 4.2 : Collinearity Analysis of variables

Independent variables	**Collinearity Statistics**	
	Tolerance	**VIF**
QMI	.350	2.859
LO	.281	3.553
NC	.402	2.489
KS	.474	2.109
Conditional Index 23.551		

4.3 Descriptive Statistics

Descriptive statistics is used to explain the characteristics of the sample, which describes the nature of the variables in term of mean, median, mode, variance, standard deviation and data ranges. It also describes the spread of the data through skewness, kurtosis and distribution shapes.

4.3.1 Respondent's Characteristics

The respondents profile was determined through various characteristics including age, gender, type of organization they are working, qualification, years of experience and no of employees in the organization.

Table 4.3: Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 30	141	35.3	35.3	35.3
	30-50	247	61.8	61.8	97.0
	51 and above	12	3.0	3.0	100.0
	Total	400	100.0	100.0	

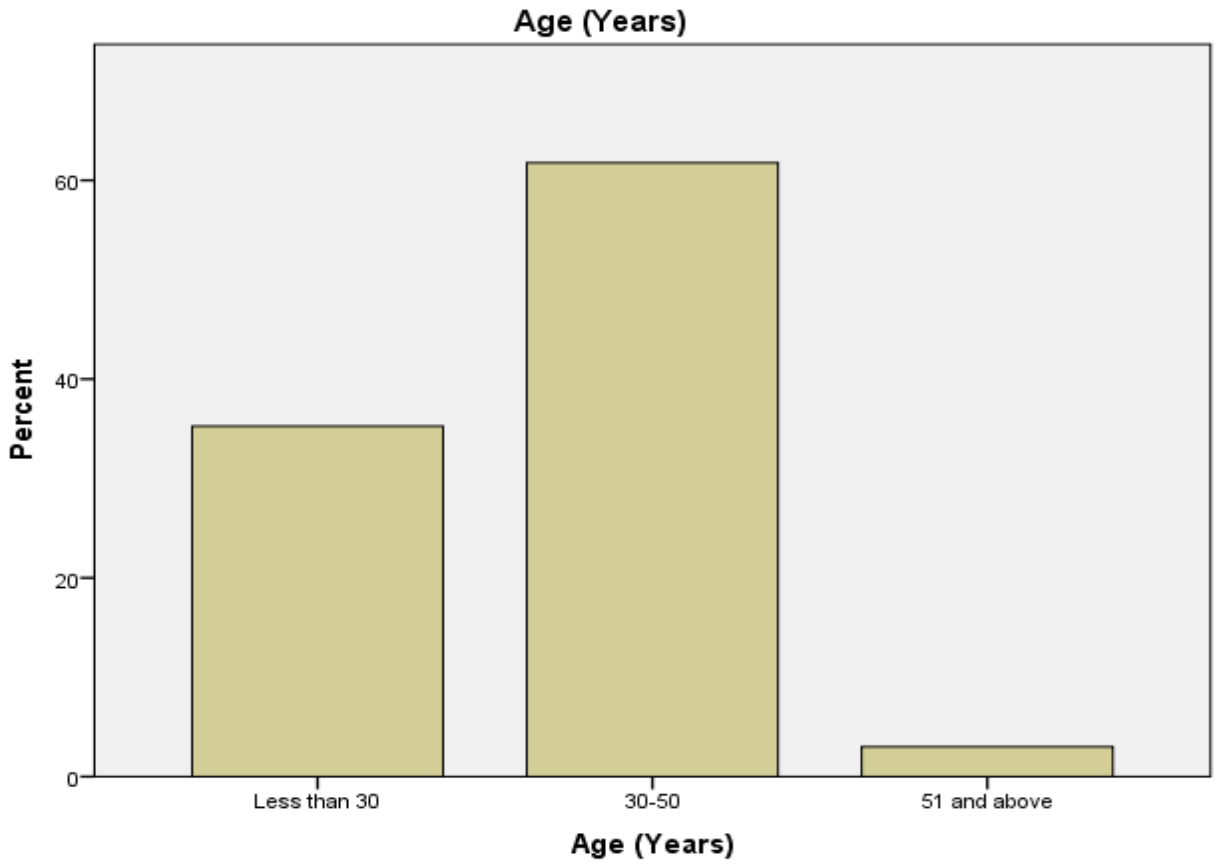


Figure 4.11: Age of respondents

A total of 400 questionnaires were valid after excluding the missing value cases and outliers. The above table and the graph show those major portions of the respondents are from the age group 30-50 which is 61%. Above 51 was the smallest group of respondents with 3% of the total. The gender is the next characteristic, out of total 80% are males and 20% are females which shows this sector of the economy is mostly occupied by the males.

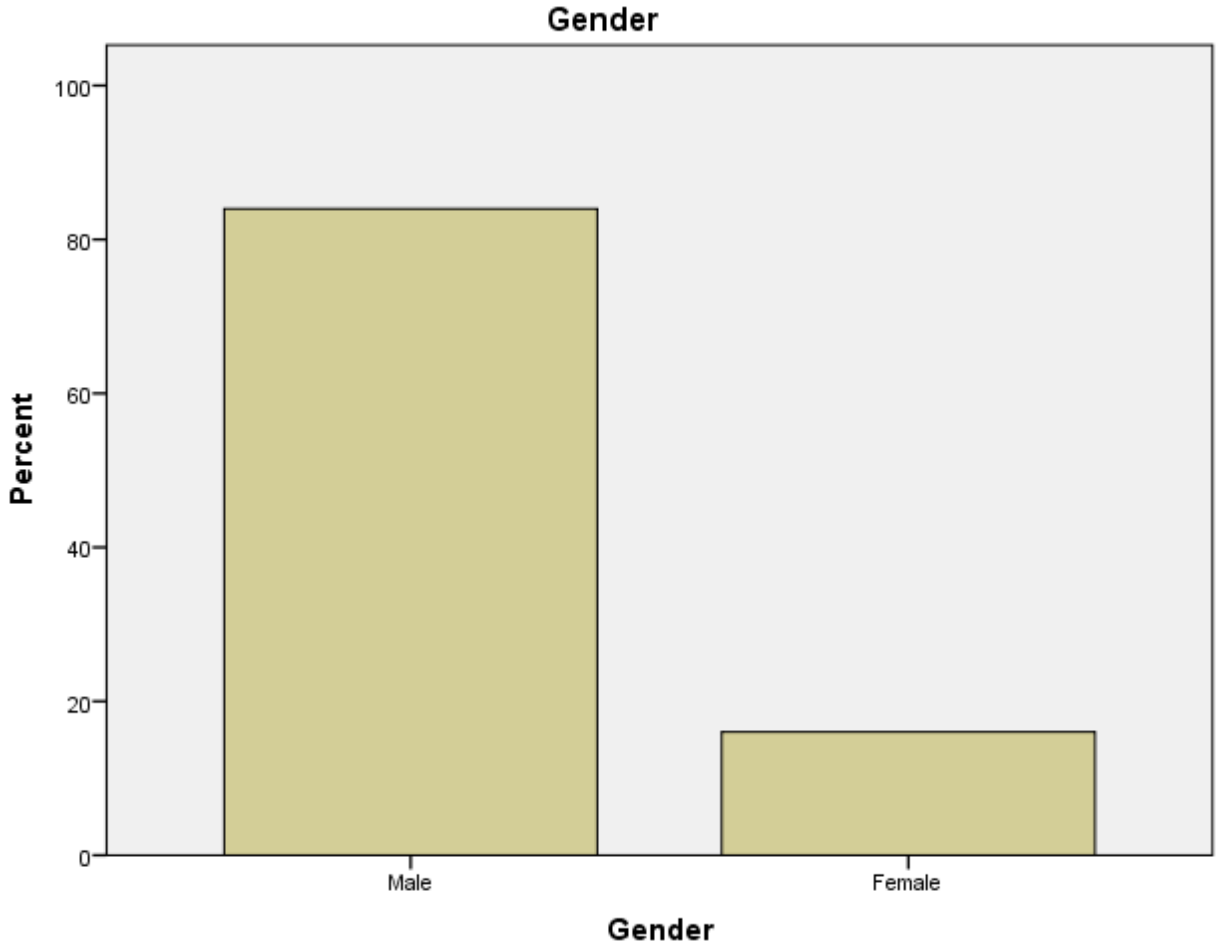


Figure 4.12: Gender of the Respondents

The next characteristic is the level of qualification of respondents, the following table and the graph shows the percentages of levels. The high school and college graduated is less than 10% and university is more than 90%.

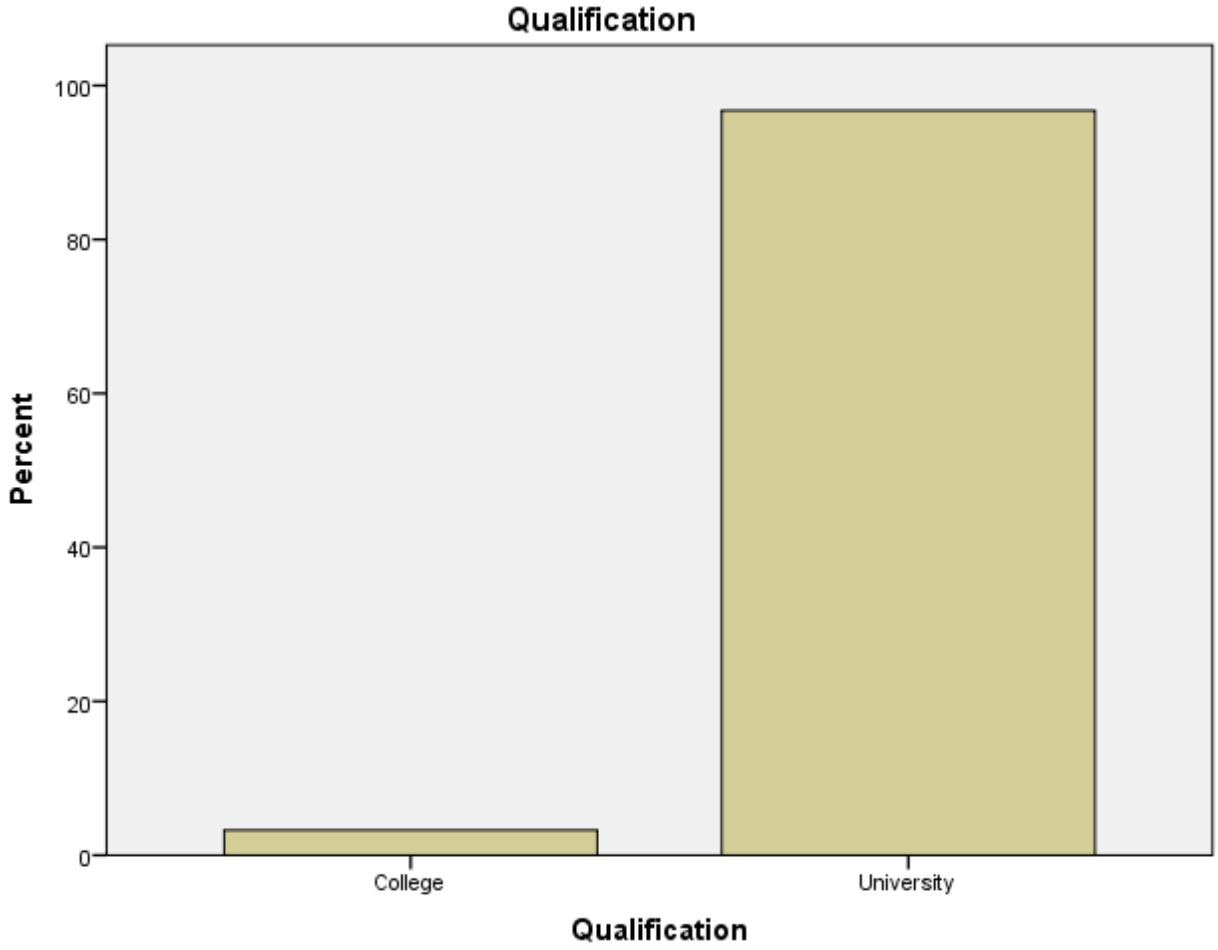


Figure 4.13: Qualification of the Respondents

The next characteristic is the number of years of experience, the table 4.4 shows that majority of the respondents are those who have 2-5 years of experience, which comprises 38% out of the total. The respondents with 10 or more years of experience are 27% out of total 400 respondents.

Table 4.4 Years of Experience of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-5 years	155	38.8	38.8	38.8
	6-10 years	134	33.5	33.5	72.3
	10 or more years	111	27.8	27.8	100.0
	Total	400	100.0	100.0	

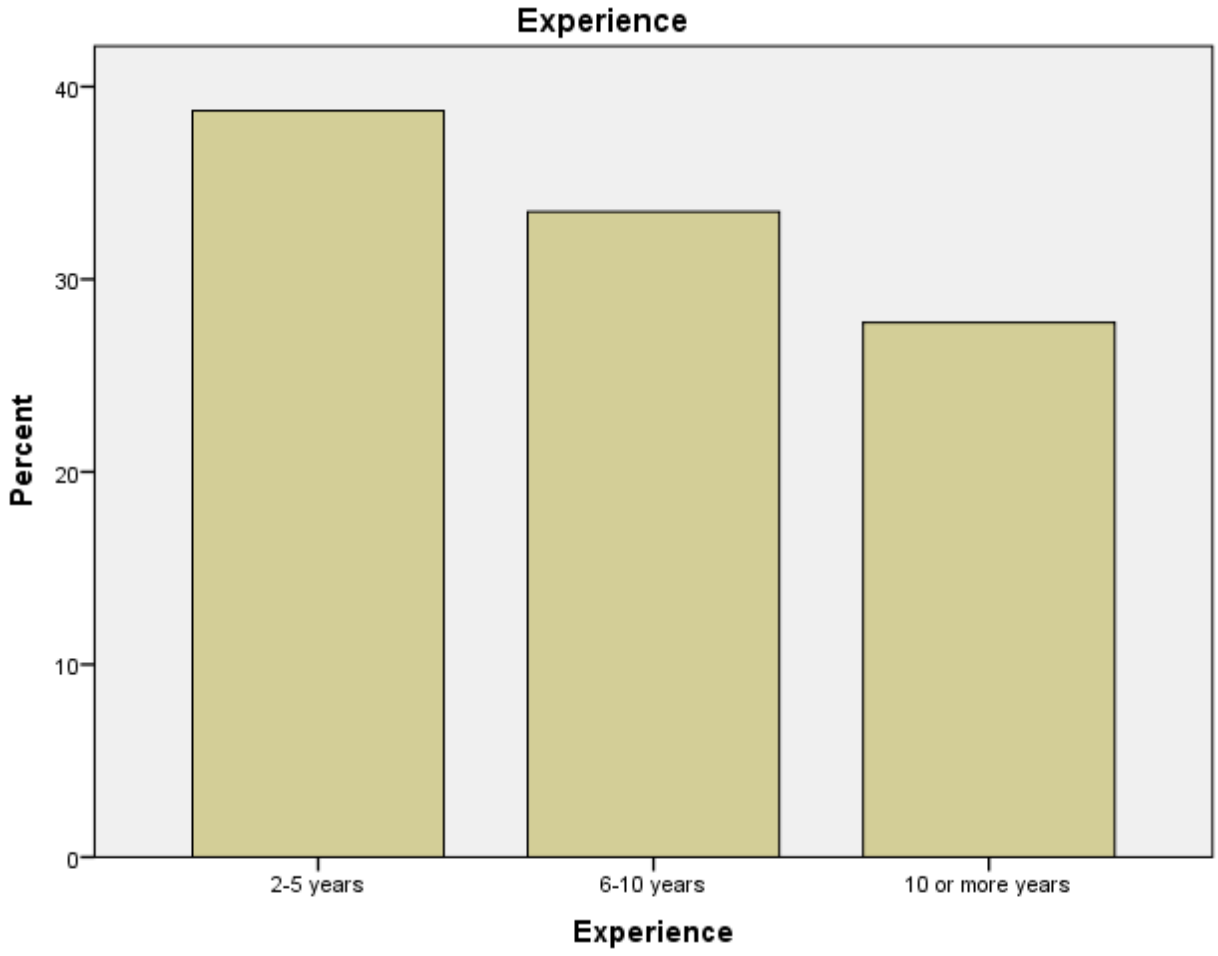


Figure 4.14: Years of Experience of respondents

The next demographic characteristic is the number of employees in the organization to assess the size of the organization.

Table 4.5 The number of Employees in the organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-300	300	75.0	75.0	75.0
	300-1000	80	20.0	20.0	95.0
	4.00	20	5.0	5.0	100.0
	Total	400	100.0	100.0	

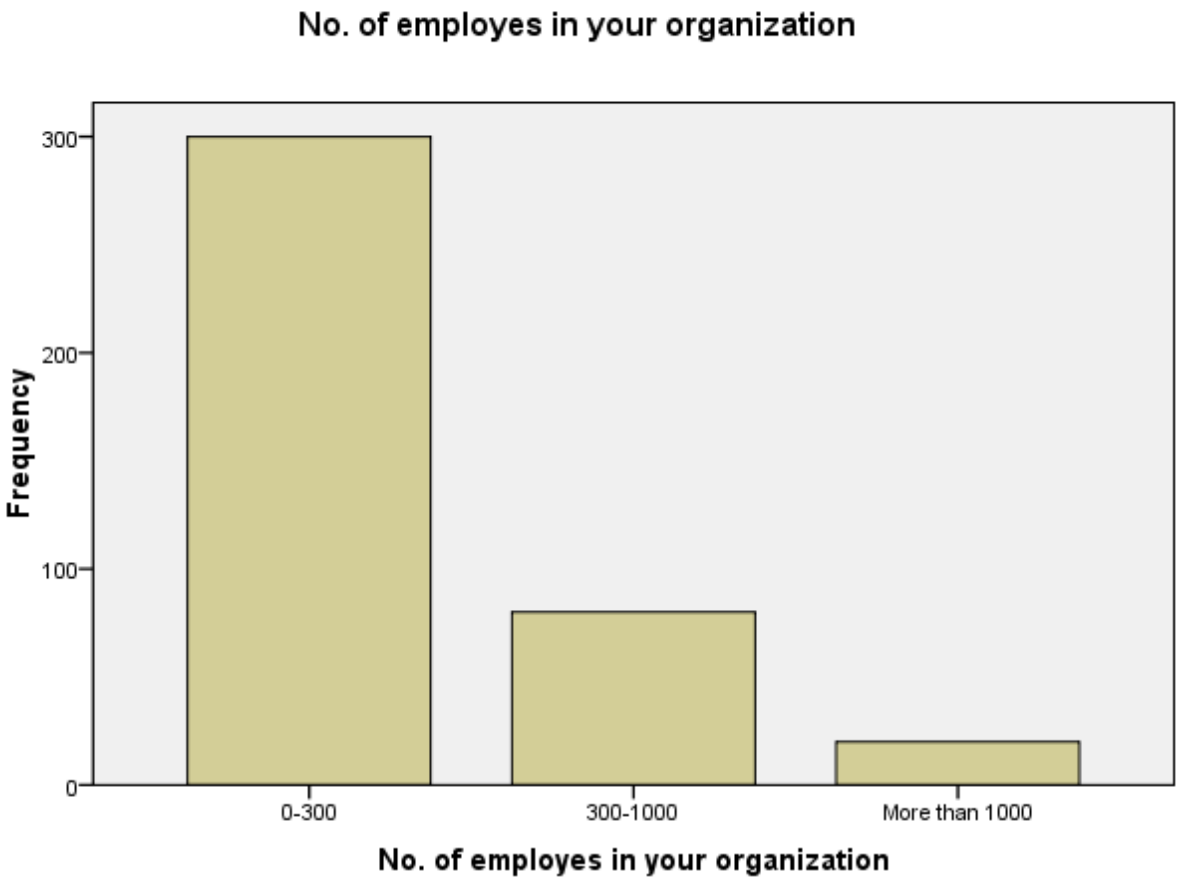


Figure 4.15: The number of Employees in the organization

The highest bar with the percentage of 75% shows the number of employees between 0-300, which shows in Pakistan most of the pharmaceuticals are medium sized organizations. The next bar shows the 300-1000 employees which is 20% of the whole.

The next three demographic questions are regarding the QM programs, its implementation and QM budget. About 64% of the respondents think the budget they spending on QM programs are about right and 27% of them think their QM spending's far too little.

Table 4.6 Spending on the QM programs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Far too little	110	27.5	27.5	27.5
	About right	258	64.5	64.5	92.0
	Too much	32	8.0	8.0	100.0
	Total	400	100.0	100.0	

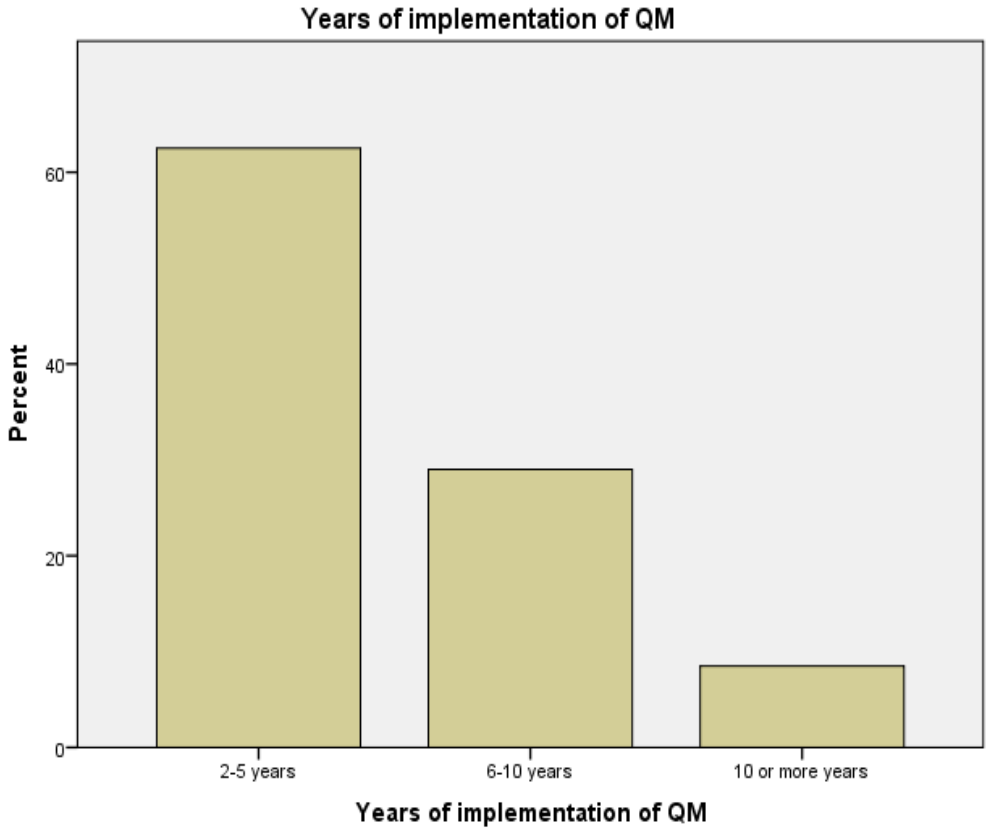


Figure 4.16: Spending on the QM programs

The next demographic characteristic of the respondent is the QM implementation and it being successful or not successful. The table 5.7 and figure shows that 48% of the respondents are of the opinion that the QM programs being implemented in their organizations are largely successful and 40% think they are completely successful.

Table 4.7 Success of QM implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Completely Successful	163	40.8	40.8	40.8
	Largely Successful	194	48.5	48.5	89.3
	Largely Unsuccessful	41	10.3	10.3	99.5
	Completely Unsuccessful	2	.5	.5	100.0
	Total	400	100.0	100.0	

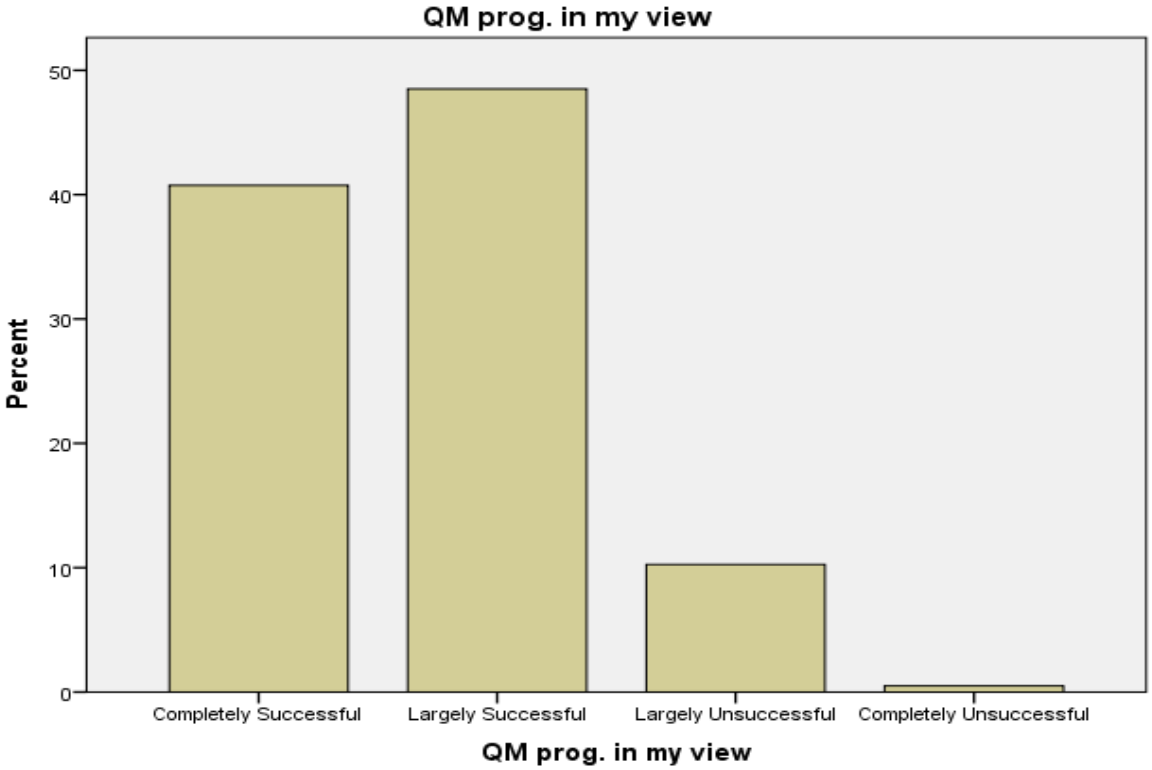


Figure 4.17: Success of QM implementation

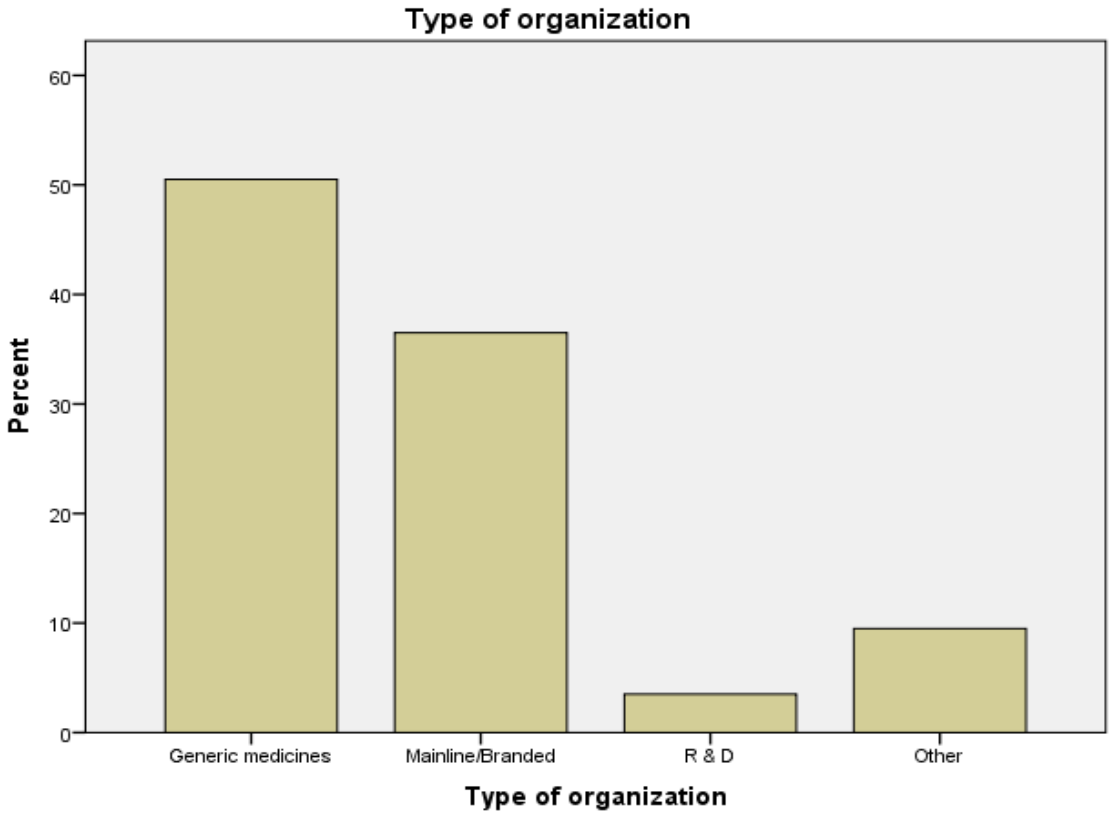


Figure 4.18: Type of Organization

The figure 4.18 shows the type of organization from which the data for the present study was collected. 50% of the total sample size was the manufacturers of generic medicines, about 35% were mainline/branded medicine manufacturers, about 5% are R&D and 10% are other types of the organizations. This shows in pharmaceutical sector of Pakistan research and development is not well taken up, however different types of organizations may react differently to the key variables differently, which may slightly impact different findings. Therefore, organizations focusing on generic medicines would be very different from those focused on R&D in terms of learning, novelty and measures of firm's non-financial performance. To avoid this, the focus of the research was kept limited and generalized in terms of type of organization because it is beyond the objective of the present research.

4.3.2 Variable's Central Tendency, Variability and Distribution

After excluding the items with low extraction values through KMO are presented here in following tables. The table shows central tendency, minimum value, maximum value, range, variance, standard deviation, kurtosis and skewness. In the following tables separate mean of dimensions with items and then combined mean are stated for all the variables. The QMI mean ranges from (3.4-3.7), this indicates that there is strong implementation of quality in pharmaceutical sector of Pakistan. All the standard deviation values of the variables of the present study are below 1.0, which states that there is less variability in the data set. Some information about the distribution shape in terms of skewness and kurtosis is given in the below table. The skewness values are all negative which shows a slight skew towards left hand side. The kurtosis values are all positive and ranges from (0.5-3.0), most of the values are below 3, which indicate that this is a platykurtic distribution.

Table 4.8 Skewness cut-off values for interpretation

Skewness value	**Interpretation**
Skewness > 0	Right skewed distribution - most values are concentrated on left of the mean, with extreme values to the right.
Skewness < 0	Left skewed distribution - most values are concentrated on the right of the mean, with extreme values to the left.
Skewness = 0	Mean = median, the distribution is symmetrical around the mean.

Table 4.9 Kurtosis cut-off values for interpretation

Kurtosis value	Interpretation
Kurtosis > 3	Leptokurtic distribution, sharper than a normal distribution, with values concentrated around the mean and thicker tails. This means high probability for extreme values.
Kurtosis < 3	Platykurtic distribution, flatter than a normal distribution with a wider peak. The probability for extreme values is less than for a normal distribution, and the values are wider spread around the mean.
Kurtosis = 3	Mesokurtic distribution is normal distribution

The following table 4.10 shows individual variable descriptive details including mean, minimum value, maximum value, variance, standard deviation, skewness and kurtosis for QMI and rest of the variables related tables are in annexure.

Table 4.10 Descriptive Statistics for the Quality Management Implementation

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
QMI11	400	4.00	1.00	5.00	3.6650	1.01753	1.035	-.898	.122	.469	.243
QMI12	400	4.00	1.00	5.00	3.7275	.85444	.730	-1.045	.122	1.230	.243
QMI13	400	4.00	1.00	5.00	3.5075	.93923	.882	-.441	.122	-.083	.243
QMI14	400	4.00	1.00	5.00	3.6750	.84627	.716	-.622	.122	.409	.243
QMI15	400	4.00	1.00	5.00	3.7475	.83396	.695	-.618	.122	.215	.243
QMI21	400	4.00	1.00	5.00	3.7025	.89778	.806	-.840	.122	.893	.243
QMI22	400	4.00	1.00	5.00	3.5575	.92674	.859	-.720	.122	.318	.243
QMI23	400	4.00	1.00	5.00	3.4750	.96004	.922	-.800	.122	.408	.243
QMI24	400	4.00	1.00	5.00	3.9225	.89077	.793	-1.088	.122	1.523	.243
QMI32	400	3.00	2.00	5.00	3.9100	.78322	.613	-.313	.122	-.355	.243
QMI33	400	4.00	1.00	5.00	3.8950	.81587	.666	-1.113	.122	2.051	.243
QMI34	400	4.00	1.00	5.00	3.6625	.96744	.936	-.983	.122	1.001	.243
QMI41	400	4.00	1.00	5.00	3.5550	.78646	.619	-.556	.122	.689	.243

QMI42	400	4.00	1.00	5.00	3.6500	.74759	.559	-.559	.122	.466	.243
QMI45	400	4.00	1.00	5.00	3.6425	.85529	.732	-.305	.122	-.263	.243
QMI51	400	4.00	1.00	5.00	3.6900	.78769	.620	-.504	.122	.746	.243
QMI53	400	4.00	1.00	5.00	3.7750	.81304	.661	-.663	.122	.701	.243
QMI54	400	3.00	2.00	5.00	3.6825	.74031	.548	-.235	.122	-.155	.243
QMI55	400	4.00	1.00	5.00	3.6750	.90633	.821	-.733	.122	.763	.243
QMI61	400	4.00	1.00	5.00	3.8525	.77927	.607	-.758	.122	1.221	.243
QMI62	400	4.00	1.00	5.00	3.7325	.82014	.673	-.840	.122	1.200	.243
QMI64	400	3.00	2.00	5.00	3.7950	.76120	.579	-.425	.122	.039	.243
QMI65	400	3.00	2.00	5.00	3.7900	.70508	.497	-.541	.122	.472	.243
Valid N (listwise)	400										

4.4 Multivariate Analysis

In the literature review, the researcher has specified the factor structure of Quality Management Implementation on the basis of existing literature. The factor structure depicts the first part of the measurement model relating to Quality Management Implementation, Learning Organization, Knowledge strategy, Novelty & Continuity and Firm's Financial Performance. All the constructs are further divided into dimensions which have been previously validated by the various researchers. However, for the purpose of present study it was required to further validate to examine the hypothesized relationships among the variables.

4.4.1 Results of Exploratory Factor Analysis (EFA)

The results of EFA for the present study are outlines below in three main phases and also been discussed in chapter 3 earlier.

Step 1: Necessary conditions for EFA

All necessary conditions for EFA for the present study are met, and have been discussed below.

First, the sample size is large enough to conduct the EFA according to Tabachnick and Fidell (2007).

Second, the correlation matrix shows evidence of coefficients greater than 0.3, which shows that the interrelationships between the items are met. There are three relationships whose coefficient is less than 0.3, it can be ignored on the basis that maximum relationships in are

significant (Pallant, 2007). Furthermore, the Bartlett's test of sphericity is significant and supports the factorability and suggests nonzero correlation among the items and high level of homogeneity among the variables (Field, 2006). The tables 3.9, 3.11, 3.13, 3.15 and 3.17 shows approximate chi-square, df, and significance which satisfies the cut-off points. The overall measure of sampling adequacy (KMO) if 0.776 for QMI, 0.832 for LO, 0.889 for NC, 0.768 for KS and 0.850 for FNFP which are higher than the cut-off point of 0.6 as suggested by Field (2006) and Hair et al., (2006). Hence, the data satisfy the requirements for factor analysis (Hair et al., 2006).

Third, as discussed in section 4.2.2 and section 4.2.3, the assumptions for missing data and outliers are satisfactorily met.

Fourth, the results of the data linearity, normality and multicollinearity are met satisfactorily (preliminary analysis section 4.2.4, 4.2.5, 4.2.6, 4.2.7). Therefore, the data for the present study satisfies the requirements for factor analysis.

Step 2: Factor Extraction

The present study used the Principle component analysis, generally used approach for factor extraction (Fidell, 2007). The above mentioned approach has discussed in detail the results of PCA in section 3.8 (Pilot test). The decision was made on the basis of PCA result, to maintain the factors including communalities (Pallant, 2007).

Step 3: Interpretation of EFA results

The EFA results with principal factor extraction are presented here. The EFA results have been laid out in section 3.8 (Pilot test) to provide more evidence to the generated results. The

EFA produces a five factor solution which includes; quality management implementation, learning organization, novelty & continuity, knowledge strategy and firm's financial performance. This is further supported by scree plots and the literature. The factor extraction tables 3.10, 3.12, 3.14, 3.16 and 3.18 which shows that all the loading greater than 0.5 are recommended (Hair et al., 2006). All the items of the questionnaire to measure the relationship between the variables of the present study were retained whose loadings are higher than 0.5.

More explicitly, the factor loadings of the retained items of the variables are as follows; QMI (0.641, 0.837, 0.717, 0.642, 0.667, 0.570, 0.729, 0.755, 0.519, 0.635, 0.538, 0.634, 0.560, 0.651, 0.600, 0.543, 0.576, 0.504, 0.799, 0.650, 0.590, 0.658,0.799, 0.633, 0.530, 0.688), LO (0.682, 0.649,0.670, 0.638,0.766, 0.688, 0.630, 0.608, 0.720,0.598, 0.739, 0.563, 0.517, 0.573, 0.768), N&C (0.670,0.655, 0.608, 0.520, 0.719, 0.546, 0.601, 0.592, 0.556, 0.641, 0.537, 0.668, 0.595, 0.693, 0.752), KS (0.594, 0.586, 0.618, 0.577, 0.521, 0.581, 0.511, 0.588, 0.566) and FNFP (0.537, 0.591, 0.582, 0.645, 0.675, 0.672, 0.662, 0.600, 0.709, 0.725, 0.744, 0.606, 0.640, 0.600, 0.615. However, as discussed in the previous chapter (methodology) EFA is not a good measure to test the scale dimensionality of the instrument. Hence, CFA is further conducted to test the dimensional structure of all the constructs of the present study.

The reliability scores of all the constructs; QMI, LO, N&C, KS and FNFP is greater than 0.7 the cut-off value as endorsed by Nunnally & Bernstein (1994).

4.4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was used in the present study for the purpose of testing the validity of the measurement (convergent validity and discriminant validity) and secondly, to test the factorial structure of the scale (Byrne, 2010).

4.4.2.1 Validating measurement model using CFA

The first step before starting the validation of constructs is evaluating the hypothesized relationships between the two sets of constructs. The construct validity is the level to which a set of measured items truly reflect the theoretical latent construct they are developed to measure. For the purpose of the present study, CFA is a pertinent tool to evaluate the construct validity of a proposed measurement theory (Marsh et al., 2009 and Hair et al., 2010). Furthermore, CFA also quantitatively calculates the construct reliability as well (Hair et al., 2010). Numerous researchers over the years have employed CFA to determine the proposed factoral structure of constructs (Hair et al., 2010)

The model is validated through three steps as follows;

1. Specify measurement theory
2. Construct a measurement model for all the constructs
3. Perform over all fit using CFA and calculate reliability and validity

4.4.2.1.1 Measurement Theory

Diamantopoulos (2005) and Finn and Kayande (2005) argued that theoretical and empirical criteria are essential to design and validate measurement models. There are two kinds of

measurement theories employed by the various researchers designed through CFA/SEM; Formative measurement theory and reflective measurement theory (Hair et al., 2010). There are three basic theoretical considerations which guides the researcher in deciding whether the measurement model is formative or reflective. Following are considerations include;

1. The nature of the constructs
2. The direction of causal relationship between indicators and items
3. The characteristics of indicators to use to measure the construct

Therefore, the theoretical model used in the present study is a reflective measurement model.

4.4.2.1.2 Constructing the Model

The measured variables are shown as a box with labels corresponding to those shown in the survey questionnaire. The latent constructs are an oval shaped. Each measured variable has an error term. Two headed connectors indicate covariance between constructs. One headed connectors indicate a causal path from a construct to an indicator (measured) variable without cross-loadings. The assumption of no cross-loadings is based on the fact that the existence of significant cross-loadings is the evidence of a lack of unidimensionality and therefore a lack of construct validity, i.e. discriminant validity. However, in the measurement model all connectors between constructs are two-headed covariance/correlations (Hair et al., 2010).

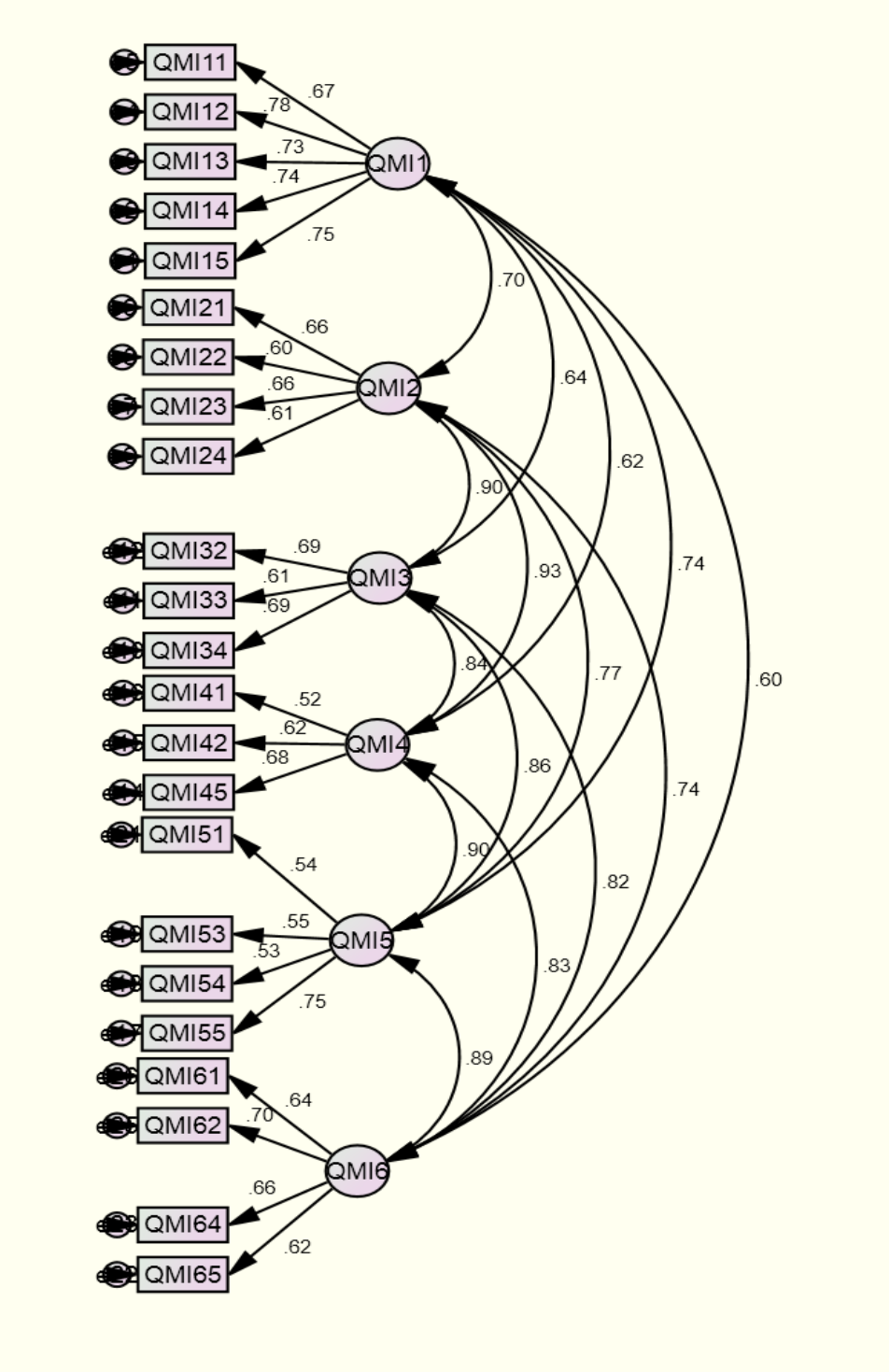


Figure 4.19: CFA for QMI

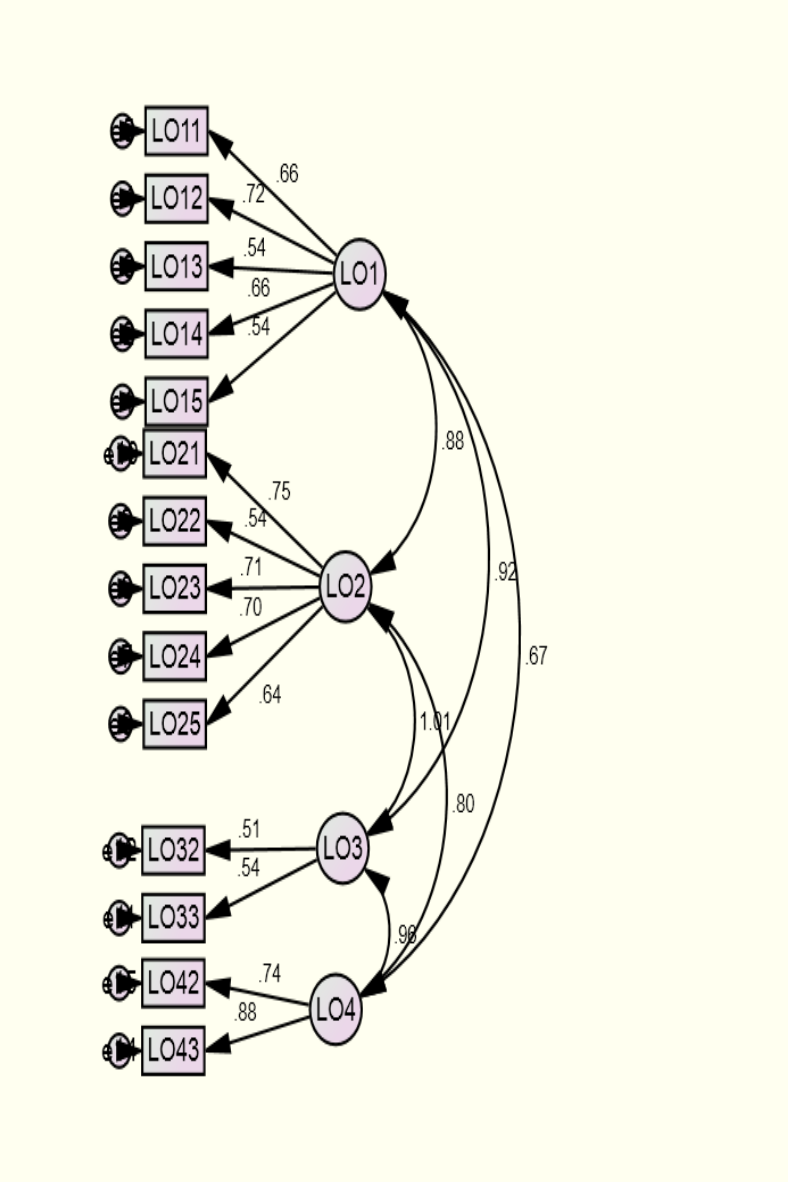


Figure 4.20: CFA for LO

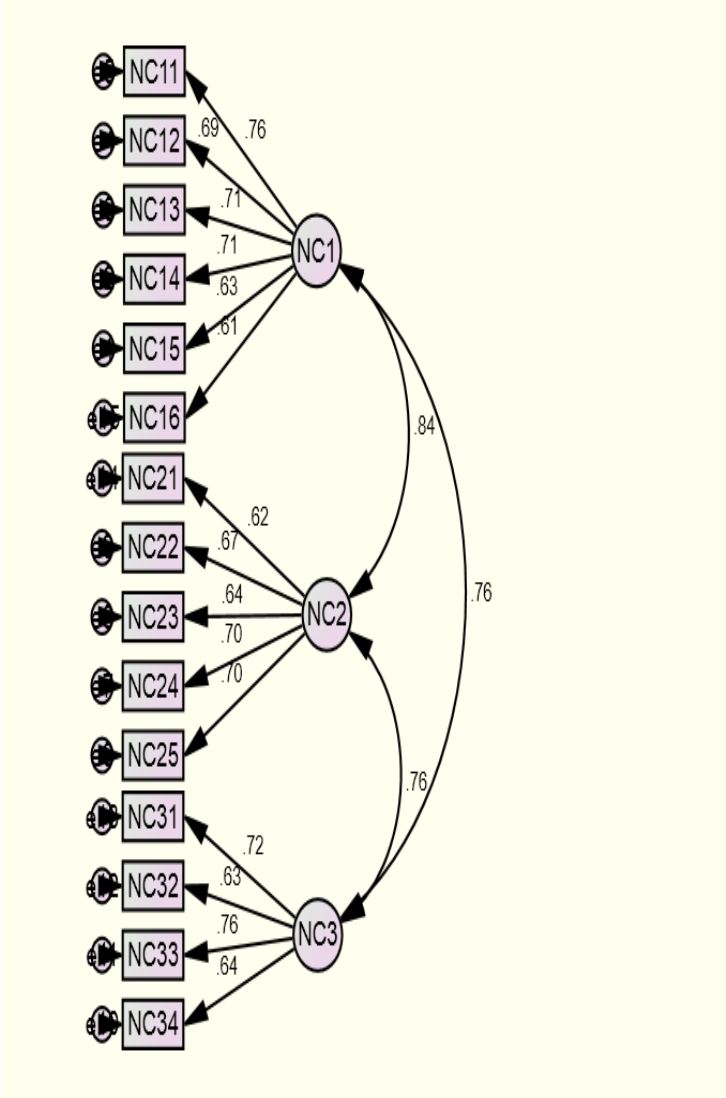


Figure 4.21 : CFA for NC

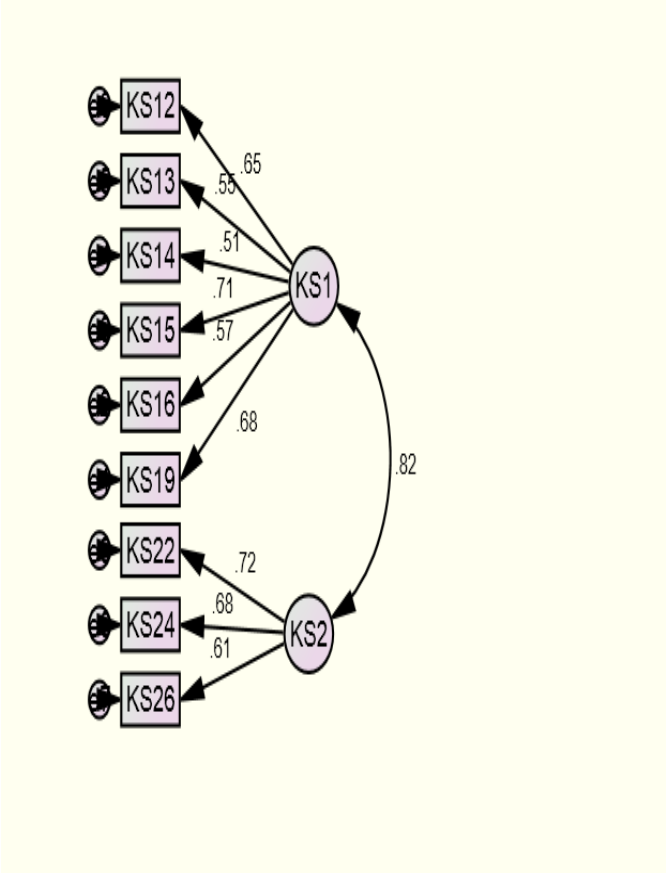


Figure 4.22: CFA for KS

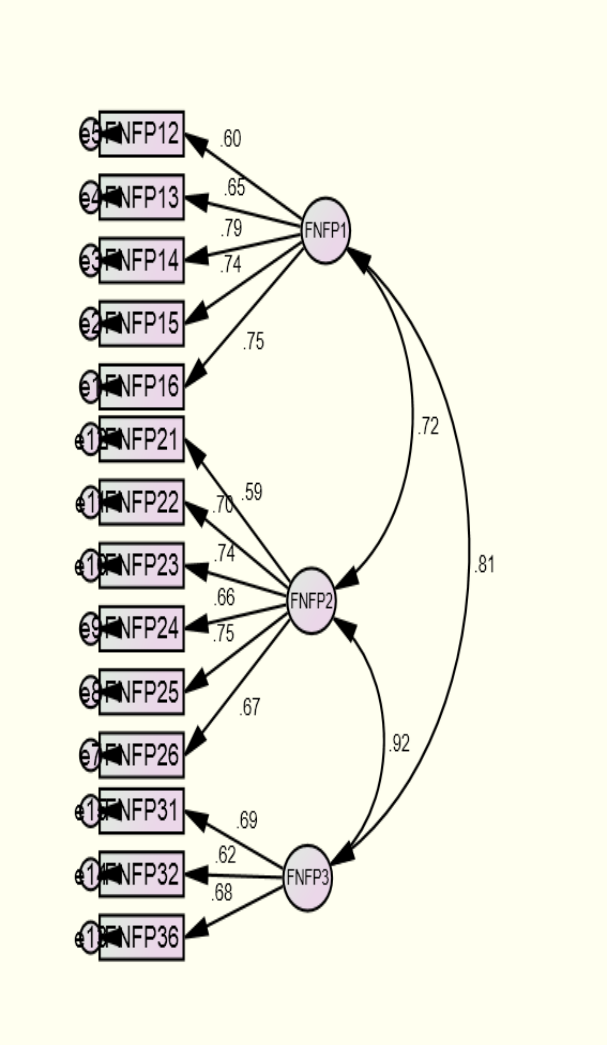


Figure 4.23: CFA for FNFP

This analysis is not concerned with identifying the factors as it has already been done in EFA but it is concerned with the confirmation of a specific factor structure. The factor structures of the variables from EFA provided guidance for specifying an empirical base for factor structure for further CFA testing using SPSS AMOS 20 computer software. The table 4.11 contains a summary of goodness-of-fit measures used to determine how good the model fits the obtained data.

Table 4.11 Summary of Goodness-of-Fit Measures

Goodness of Fit Measure	Accepted Value	Interpretation
Chi-square $\chi 2$	Lower $\chi 2$ value with significance level >0.5	>.05 represents an acceptable fit, value >0.1 represents a good fit
$\chi 2$/d.f	Ratio 2:1 or 3:1	Value <3 represent an acceptable fit, the closer to 1 the better
Goodness of Fit Index (GFI)	0 (no fit) to 1 (perfect fit)	Value close to 0.95 reflects a good fit
Adjusted GFI (AGFI)	0 (no fit) to 1 (perfect fit)	Value adjusted for d.f, with 0.95 a good model fit
Normed Fit Index (NFI)	0 (no fit) to 1 (perfect fit)	Value close to .95 reflects a good fit
Comparative Fit Index (CFI)	0 (no fit) to 1 (perfect fit)	Value close to .95 reflects a good fit
Tucker-Lewis Index (TLI)	0 (no fit) to 1 (perfect fit)	Value close to .95 reflects a good fit
Root Mean Square Error of Approximation (RMSEA)	< .10	Value < 0.05 reflects good fit Value < 0.10 reflects acceptable fit Value > 0.10 reflects poor fit

Adapted from Schumacker and Lomax (2004)

According to Thomson et al. (2005), acceptable range for goodness of model ($\chi 2$/d.f) less than 5 is considered good to accept the model. The six indices, Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) presented by Thompson, (2000) for examination of model fit for belief factors the values of GFI, IFI, CFI, NFI and TLI should be equal or greater than 0.90 while the value of RMSEA should be less than 0.08.

4.4.2.1.3 The Uni-dimensionality Test for QMI

The measurement model showed good model fit where ($\chi 2$/ *df*) = 2.14which is within the recommended value of < 3. The RMSEA value is 0.047 indicating acceptable model fit. The results are shown in Table 4.12.

Table 4.12: Summary of Findings (CFA) for QMI

Item	Item wording	Final Standardized loadings
QMI11	Top management strongly encourages employee involvement in quality management activities in the organization.	.67
QMI12	Top management empowers employees to solve quality problems within the organization.	.78
QMI13	Top management arranges adequate resources for employee education and training in the organization.	.73

QMI14	Top management actively participates in the quality management and improvement process of the organization.	.74
QMI15	Top management is committed to the QM implementation in the organization and sets clear goals for quality improvement.	.75
QMI21	The organization refers to customer needs to develop business strategies	.66
QMI22	The organization refers to customer needs through market research for developing new products.	.60
QMI23	The organization always conducts market research in order to collect suggestions for improving the products.	.66
QMI24	Quality related customers complaints are treated with top priority in the organization.	.61
QMI25	The organization collects extensive complaints related information from the customers.	Deleted
QMI31	The organization has knowledge of lost customers and investigates the reasons.	Deleted
QMI32	The employees work as team but guided by clear goals in the organization.	.69
QMI33	The employees understand their respective roles in the organization.	.61
QMI34	The employees are encouraged to develop new and innovative ways for better performance.	.69
QMI41	The organization has a comprehensive and structured	.52

	planning process which regularly sets and reviews short and long term goals.	
QMI42	The employees believe that the strategic plans and the tactical plans are linked to quality values of the organization.	.62
QMI43	The organization has a written statement of strategy covering all business operations which is clearly articulated and agreed by the senior managers.	Deleted
QMI44	The organization has a mission statement which has been communicated throughout the company and is supported by the employees.	Deleted
QMI45	The organization always incorporates supplier capabilities, and needs of the other stake holders including the community when the organization develops its plans, policies and objectives.	.68
QMI51	There is availability of key performance figures for the analysis and decision making in the organization.	.54
QMI52	There is availability of knowledge, and access to the relevant information and their use within the organization.	Deleted
QMI53	The organization analyzes all work, process and systems.	.55
QMI54	There is availability of regular strategic planning in the organization.	.53
QMI55	There are regular reviews on organization's quality performance in the organization.	.75

QMI61	There is a strong commitment to quality at all levels of the organization.	.64
QMI62	Employees are encouraged to verbalize how things could improve supervisory reinforcement in the organization.	.70
QMI63	Employees have relatively high level of authority over their work related decisions in the organization.	Deleted
QMI64	Employees constantly look for ways to improve their work in the organization.	.66
QMI65	The employees are supportive towards QM implementation programs in the organization.	.62

Achieved fit indices						
$\chi 2$ /df	GFI	AGFI	NFI	TLI	CFI	RMSEA
2.14	0.992	0.975	0.984	0.983	0.992	0.047
Composite construct reliability 0.792						

4.4.2.1.4 The Uni-dimensionality Test for LO

The measurement model showed good model fit where ($\chi 2/ df$) = 2.394which is within the recommended value of < 3. The RMSEA value is 0.052 indicating acceptable model fit. The results are shown in Table 4.13.

Table 4.13: Summary of Findings (CFA) for LO

Item	Item wording	Final Standardized Loadings
LO11	There is total agreement among individuals on the organizational vision across all levels, functions and divisions of an organization.	.66
LO12	My organization gives a chance to everyone to share organization's vision and objectives.	.72
LO13	I have a clear vision and objectives regarding my organization.	.54
LO14	There are regular meetings with stake holders of the organization about the vision of my organization.	.66
LO15	A shared vision statement serves as a source of inspiration for all the employees in the organization.	.54
LO21	My organization encourages employees to think from a global perspective.	.75
LO22	My organization works together with the outside industry to meet mutual needs.	.54
LO23	My organization encourages employees to get answers from across the organization when solving problems.	.71
LO24	My organization recognizes and encourages employees for taking initiatives.	.70
LO25	My organization supports and encourages employees who take logical decision.	.64

LO31	In my organization, people help each other to learn new techniques to resolve work related issues.	Deleted
LO32	In my organization, people are rewarded for learning new techniques and tools to achieve the set goals.	.51
LO33	In my organization, top management, top management develops and supports the learning activities.	.54
LO41	My organization works together with the outside community to meet mutual needs.	Deleted
LO42	My organization encourages people to get suggestions from across the organization when solving problems.	.74
LO43	My organization encourages people to think from broader perspective in order to compete with the competitors.	.88

Achieved fit indices						
$\chi 2$ /df	GFI	AGFI	NFI	TLI	CFI	RMSEA
2.394	0.981	0.963	0.973	0.976	0.984	0.052
Composite construct reliability 0.854						

4.4.2.1.5 The Uni-dimensionality Test for N&C

The measurement model showed good model fit for NC where ($\chi 2/ df$) = 3.711which is within the recommended value of < 3 or < 5. The RMSEA value was 0.073 indicating acceptable model fit. The results are shown in following Table 4.14.

Table 4.14: Summary of Findings (CFA) for N&C

Item	Item wording	Final Standardized loadings
NC11	The speed of R&D of our organization is faster than our competitors.	.76
NC12	The speed of process & production improvement is faster than our competitors.	.69
NC13	The speed of innovating a new logistic way is faster than the competitors.	.71
NC14	R&D has improved production innovation skills within the organization.	.71
NC15	Compared to our competitors, production in our organization is more customized according to the customer's needs.	.63
NC16	Compared to our competitors, the production in organization offers more innovative products to the custom	.61
NC21	The company has continuously used innovative technology to improve the quality of products for our customers.	.62
NC22	The latest human resource practices are adopted in this organization.	.67
NC23	The job design is more diversified than our competitors.	.64
NC24	The organizational structure innovation is more flexible than competitors.	.70

NC25	During the last three years our patent registration has increased significantly.	.70
NC31	During the last three years, the comparative advantage of our company has improved significantly.	.72
NC32	During the last three years, the employee productivity has improved significantly.	.63
NC33	The innovative managerial & work practices are adopted in our organization.	.76
NC34	The management practices the innovative processes which are developed by the organization.	.64

Achieved fit indices						
χ2/df	GFI	AGFI	NFI	TLI	CFI	RMSEA
3.711	0.985	0.956	0.975	0.963	0.982	0.073
Composite construct reliability 0.780						

4.4.2.1.6 The Uni-dimensionality Test for KS

The measurement model showed good model fit where ($\chi 2/ df$) = 2.806which is within the recommended value of < 3. The RMSEA value was 0.060 indicating acceptable model fit. The results are shown in Table 4.15.

Table 4.15: Summary of Findings (CFA) for KS

Item	Item wording	Final Standardized Loadings
KS11	My skills to perform the routine tasks are well detailed & codified.	Deleted
KS12	The problem solving methods are well detailed & codified.	.65
KS13	Results of the different projects are well documented.	.55
KS14	Results of the meetings are minuted.	.51
KS15	Knowledge is shared in formal documents like manuals, memos, minutes and write ups.	.71
KS16	Knowledge in my organization can be acquired easily through formal documents or databases	.57
KS17	Information about different projects is usually acquired afterwards through formal and informal method.	Deleted
KS18	Training courses are designed in a way that individuals share their knowledge among each other.	Deleted
KS19	Training contents can be retrieved afterwards by means of recorded memos, minutes and other documents.	.68
KS21	It is easy to get face to face advice from specialized individuals within the organization.	Deleted
KS22	We sufficiently arrange informal meetings for knowledge sharing among individuals within the organization.	.72
KS23	Knowledge is shared through one-by-one mentoring of individuals within the organization.	Deleted

KS24	In our organization, experienced employees guide younger employees.					.68
KS25	We frequently set up client meetings per project in our organization.					Deleted
KS26	Knowledge can be easily acquired from experienced employees within the organization.					.61
KS27	It is hard to acquire knowledge from co-workers within the organization.					Deleted
Achieved fit indices						
$\chi 2$ /df	GFI	AGFI	NFI	TLI	CFI	RMSEA
2.806	0.989	0.966	0.982	0.977	0.988	0.060
Composite construct reliability 0.821						

4.4.2.1.7 The Uni-dimensionality Test for FNFP

The measurement model showed good model fit for FNFP where ($\chi 2/ df$) = 1.410 which is within the recommended value of < 3. The RMSEA value was .028 indicating acceptable model fit. The results are shown in the following Table 4.16.

Table 4.16: Summary of Findings (CFA) for FNFP

Item	Item wording	Final Standardized Loadings
FNFP11	There is reduction in cycle time of the production processes.	Deleted
FNFP12	There is significant reduction in customer complaints.	.60
FNFP13	There is reduction in defect rates of the product & process.	.65
FNFP14	There is improvement in overall efficiency of the processes.	.79
FNFP15	There is improved manufacturing time and customer delivery times.	.74
FNFP16	The process of my organization is more efficient & productive.	.75
FNFP21	I understand the business vision & goals of my organization.	.59
FNFP22	Senior management has clearly communicated a clear plan for meeting our business vision & goals.	.70
FNFP23	Managers are rewarded for mentoring & developing their employees.	.74
FNFP24	Measures of quality exist to evaluate my job performance.	.66
FNFP25	My efforts are recognized & appreciated leading to personal improvements & achievements.	.75
FNFP26	Decisions about my compensation have been consistent with my performance.	.67

FNFP31	There is an increase in flow of information among departments within the organization.	.69
FNFP32	There is an increase in team work and cooperation among employees within departments.	.62
FNFP33	The organization has increased the percentage of retained customers	Deleted
FNFP34	The organization owns a competitive advantage over the competitors based on its relationship with customers.	Deleted
FNFP35	The organization has improved its image and quality of products in the market.	Deleted
FNFP36	The customers of our organization are loyal & committed towards our products.	.68

Achieved fit indices						
$\chi 2$ /df	GFI	AGFI	NFI	TLI	CFI	RMSEA
1.410	0.997	0.986	0.996	0.999	0.996	0.028
Composite construct reliability 0.809						

After successfully constructing the model, it was given a test run and the results obtained indicated the factor loadings of the five variables; QMI, LO, KS, NC and FNFP. There are few items whose loadings are below cut-off and they were suggested for deletion process as indicated in tables 4.12, 4.13, 4.14, 4.15, 4.16. The factor loadings which are below cut-off value of (0.5) should be further processed for deletion (Hair et al., 2010). According to Hair et al. (2010), the assumption for a reflective construct Is all indicator variables must be caused by same latent construct, and they should be highly correlated among each other.

After the modification of the model that is by deleting the items with loadings below 0.5 tests was run again by CFA, which showed the satisfactory factor loadings. In this section, the measurement model was tested and modified for five constructs. For the purpose of assessment of measurement model, maximum likelihood estimation (MLE) was used for model fit. The full AMOS output of CFA is presented in the next section.

4.4.2.1.8 Overall Model fit Test

The model fit includes the overall fit indices. According to the literature for model fit, at least one absolute fit index and one incremental fit index is required with satisfactory chi-square results (hair et al., 2010). The value of $\chi 2$/d.f. less than 5 is considered satisfactory to accept the model (Thomson et al., 2005). Besides $\chi 2$ and $\chi 2$/d.f. six indices, Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) were used to examine the model fit. The model fit on these indices were examined by using typical cut-off criteria of model fit (see Bentler, 1990; Browne and Cudeck, 1993; Iacobucci, 2010; McDonald, 2010; Schumacker and Lomax, 2010; Thompson, 2000) as stated in table 5.11.

a) $\chi 2$ (Chi-Square) Test

The chi-square and degree of freedom for all the constructs QMI, LO, NC, KS and FNFP are (460.1, 215), (828.32, 346), (1194, 321.75), (946, 337.13) and (458, 324.82). The p-value associated here for all the constructs (0.000, 0.000, 0.001, 0.000 and 0.002) are below 0.05 suggesting a good chi-square fit. The normalized chi-square ($\chi 2$/df) is a suggested measure of model fit if there are issues regarding $\chi 2$ as it is sensitive to sample size (Kline, 2005).

The normed chi square is a measure is an absolute fit index related with chi-square. The normed chi square is the ratio of $\chi 2$ and the degree of freedom ($\chi 2$/ df). According to Wheaton et al. (1977) suggested that the ratio of chi-square and d.f is acceptable between (1-5). However, Hair et al. (2010) suggested that any value of normed chi-square between 0.5 and 5 is acceptable for a model fit. Hair et al. (2010), further suggested that normed chi-square below 2 and above 0.5 is considered very good. Hence, the normed chi-square (2.14) of the present study suggests a very good model fit.

b) Absolute Fit Measures

- RMSEA (Root mean square error of approximation)

  The RMSEA is a badness of fit (BOF) measure. According to Hair et al. (2010), RMSEA provides a reasonable assessment of fit model. The value of RMSEA of 0.05 or less indicates a good fit of the model in relation to degrees of freedom. Further argued by Browne & Cudeck (1993) and Iacobucci (2010) that this value of RMSEA is a subjective measure and cannot be regarded as correct. In the present context the value of RMSEA of 0.008 or less would indicates a reasonable error of approximation, and no one would like to develop a model whose RMSEA is greater than 0.01 (Browne & Cudeck, 1993). However, the error value less than 0.05 indicate an excellent fit (Joreskog & Sorbom, 2001). According to Hair et al. (2010), the cut-off value for RMSEA should be less than 0.007 with respect to sample size and number of observed variables.

As discussed in the above section for model fit, at least one absolute fit index and one incremental fit index in addition to normed chi-square (Hair et al., 2010). RMSEA is an absolute fit index and its values for QMI, LO, NC, KS and FNFP are 0.047, 0.052, 0.073,

0.060 and 0.028 respectively. Thus recommended value of RMSEA provides additional support for model fit. The literature evidence for cut-off value for RMSEA is provided in table 5.11.

c) Incremental Fit measures

The Comparative fit Index (CFI) is an important goodness of fit (GOF) measure. CFI compares the incongruity, non-centrality parameter estimate and degree of freedom for the model being evaluated and the base line model. According to McDonald (2010), the value of CFI between 0 and 1 show a very good fit. The incremental fit indices includes; CFI, (Tucker Lewis coefficient index) TLI and (Normed fit index) NFI and the values are shown in the above tables 5.12, 5.13, 5.14, 5.15 and 5.16 and the cut-of values shown in table 4.11.

Hence, GOF measures CFI, TLI, NFI and the factor loadings are all fond in the reasonable goodness of fit measure, whereas, normed chi-square and RMSEA are also in acceptable range. Therefore, the overall result of CFA recommends that this model provides good fit and provides suitable evidence to proceed to next test.

4.4.2.1.9 Construct Validity

The construct validity is the degree to which a test measures what it claims to measure. There are four types of construct validity; face validity, convergent validity, discriminant validity and nomological validity along with reliability statistics (Hair et al., 2010).

a) Face Validity

The face validity is considered as the most important validity test. According to Hair et al. (2010), the face validity is the extent to which items are clearly consistent with the constructs based on definition and researchers judgement, and must be formulated before theory testing.

The present study's measurement model has a set of five constructs. QMI has five dimensions, LO has four dimensions, N&C has three dimensions, KS has two dimensions and FNFP has dimensions constructs. All the items of the questionnaire were developed and adapted from the already validated frameworks. In addition, the content validity was ensured from the pilot testing in chapter 3 through survey questionnaires and structured interviews with the academicians, quality managers, quality professionals who were similar to the targeted population in some aspects. The structured interviews and the pilot testing confirmed the content and the face validity of the constructs of the present study.

b) Convergent Validity

According to Hair et al. (2010), convergent validity is a test which ensures that the items are proper indicators of a specific construct and share a high proportion of variance together. The present model has 18 constructs and each have various indicators, hence needed to be tested for convergent validity. The convergent validity may be calculated through factor loadings, average variance extracted (AVE), reliability and discriminant validity. The table 5.18 shows the loading estimates, reliability and AVE for the model using the following cut-off values.

- Standardized factor loading must be 0.5 or greater.
- AVE of > 0.5 is considered as adequate convergence
- Reliability > 0.7 is considered adequate

- Factor loading

  The high loading of a factor indicates that it converge on a latent construct. The standardized loading should be higher than 0.5 and ideally 0.7 or higher (Hair et al., 2010). The high factor loadings confirmed the convergent validity as shown in table 5.18.

- Average Variance Extracted (AVE)

  The AVE is calculated as the mean variance extracted for the items loading. An AVE may be calculated through a formula which is the total of all squared standardized factor loadings (squared multiple correlations) and then divided by the number of items. An AVE greater than 0.5, shows an acceptable convergence for the measurement model. According to Alshaer (2012), AVE may be calculated as the average of the factor loadings; sum of all the loadings of the item of a construct divided by the number of items.

  AVE QMI = (sum of all FL) / n

  AVE QMI = 15/23 = 0.652

The Table 4.17 Shows all AVE for the present measurement model.

	Convergent validity - AVE and reliability for CFA model					
	QMI	**LO**	**NC**	**KS**	**FNFP**	**S.E**
QMI11	0.67					
QMI12	0.78					0.071
QMI13	0.73					0.079
QMI14	0.74					0.071
QMI15	0.75					0.085
QMI21	0.66					
QMI22	0.6					0.11
QMI23	0.66					0.103
QMI24	0.61					0.103
QMI32	0.69					
QMI33	0.61					0.07
QMI34	0.69					0.068
QMI41	0.52					
QMI42	0.62					0.072
QMI45	0.68					0.075
QMI51	0.54					
QMI53	0.55					0.057
QMI54	0.53					0.063
QMI55	0.75					0.061
QMI61	0.64					
QMI62	0.7					0.109
QMI64	0.66					0.119
QMI65	0.62					0.111

LO11	0.66		
LO12	0.72		0.132
LO13	0.54		0.127
LO14	0.66		0.139
LO15	0.54		0.135
LO21	0.75		
LO22	0.54		0.098
LO23	0.71		0.093
LO24	0.7		0.084
LO25	0.64		0.092
LO32	0.51		
LO33	0.54		0.113
LO42	0.74		
LO43	0.88		0.054
NC11		0.76	
NC12		0.69	0.114
NC13		0.71	0.113
NC14		0.71	0.109
NC15		0.63	0.128
NC16		0.61	
NC21		0.62	0.078
NC22		0.67	0.069
NC23		0.64	0.082
NC24		0.7	
NC25		0.7	0.11
NC31		0.72	0.101
NC32		0.63	0.106

NC33			0.76			0.067
NC34			0.64			0.108
KS12				0.65		
KS13				0.55		0.075
KS14				0.51		0.079
KS15				0.71		0.074
KS16				0.57		0.068
KS19				0.68		0.069
KS22				0.72		
KS24				0.68		0.12
KS26				0.61		0.126
FNFP12					0.6	
FNFP13					0.65	0.067
FNFP14					0.79	0.062
FNFP15					0.74	0.069
FNFP16					0.75	0.075
FNFP21					0.59	
FNFP22					0.7	0.01
FNFP23					0.74	0.087
FNFP24					0.66	0.097
FNFP25					0.75	0.094
FNFP26					0.67	0.083
FNFP31					0.69	
FNFP32					0.62	0.081
FNFP36					0.68	0.084
AVE	**0.652**	**0.652**	**0.679**	**0.631**	**0.687**	

RELIABILITY	**0.993**	**0.987**	**0.9887**	**0.981**	**0.99**

- Construct Reliability

The reliability is calculated from the squared sum of factor loadings for each construct and the sum of error variance terms for the each construct.

$$= (F1 + F2 + F3 + \cdots Fn)2/(F1 + F2 + F3 + \cdots Fn)2 + (SE1 + SE2 + SE3 + \cdots SEn)$$

Here, F shows the factor loading of the constructs and SE shows the standard error of each construct.

CR (QMI) = $(15)^2$ / $(15)^2$ + (1.427)

CR (QMI) = 0.993

The reliability should be 0.7 or above for a good construct reliability and internal consistency (Tabachnick & Fidell, 2007). The construct reliability value for QMI (0.993) is above 0.8, which shows that the heterogeneous (but similar) indicators that measure QMI have good reliability. Furthermore, QMI convergent validity results approve that measures of QMI that should be theoretically associated are in reality related. The Table 4.17 shows all the construct reliabilities for LO, N&C, KC and FNFP which are above the cut-off value, indicating high degree of reliability of constructs.

c) Discriminant Validity

The discriminant validity is the degree to which a construct is actually different from the other constructs of the study (Hair et al., 2006). The important characteristic of the discriminant validity is that each individual item should signify exactly one latent construct without having the cross-loading. Thus, if there exist the cross loadings this shows that discriminant validity problem is present. The most precise test of discriminant validity is through comparing the AVE for the constructs with the square of correlation estimates between them.

Table 4.18 Discriminant Validity

	AVE	**QMI**	**LO**	**NC**	**KS**	**FNFP**
QMI	**0.993**	1				
LO	**0.987**	0.283	1			
NC	**0.9887**	0.0024	0.004	1		
KS	**0.9814**	0.1232	0.0441	0.1831	1	
FNFP	**0.9905**	0.2143	0.3014	0.0967	0.3058	1

More precisely, in calculating discriminant validity between QMI and LO, the average variance extracted (AVE) of QMI is 0.993, which is greater than the squared correlation value between these two constructs (QMI and LO) which is 0.283 (see Table 4.18). This confirms there exist discriminant validly between them. Furthermore, this specifies that each construct shares more variance with its items than it shares with other construct's item. Similarly, in the computation of discriminant validity between LO and NC, the average variance extracted (AVE) of LO is 0.987, which is more than the squared correlation value

between the two constructs (LO and NC), which is 0.004 (see Table 5.24). This shows adequate discriminant validity. Moreover, all other computations between any two constructs indicated that the AVE for each construct was higher than the squared correlation estimated between those constructs. Hence the measurement model for the present study shows discriminant validity and does not show any evidence for cross loadings between the constructs.

d) Nomological Validity

The nomological validity is defined as, the constructs are related to one another significantly in the predicted direction as hypothesized in the model (Hair et al., 2006). The nomological validity shows that the empirical findings should match the hypothesized relationships. For the purpose to ensure the nomological validity of the present measurement model, the correlations of the factor scores for each construct should relate to each other significantly as predicted. The following table shows the correlations for the 8 hypothesized relationships showing the significance of the relationships. The following results shows that the constructs are associated with each other as hypothesized in chapter 2 and hence provide evidence for nomological validity.

Table 4.19 Nomological Validity

	QMI	**LO**	**NC**	**KS**	**FNFP**
QMI	1				
LO	0.532	1			
NC	-0.049	0.064	1		
KS	0.351	0.21	0.428	1	
FNFP	0.463	0.549	0.311	0.553	1

4.4.2.1.10 Summary of the assessment of measurement model

In the above section, the author has established the validity of the measurement model of five sets of constructs using CFA. Moreover, the empirical results suggest that construction of the model comprising the 18 constructs provides the best fit for the data. Therefore, this model may be used for the subsequent analysis and hypothesis testing.

In the next stage of the data analysis the evaluation of the proposed measurement model and investigation of hypothesized relationships of the constructs has been performed through structural equation modelling (SEM).

4.4.3 Structural Equation Modeling (SEM)

The structural equation modelling (SEM) is a statistical method to test the measurement model. According to Tabachnick and Fidell (2007), it is an empirical measure to test the relationships between the constructs and evaluate that how well the theory fits the data. Furthermore, if the data contrast the theory according to the data fit, researcher may develop a new theory. The structural parameter should be significant in order to test the structural theory (Hair at al., 2010). It is articulated in terms of a structural model which represents the theory with structural equations, and is represented with a visual diagram showing paths (Figure 4.24).

The structural relationships between the 18 constructs from each set of 5 constructs are represented empirically by the structural parameter estimates or path estimates. The structural model relates structural theory by indicating which constructs are associated with each other and the nature of the relationship. These relationships may be stated as regression

coefficients. Based on the theory in the present research (conceptual framework chapter 2) quality management implementation has an impact on the learning organization and subsequently on Firms non-financial performance.

Based on the guidelines of Hair et al. (2010), the next stage in the analysis is to validate the structural model through SEM in the following steps;

1. Constructing the structural model
2. Validating the model for overall fit through SEM
3. Examine the hypothesized relationships between the constructs using SEM

4.4.3.1 Constructing the Model

In the SEM, it investigates the structural model by combining the measurement and structural model in a single analysis . The correlational relationships are exchanged with dependence relationships in the SEM analysis. Hence, the design of the structural model develops from the measurement model .

The path diagram in the figure 4.24 shows a graphical illustration that has used arrows and parameters to describe the relationships that associates all sets of constructs of the present study . There are two types of parameter connections; exogenous and endogenous constructs. There is one exogenous variable that is QMI and it has six constructs (leadership, customer focus, workforce and process management, strategic planning, information and knowledge sharing, employee participation) appear on the top of the model (Fig 4.24) and is represented as independent variable. The endogenous variable/construct in this model is reflected as an

outcome of the exogenous variable/construct as hypothesized in the model. The endogenous variable in the present study is firm's non-financial performance which has 3 constructs (process level performance, individual level performance, organization level performance) appear on the right hand side of the model.

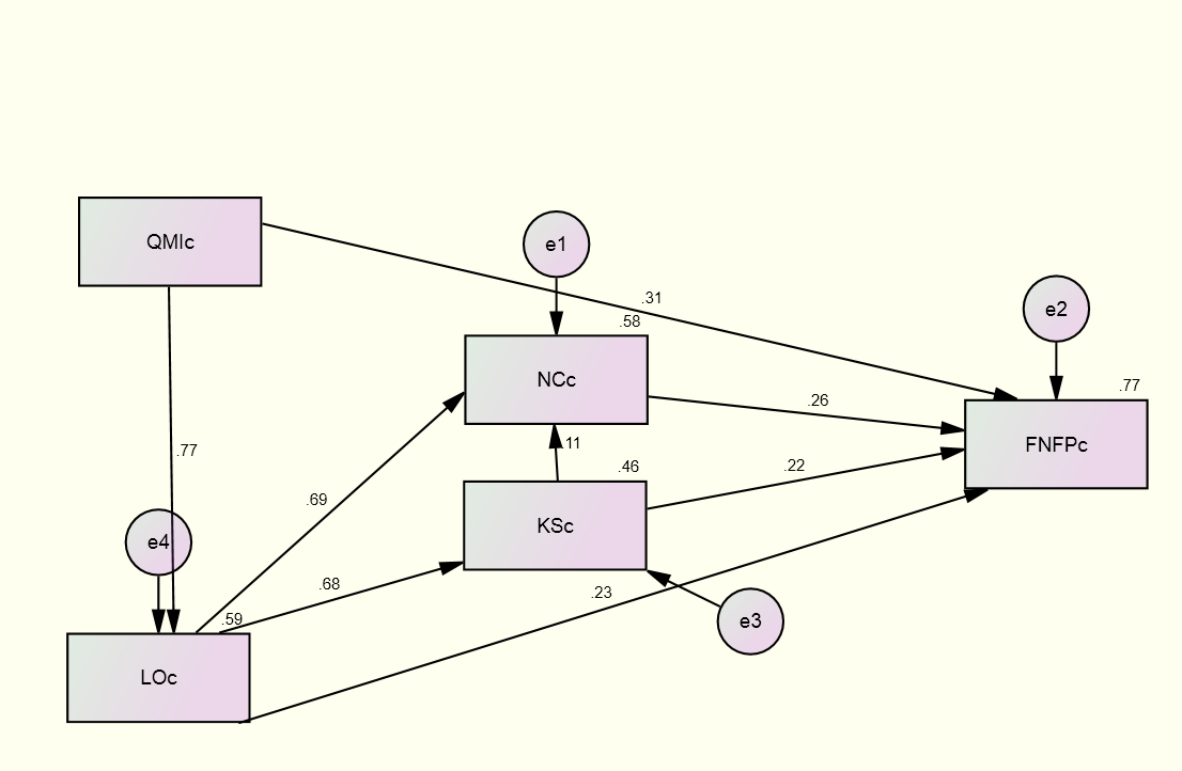


Figure 4.24: AMOS output for the path analysis between the constructs

4.4.3.2 Validating the Model for Overall Fit Through SEM

The structural model is also tested in the same manner as CFA model in the previous section. Various fit indices were used to test the structural model. In the assessment of structural model, one absolute, one incremental index and chi-square were used.

a) Overall model fit

The SEM output contains various fit indices. The present study examined key fit indices including chi-square, CFI, RMSEA to provide the reasonable assessment of model fit . The structural model provides the good fit to the data with a Chi-square ($\chi 2$) = 140.799, d.f. =110, P = .025 ($p<.05$) . The value of normed chi-square ($\chi 2$/d.f) less than 5 is considered to accept the model (Thomson et al., 2005) . Besides $\chi 2$ and $\chi 2$/d.f. six indices, Goodness of Fit Index (GFI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) are used to examine the model fit . The model fit on these indices is examined by using typical cut-off criteria of model fit as stated by the various researchers (Bentler, 1983:1990; Browne and Cudeck, 1993; McDonald, 2010; Schumacker & Lomax, 2010; Thompson, 2000) . According to typical cut-off criteria, the values of GFI, IFI, CFI, NFI and TLI should be equal or greater than 0.90 while the value of RMSEA should be less than 0.08 .

In the present study the values of indices are; GFI=.950, IFI=0.978, CFI=0.978 NFI= 0.908, TLI=0.973 and RMSEA=0.031. These indices of model fit extracted the good results to accept the proposed model.

Table: 4.20 Overall fit indices of hypothesized structural model

Test	Value SEM	Acceptable Value
	Chi- Square χ2	
Chi- square	140.799	
Degree of freedom (d.f)	110	
Significant p-value	0.025	<0.05
	Absolute Fit Measures	
Normed chi-square	(χ2/d.f) = 1.279	< 5
RMSEA	0.031	< 0.08
	Incremental Fit Index	
GFI	0.950	> 0.90
IFI	0.978	> 0.90
CFI	0.978	> 0.90
NFI	0.908	> 0.90
TLI	0.973	> 0.90

b) Chi-square test

The overall model has χ2 = 140.799 with 110 degree of freedom. The p-value associated here is 0.025 and ideally it should be less than 0.05, suggesting a good chi-square fit. Furthermore, normalized chi-square (χ2/d.f) is used as a measure of model fit as χ2 is considered as sensitive to the sample size (Kline, 2005). The normalized chi-square is 1.279. According to Hair et al. (2010), the cut-off value for normed chi-square is less than 5 and less than 2 is considered very good. In this case the value of normed chi-square is considered a very good fit.

c) Absolute fit measure

As discussed in the previous section, for a good model fit at least one absolute fit and one incremental fit in addition to chi-square is required (Hair, et al., 2010). RMSEA is an absolute fit index and the value is 0.031 as shown in the table 4.26. This value is below the cut-off value (< 0.08) recommended by Hair et al., (2010). The RMSEA provides an additional support for a good model fit.

d) Incremental fit measure

The incremental fit measures include CFI, TLI, IFI, and NFI. The recommended cut-off value for these is < 0.90. All the incremental indices are within acceptable range as shown in the table 4.26 and hence show a good fit.

The structural model of the present study is based on the CFA, and if the results of the structural model through SEM are different from the CFA, this shows that structural theory lacks validity (Hair et al., 2010). In this regard, the comparison of CFA and SEM was made in order to show if there are any differences.

Table: 4.21 Comparison results of CFA and SEM

TEST	VALUE CFA	VALUE SEM	ACCEPTABLE VALUE
Chi-Square $\chi 2$			
Chi-square		140.799	
Degrees of freedom		110	
Absolute Fit measure			
Normed chi-square		1.279	< 5
RMSEA	< 0.08	0.031	< 0.08
Incremental Fit Index			
CFI	> 0.90	0.978	> 0.90
TLI	> 0.90	0.973	> 0.90
IFI	>0.90	0.978	> 0.90

The comparison of CFA and SEM doesn't show any noteworthy differences in the fit indices shown the table 4.21. Furthermore, the comparison of the model doesn't indicate any problems with the model.

In summary the overall indices of the model; chi-square, RMSEA, CFI, TLI and IFI were all in the acceptable range. Therefore, the results of the SEM model suggest that it provides a good fit to the data. Hence, it is suitable to proceed further for hypothesis and testing the relationships.

4.4.3.3 Examining the Hypothesized Relationships Between the Constructs using SEM

In the construction of the structural model, the paths from the constructs were added as shown in the figure 4.24, in order to verify the impact of QMI and its role in the process and transition towards the learning organization. The complete AMOS output (Figure 4.24) shows the paths and relationships among the constructs. The complete AMOs output is provided in the appendix showing the path analysis, standard error, statistical significance and regression paths.

The model was run in AMOS, and the results were presented in figure 4.24 showing the results as the paths. Furthermore, in addition to fit indices the results need more evidence to support the theory presented in the present study. One of the important conditions in this type of hypothesis testing is that parameters estimates should be significant in predicted direction.

Table 4.22 Hypothesis Test Results

Structural Relationships			Regression weights	S.E.	C.R(t-value)	P
LOc	<---	QMIc	.77	.035	23.854	***
KSc	<---	LOc	.68	.035	18.360	***
NCc	<---	KSc	.11	.047	2.417	.016
NCc	<---	LOc	.69	.044	15.731	***
FNFPc	<---	NCc	.26	.035	6.925	***
FNFPc	<---	KSc	.22	.033	6.748	***
FNFPc	<---	QMIc	.31	.039	8.083	***
FNFPc	<---	LOc	.23	.048	4.543	***

The simultaneous maximum-likelihood-estimation procedures were utilized in order to examine the hypothesized relationships among QM implementation, learning organization, novelty & continuity, knowledge strategy, and firm's non-financial performance.

The above indicated results show the model fitness, all results are satisfactory. In this section, the hypothesis are being discussed which were developed on the basis of previous literature to ensure that they are significant or not. The minimal value of standardized path coefficient (β) should be .20 and above .30 is ideal to accept the relationship between the two variables (Field, 2006, Pallant, 2007 and Griffith, 2010).

H1: QM implementation has significant impact on learning organization. Based on the results of the present study the H1 is accepted because the value of standardized path

coefficient (β) is equal to 0.77, p value <0.05, which shows the significant direct relationship between these two variables.

H2: Learning organization has a significant relationship with novelty & continuity. The study results indicate that the value learning organization with novelty & continuity standardized path coefficient (β) is equal to 0.69, p value <0.05, which shows the significant direct relationship between these variables. Hence H2 is accepted.

H3: Learning organization has a significant relationship with knowledge strategy. The study results indicate that the Learning Organization with Knowledge Strategy standardized path coefficient (β) is equal to 0.68, p value <0.05, which shows the significant direct relationship between these variables. Hence H3 is accepted.

H4: QM implementation has significant impact on firm's non-financial performance. Based on the study results the H4 is being accepted because the value of standardized path coefficient (β) is equal to 0.31, p value <0.05, which shows the significant direct relationship between these variables. Hence H4 is being accepted on the basis of results.

H5: Knowledge strategy has an impact on novelty & continuity. The study results show standardized path coefficient (β) of knowledge strategy with novelty & continuity 0.11, p value is 0.016 which is <0.05, which shows the significant direct relationship between these variables. Hence, accept H5 on the basis of results.

H6: Learning organization has a significant relationship with firm's non-financial performance. This study indicates that value of standardized path coefficient (β) learning organization with Firm's Non-financial performance is 0.23, p value which is <0.05, which shows the significant direct relationship between these variables. Hence accept the hypothesis.

H7: Novelty & continuity have an impact on firm's non-financial performance. The above figure shows that value of standardized path coefficient is 0.26 between novelty & continuity and firm's non-financial performance. Hence H7 is accepted

H8: Knowledge strategy has an impact on Firm's Non-financial performance. This study results explains the relationship of these two variables as the value of standardized path coefficient is 0.22. Hence H8 is accepted.

The regression table shows the similar results, the p values of all variables are significant which are <0.05. The standard errors range from 0.033 to 0.048, convergent reliability range from 23.854 to 2.417, and estimated beta values range from 0.113 to 0.77 which indicates that the results are satisfactory and relationships are significant.

4.5 **Mediation Analysis**

Table 4.23 Mediation between QMI and FNFP with LO

	LO			FNFP		
	Coeff.	SE	p	Coeff.	SE	p
QMI (X)	0.8381	0.0352	0.0000 a	0.4644	0.0433	0.0000 c'
LO (M)	-	-	-	0.4433	0.0396	0.0000 b
Constant	0.5311	0.1318	0.0001	0.4829	0.1062	0.0000
	R2 = .5878			R2 = .7218		
	F(1,398)= 567.5760			F(2,397)= 515.0602		
	p = .0000			p = .0000		
Mediation Analysis: Outcome Variable: FNFP (Y)						

The above table shows the results of mediation analysis by applying Hayes (2013) method . In this method the regression analysis is done by using SPSS statistical Syntax Process file . In the available options; independent, dependent and mediating variables are inserted and process was executed. The results of QMI (X) shows significant relationship with LO (M) (Coeff. 0.8381, $p<0.05$) and FNFP (Y) (Coeff. 0.4644, $p<0.05$). LO (M) and FNFP (Y) has also significant relationship (Coeff. 0.4433, $p<0.05$) . On the basis of these value we can say that path a, b and c' are statistically significant. While in model 1 shows $R2 = 0.5878$, $F = 567.5760$, $p = 0.0000$ and model 2 shows $R2 = 0.7218$, $F = 515.0602$, $p = 0.0000$. The model fit summary R2, F value and p value are also showing significant effect of mediating variable (LO) because R2 is improved from 0.58 to 0.72 . Some form of mediation is supported if the effect of M (path b) remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports full mediation . If X is still significant (i.e., both X and M both significantly predict Y), the finding supports partial mediation (Barom & Kenny, 1989; MacKinnon, Fairchild, & Fritz, 2007; Hayes, 2013) . So we can conclude that our finding supports partial mediation of LO between QMI and FNFP.

Table 4.24 Mediation between QMI and FNFP with NC

	NC			FNFP		
	Coeff.	SE	p	Coeff.	SE	p
QMI (X)	0.7371	0.0409	0.0000 a	0.5522	0.0373	0.0000 c’
NC (M)	-	-	-	0.3849	0.0340	0.0000 b
Constant	0.8465	0.1532	0.0000	0.3926	0.1077	0.0000
	R2 = .4494			R2 = .7235		
	F(1,398)= 324.8312			F(2,397)= 519.3255		
	p = .0000			p = .0000		
Mediation Analysis: Outcome Variable: FNFP (Y)						

The results of QMI (X) shows significant relationship with NC (M) (Coeff. 0.7371, $p<0.05$) and FNFP (Y) (Coeff. 0.5522, $p<0.05$) . NC (M) and FNFP (Y) has also significant relationship (Coeff. 0.3849, $p<0.05$). On the basis of these value we can say that path a, b and c’ are statistically significant . While in model 1 shows R2 = 0.4494, F = 324.8312, p = 0.0000 and model 2 shows R2 = 0.7235, F = 519.3255, p = 0.0000 . The model fit summary R2, F value and p value are also showing significant effect of mediating variable (NC) because R2 is improved from 0.45 to 0.72. Some form of mediation is supported if the effect of M (path b) remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports full mediation . If X is still significant (i.e., both X and M both significantly predict Y), the finding supports partial mediation (Barom & Kenny, 1989; MacKinnon, Fairchild, & Fritz, 2007; Hayes, 2013) . So we can conclude that our finding support partial mediation of NC between QMI and FNFP.

Table 4.25 Mediation between QMI and FNFP with KS

	KS			FNFP		
	Coeff.	SE	p	Coeff.	SE	p
QMI (X)	0.7053	0.0376	0.0000 a	0.5920	0.0399	0.0000 c’
KS (M)	-	-	-	0.3459	0.0387	0.0000 b
Constant	1.2068	0.1410	0.0000	0.3010	0.1186	0.0155
	R2 = .4687			R2 = .6952		
	F(1,398)= 351.1459			F(2,397)= 452.7214		
	p = .0000			p = .0000		
Mediation Analysis: Outcome Variable: FNFP (Y)						

The results of QMI (X) shows significant relationship with KS (M) (Coeff. 0.7053, $p<0.05$) and FNFP (Y) (Coeff. 0.5920, $p<0.05$). KS (M) and FNFP (Y) has also significant relationship (Coeff. 0.5920, $p<0.05$). On the basis of these value we can say that path a, b and c’ are statistically significant . While in model 1 shows R2 = 0.4687, F = 351.1459, p = 0.0000 and model 2 shows R2 = 0.6952, F = 452.7214, p = 0.0000. The model fit summary R2, F value and p value are also showing significant effect of mediating variable (KS) because R2 is improved from 0.47 to 0.70 . Some form of mediation is supported if the effect of M (path b) remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports full mediation. If X is still significant (i.e., both X and M both significantly predict Y), the finding supports partial mediation (Barom & Kenny, 1989; MacKinnon, Fairchild, & Fritz, 2007; Hayes, 2013) . So, we can conclude that our finding supports partial mediation of KS between QMI and FNFP.

In this chapter, the collected data through survey method was analyzed using various statistical tools, and the results were presented. For the purpose of answering the research questions, statistical procedures were applied to determine the demographic characteristics and descriptive statistics in order to discover the hypothesized relationships. Furthermore, to discover what the barriers are that hinder the growth of Pakistani pharmaceutical industry to compete with international companies, in order to progress towards a learning organization and achieve improved firm's non-financial performance. The results provided the evidence for the relationship between the quality management implementation and the learning organization.

The proposed model was assessed on the basis of overall fit, reliability and validity. The model was validated through CFA (confirmatory factor Analysis) and various statistical tests including convergent validity, discriminant validity and average variance extracted. Hence, the scales developed were theoretically and operationally valid and reliable; subsequently the model was tested with these scales. The finalized scales had good validity and reliability and then they were employed in hypothesis testing.

The structural model was then evaluated through SEM for overall model fit, in order to investigate the relationships between the constructs. For examining the structural theory, the direction and the significance of the structural parameters for all the hypothesis were as predicted and correlation parameters were positive showing positive relationships.

The result from the analysis showed that the direction and the value of correlation parameter in the presented model were generally consistent with the quality management implementation and the learning organization theory. However, the path coefficients were mostly conclusive with respect to the proposed hypothesis. Few of the parameters were slightly weak for example KS – NC, but still showed the positive aspect of the relationship. Nevertheless, despite of these minor unexpected outcomes, the results overall supports the majority of the hypothesis.

The next chapter provides the discussion on the interpretations of the results presented in this chapter.

CHAPTER 5

DISCUSSION OF THE STUDY FINDINGS

5.1 Discussion of the findings

The present chapter outlines the research findings from the research survey and reviews that how this research has addressed the research questions formulated in the chapter 1. Secondly, the chapter has compared the research results of the present study with existing body of knowledge. In the present chapter, discussion starts with the research questions and objectives and then the causal relationships among the variables. The main concern of the present study is discussed in detailed that why quality management implemented organization are unable to progress towards the learning organization in Pakistan, and how LO, NC and KS mediates the relationship of QMI and FNFP.

In order to interpret the data results of the present study, the objectives of the study are highlighted below to discuss. The descriptive statistics and reliability and validity are completed and they indicated that the responses are adequate and satisfactory. Additionally, there were no outliers and missing values to affect the results of the present study. The multicollinearity and inter item correlation were used to estimate the reliability of the scale used. The convergent and discriminant validities have been calculated and found to be satisfactory.

The empirical analysis of the present study went through three stages; the first is exploratory factor analysis (EFA), second is confirmatory factor analysis (CFA) and the third is Structural equation modelling (SEM). The result of these techniques gave evidence that quality

management implementation and learning organization are multidimensional constructs and they have positive association between them and positive impact on FNFP through mediating relationships of LO, NC and KS.

The first objective of the present study was to explore the causal relationship between the QM implementation and learning organization in a pharmaceutical sector and to identify the transitional factors which lead QM oriented organization towards learning organization. The test results showed a positive relationship between the quality management implementation and learning organization and its positive impact on firm's non-financial performance. The results are consistent with the previous studies, which argue that QMI provides an organization with opportunities to develop their abilities and facilitate standardized procedures to increase the efficiency, firm's non-financial profits through innovation and knowledge strategies (Choi and Eboch, 1998; Choi and Lee, 2002 Choo et al., 2007; Ruiz-Moreno et al., 2005; Honarpour et al., 2017; Ali et al., 2017). Hackman and Wageman (1995) in their study argued which are consistent to the present results that implementing quality management provides the first step to the organization to progress towards the title of a learning organization.

The pharmaceutical organizations all over the world work with this vision to achieve the best in terms of financial profits and non-financial profits in order to be a learning organization. Pakistani pharmaceutical organizations are also following this principle by adopting the change and continuous improvement in the product, process and the environment and making an effort to be on the ladder of a learning organization. The focal point of the present study was to find that are the Pakistani pharmaceutical organizations moving towards the learning organization. Based on the research results of the present study it is argued that Pakistani

pharmaceutical is the fastest growing industry after India in this region. Pakistani pharmaceuticals are in the transitional phase where they are directed and their main focus is towards the learning organization.

The present study illustrated that QMI has a significant positive affect on LO and the present result is also consistent with the results attained by Barrow (1993) and Conner & Prahalad's (1996). The results of the present study suggested that the learning organization contributes in continuous improvement in overall organizational processes, including knowledge creation and knowledge sharing that further kindle novelty and continuity. The present study results confirmed Watkins and Marsick's (1993) and Lien et al. (2007) theoretical framework of learning organization that assumes that continuous learning and strategic leadership is an important factor in building a LO. Additionally, Customer focus, Workforce & process management, Strategic Planning and Information & Knowledge sharing jointly enhance the novelty and continuity of an organization. The logical results of the present study were consistent with Han et al., (2016), Prajogo & Sohal (2003) and Juran (1998). Quality management implementation is a simple tool for endorsing high quality, promotes the learning culture, innovation, knowledge creation and improvement in organization's performance.

The second objective of the present study was to investigate and analyze the role of Novelty and continuity in the product, process and management practice of pharmaceutical firms and does knowledge strategy facilitates to improve the firm's non-financial performance. The results obtained through SEM showed that there is a strong positive relationship between LO and N&C and knowledge strategy also helps in improving the organization's innovativeness. The path analysis through SEM showed (LO $\rightarrow$ N&C, 0.69) and

(LO → KS, 0.68) which is a positive strong relationship. Various studies comprehended that learning organization is a process of developing and acquiring new knowledge and the processes to enhance the organizational performance (Lien et al., 2006). Consequently, the knowledge development and knowledge sharing provides an organization with opportunities to create new knowledge and apply that to innovation (Tsai, 2001). Furthermore, the present study proves that the second objective of the study is met.

The third objective of the present study was to develop a conceptual model by making the explicit nature of interaction between the constructs (QMI, LO, N&C, KS and FNFP). The model fit indices shows that the model and the relationship between the constructs are significant. The model has been validated through CFA and SEM. Hence, the third objective of the present study has been achieved.

The fourth and final objective is based on the result of the study, and concerned with developing the practical guidelines for pharmaceutical organizations to improve their non-financial performance to compete in the dynamic environment.

The overall results of goodness of model fit for the present model fits the data. The path coefficients showed that all the constructs have positive relationships though some are weak but still significant based on the p values. All the constructs were tested for the convergent and discriminant validity, which indicates that all the indicators share a reasonable proportion of variance (convergent validity) in common and every construct is truly distinct from each other in terms of inter correlation and how truly measured variables represents the constructs (discriminant validity). The results are consistent with Barrow (1993), Martinez-Costa & Jimenez-Jimenez (2009), Zu et al. (2008), Hung et al.(2009) and Collins & Clark (2003).

Various methods were employed in these studies to test the measurement with respect to convergent validity for example if the items coefficient is twice greater of its standard error then there is presence of convergent validity (Kaynak, 2003). Whereas, the previous method does not offer strong evidence for convergent validity (Hair et al., 2006). The present study followed the approach recommended by Hair *et al*. (2006), which is through CFA. According to the CFA method, first the factor loadings should be greater than 0.5. Second composite reliability should be greater than 0.7 or ideally 0.8 or higher. Third, AVE should be ideally above the cut of value of 0.5 for satisfactory convergent validity (see table 4.22).

Likewise, the discriminant validity in previous studies conducted by Kaynak & Hartley (2008) and Lakhal (2009) was done by paired construct test in which if the unconstrained model of any two pairs which has a chi-square lower than at least 3.84 as compared to constrained model, it showed a good fit and satisfactory discriminant validity. However, this method does not provide adequate evidence for the discriminant validity, sometimes very high correlations among the constructs does not provide the significant fit of model (Hair et al., 2006). For this particular reason present study has used a more rigorous method by comparing the AVE value for any two constructs with squared correlations of them. The value of higher AVE as compared to squared correlation provides the evidence of discriminant validity (Fornell & Larcker, 1981).

According to the researcher's knowledge it is a first study to investigate the transition of an organization towards a learning organization through implementing the quality management and then the consequences of a learning organization like novelty & continuity and improved firm's non-financial performance through EFA, CFA and SEM in Pakistani pharmaceutical industry. There is a significant contribution on the part of the researcher, given the various

discrepancies and vague concept of a learning organization and its dimensions in the literature. Additionally, based on these results a guideline may be provided to the pharmaceutical firm's how to move and get started for the title of a learning organization.

5.1.1 Impact of Quality Management Implementation on Learning Organization

In the present study, the empirical results signify that quality management implementation has a positive impact on learning organization. There are six dimensions of a quality management implementation; leadership, customer focus, workforce and process management, strategic planning, information and knowledge sharing and employee participation. More specifically, the results highlighted the critical role of top management leadership, customer focus and workforce and process management in order to lead towards elevated firm's non-financial performance through Learning organization. All the dimensions of QMI are significantly and positively interrelated with each other and have a positive impact on learning organization.

The present study results showed that the model including QMI, LO, N&C, KS and FNFP may be supported through literature and the subsequent discussion. The present study model has a good model fit through SEM with the empirical data set collected from Pakistani pharmaceutical industry. Hence the theoretical model is rational. The present study showed that quality management implementation has a significant impact on learning organization. The result is consistent with Barrow (1993), Conner & Prahalad (1996), Yazdani et al., (2016), Lukman (2017), which argued that foremost function of quality management implementation is to foster learning organization. This contributes towards the improvements

in the organizational processes, knowledge generation, knowledge sharing and stimulate novelty & continuity in an organization. SEM analysis specified that leadership and employee participation plays a pivotal role in quality management implementation. While implementing the quality management in an organization it is essential to boost employee participation and autonomy by asking their inputs and suggestions for improving quality, and that too through real leadership. The present results confirmed Watkins & Marsick (1993) and Lien et al. (2007) framework of learning organization. Furthermore, the analytical test results are consistent with Prajogo & Sohal (2003) and Juran (1988). Therefore, quality management implementation is just not a management tool for promoting and enhancing quality but may promote culture of learning, innovation and sharing when supported by top management leadership, employee participation, customer focus, workforce and process management, strategic planning and information & knowledge sharing. Additionally, this study also proved the hypothesis (next section) that learning organization is a continuous process of attaining and creating new knowledge and competences and this process has the ability to enhance organization non-financial performance through NC and KS (Fang et al., 2016; Kareem et al., 2017; Kim et al., 2017; Lien et al., 2006; Gravin 1993).

In summary, the results of the present study indicated a strong testimony that few dimensions of the Quality Management Implementation like leadership, employee participation and customer focus are major contributor towards learning organization and rest of the dimensions of the construct are just necessary to increase the efficient implementation of quality. The results of the model validation claimed that the results may be interpreted as a good estimator of the population. To the best of researcher's knowledge this is the first study to employ these techniques to acquire validated results for this comprehensive model.

5.1.2 Impact of Learning Organization on Firm's Non-Financial Performance through Novelty & Continuity and Knowledge Strategy

In today's world organizations are facing extraordinary challenges. To compete with others in the dynamic environment organizations need to learn faster and develop competences to gain the competitive advantage and improved firm's performance. Organizations must learn faster than the competitors to have improved performance and competitive advantage (Cambron-McCabe et al., 2012). Through implementing the quality management an organization may move towards a learning organization, which enhance the novelty and build a knowledge strategy that would lead towards improved performance (Edmondson, 2002). The favorable knowledge strategy is facilitating for novelty & continuity. The efficient Knowledge development and sharing provides an organization and opportunity to learn and create a new knowledge to apply to product, process and managerial practice innovation (Tsai, 2000). While the present study determined the effect QMI on learning organization, knowledge strategy and novelty & continuity and firm's non-financial performance of pharmaceutical firms in Pakistan.

The SEM output showed that learning organization has a direct effect on firm's non-financial performance and has a mediating effect through KS and N&C. The direct effect of LO on FNFP is 0.23 and indirect effect through KS is (0.68*0.22) 0.14, which showed a week effect, but the hypothesis was accepted on the basis of p values and other indexes like RMSEA, TLI, NFI, CFI, GFI and IFI.

Many studies showed previously that learning organization promotes knowledge strategies and innovation and as a result improve firm's non-financial performance (Egan et al., 2004

and Ellinger et al., 2002). From the perspective of learning organization, the tangible output through knowledge strategy stimulates novelty & continuity in an organization. Subsequently, the novelty & continuity is stemmed from the efficient knowledge strategy in research and design (Mansfield, 1983). The study results are consistent with Rothermal & Deeds (2004), Ellinger et al. (2002), Egan et al. (2004), Yang (2005) and Baker & Sinkula (1999), which argued that being a learning organization it improves an organization's abilities to develop and share knowledge and promotes innovation to improve firm's non-financial performance.

In summary the present study provides an evidence of the existence of the relationship between the constructs of the model, which states that learning organization has a direct effect on the firm's non-financial performance and it has a mediating effect as well through knowledge strategy and novelty & continuity.

5.1.3 Impact of Quality Management Implementation on Firm's Non-Financial Performance

In the present model (quality management implementation on pharmaceutical's non-financial performance) empirical evidence demonstrated the positive impact on pharmaceutical's non-financial performance in Pakistan. Additionally, QMI more specifically described the impact by crucial role of leadership, customer focus, workforce & process management, strategic planning, information & knowledge sharing and employee participation. The empirical analysis showed that these dimensions of QMI are positively interrelated with each other. The present results are consistent with researcher's prior expectations (see chapter 2). The

empirical results are consistent with the previous studies of Powell (1995), Sila & Ebrahimpour (2002) and Su et al. (2011, 2012).

In the present study, the impact on firm's non-financial performance is measured directly by QMI, secondly though mediating effect of LO, third through mediating effect of LO, KS and N&C. QMI is widely recognized as an assisting strategy that helps an organization to pursue and gain generic objectives (Kaynak, 2003). The impact of QMI on Firm's Non-Financial Performance has been analyzed through the degree of implementation of the managerial practices discussed previously as dimensions of QMI. In the literature, there are number of authors who have reviewed the impact of QMI on Firm's Non-Financial Performance like sila (2007), Flynn et al. (1995), Grandzol & Gershon (1998), Kaynak (2003), Marino-Diaz (2003), Brah et al. (2002), Demirbag et al. (2006), Feng et al. (2006) and Brah & Lim (2006).

The results of the present study are aligned with the findings of Huarng & Chen (2002) and Prajogo & Sohal (2002) who determined that organizations with Quality Management Implementation display higher levels of Non-Financial Performance. This idea of QMI was anticipated by its advocates (Deming, Juran, Ishikawa, Crosby) as the main pillar in order to achieve improved firm's performance. The results are also consistent with findings of previous studies by Bayraktar et al., (2017), Terziovski (2010) and Huarng & Chen (2002), who demonstrated clear evidence that QMI improves the firm's non-financial performance.

Moreover, the results of the present study model elucidated the positive impact of QMI on FNFP in pharmaceutical industry of Pakistan. The research results of the SEM indicate a positive standardized parameter estimate (0.31) and the p value (< 0.05). This result is also consistent with Dow et al. (1999), Lakhal et al.(2006), Fening et al. (2008) and Sadikoglu

(2010). Regardless of methodological and contextual differences among these studies and the present study, the similar results may be due to using similar dimensions to measure QMI.

In summary, the results of the present study comprehended that QMI is a critical factor if implemented successfully can lead an organization towards an improved non-financial performance in terms of, process level, individual level and organizational level performance.

The result of the present study provides strong evidence regarding the positive direct and indirect impact of QMI on FNFP. This result is strengthened by the evidence of similar results by Mahmoud et al., (2016), Dervitsiotis (2011), Fotopoulos & Psoman's (2010), Stella (2012) and Goetsch & Davis (2013). To researcher's knowledge this is a first study that has employed these techniques for the present study constructs and dimensions.

5.1.4 Impact of Learning Organization on Firm's Non-Financial Performance

In the present study learning organization is a construct measured through shared vision, systems thinking, continuous learning and connection to the environment as dimensions. The individual CFA of learning organization showed that the dimensions are interrelated. The results of the present study demonstrated a positive impact of learning organization on Firm's Non-Financial Performance in pharmaceutical industry of Pakistan. The path analysis showed a positive impact of learning organization on Firm's Non-Financial Performance through standardized path value (0.23) and $p < 0.05$. The present study results are consistent with Martinez & Jimeneze (2009), Watkins & Marsick (2004), Yang (2005) and Ellinger et al. (2002).

The literature regarding learning organization provides evidence that LO is a basic element for competitive advantage and hence improved non-financial performance. The present study results are consistent with Ellinger et al. (2002) and Calantone et al. (2002) that organization that strive to be a learning organization and embrace consistent strategies are thought to attain improved non-financial performance. Furthermore, Baker & Sinkula (1999) argued that Learning Organization has a direct impact on firm's non-financial performance as well as indirect relationship. In the present study model there exist an indirect (mediating) relationship between LO and FNFP which are; LO ⟶ KS ⟶ FNFP (0.68*0.22 + 0.23 = 0.3796), which showed significant positive relationship and slightly stronger as compared to the direct effect (0.23). The second indirect (mediating) relationship in the present model is LO ⟶ NC ⟶ FNFP (0.69* 0.26 + 0.23 = 0.4094), which showed a positive significant impact on Firm's Non-Financial Performance. According to the present results the indirect effect through mediation is more stronger and significant as compared to direct effect of LO and FNFP. Furthermore, in the present study the mediating effect of novelty & continuity between LO and FNFP is also consistent with the results of Calantone et al. (2002), which describes that Learning Organization impacts Non-Financial Performance through firm's novelty, creativity and continuity.

Furthermore, learning organization provides a flexible and receptive organization structure that respond efficiently and faster to the new challenges of the dynamic environment. Learning organization is another name of continuous learning which provides an organization with fast improvising through knowledge creation and sharing (Martinez & Jimenez, 2009). The present study is also consistent with results of Ho (2011), Nzuve and Omolo (2012) and Wanto and Suryasaputra (2012) who claimed that higher commitment to learning organization would lead ultimately to the higher organization non-financial performance.

The arguments from the literature and the research results of the present study supported all the hypotheses of the study. The results indicates that pharmaceuticals firms in Pakistan who truly implement the quality management practices under top management leadership and they are continuously striving to improve through R&D (novelty & continuity) as well become learning organizations. The present study delivers an important contribution in the body of knowledge and research, and it puts forward the analysis of the level of quality management implementation and learning organization environment in Pakistani pharmaceutical firms.

This chapter discussed the interpretations of the different results obtained through research model to advance our understanding of the hypothesized relationships. First, the objectives of the present study were discussed and what was achieved as a result. Secondly the hypothesized relationships were discussed based on the constructs of the present study. The relationship between quality management implementation, learning organization, knowledge strategy, novelty and continuity and firm's non-financial performance were discussed based on the results and the literature. The results of the relationships are compatible with the theoretical foundation of the present study. All of the hypotheses of the present study are supported through data analysis result and literature provided the evidence as well.

5.2 Outcome of the study

The present study examined the impact of quality management implementation on firm's non-financial performance through learning organization, knowledge strategy and novelty & continuity. To accomplish this main aim, the objectives developed are attained. These objectives comprise of design operational definitions of the study constructs (QMI, LO, KS, N&C, FNFP), empirically examined the dimensional structure of these constructs, identifying

why Pakistani pharmaceutical firms are not moving towards learning organizations and to elucidate the direct and indirect associations between the variables of the study. Lastly compare the findings of the present study with the existing literature in order to advance the knowledge and understanding of the reader.

In the present chapter, outcomes of the research are summarized; issues and concerns that arise from the finding are discussed here. The theoretical contributions in terms of gap in the QMI and LO literature has been addressed and conferred. Secondly, the practical, managerial implications that are ascended from the study findings are discussed. It is followed by the theoretical and methodological limitations of the present research. Finally, the directions for the further research are suggested.

This study was moderately stimulated by the present situation of the pharmaceutical industry in Pakistan. Pakistani pharmaceutical is facing intense competitions in order to progress further. In order to transform the Pakistan's pharmaceutical industry in the presnt cut throat competition with a giant size competitors India and China, the country need to produce high quality products and invest in the research and development. For this purpose pharmaceutical organizations in Pakistan need to develop themselves into learning organization through efficient quality management implementation tools and techniques. Furthermore, this context with respect to the quality management implementation is not comprehensively researched. In particular, despite of the extensive acknowledgement of the importance of quality management implementation in order to progress towards a learning organization, the literature does not indicate much systematic study that has specifically examined the relationship between quality management implementation and firm's non-financial performance through learning organization, knowledge strategy and novelty & continuity

with mediating effects. The present study has a central theme that which tools of quality management implementation are successful in order to progress and organization towards learning organization and achieves improved non-financial performance. This would in turn assist in the development of enhanced model of QMI that may be used by the practitioners to successfully implement the quality management practices. The present study has empirically examined the evidence for the impact of QMI on firm's non-financial performance through learning organization. Hence, successful implementation of quality management practices like employee participation, strategic leadership; leadership, strategic planning, and customer focus information sharing and ensure high standards of quality. Therefore, maintaining the high standards and continuously improving would ensure the right path towards a learning organization. Although, the results being partially mediated between the variables of the present study is strongly linked to the present situation of the Pakistani pharmaceutical industry, as in Pakistan no pharmaceutical organization has progressed towards the title of a learning organization. Therefore, full mediation would have been possible if there are learning organization in Pakistani pharmaceutical industry.

Accordingly, on the basis of thorough review of quality management literature, a theoretical framework was developed which describes the hypothesized relationships between the constructs. This framework included five constructs, quality management implementation as independent variable, learning organization, knowledge strategy and novelty & continuity as mediating variables and firm's non-financial performance as dependent variable. Following the results of Goetsch & Davis (2013), the present study outlined quality management implementation as an antecedent of a learning organization, and thus assumes that knowledge strategy, novelty & continuity and organization's non-financial performance are the

consequences of a learning organization. The specific implications on this perspective for future research are discussed in next section.

The present study used a quantitative method and followed a positive paradigm, in which survey questionnaire was used to acquire quantitative data set to test the hypothesis. The data was taken from the pharmaceutical firms in Pakistan who have incorporated quality management implementation programs in their products and processes. The sample contained 400 responses. The structural equation modeling (SEM) was used to test the hypothesized association among the constructs through analysis of moment structure software (AMOS). SPSS ^{TM} 17.0 was used for demographic and other statistics. The major conclusion of the present study is summarized in the later section with respect to research questions asserted in the chapter one. The limitations of the present study are highlighted below before the main conclusion, in order to ensure that importance of the illustrated conclusion is not compromised.

5.3 Limitations of the study

The current study examined the impact of QMI on firm's non-financial performance through learning organization, NC and KS. However, there may be other variables as well which may enhance firm's non-financial performance such as reputation (Flatt & Kowalczyk, 2008), strategic alliance (Culpan, 2008) and production capacity (Porter, 1985). According to the ceteris paribus assumption, all the other variables are held constant for the purpose of the present study to examine the impact of QMI as an independent variable on firm's non-financial performance in isolation. The present study has few methodological limitations as follows;

1. The first limitation is possibility of self-reporting bias. When a data is collected from manager for their own organization and specifically about the managerial concerns, there is a great potential of self-reporting bias. In order to neutralize such bias, it is suggested to take multiple responses from each organization. In the present study, the target respondents are the quality practitioner or the quality managers which are very few in an organization. Hence it is difficult to assure in Pakistani pharmaceutical sample. However, using the observations of single or few respondents from each organization is justified as consistent with Zu et al. (2009) and Prajogo & McDermott (2005).
2. Second is the social desirability bias associated with self-reported data. In some instances, the respondent might be tempted to give publicly popular answer contrary to give exact expression about the organization. When personal preferences and opinions digress from what is the socially acceptable, respondents are more likely to give the responses which are socially acceptable rather than truth (Alreck & Settle, 1995). Some of the questions had this potential weakness; hence it is argued that they were prone to this bias. However, the researcher took some steps to avoid this by giving survey instructions in order to reduce this bias. Furthermore, a single question was a component of a larger construct that had to be accumulated in the empirical analysis, thus no single response was used to infer any specific conclusion. Therefore, the problem of social desirability was moderated to some extent.
3. The author developed a comprehensive survey questionnaire due to the complex nature of the constructs. The lengthy survey questionnaire is not usually happily welcomed by the respondents. However, by personally administering most of the questionnaires, and by discussing questions with the respondents made the activity more interactive.

4. The study results are useful and held true for all pharmaceutical firms but the results can't be generalized on all the countries globally because of the nature of the industry and economic conditions prevailing. Hofstede, Neuijen and Sanders (1991) argued that it is critical to measure the cultural aspects of particular sample under study and not to depend on reported values of other samples. Likewise, the results of the quality management implementations and learning organization may not be generalized over other countries and regions, but it still can act as conclusive and valuable guideline for further research.
5. Lastly, cross-sectional design of the study is another limitation of the present study. Future researchers are suggested to use longitudinal design to establish the effect of quality management implementation on firm's non-financial performance through learning organization.

Despite the limitations presented above, the present study has achieved it objectives and the overall aim by empirically examining the impact of quality management implementation on firm's non-financial performance through learning organization, knowledge strategy and novelty & continuity.

5.4 Conclusion in Relation to the Research Questions

The conclusions drawn from the present study are presented here in relation to the research questions stated in chapter one earlier.

Research Question 1. Are quality management practitioner conversant in any meaningful way, with the details of QM implementation programs and if so, how do they go

about implementing a quality management programs towards learning organization in the pharmaceutical sector?

The quality management practitioner plays a key role in successful implementation of quality management programs in the pharmaceutical industry of Pakistan. For this purpose, the quality practitioners must be conversant and up to date on the quality issues prevailing in the industry and around the globe. The quality practitioners/quality managers are given rigorous training to make them conversant to every emerging quality trend in the pharmaceutical organizations. The Pakistani pharmaceutical industry is fastly growing and has a long way to go to become a learning organization. It is evident that pharmaceutical organizations need to concentrate on the basics and ensure that quality practitioners are well trained in their various capacities which would ensure that they will be able to meet the competency requirements. In order to maintain the stability and high quality standards, Deming (1996) highlighted that clear and formal standards for the quality managers should be set so that they are achievable. Feigenbaum (1991) emphasized that quality practitioner/managers should clearly know their work duties and responsibilities. Similarly, there is convincing evidence in the literature that a quality manager has the key role in lifting the organization to the new avenues. Due to the strict quality standards and regulations in Pakistan quality of the pharmaceutical products are ensured.

In Pakistan there are 750 registered pharmaceutical manufacturing organizations and none is a learning organization neither FDA/WHO approved. This sector of the economy is still developing but emerging fastly as compared to its strategic competitors; China and India. According to the figure provided below Pakistan is present in the emerging markets of the world which is a sign that Pakistani pharmaceutical is moving towards it destiny.

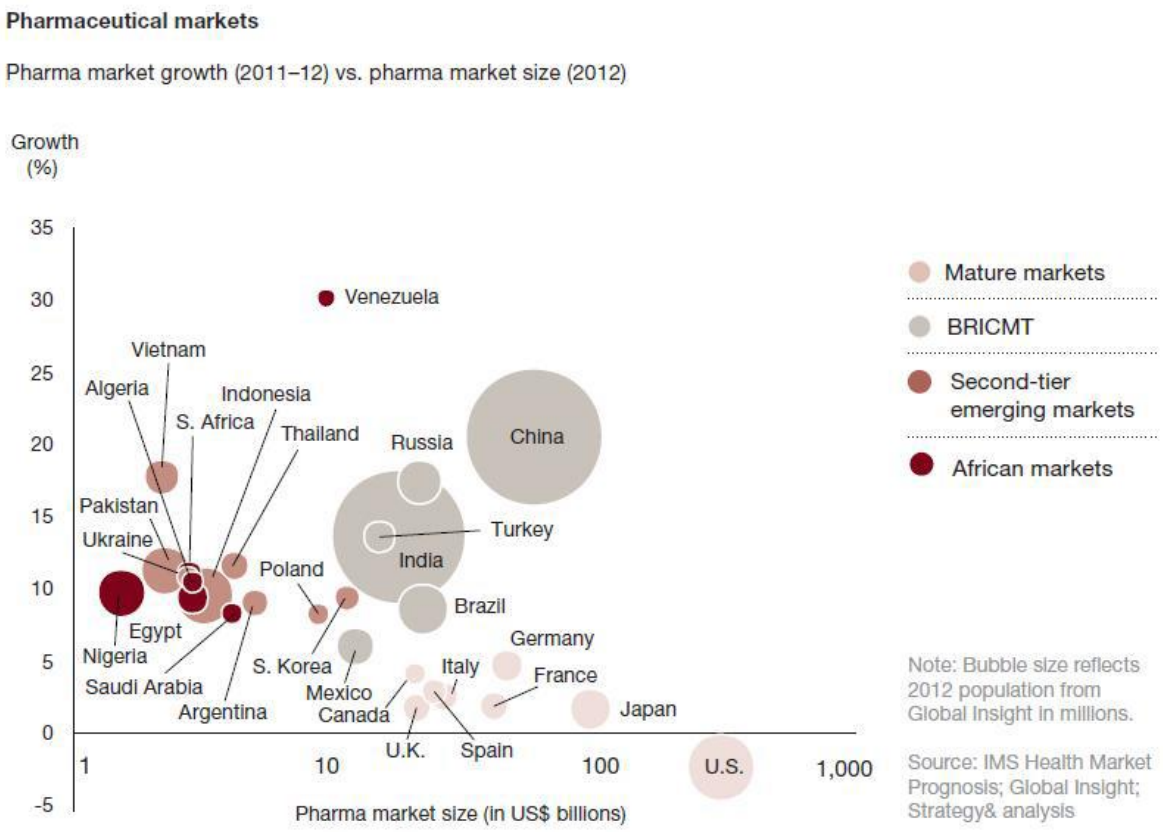


Figure 5.1: Published by Booz & Company (2013)

Research Question 2. Do quality management implementation programs really progress an organization towards a learning organization and does learning organization characteristics associated with novelty & continuity and knowledge strategy (codification & personalization) to improve the non-financial performance of pharmaceutical industry?

The quality management implementation is considered an approach of continuous performance improvement. The quality management implementation is the first step of ladder towards a learning organization and improved firm's non-financial performance, positive knowledge strategy and innovation are the consequences, if quality is implemented

successfully Al-Asiri (2004). The learning organization allows an organization to concentrate more on the research and development in order to be more innovative (Bisbe & Malagueno, 2015; Laitinen et al., 2016; Jackson et al., 2016; Van Aken & Weggeman, 2000). The present study found that organizations which are successful at implementing the quality management they develop cultures which foster learning, knowledge sharing and knowledge transfer and improved non-financial performance in terms of process, individual and organization wide. The organizations that implement quality management systems tend to learn faster as compared to other organizations (Moliner et al., 2016; Dulger et al., 2016; Caliser et al., 2016; Martinez & Jimenez, 2008). Hence the study found that there is a positive impact of quality management implementation on organizations in way that they progress towards a learning organization faster.

The quality management implementation examined the impact of learning organization on non-financial performance of an organization improves process level improvement, individual level improvement and organization level improvement. The organization promotes novelty & continuity by creating organizational values that actively encourage employees to create knowledge and share it. According to Argyris & Schon (1978) problem solving is a learning progression that assimilates knowledge types and act as a base for creating knowledge. Hence it is empirically testified in the present study that positive relationship exists between learning organization, knowledge strategy and firm's non-financial performance.

Research Question 3. How novelty & continuity and knowledge strategy (codification & personalization) contribute to enhance the non-financial performance of pharmaceutical organizations?

The present study found that quality enriched organizations in a pharmaceutical sector of Pakistan tend to progress faster towards a learning organization and as a result improve firm's non- financial performance, consistent with Egan *et al*. (2004). In the context of present study, it was found that the tangible output through Knowledge Strategy promotes firm's novel capacity. Subsequently, novelty and continuity stems out from the efficient knowledge absorption (knowledge creation & knowledge sharing) in research and design of the pharmaceutical organization. It was found in the present study that transition of an organization towards a learning organization, creates better knowledge strategies and enables efficient knowledge creation and sharing. According to Dodgeson (1993), quality management implementation improves learning abilities of an organization and stimulates novelty and capabilities. The present study found that learning organization promotes the connection with environment and external partners, which positively impact the new product developments and novel ideas. Baker & Sinkula (1999), Honarpour et al., 2017 argued that organizations that are transiting towards the learning organization may scan the external environment for novel technological/quality paradigms that enhance novelty & continuity and in end improves non-financial performance.

Subsequently, the knowledge in an organization flows freely and that is utilized to develop novel ideas that stimulate the performance of an organization. The existing empirical studies determined there exist a positive relationship between knowledge strategy of an organization and its performance (Bontis et al., 2002). The results of the present study found that knowledge strategy and novelty and continuity in the pharmaceutical sector improves the firm's non-financial performance.

Research Question 4. How Direct and indirect effect of QM and LO contribute to enhance non-financial performance of pharmaceutical firms?

The fourth research question of the present study was also testified through the data collected from the pharmaceutical sector of Pakistan. The present study demonstrated that quality management implementation positively effects firm's non-financial performance directly and through learning organization, NC, KS as well. The SEM analysis showed that leadership and employee involvement in the organization plays a critical role in the quality implementation process. Hence, employee involvement and top management leadership foster the process of identify individual goals, and contributes towards non-financial performance. The present study revealed that by implementing the quality management procedures and practices, a culture is created which focuses on learning. Therefore, organization's framework assumes that strategic leadership and continuous learning is a vital factor for building a learning organization. Therefore, as the top management leadership promotes quality management, organization's employees become more stimulated towards learning organization.

Consequently, learning organization exist as a mediation between QMI and FNFP. The learning organization is considered as an approach to improve performance specifically the non-financial (Fard, Naha and Mansor, 2011; Ooi et al., 2012 and Hung et al., 2011). QMI is considered as a set of guidelines for an organization, processes, people and customers and lead an organization towards the non-financial performance (Mehralian et al., 2016; Lukman, 2017; Lam et al., 2011; Lee et al., 2010 and Martinez & Jimenez, 2009). Based on the results of the present study, it is found that there exist direct and indirect relationship between QMI and FNFP through LO, NC and KS.

The findings of the present study substantiated the prominence of quality management implementation in order to progress an organization towards a learning organization and hence increase the firm's non-financial performance. There are different dimensions of QMI which drive an organization on the path towards LO; leadership, customer focus, workforce & process management, strategic planning, information & knowledge sharing and employee participation. Based on the literature review, single element of a QMI cannot play a vital role in the implementation process of quality management, whereas all the dimensions have to act collectively. The result of the present study suggested that successful implementation of quality is critical for any pharmaceutical organization.

In the literature, many studies have considered quality management implementation as the main antecedent of a firm's non- financial performance and learning organization as a mediating variable in the relationship. The mediating concept represents the basic procedure through which main independent variable is influencing the dependent variable (Baron & Kenny, 1986). Hence, the results showed that QMI generates LO in order to produce impact on the dependent variable (FNFP). However, the empirical results through SEM showed that relationship between QMI and FNFP mediated through LO (0.487) is stronger as compared to direct QMI and FNFP (0.31) relationship.

5.5 Specific Contribution of the Study

In this section, the implications for the present study are presented through theoretical, methodological and practical perspectives. First, the major three contributions of the present study are discussed.

1. First, the present study adds to the existing literature on QMI and LO as it's a unique study in the present and western context that has empirically tested the impact of QMI on FNFP directly and through LO, KS and NC indirectly. Thus, the findings of the present study provide a richer and comprehensive understanding of the study constructs.
2. Second, the theoretical model was based mainly on the literature that originated in the western context; the test of the model in the Pakistani context will provide an opportunity to the researchers to evaluate the applicability in the Asian context.
3. Third, the present study has developed a comprehensive scale based on the prior work to study the relationships among the constructs, may be used by the researchers and the practitioners in order to enrich the literature of quality management implementation.

5.5.1 Theoretical Implications

Following are the specific theoretical and methodological implications for the present study.

1. The present study has contributed a whole new dimension to the understanding of a reader through comprehensive arguments about the relationship between the quality management implementation, learning organization and firm's non- financial Performance. Hence it provides a richer understanding to the future researchers that may develop a more effective model for quality management implementation and learning organization.
2. The findings of the present study indicated that quality management implementation has a positive impact on learning organization. The following dimensions of QMI leadership, customer focus, workforce & process management, strategic planning,

information & knowledge sharing, employee participation shown to have a capability to have such an impact on learning organization. The present findings validate the clear consideration of QMI as an antecedent of LO. Furthermore, it was found that all of the six dimensions strongly measure the quality management implementation. It is reasonable to discuss that it may be suggested for future research to take into consideration the following dimensions of QMI; culture and employee focus.

3. Regardless of the critical importance of quality and excellence in today's world, there was not much research attempts to study the QMI as an only factor to progress towards a learning organization in the context of developing Asian countries. The work in the present study has contributed to the field in quality management implementation and learning organization with a focus on the application of research model in the developing countries like Pakistan. This attempt is supposed to provide a better vision and understanding for successful implementation of quality in developing countries for national and multinational organizations working in Asian countries.
4. The results of the current study provide an evidence that quality management is a multidimensional variable and it is expected that it would prove as a baseline for future studies to investigate the transitional procedure of QMI towards LO comprehensively to achieve improved non-financial performance.
5. The present study makes a significant contribution to the theory of organization underpinning organizational behavior aspect. This study provides a distinctive opportunity for enriching empirical and theoretical advancement on RBV and DCT to elaborate the process through which quality management implemented organizations become LO to achieve improved FNFP. Based on the RBV proposition, competitive edge arises from the combination of firm's specific resources including quality and

novelty because the combination develops from complex casually ambiguous path dependent organizational processes. The present study confirmed the impact of QMI on LO and their direct and direct impact on FNFP. The present study endorsed that the joint/indirect effect of QMI on FNFP through LO, KS, NC is stronger as compared to individual or direct effect.

6. According to DCT, firm's resources and processes in terms of quality and innovation can be used to integrate and reconfigure, can be used to integrate and reconfigure, release and gain resources in order to be a LO and create a market change. To be a LO, a firm require different types of skill sets and behaviors from their employees, which may be driven by a strong HR system. LO as system of strong HR practices assimilated with novelty and knowledge strategy provides significant impact on FNFP.
7. The most important contribution of the present study made to the existing body of knowledge in HRM is the synergistic effect of QMI, LO, KS, NC on FNFP. Previous empirical studies have emphasized on the direct relationship of QMI and FNFP and LO and FNFP. The present study contributes to the existing knowledge by empirically validating that the indirect/synergistic effect of QMI and LO is greater than the direct effect of the predictor variable. The findings of the present study suggest that the organization may syndicate these variables to achieve superior FNFP. Hence, single resource may not be a source of competitive advantage to have increased firm's non-financial performance. The further analysis revealed that the LO mediates the relationship of QMI and FNFP, NC and KS mediated the relationship of LO and FNFP. The present study provides an empirical proof on the importance of QMI as an avenue through which LO, KS, NC effect FNFP. The present study implies that LO mediates relationship between QMI and FNFP, so as KS and NC. Most empirical

studies have been conducted in the developed countries, the present study contributed in the context of developing countries.

5.5.2 Methodological Implications

In the present research, there are several methodological contributions, which are as follows;

1. The present research has been conducted through the development of a research survey questionnaire for identifying the impact of QMI on FNFP through LO, NC and KS, which is a valuable guide for the future research. While reviewing the literature it was noted that there is an absence of one comprehensive tool which can be easily managed. Hence, a systematic procedure and methodology was adopted to develop a most comprehensive tool to test the associations between the variables of the present study.
2. Secondly, most of the survey questionnaires in the present study were administered personally because of the comprehensive nature of the questionnaire. It was found that by personally administering the questionnaire it was not cumbersome for the respondent to give their feedback otherwise it would have been difficult to receive a welcoming attitude towards the survey by respondents.
3. Several statistical techniques are used to test the dimensional properties of the constructs including EFA, CFA and SEM. Given the few limitations of EFA, CFA can be used to test the structure of the constructs (Kline, 2011 and Hair et al., 2006), however the considerable correlation in the EFA does not specify that the dimension measure the same construct. To date this researcher knowledge it is a foremost study that employed the EFA to test the dimensional structure of QMI and was further tested with CFA and SEM.

4. SEM in AMOS 17 was used to study the consequential relationships among the constructs, QMI, LO, KS, NC and FNFP. AMOS has the ability to convert a model in a graphical interface to display hypothesized paths among the constructs, and SEM in AMOS empirically test a theorized model by using both structural model and measurement model in one analysis. Therefore, the emerging design of the measuring model results in more exact and specific dependence of interactions among the constructs of the present study.

5.5.3 Practical and Managerial Implications

The present study has following specific practical and managerial implications;

1. The results of the present study validated the logic that organizations seek to find their way towards a learning organization and excellence in performance (non-financial) is through successful implementation of QM (Zu et al., 2009 and Noar et al., 2008). Extending this philosophy, findings of the present study provides evidence that quality management implementation is an essential step towards a learning organization and firm's non- financial performance. Therefore, it is suggested, to start this journey of quality management implementation as soon as possible if an organization wishes to attain the title of a learning organization.
2. The present study has enhanced the present understating of QMI dimensions that has been primarily originated in the western context. Hence, it provides a pertinent foundation to develop their own understanding.
3. The findings of the present study specifically provide an evidence that elucidate which QMI practices can produce positive impact to progress towards LO and

FNFP, in particular it provides quality managers with knowledge of best strategies to implement quality successfully. This provides quality practitioners the evidence that some specific QMI practices, like employee involvement, leadership, customer focus, and workforce & process management can improve pharmaceutical firm's non-financial performance directly and indirectly.

4. Additionally, the present study findings may help quality practitioners and managers to modify the existing QMI practices to achieve excellence in non-financial performance that also provides them advantage over other competitors.
5. The contribution of the present research is considered for several motives. First, in the light of the present study, Pakistani pharmaceutical organizations who have less experience of implementing quality management have understood the need, to be more holistic in addressing the quality management implementation through TQM. Secondly, it is evident that regardless of implementation failures, quality management is still a popular concept that organizations strive to turn towards, through adapting national/international quality excellence awards and approaches in order to improve their non-financial performance (Dale et al., 2007). Therefore, the research offers Pakistani pharmaceutical organizations with empirical evidence of pitfalls to effective successful completion of managing quality.
6. The present study has developed a model for progression of a quality management implemented organizations towards learning organization to achieve excellence in non-financial performance, the research instrument developed can be useful to for service and manufacturing organizations irrespective of their size as pre-audit and self-assessment tool by the organizational management to notify the priorities and nature among QMI activities.

7. The conceptual framework and the research instrument developed were validated in the present study that would help Pakistani pharmaceutical firms who are unsuccessful in implementing the quality management, or who are in the planning process of quality implementation. Moreover, it is rational to suggest that the theoretical framework and the instrument of the present study can be used in any region and country.
8. The advancement of knowledge through present study is promising for facilitating novelty & continuity and improving innovative efficiency and efficacy. The professional knowledge sharing provides employees of an organization the prospects to cooperate and learn, encourage employees to develop unique knowledge and apply it to product novelty (Tsai, 2001).
9. The previous studies in the related field have revealed two aspects. First, quality management is not successfully implemented; secondly when it is successfully implemented QMI leads to the transitional phase towards continuous improvement that is learning organization with excellence in non- financial performance. Finally, the present study provides an empirically tested framework which may be used together with benefiting quality implementers to implement quality management.

5.6 Direction for the Future Research

The present study attempted to investigate the causality between quality management implementation, learning organization and firm's non-financial performance in the context of Pakistani pharmaceutical organizations. The causal relationships between the key constructs of this study were explored in various contexts to find out the impact QMI

and LO on the exploitation of continuous basis innovation (novelty & continuity) and individuals' knowledge (tacit & explicit knowledge) that ultimately improve the firms' non-financial performance. The anecdotal evidence from the relevant literature indicated very little non-empirical and empirical research study conducted in emerging economies particularly in Pharmaceutical industry specifically in the domain of Pakistan.

Further research is needed certainly to examine the impact of QMI on FNFP, giving rigorous attention to the quality programs being implemented in pharmaceutical organizations in Pakistan. The continuous exploration and enhancement is the evidence of human advancement and indeed this study has shed some light on the journey of an organization to become a LO through QMI and achieving improved non-financial performance as an outcome. The present study investigation has highlighted the importance and need for further research about the nature and interaction of these variables about the nature and interaction of these variables. The issues for further research include refinements in conceptual, methodological and analytical issues. It is not implied that these are mutually exclusive issues, since advancement and refinements are desirable simultaneously in all of these areas.

5.6.1 Conceptual Refinements

The introduction of the study emphasized on the importance of the present study and review of the literature regarding quality management implementation and its transition towards LO and its impact on FNFP. The future research may extend this study by including situational analysis to indicate which quality management approaches and tools facilitate the relationship of QMI and LO and FNFP.

For more conceptual refinements, it is desirable to match each quality philosopher's approach or tools to real circumstances and features of QM implemented pharmaceutical organizations. Successful implementation of QM led to LO, which is the major stance of the present study. Further research can be done giving emphasis on the lack of presence of LO in Pakistan. LO is a transition from skill development to knowledge development to competence development, dividing them into three phases of evolution of LO (Conceptual, Growth, Maturity). Pakistan is still stuck at the conceptual level which includes application of total quality management. Further research may be undertaken to find out how can a Pakistani pharmaceutical firms may progress towards growth and maturity stage of evolution of a LO.

The present study has provided an empirical underpinning for this type of research by developing linkages between successful transitions of a firm from QMI to LO to achieve FNFP in pharmaceutical firms. There is a scope for further enhancement in the conceptual domain, notably emphasizing on the key roles of employee participation, management encouragement and cooperation of all departments in the implementation of QM programs. The present literature review alluded towards the need to emphasize these issues with relevance in the context of transition of a firm towards LO to achieve superior firm's non-financial performance.

The present study has followed a cross-sectional approach negating the ingrained dynamism which characterizes the quality management implementation and LO. This provides a need to revise the conceptual definition which has been developed in the present study, which pose challenges to the measurement and analytical processes which would favor such investigations. This type of investigation would provide opportunities to

study the long-term (longitudinal) impact of variables to move organization from QMI to LO.

5.6.2 Methodological Refinements

The research design of the present study was dictated mainly by the resource constraints, therefore structured and personally administered questionnaire for data collection process was used. Researcher could ideally conceive a research design which emphasizes more on direct observation of the process as organization proceeds toward the transition phase. Huge logistical and political issues would arise impeding this research pathway, however chapter 3 alludes to consider which were made in the present study context. Generally, it is desirable to attempt to attain more richness of the transitional process from QMI to LO and efforts to overcome practical issues which may arise in this regard.

Efforts to improve the process of survey research are needed if applied in future. It is important to enrich the survey findings with qualitative data to have more valid reported research. Secondly, another research area regarding the relationships and impact of same model but in a different industry in order to investigate the variations in the results where the environment is more dynamic may be explored. Further investigation is required on this phenomenon to inquire by adding some variables (Culture, environment, Quality tools) that can act as controlling functions in the present theoretical framework will change the outcomes or not.

The use of trained interviewer for data collection rather than self-administered as it was employed in the present study would be considered desirable. The refinements in the

measurement scales used in the present study to calculate the frequency of the variables may also be considered for future research.

For quality management and LO researchers the need for further enhancement is needed empirically in several directions. There is a critical need for a valid and reliable multi-dimensional instrument with multi-item scale to measure that organization falls in which transitional phase (skill development, knowledge development, competence development) of evolution of a LO. This need is important for the future research agenda in this area being contingent on the availability of such instrument and scale. A great deal of work would be required to identify and develop a scale and an instrument with desirable validity and reliability.

5.6.3 Analytical Refinements

The literature review of the present study leads to the set of research questions regarding QMI and transition of a firm towards LO and its impact on firm's non-financial performance. In the present study, data was collected from the quality managers and practitioners from pharmaceutical organizations, but in case of large organizations, data may be collected from all over the departments making the nature of data more heterogeneous and giving more diverse findings about the topic, because these days quality is the important aspect of every department in an organization and is not limited to one. It is anticipated that present study might help in forming a proper discussion while taking contrasting stances on either QMI is a precursor to LO and FNFP or vice versa. This research explored the relationship between QMI, LO, KS, NC and FNFP, however it opens further discussion in this area specifically reciprocal effect of QMI and LO on FNFP need to be further investigated.

The successful transition of a quality management implemented organization towards LO is substantially explained by the model, further enhancement of the model by incorporating theoretically important variables is likely to enhance its explanatory power. These include supportive corporate culture, environment, perceived understanding of QM. To determine the true generalizability of the model and to identify the boundary conditions, the enhanced model may be tested in a range of manufacturing and service delivery environments.

The major conclusion of the present study is that LO should be perceived as a major cultural shift for any organization. QMI and LO is a complete different way of assessing and comprehending, and it represents a complete change in terms of management style and organizational restructuring. The concept of QMI and LO discussed in the present study has developed primarily in the pharmaceutical sector of Pakistan. The development of QMI and LO requires to be translated across all sectors of society, including small business, service sector and education. A suggestion for follow up to replicate the present study from other service industries, education and small businesses in Pakistan is extended.

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APPENDIX I

Dear Respondent,

I would like your help in a study which deals with quality management implementation in the pharmaceutical organizations and why they are not transiting towards a learning organization in Pakistan. I have approached your organization because of its experience with the QM implementation programs; It is requested that you fill out the questionnaire because of your personal involvement in the QM implementation programs in your organization. The same may please be forward to the undersigned through return mail (***ENCLOSED PREPAID ENVELOP***).

The present study aims to assess the factors which contribute to the successful QM implementation programs and the factors due to which pharmaceutical firms are not moving towards a learning organization. The investigation of such predictors is critical if manufacturers are to gain and maintain a position in today's increasingly competitive market.

This survey consists of a questionnaire, which is simple but comprehensive. It will approximately take 20 minutes to complete in most circumstances. I realize your time is scarce and appreciate your devoting time to this study.

Your responses will remain strictly confidential and will not be used for any other purpose than this study. If you have any questions or concerns you can directly call at the number provided below.

Thank you in advance for filling out the questionnaire and being a part of this research.

Yours Sincerely,

Nadia Bakhtawari

PhD Scholar
Bahria University
Islamabad
Phones: 03215555145
051-926002 (ext- 237)
Email: missbakhtawari@hotmail.com

Dr. Zahid Mehmood

Thesis Supervisor
Bahria University
Islamabad
Phones: 03005301240
051-926002(ext-260)
Email: zahid@bahria.edu.pk

BEFORE YOU BEGIN WITH THE QUESTIONNAIRE, PLEASE TAKE A FEW MOMENTS TO READ THE FOLLOWING

A. CLARIFYING TERMS

The subject under investigation, Quality Management (QM). Implementation and Learning Organization, is being discussed generally but implies different meanings in different contexts. I think it is important to define the terms in our context for your clarification.

1. *Quality Management*

It is a holistic management philosophy aimed to achieve customer satisfaction and to improve organizational effectiveness through continuous process improvement, which in turn emphasizes the involvement of every employee at different levels of the organization.

2. *QM implementation*

QM implementation is being used in a broad way here. It includes;

- The actions, attitudes and responses of people in the organization, who participated in the QM implementation programs.
- The structures such as committees and quality teams.
- The processes which occurred over an extended period of time.

3. *Learning Organization*

An organization which is continuously modifying, creating, acquiring, improving, innovating and transferring knowledge and this is achieved through successful implementation of quality management.

4. *Novelty & Continuity*

It is the improvisation through a spontaneous and creative process, for attempting to achieve an objective of an organization in a new and improved and a dynamic way.

4.1 Product

In terms of novelty and continuity a product is defined as something that bears on its ability to satisfy customers' stated or implied needs in an innovative manner.

4.2 Process

In terms of novelty and continuity a process is defined as that which refers to the act of changing a process to reduce variability and cycle time and make the process more effective, efficient and productive.

4.3 Management Practices

In terms of novelty and continuity management practices are defined as those which are recognized by the business community to lead to a successful organizational performance and excellence.

5. *Knowledge Strategy*

In the context of present study knowledge strategy is defined as that which allows both tacit (un-codified/undocumented) and explicit (codified/documented) knowledge to be created, stored and shared using technology or other methods.

5.1 Codification Knowledge Strategy

Codification knowledge strategy is being defined as the storage, transfer and acquisition of explicit knowledge pools which exist in the organization in the form of different documents.

5.2 Personalization Knowledge Strategy

Personalization knowledge strategy is being defined as the storage, transfer and acquisition of tacit/un-codified knowledge present in the mental models of the organization.

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Please tick (✓) the appropriate box:

Organization Name:			
Type of Organization:	1. Generic Medicines 2. Mainline/ Branded 3. R&D 4. Other		
Position in the Organization:		**Gender**:	**Female/ Male**
Qualification:	**1.** High School	**2.** College	**3.** University
Age (years):	**1.** Less than 30	**2.** 30-50	**3.** 51 and above
Experience:	**1.** 2-5 years	**2.** 6-10 years	**3.** 10 or more years
No. of employees in your organization:	**1.** 0-300	**2.** 300-1000	**4.** More than 1000

What QM programs have been undertaken in your organization?

Please refer to your organization and think back over the last few years about the quality related programs in the form of QM implementation the management of your organization has introduced, irrespective of whether they were successful or not.

If there were more than one program then refer to that in which you were personally involved.

Please complete the following questions about this QM implementation which you have selected. Accurate details are not critical. It is only important that we can clearly identify what program you are referring to in the later questions. Answer the following questions in that context.

Years of implementation of QM	**1.** 2-5 years	**2.** 6-10 years	**3.** 10 or more years

This QM program was intended to apply to the following divisions/departments of this organization:	
The program was introduced by (Name):	
The program was implemented and has been in effect for how many years or months.	
All things considered, in my view, the QM program was or has to date been:	1. Completely Successful 2. Largely Successful 3. Largely Unsuccessful 4. Completely Unsuccessful
Budget allocation for the QM implementation programs.	Total Amount (Approximately)
In your opinion the total spending on QM implementation	1. Far too little

programs in this organization been:	2. About right 3. Too much

The following table contains a series of statements about the QM implementation. Please refer to the QM program you chose to describe on the last page. Rate your QM program using the scale given below and tick (✓) the appropriate box according to the degree of your agreement.

	Strongly Disagree (SD)=(1) ***Disagree (D)= (2)*** ***Neutral (N)= (3)*** ***Agree (A)= (4)*** ***Strongly Agree (SA)= (5)***	**SD**	**D**	**N**	**A**	**SA**
A	**QUALITY MANAGEMENT IMPLEMENTATION**					
1	***LEADERSHIP***					
1.1	Top management strongly encourages employee involvement in quality management activities in the organization.	1	2	3	4	5
1.2	Top management empowers employees to solve quality problems within the organization.	1	2	3	4	5
1.3	Top management arranges adequate resources for employee education and training in the organization.	1	2	3	4	5
1.4	Top management actively participates in the quality management and improvement process of the organization.	1	2	3	4	5
1.5	Top management is committed to the QM implementation in the organization and sets clear goals for quality improvement.	1	2	3	4	5
2	***CUSTOMER FOCUS***					
2.1	The organization refers to customer needs to develop business strategies	1	2	3	4	5
2.2	The organization refers to customer needs through market research for developing new products.	1	2	3	4	5
2.3	The organization always conducts market research in order to collect suggestions for improving the products.	1	2	3	4	5
2.4	Quality related customers complaints are treated with top priority in the organization.	1	2	3	4	5
2.5	The organization collects extensive complaints related information from the customers.	1	2	3	4	5
3	***WORK FORCE & PROCESS MANAGEMENT***					
3.1	The organization has knowledge of lost customers and investigates the reasons.	1	2	3	4	5
3.2	The employees work as team but guided by clear goals in the organization.	1	2	3	4	5
3.3	The employees understand their respective roles in the organization.	1	2	3	4	5
3.4	The employees are encouraged to develop new and innovative ways for better performance.	1	2	3	4	5
4	***STRATEGIC PLANNING***					
4.1	The organization has a comprehensive and structured planning process which regularly sets and reviews short and long term goals.	1	2	3	4	5
4.2	The employees believe that the strategic plans and the tactical plans are linked to quality values of the organization.	1	2	3	4	5
4.3	The organization has a written statement of strategy covering all business operations which is clearly articulated and agreed by the senior managers.	1	2	3	4	5
4.4	The organization has a mission statement which has been communicated throughout the company and is supported by the employees.	1	2	3	4	5
4.5	The organization always incorporates supplier capabilities, and needs of the other stake holders including the community when the organization develops its plans, policies and objectives.	1	2	3	4	5
5	***INFORMATION & KNOWLEDGE SHARING***					
5.1	There is availability of key performance figures for the analysis and decision making in the organization.	1	2	3	4	5
5.2	There is availability of knowledge, and access to the relevant information and their use within the organization.	1	2	3	4	5

		SD	D	N	A	SA
5.3	The organization analyzes all work, process and systems.	1	2	3	4	5
5.4	There is availability of regular strategic planning in the organization.	1	2	3	4	5
5.5	There are regular reviews on organization's quality performance in the organization.	1	2	3	4	5
6	***EMPLOYEE PARTICIPATION***					
6.1	There is a strong commitment to quality at all levels of the organization.	1	2	3	4	5
6.2	Employees are encouraged to verbalize how things could improve supervisory reinforcement in the organization.	1	2	3	4	5
6.3	Employees have relatively high level of authority over their work related decisions in the organization.	1	2	3	4	5
6.4	Employees constantly look for ways to improve their work in the organization.	1	2	3	4	5
6.5	The employees are supportive towards QM implementation programs in the organization.	1	2	3	4	5
B	**LEARNING ORGANIZATION**					
7	***SHARED VISION***	**1**	**2**	**3**	**4**	**5**
7.1	There is total agreement among individuals on the organizational vision across all levels, functions and divisions of an organization.	1	2	3	4	5
7.2	My organization gives a chance to everyone to share organization's vision and objectives.	1	2	3	4	5
7.3	I have a clear vision and objectives regarding my organization.	1	2	3	4	5
7.4	There are regular meetings with stake holders of the organization about the vision of my organization.	1	2	3	4	5
7.5	A shared vision statement serves as a source of inspiration for all the employees in the organization.	1	2	3	4	5
8	***SYSTEM THINKING***					
8.1	My organization encourages employees to think from a global perspective.	1	2	3	4	5
8.2	My organization works together with the outside industry to meet mutual needs.	1	2	3	4	5
8.3	My organization encourages employees to get answers from across the organization when solving problems.	1	2	3	4	5
8.4	My organization recognizes and encourages employees for taking initiatives.	1	2	3	4	5
8.5	My organization supports and encourages employees who take logical decision.	1	2	3	4	5
9	***CONTINUOUS LEARNING***					
9.1	In my organization, people help each other to learn new techniques to resolve work related issues.	1	2	3	4	5
9.2	In my organization, people are rewarded for learning new techniques and tools to achieve the set goals.	1	2	3	4	5
9.3	In my organization, top management, top management develops and supports the learning activities.	1	2	3	4	5
10	***CONNECTION TO THE ENVIRONMENT***					
10.1	My organization works together with the outside community to meet mutual needs.	1	2	3	4	5
10.2	My organization encourages people to get suggestions from across the organization when solving problems.	1	2	3	4	5
10.3	My organization encourages people to think from broader perspective in order to compete with the competitors.	1	2	3	4	5
C	**NOVELTY & CONTINUITY**					
11	***PRODUCT***					
11.1	The speed of R&D of our organization is faster than our competitors.	1	2	3	4	5
11.2	The speed of process & production improvement is faster than our competitors.	1	2	3	4	5
11.3	The speed of innovating a new logistic way is faster than the competitors.	1	2	3	4	5
11.4	R&D has improved production innovation skills within the organization.	1	2	3	4	5
11.5	Compared to our competitors, production in our organization is more customized according to the customer's needs.	1	2	3	4	5
		SD	D	N	A	SA

11.6	Compared to our competitors, the production in our organization offers more innovative products to the customers.	1	2	3	4	5
12	***PROCESS***					
12.1	The company has continuously used innovative technology to improve the quality of products for our customers.	1	2	3	4	5
12.2	The latest human resource practices are adopted in this organization.	1	2	3	4	5
12.3	The job design is more diversified than our competitors.	1	2	3	4	5
12.4	The organizational structure innovation is more flexible than competitors.	1	2	3	4	5
12.5	During the last three years our patent registration has increased significantly.	1	2	3	4	5
13	***MANAGEMENT PRACTICE***					
13.1	During the last three years, the comparative advantage of our company has improved significantly.	1	2	3	4	5
13.2	During the last three years, the employee productivity has improved significantly.	1	2	3	4	5
13.3	The innovative managerial & work practices are adopted in our organization.	1	2	3	4	5
13.4	The management practices the innovative processes which are developed by the organization.	1	2	3	4	5
D	**KNOWLEDGE STRATEGY**					
14	***CODIFICATION***					
	STORAGE					
14.1	My skills to perform the routine tasks are well detailed & codified.	1	2	3	4	5
14.2	The problem solving methods are well detailed & codified.	1	2	3	4	5
14.3	Results of the different projects are well documented.	1	2	3	4	5
14.4	Results of the meetings are minuted.	1	2	3	4	5
	TRANSFER					
14.5	Knowledge is shared in formal documents like manuals, memos, minutes and write ups.	1	2	3	4	5
	ACQUISITION					
14.6	Knowledge in my organization can be acquired easily through formal documents or databases	1	2	3	4	5
14.7	Information about different projects is usually acquired afterwards through formal and informal method.	1	2	3	4	5
14.8	Training courses are designed in a way that individuals share their knowledge among each other.	1	2	3	4	5
14.9	Training contents can be retrieved afterwards by means of recorded memos, minutes and other documents.	1	2	3	4	5
15	***PERSONALIZATION***					
	STORAGE					
15.1	It is easy to get face to face advice from specialized individuals within the organization.	1	2	3	4	5
	TRANSFER					
15.2	We sufficiently arrange informal meetings for knowledge sharing among individuals within the organization.	1	2	3	4	5
15.3	Knowledge is shared through one-by-one mentoring of individuals within the organization.	1	2	3	4	5
15.4	In our organization, experienced employees guide younger employees.	1	2	3	4	5
	ACQUISITION					
15.5	We frequently set up client meetings per project in our organization.	1	2	3	4	5
15.6	Knowledge can be easily acquired from experienced employees within the organization.	1	2	3	4	5
15.7	It is hard to acquire knowledge from co-workers within the organization.	1	2	3	4	5
		SD	**D**	**N**	**A**	**SA**
E	**FIRM'S NON FINANCIAL PERFORMANCE**					
16	***PROCESS LEVEL PERFORMANCE***					
16.1	There is reduction in cycle time of the production processes.	1	2	3	4	5
16.2	There is significant reduction in customer complaints.	1	2	3	4	5
16.3	There is reduction in defect rates of the product & process.	1	2	3	4	5

16.4	There is improvement in overall efficiency of the processes.	1	2	3	4	5
16.5	There is improved manufacturing time and customer delivery times.	1	2	3	4	5
16.6	The process of my organization is more efficient & productive.	1	2	3	4	5
17	***INDIVIDUAL LEVEL PERFORMANCE***					
17.1	I understand the business vision & goals of my organization.	1	2	3	4	5
17.2	Senior management has clearly communicated a clear plan for meeting our business vision & goals.	1	2	3	4	5
17.3	Managers are rewarded for mentoring & developing their employees.	1	2	3	4	5
17.4	Measures of quality exist to evaluate my job performance.	1	2	3	4	5
17.5	My efforts are recognized & appreciated leading to personal improvements & achievements.	1	2	3	4	5
17.6	Decisions about my compensation have been consistent with my performance.	1	2	3	4	5
18	**ORGANIZATION LEVEL PERFORMANCE**					
18.1	There is an increase in flow of information among departments within the organization.	1	2	3	4	5
18.2	There is an increase in team work and cooperation among employees within departments.	1	2	3	4	5
18.3	The organization has increased the percentage of retained customers	1	2	3	4	5
18.4	The organization owns a competitive advantage over the competitors based on its relationship with customers.	1	2	3	4	5
18.5	The organization has improved its image and quality of products in the market.	1	2	3	4	5
18.6	The customers of our organization are loyal & committed towards our products.	1	2	3	4	5

Anything further you would like to add about the Implementation of QM programs related issues in your organization.

THANK YOU FOR YOUR COOPERATION

APPENDIX II

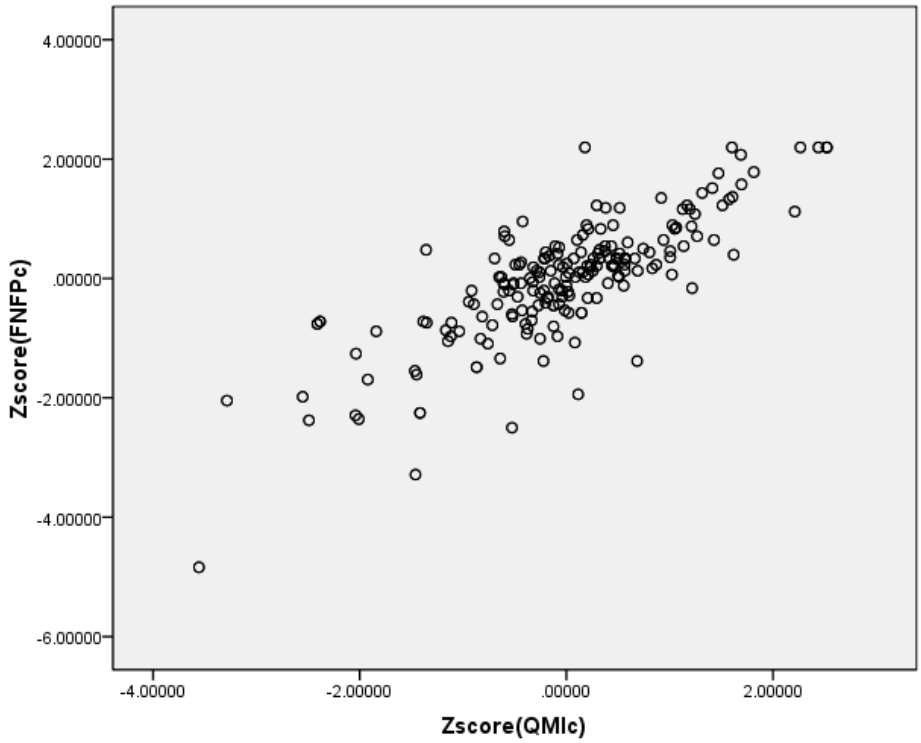
Required Sample Size

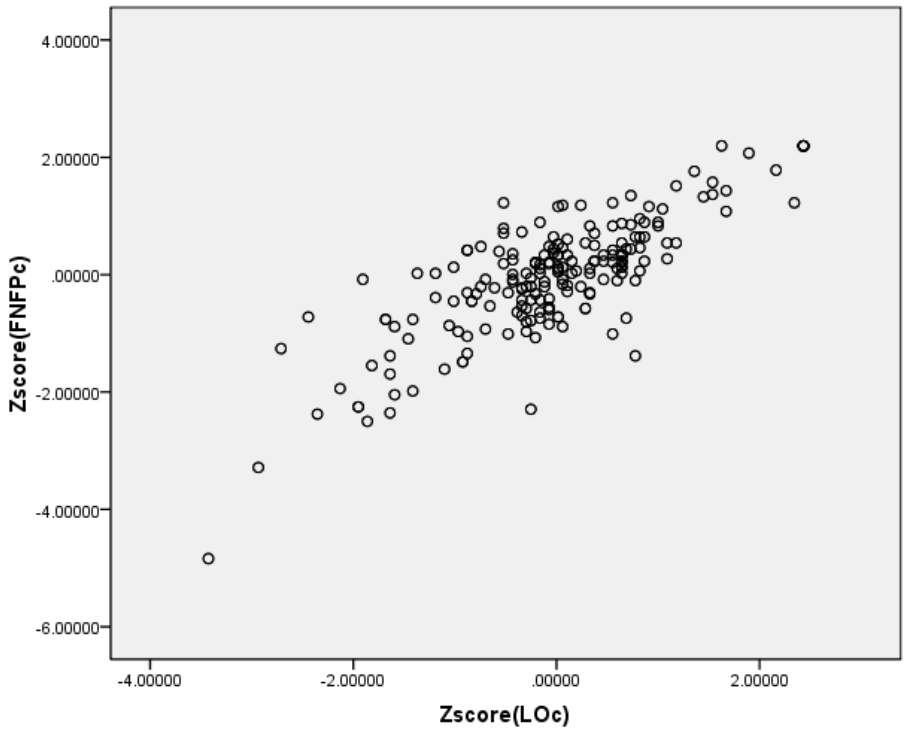
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	146	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1,067	427	636	827	1,119
1,500	306	515	759	1,297	460	712	959	1,376
2,000	322	563	869	1,655	498	808	1,141	1,785
2,500	333	597	952	1,984	524	879	1,288	2,173
3,500	346	641	1,068	2,565	558	977	1,510	2,890
5,000	357	678	1,176	3,288	586	1,066	1,734	3,842
7,500	365	710	1,275	4,211	610	1,147	1,960	5,165
10,000	370	727	1,332	4,899	622	1,193	2,098	6,239
25,000	378	760	1,448	6,939	646	1,285	2,399	9,972
50,000	381	772	1,491	8,056	655	1,318	2,520	12,455
75,000	382	776	1,506	8,514	658	1,330	2,563	13,583
100,000	383	778	1,513	8,762	659	1,336	2,585	14,227
250,000	384	782	1,527	9,248	662	1,347	2,626	15,555
500,000	384	783	1,532	9,423	663	1,350	2,640	16,055
1,000,000	384	783	1,534	9,512	663	1,352	2,647	16,317
2,500,000	384	783	1,536	9,567	663	1,353	2,651	16,478
10,000,000	384	784	1,536	9,594	663	1,354	2,653	16,560
100,000,000	384	784	1,537	9,603	663	1,354	2,654	16,584
300,000,000	384	784	1,537	9,603	663	1,354	2,654	16,586

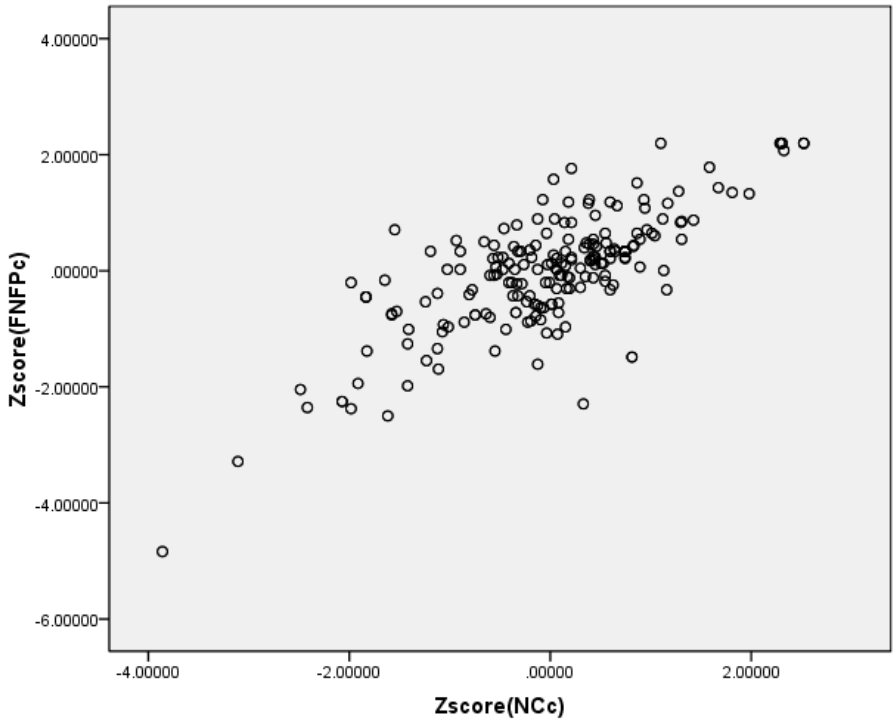
(Krejcie & Morgan, 1970)

APPENDIX III

Zscore



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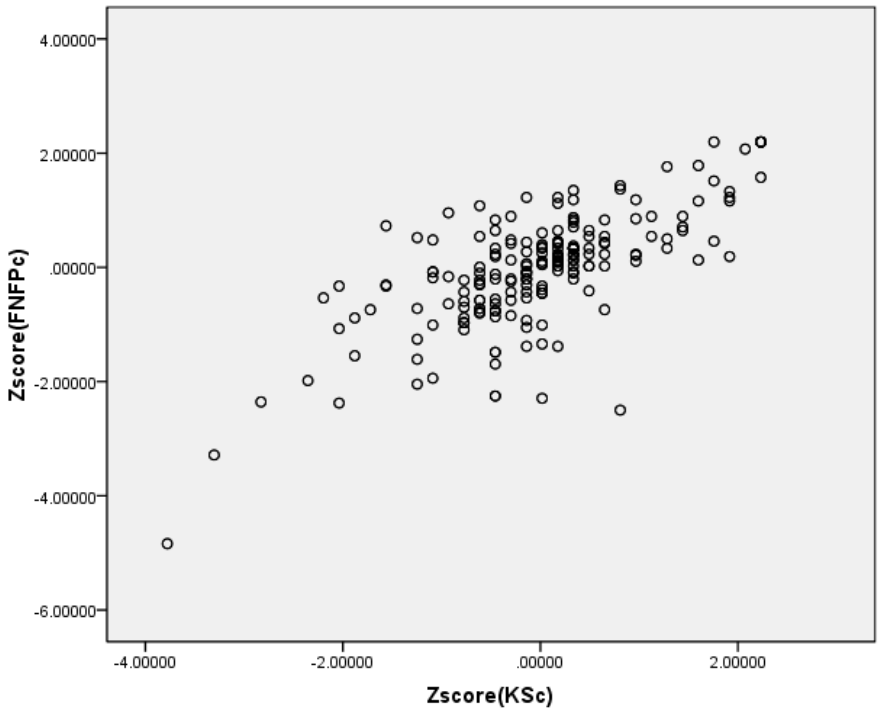
-4.00000
-6.00000
Zscore(FNFPc)
-4.00000
-2.00000
.00000
2.00000
Zscore(NCc)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Zscore(FNFPc)
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-2.00000
.00000
2.00000
Zscore(KSc)

Table Descriptive Statistics for Learning Organization

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
LO11	400	4.00	1.00	5.00	3.5050	.85546	.732	-.402	.122	.070	.243
LO12	400	4.00	1.00	5.00	3.6000	.84959	.722	-.907	.122	.962	.243
LO13	400	4.00	1.00	5.00	3.7900	.86763	.753	-.922	.122	1.238	.243
LO14	400	3.00	2.00	5.00	3.6225	.84069	.707	-.416	.122	-.386	.243
LO15	400	4.00	1.00	5.00	3.6625	.82783	.685	-.527	.122	.567	.243
LO21	400	4.00	1.00	5.00	3.6025	.81311	.661	-.559	.122	.314	.243
LO22	400	4.00	1.00	5.00	3.6025	.78488	.616	-.827	.122	.635	.243
LO23	400	4.00	1.00	5.00	3.6200	.83507	.697	-.929	.122	1.058	.243
LO24	400	4.00	1.00	5.00	3.5875	.87993	.774	-.712	.122	.373	.243
LO25	400	4.00	1.00	5.00	3.7775	.83950	.705	-.787	.122	.686	.243
LO32	400	4.00	1.00	5.00	3.6400	.89856	.807	-.727	.122	.565	.243
LO33	400	4.00	1.00	5.00	3.6925	.86592	.750	-.758	.122	.758	.243
LO42	400	4.00	1.00	5.00	3.5950	.79533	.633	-.825	.122	1.148	.243
LO43	400	4.00	1.00	5.00	3.6525	.86523	.749	-.921	.122	1.116	.243

Table Descriptive Statistics for Learning Organization

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
LO11	400	4.00	1.00	5.00	3.5050	.85546	.732	-.402	.122	.070	.243
LO12	400	4.00	1.00	5.00	3.6000	.84959	.722	-.907	.122	.962	.243
LO13	400	4.00	1.00	5.00	3.7900	.86763	.753	-.922	.122	1.238	.243
LO14	400	3.00	2.00	5.00	3.6225	.84069	.707	-.416	.122	-.386	.243
LO15	400	4.00	1.00	5.00	3.6625	.82783	.685	-.527	.122	.567	.243
LO21	400	4.00	1.00	5.00	3.6025	.81311	.661	-.559	.122	.314	.243
LO22	400	4.00	1.00	5.00	3.6025	.78488	.616	-.827	.122	.635	.243
LO23	400	4.00	1.00	5.00	3.6200	.83507	.697	-.929	.122	1.058	.243
LO24	400	4.00	1.00	5.00	3.5875	.87993	.774	-.712	.122	.373	.243
LO25	400	4.00	1.00	5.00	3.7775	.83950	.705	-.787	.122	.686	.243
LO32	400	4.00	1.00	5.00	3.6400	.89856	.807	-.727	.122	.565	.243
LO33	400	4.00	1.00	5.00	3.6925	.86592	.750	-.758	.122	.758	.243
LO42	400	4.00	1.00	5.00	3.5950	.79533	.633	-.825	.122	1.148	.243
LO43	400	4.00	1.00	5.00	3.6525	.86523	.749	-.921	.122	1.116	.243
Valid N (list wise)	400										

Table Descriptive Statistics for Novelty & Continuity

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NC11	400	4.00	1.00	5.00	3.2425	.98799	.976	-.392	.122	-.204	.243
NC12	400	4.00	1.00	5.00	3.5250	.86385	.746	-.675	.122	.304	.243
NC13	400	4.00	1.00	5.00	3.4575	.89454	.800	-.526	.122	.101	.243
NC14	400	4.00	1.00	5.00	3.5525	.89680	.804	-.693	.122	.723	.243
NC15	400	3.00	2.00	5.00	3.6875	.75250	.566	-.443	.122	.017	.243
NC16	400	4.00	1.00	5.00	3.4950	.87858	.772	-.319	.122	.117	.243
NC21	400	4.00	1.00	5.00	3.6700	.77304	.598	-.597	.122	.745	.243
NC22	400	4.00	1.00	5.00	3.3700	.93824	.880	-.470	.122	-.100	.243
NC23	400	4.00	1.00	5.00	3.6050	.79091	.626	-.456	.122	.404	.243
NC24	400	4.00	1.00	5.00	3.6050	.85780	.736	-.341	.122	-.051	.243
NC25	400	4.00	1.00	5.00	3.5400	.91679	.841	-.609	.122	.325	.243
NC31	400	4.00	1.00	5.00	3.6650	.83036	.689	-.785	.122	1.144	.243
NC32	400	4.00	1.00	5.00	3.8050	.81464	.664	-1.193	.122	2.218	.243
NC33	400	4.00	1.00	5.00	3.6225	.84959	.722	-.474	.122	.437	.243

NC34	400	4.00	1.00	5.00	3.6825	.76364	.583	-.818	.122	1.411	.243
Valid N (list wise)	400										

Table Descriptive Statistics for Knowledge Strategy and FNFP

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
KS12	400	4.00	1.00	5.00	3.8275	.72392	.524	-.443	.122	.695	.243
KS13	400	4.00	1.00	5.00	3.8775	.73746	.544	-.707	.122	1.556	.243
KS14	400	4.00	1.00	5.00	3.7475	.80334	.645	-.532	.122	.571	.243
KS15	400	4.00	1.00	5.00	3.7775	.82443	.680	-.672	.122	.636	.243
KS16	400	4.00	1.00	5.00	3.7750	.80995	.656	-.648	.122	.420	.243
KS19	400	4.00	1.00	5.00	3.6175	.93186	.868	-.626	.122	.057	.243
KS22	400	4.00	1.00	5.00	3.7375	.80325	.645	-.773	.122	.850	.243
KS24	400	4.00	1.00	5.00	4.0025	.78679	.619	-.780	.122	.938	.243
KS26	400	4.00	1.00	5.00	3.8925	.74655	.557	-.477	.122	.595	.243
FNFP12	400	4.00	1.00	5.00	3.7850	.83096	.691	-.897	.122	1.550	.243

FNFP13	400	4.00	1.00	5.00	3.7225	.76613	.587	-.692	.122	1.182	.243
FNFP14	400	4.00	1.00	5.00	3.8900	.68489	.469	-.797	.122	1.852	.243
FNFP15	400	4.00	1.00	5.00	3.8750	.73874	.546	-.884	.122	2.109	.243
FNFP16	400	4.00	1.00	5.00	3.8300	.77950	.608	-1.034	.122	2.156	.243
FNFP21	400	4.00	1.00	5.00	3.8975	.80225	.644	-.720	.122	.689	.243
FNFP22	400	4.00	1.00	5.00	3.8100	.88649	.786	-.551	.122	.090	.243
FNFP23	400	4.00	1.00	5.00	3.6700	.91553	.838	-.540	.122	.184	.243
FNFP24	400	4.00	1.00	5.00	3.7675	.83076	.690	-.729	.122	1.038	.243
FNFP25	400	4.00	1.00	5.00	3.7700	.84195	.709	-.760	.122	.863	.243
FNFP26	400	4.00	1.00	5.00	3.7225	.80443	.647	-.646	.122	.666	.243
FNFP31	400	4.00	1.00	5.00	3.8475	.78791	.621	-.897	.122	1.704	.243
FNFP32	400	4.00	1.00	5.00	3.8650	.76370	.583	-.785	.122	1.431	.243
FNFP36	400	4.00	1.00	5.00	3.8900	.78705	.619	-.795	.122	1.262	.243
Valid N (list wise)	400										

Table Descriptive Statistics for all computed variables

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
QMI	400	3.13	1.87	5.00	3.7082	.51334	.264	-.448	.122	1.289	.243
LO	400	3.07	1.93	5.00	3.6393	.54898	.301	-.267	.122	.961	.243
NC	400	3.53	1.47	5.00	3.5683	.56657	.321	-.409	.122	1.055	.243
KS	400	3.00	2.00	5.00	3.8061	.52222	.273	-.211	.122	1.217	.243
FNFP	400	3.79	1.21	5.00	3.8102	.53926	.291	-.762	.122	2.759	.243
Valid N (list wise)	400										

Table Descriptive Statistics for all variables with dimensions

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
QMI1	400	3.40	1.60	5.00	3.6645	.71049	.505	-.708	.122	.623	.243
QMI2	400	3.75	1.25	5.00	3.6644	.68162	.465	-.710	.122	1.311	.243
QMI3	400	3.33	1.67	5.00	3.8225	.67529	.456	-.622	.122	.906	.243
QMI4	400	3.33	1.67	5.00	3.6158	.60714	.369	-.270	.122	.544	.243
QMI5	400	2.75	2.25	5.00	3.7056	.58388	.341	.089	.122	-.082	.243
QMI6	400	3.00	2.00	5.00	3.7925	.58012	.337	-.464	.122	.845	.243
LO1	400	3.00	2.00	5.00	3.6360	.60500	.366	-.336	.122	.665	.243
LO2	400	3.60	1.40	5.00	3.6380	.61734	.381	-.646	.122	1.275	.243
LO3	400	3.50	1.50	5.00	3.6662	.70479	.497	-.292	.122	.144	.243
LO4	400	4.00	1.00	5.00	3.6238	.75365	.568	-.947	.122	1.733	.243
NC1	400	3.17	1.83	5.00	3.4933	.65685	.431	-.288	.122	.049	.243

NC2	400	3.60	1.40	5.00	3.5580	.63801	.407	-.577	.122	.743	.243
KS1	400	3.00	2.00	5.00	3.7704	.55697	.310	-.119	.122	.688	.243
KS2	400	3.67	1.33	5.00	3.8775	.62193	.387	-.458	.122	1.220	.243
FNFP1	400	4.00	1.00	5.00	3.8205	.58372	.341	-.903	.122	3.062	.243
FNFP2	400	3.67	1.33	5.00	3.7729	.63316	.401	-.452	.122	.831	.243
FNFP3	400	3.67	1.33	5.00	3.8675	.61897	.383	-1.064	.122	2.991	.243
Valid N (list wise)	400										