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**THE MEDIATING ROLE OF INNOVATION IN  
THE RELATIONSHIP BETWEEN  
MARKET ORIENTATION AND UNIVERSITY PERFORMANCE  
IN PAKISTAN**

By:

Faiz Muhammad Khuwaja



**UUM**  
Universiti Utara Malaysia

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## ABSTRACT

Universities globally are going through a paradigm shift with a need to become more innovatively market-oriented to handle the issue of growing competition for funding, as well as attracting/retaining the international/local competent students and academicians. However, there appears to be a dearth of research on how such state of affairs could be addressed, particularly in the emerging economies like Pakistan. In the light of resource-based theory (RBT), as well as organizational-learning theory (OLT), literature suggests that market-orientation (MO) and innovation are to be the desirable unique resources, as well as the guiding philosophies, to enable universities for a more competitive performance. Hence, this study investigated how resources like market-orientation (MO), and innovation, can influence university performance (UP). The study also tested empirically the potential mediating effect of innovation on the MO-UP relationship. In addition, how the dimensions of MO influenced the innovation and university performance (UP) were also tested empirically in the universities of Pakistan. Results of the PLS path modelling (with 369 respondents from the target public-sector universities) firstly confirmed significant effect of the “universal construct of MO” and two of its dimensions “the advising and mentoring, as well as the intelligence-generation and response” on UP. However, one dimension of MO, which is the administration-leadership, was not significantly supported to directly influence the UP. Secondly, the study confirmed that there were significant direct effects of the “universal construct of MO”, as well as all of its dimensions, on innovation. Thirdly, the study also found that there was a significant effect of innovation on UP. Furthermore, the bootstrapping results found significant mediation of innovation between the MO-UP relationship. Hence, the results show that UP can be directly enhanced through MO and innovation. Even the use of innovation as a mediator can further strengthen the MO-UP relationship. Based on the findings, the study offers theoretical and practical implications, followed by its limitations and directions, for future research.

**Key words:** Resource based view, Organizational learning theory, Innovation, Market orientation, University performance, Higher education

## ABSTRAK

Universiti di seluruh dunia sedang melalui peralihan paradigma dengan keperluan untuk menjadi lebih berorientasikan pasaran secara inovasi bagi menangani isu persaingan yang semakin meningkat untuk mendapatkan pelaburan, serta menarik/mengekalkan pelajar/ahli akademik antarabangsa dan tempatan. Walau bagaimanapun, terdapat kelemahan dalam penyelidikan tentang cara hal ehwal tersebut ditangani, terutamanya dalam negara ekonomi baharu seperti Pakistan. Berdasarkan teori berasaskan sumber (RBT), serta teori pembelajaran organisasi (OLT), literatur menunjukkan bahawa orientasi pasaran (MO) dan inovasi merupakan sumber unik yang dikehendaki, begitu juga panduan falsafah untuk membolehkan universiti mencapai prestasi yang lebih kompetitif. Oleh itu, kajian semasa menyelidik bagaimana sumber seperti orientasi pasaran (MO) dan inovasi boleh mempengaruhi prestasi universiti (UP). Kajian ini juga menguji secara empirikal potensi kesan pengantaraan inovasi terhadap hubungan MO-UP. Di samping itu, dimensi bagaimana MO mempengaruhi inovasi dan prestasi universiti (UP) juga diuji secara empirikal. Hasil pemodelan jalur PLS (dengan 369 responden dari universiti sektor awam sasaran) yang pertama mengesahkan hubungan langsung yang signifikan dari "pembinaan universal MO" dan dua dimensinya iaitu "nasihat dan bimbingan, serta generasi bijak pandai dan tindak balas" dengan UP. Walau bagaimanapun, satu daripada dimensi MO iaitu kepimpinan pentadbiran, tidak disokong secara signifikan untuk mempengaruhi UP secara langsung. Kedua, kajian ini mengesahkan bahawa terdapat hubungan langsung yang signifikan dari "pembinaan universal MO", serta hubungan kesemua dimensinya dengan inovasi. Ketiga, kajian itu juga mendapati terdapat hubungan langsung yang signifikan antara inovasi dan UP. Tambahan pula, hasil pengikatan but (*bootstrapping*) menemui pengantaraan inovasi yang signifikan dalam hubungan MO-UP. Oleh itu, keputusan menunjukkan bahawa UP boleh terus ditingkatkan menerusi MO dan inovasi. Malah penggunaan inovasi sebagai pengantara dapat mengukuhkan hubungan MO-UP. Berdasarkan penemuan tersebut, kajian ini menawarkan implikasi teori dan praktikal, diikuti dengan batasan dan arah tuju untuk penyelidikan pada masa hadapan.

**Katakunci:** Teori Berasaskan Sumber, Teori Pembelajaran Organisasi, Inovasi, Orientasi Pasaran, Prestasi universiti, Pengajian Tinggi

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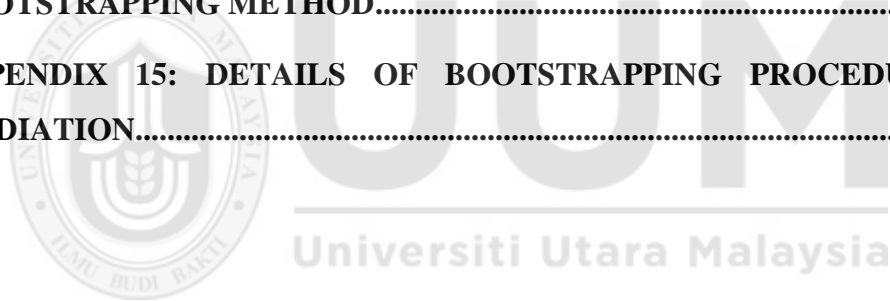
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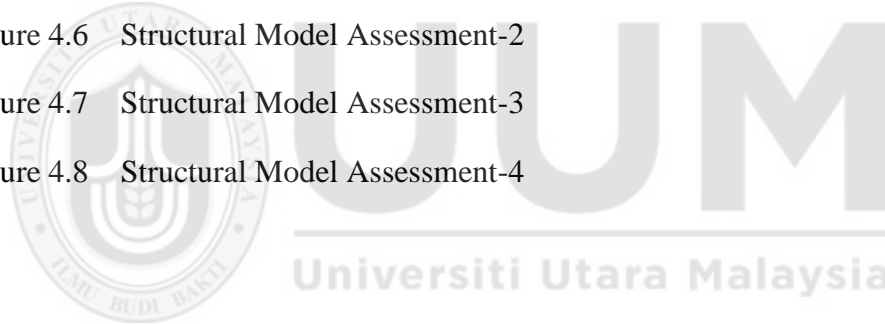


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## LIST OF ABBREVIATIONS

A&M	Advising and Mentoring
AACSB	Association to Advance Collegiate Schools of Business
ACT	American College Testing
ADML	Administration Leadership
AKU	Agha Khan University
AVE	Average Variance Extracted
BISE	Boards of Intermediate and Secondary Education
BNQP	Baldrige National Quality Program
CB-SEM	Covariance based structural equation modeling
CIA	Central Intelligence Agency
CIHE	Council of industry and higher education'
CLA	Collegiate Learning Assessment
CMV	Common method variance
CR	Composite reliability
DAIs	Degree Awarding Institutions
EBSR	Eduniversal Business School Ranking
ECPE	Education Criteria for Performance Excellence
EFA	Education for All
FFRM	Future Faculty/Research scientist Mentoring
GDP	Gross Domestic Product
GOP	Government of Pakistan
HE	Higher Education
HEC	Higher Education commission
HEFCE	Higher Education Finance commission in England
HEIs	Higher Education Institutions
HILT	Harvard Initiative on Learning and Teaching
IBA	Institute of Business Administration
IG&R	Intelligence-Generation and Responsiveness

LUMS	Lahore University of Management Sciences
M.Phil	Master of Philosophy
M.Sc	Master of Science
ME	Master of Engineering
MO	Market-orientation
NACADA	National Academic Advising Association
NCRC	National Curriculum Revision Committees
NEP	National Education Policy
OECD	Organization for economic cooperation and development
OL	Organizational learning
OLT	Organizational learning Theory
PHECV	Pakistan Higher Education Commission Vision
PBL	Problem Based Learning
Ph.D	Doctor of Philosophy
PKR	Pakistani Rupee
PLS	Partial least square
PLS-SEM	Partial least square- Structural Equation Modeling
R&D	Research and Development
RBT	Resource Based Theory
TBG	The Boston Group
TQM	Total Quality Management
UDL	Universal Design for Learning
UGC	University Grants Commission
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
VC	Vice Chancellor
VRIN	Valuable, Rare, Inimitable, Non-substitutable



## **CHAPTER ONE**

### **RESEARCH OVERVIEW**

#### **1.0 Introduction**

This chapter presents an overall background of the study through a comprehensive contextual review of the general circumstances regarding higher education institutions with a focus on higher education in Pakistan. The subsequent section of the problem statement then highlights the key issues in higher education of Pakistan, requiring further investigation for application of market-orientation and innovation in higher education of Pakistan. Next segment of the chapter enlists the basic research questions as well as the corresponding research objectives of this study. In the later section of this chapter, the significance of the study is demonstrated by highlighting the major contributions of and research gaps for this study. The later section of this chapter covers the scope of this study that determines the areas and the possibilities of research coverage by this study. Then the chapter defines the key terms/variables of this study. While the last section of the chapter summarizes the overall chapter.

## 1.1 Background

It is in fact the structure of academic system of a nation that determines its economic, moral and cultural ethos (Haider, 2008; Harkavay, 2006). The higher education (HE) is said to determine the evolutionary potential and global economic viability of any society whereby universities are the key economic catalysts in which the ideas or information generation and manipulation is far more important than the traditional “factors of production” (Eagle & Brennan, 2007; O’Neill & Palmer, 2004; Immerwahr, 2002). The HE is aimed to equip students with awareness about citizenship values and the sense of “nationalism, justice and tolerance” so that the narrow-vested interests can be transformed into national interests (Bejou, 2005; Tilbury, 2002).

The contemporary HE world over is undergoing numerous challenges (Sarker, Davis & Tiropanis, 2010). The higher-education-institutions (HEIs) today are no more the traditional disseminators of academic degrees (Hemsley-Brown & Oplatka, 2006; Cervera, Molla & Sanchez, 2001) rather a paradigm shift is evident (Altbach, 2004; Sarker et al., 2010). The contemporary governments are now progressively looking towards HEIs for expediting the learning phenomena and for improving the workers’ skills and abilities in their citizens to harvest the global technologies needed for raised productivity, and global economic sustainability of their respective nations (Cortese, 2003; Alexander, 2000).

The conservative, government-owned HEIs normally appear less innovative and less responsive to changing markets (Mitra, 2009; Liefner, 2003). Hence, their resource allocation is affected due to more state-dependence because the changing economic conditions have changed resource-allocation priorities of the states (Modi, 2012; Jongbloed, 2004). This stressful fiscal trend is more complicated as the costs of universities have mounted beyond inflation rate with a decline in real per student public support (Archibald & Feldman, 2008). Such a resource-squeezed phenomenon requires universities

to pursue funding opportunities from open markets by offering market based innovative value proposition (Carrillat, Jaramillo & Locander, 2004; Jaworski, Kohli & Sahay, 2000).

Thus, the public-sector universities need to innovatively realign their strategies with latest market trends to replenish their shrinking resources by attracting growing number of students in the competitive markets (Mainardes, Raposo & Alves, 2014; Algarni & talib, 2014; Modi, 2012; Hashim & Rahim, 2011) as well as to attract more funds by launching innovative projects (Australian Literacy Testing Centre, 2015; Hoidn & Kärkkäinen, 2014; Looney, 2009). Although in past the nonprofits including universities have had pride of being not-business, and free of commercialization or other such kind of filthy contemplations, yet they seem to be more innovative today by adopting the rules of marketing and strategic management similar to regular business entities to ensure their regular survival and growth (Behdioğlu & Şener, 2014; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Drucker, 1989).

Every organization to be successful, needs to be service oriented for its customers, irrespective of its size and industry, including universities (Koris & Nokelainen, 2015; Greenberg, 2004). For a business like higher education, where students are the pivotal focus (University of Florida, 2014) and interaction with students is the key measure of “total service offer”, the provision of service excellence should occupy a position of prime importance there (Slade, Harker & Harker 2000; Schuck, Gordon & Buchanan, 2008; Hasan, Ilias, Rahman & Razak, 2009; Niculescu, Xu, Hampton & Peterson, 2013). University education must add value in student services through market orientated activities or otherwise they might fail to satisfy the needs of several other stakeholders including “students’ parents, employers, legislators, and the overall public” (Zebal & Goodwin, 2012; Schuck, Gordon & Buchanan, 2008; Niculescu et al., 2013). But unfortunately, in Pakistan, students have been reporting high level of dissatisfaction from

overall university services (Aziz, Bloom, Humair, Jimenez, Rosenberg & Sathar, 2014; Asgar, 2013; Shawana, Iqbal & Mohammad, 2012; Abbasi, Malik, Chaudhry & Imdadullah, 2011).

Universities in Pakistan have remained quite ineffective to attract and retain a reasonable ratio of graduate level students (UNESCO, 2009; Wallstreet, 2012; EBSR, 2014) hence termed as “non-market framed universities” (Wahab, 2016, 5). Husnain (2014) reports that the HE participation by 17-23 age group remained very low i.e. up to only 16.2% in Pakistan, compared to 50% in the other countries of same region. Till 2007, only 6.3% of total population could manage to graduate, relative to above 50% in top five countries of the world (UNESCO, 2009), which was target by the government to be increased upto 10% and 15% by 2015 and 2020 respectively. (EBSR, 2014). Thus, attracting and retaining a growing number of satisfied students is one of the vital challenges in education sector of Pakistan (Khan, Ahmed & Nawaz, 2011; Memon, Joubish & Khurram, 2010; Bilal & Imran, 2012).

Moreover, State-dependence for resource allocation and the conservative behavior of public universities has handicapped them, hence necessitating for their market orientated and innovative behavior (Modi, 2012; Ali & Siddiqui, 2013; Jongbloed, 2004). In Pakistan, the lack of innovation and the tremendously low level of government funding is also reported to be responsible for poor UP (Memon, 2010). In 2013-2014, only 1.9% of total GDP was allotted to HE-sector instead of a minimum desirable of 4% (GOP, 2014; Husnain, 2014). Worsening it was the disability of administrating authorities for effective utilization of the allotted funds because, due to poor planning and management of funds, only 43% of allotted funds could be utilized in 2012-2013 (Ghani, 2013).

Hence, all these circumstances necessitate an investigation for an improved university-performance with more innovatively competitive services to attract and retain growing number of satisfied local as well as international students so as to substitute the diminishing public

funding grants (Wajtrakul, 2014). But unfortunately, the contemporary HE system in Pakistan is not doing very well (Bilal & Imran, 2012; Abbasi et al., 2011; Hoodbhoy, 2005).

Therefore, literature suggests HEIs to adopt some kind of a strategic-orientation as a set of guiding principles. (Algarni & Talib, 2014; Zebal & Goodwin, 2012; Mahrous & Kortam, 2012; Hashim & Rahim, 2011; Hemsley-Brown & Oplatka, 2006; Dodor, 2008).

Hence, taking on a detailed review of pertinent literature, the researcher recognizes market-orientation (MO) as a focal strategic-orientation to govern higher level of university-performance (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Zhou et al., 2005), augmented by innovation (Ahmed & Othman, 2017; Khuwaja, Shari & Abubakar, 2015; Algarni & Talib, 2014; Huhtala, 2014; Altuntaş, Semerciöz & Eregez, 2013; Cheng & Krumwiede, 2012; Zaifuddin, 2010; Menguc & Auh, 2006).

Despite numerous researchers (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Hampton, Wolf, Albinsson & McQuitty, 2009; Duque-Zuluaga & Schneider, 2008; Hammond, Webster & Harmon, 2006; Kotler & Levy 1969a; Kohli & Jaworski, 1990) along with the “Baldrige Education Criteria for Performance Excellence” (BNQP, 2005) as well as the academic standards by “Association of Advance Collegiate Schools of Business”-AACSB (2005) have been accentuating the applicability of MO to higher education, yet the empirical research surrounding the applications of market-orientation into universities appears very limited (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Hampton et al., 2009; Duque-Zuluaga & Schneider, 2008; Hammond, Webster & Harmon, 2006; BNQP, 2005).

On the other hand, some earlier studies also suggest the use of some mediator/moderator to reconcile the previous literature particularly in case of any inconsistent results regarding the direct relationship between any given variables, (Zaltman, Duncan & Holbek, 1973; Baron &

Kenny, 1986; Deshpande, Farely & Webster, 1993; Jaworski & Kohli, 1993; Slater & Narver, 1994b; Han, Kim & Srivastava, 1998). In this regard, although a straight forward positive MO—performance relationship has been frequently reported, yet, empirically some inconsistent results noticed in the supposed relationship (Huhtala, 2014; Voola & O’Cass, 2010; Keskin, 2006) besides some critics found on MO (Haugland, Myrtveit & Nygaard, 2007; Shoham, Ruvio, Vigoda-Gadot & Schwabsky, 2006; Menguc & Auh 2006; Johnson & Huizenga, 2001; Hult & Ketchen, 2001; Heiens, 2000) justify the inclusion of innovation construct as a mediator (Algarni & Talib, 2014; Altuntaş, et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010) to enhance the level of confidence in the construct of MO.

Despite the strong recognition for innovation to be indispensable not just for growth but for overall survival of organizations too (Alexander & Yuriy, 2015), it still remained highly unattended area by education researchers in Pakistan (Hoodbhoy, 2005). While in Pakistan, lack of innovation has also been reported to be a main cause of poor performance of HEIs (Interviews, March & April 2016; Abbasi et al., 2011; Bilal & Imran, 2012; Hoodbhoy, 2005), hence, supporting the inclusion of innovation construct for this study.

However, literature appears to provide scarce evidence regarding the mediation of innovation between the broad MO—university-performance relationship. Particularly in the context of HEIs of Pakistan so far, there is scarcity of any such evidence. Hence, it appears reasonable to focus on university performance in public-sector of Pakistan as a viable research area.

It is also imperative to note that despite significant positive relationship reported between MO and university-performance as well as between the MO and innovation, the relationship of interest might appear to vary when tested through separate dimensions independently (Umrani, 2016; Ozkaya et al., 2015; Niculescu et al., 2013; Cheng & Krumwiede, 2012; Zahra, 1993). Hence, besides the assessment of (universal/generic) MO with the variables of interest,

this study also assessed all the dimensions of MO independently to detect if there is any significant discrepancy/harmony of results for all MO dimension during the current analysis.

Hence in the context of this particular study for assessment of university performance, firstly the theory of resource-based view (through unique resources like MO) (Ahmed & Othman, 2017; Ozkaya et al., 2015; Kozlenkova, Samaha & Palmatier, 2014; Algarni & Talib, 2014; Ngo & O'Cass, 2012; Naranjo-Valencia et al., 2016; Modi, 2012; Zaifuddin, 2010) and secondly the theory of organizational learning (through innovative knowledge creation and dissemination) (Ozkaya, Droge, Hult, Calantone & Ozkaya, 2015; Hoidn & Kärkkäinen, 2014; O'Keefe, 2002) are found quite consistent to provide a strong underpinning to the given theoretical framework as discussed in detail in chapter two.

## **1.2 Problem Statement**

Being the focal criterion of this study, “the university-performance” can be assessed in both perspectives, i.e. objective (financial) as well as subjective (service quality and/or stakeholders’ satisfaction), (Agarwal et al., 2003) with three major aspects of academic as well as administrative aspects, i.e. “overall university-performance, funding, and the students’ retention & recruitment” (Niculescu et al., 2013; Caruana, Ramaseshan & Ewing 1998, 1999).

Since last couple of decades, the public-sector universities in Pakistan could not accommodate their performance to the changing social/market expectations, despite a number of resourceful initiatives by the education ministry of Pakistan and by the higher-education-commission of Pakistan to spoon-feed them (as detailed in literature review, p. 31 & 32). But due to a paradigm shift in higher-education (HE) sector, the traditional spoon-fed public universities kept striving harder to supplement their performance, compatible to market needs for a sustainable survival (Aziz, 2014; Kamisah et al., 2011; Kasim, 2011; Mitra, 2009; Liefner, 2003).

Despite numerous research interest (in business context) with plenty of empirical/theoretical support for the relationship of interest (Lo, Abang Azlan, Ramayah & Wang, 2015; Mokhtar, Yusoff & Ahmad 2014; Liew, Ramayah & Yeap, 2014; Singh & Mahmood, 2013; Lam, Lee, Ooi & Phusavat, 2012; Aziz & Yassin, 2010; Hassim, Asmat-Nizam and Bakar, 2011), yet the pertinent literature appears to lack enough research attention paid to investigate the university-performance in relation to market-orientation (MO) and innovation (Algarney & Talib, 2014; Khuwaja, Shaari & Bakar, 2017), particularly in the context of public Higher-Education-Institutions (HEIs) in Pakistan (Butt & Rehman, 2010; Khuwaja et al., 2017). Therefore, there is an immediate need to pay attention to this neglected research area.

The contemporary system of higher education (HE) is undergoing many potential challenges round the globe (Sarker et al., 2010), *refer* section 2.2.1, paragraph 1 for the list). Universities are recognized as the key economic catalysts (O'Neill & Palmer, 2004), but the government-owned HEIs tend to be highly conservative, less innovative and less responsive to the changing markets (Mitra, 2009). It solicits for them to realign their strategic resources to stay competitive (Liefner, 2003) by adopting market-oriented behaviors (Zebal & Goodwin, 2012; Mitra, 2009). HEIs of Pakistan have no exclusion to it (Khuwaja et al., 2015; Butt & Rehman, 2010).

A survey report by British-Council Pakistan (2009) points out that 92% of Pakistan's youth emphasized on revival of the educational system in the country and above 50% recognized that their education system could not equip them with the knowledge, skills and capabilities necessary to find a good job. Ibad (2017), Aziz, Bloom, Humair, Jimenez and Sathar (2014) and Butt and Rehman (2010) also report similar issues in higher education (HE) of Pakistan.

Performance of HEIs in public-sector of Pakistan for last many decades has remained at the lowest common denominator (Nayyar, 2012). According to the "National Education Policy 2009-2015" report, there is not even a single university in Pakistan, recognized as a world



class university, (GOP, 2009). Pakistan has been undergoing the academic crises with very poor education standard (GOP, 2012) whereby, Pakistani universities have formed “Garbage Can Model of Organizational behavior” with the organized anarchies (Usman, 2014, p 39). Rather than upgrading society by knowledge dissemination (Harkavy, 2006), universities in Pakistan have turned out to be the degree producing factories (Abbasi et al., 2011; Qureshi, Khan, Bhatti, Khan, 2012). This kind of product orientation may damage the capability of universities to keep education quality and social service at par (Clayson & Haley, 2005).

For a better understanding of the ground realities about HEIs in Pakistan, the researcher also conducted a couple of semi structured interviews from the prominent academicians (HEIs’ directors and vice-chancellors) in Pakistan during March and April 2016. One of the commonly expressed problems surfaced out from these interviews was that although there are certain efforts taken by regulatory higher-ups, yet the HEIs of Pakistan specifically in public-sector are still far behind from understanding the market needs and keeping abreast of their curricula accordingly as the same is expressed by Ibad, (2017) and Hoodbhoy (2009). Besides that, there is an acute dearth of innovation and updating in academic as well as administrative spheres in the public universities of Pakistan. Thus, the market-orientation is quite indispensable for the revival (Interviews March & April 2016). According to Bilal and Imran (2012), chairman higher education commission (HEC) expressed that in Pakistan, HEIs lack the ability to provide acceptable level of access, relevance and quality in their academic services.

Universities of Pakistan have also remained unsuccessful in student attraction and retention of a handsome ratio of youth towards graduate level studies (Ibad, 2017; Bilal & Imran, 2012; Abbasi et al., 2011; Khan, Ahmed & Nawaz, 2011; Memon, Joubish and Khurram, 2010; Butt & Rehman, 2010). Relative to the developed countries in the region with around 50%, Pakistan is reported to have only 16.2% education participation rate by the age group of 17-23 years

(Husnain, 2014; Memon, Joubish & Khurram 2010; Iqbal, 2004). Global Education Digest-2009 reports that till 2007, only 6.3% of total population qualified to graduate (UNESCO, 2009). By 2015 and by 2020 Pakistan plans to increase this figure to 10% and to 15% respectively (EBSR, 2014), as compared to around 50% in the top five countries (Wallstreet, 2012).

According to a report by UNESCO (2012), out of 120 countries, Pakistan after Nigeria has the second highest number of around 5.5 million out of school children with a very high dropout rate, at all levels of education. Thus, attracting and retaining a growing number of local as well as international students in the institutions of higher learning appears to be one of the serious challenges in higher education sector of Pakistan.

The curricula in HEIs of Pakistan to prepare their graduates for facing the complex challenges, is far from practical aspects of the contemporary socio-economic structure (Khan, Ahmed & Nawaz, 2011; Akhtar & Kalsoom, 2012; Bilal & Imran, 2012; Haider, 2008). Due to the lack of market focus, the yields (graduates) of HEIs in Pakistan are not suitable to fulfill the demands of different sectors of economy, which has consequently resulted in a high rate of graduates' unemployment, unbalanced number of students in various disciplines and dearth of initiatives for the research aligned with market needs (Rasool, 2014; Shah, 2013; Malik, 2001) as well as a high level of student dissatisfaction (Aziz, Bloom, Humair, Jimenez, Rosenberg & Sathar, 2014; Nayyar & Mehmood, 2014; Asgar, 2013; Shawana, Iqbal & Mohammad, 2012; Malik, Hassan & Iqbal, 2012; Abbasi et al., 2011; Butt & Rehman, 2010).

With reference to IPR-fact sheet, the PakistanToday (January 28, 2016) reports that the unemployment rate rose to 8.5% in 2014-15 i.e the highest rate of unemployment in the last thirteen years. While the current unemployment rate among graduates or post-graduates is three times above the national average more than twice that among illiterate workers i.e. the highest rate of graduate unemployment (PakistanToday, January 28, 2016). While, a high-profile

dignitary, Dr. Hafeez Pasha, (a distinguished economist of Pakistan; Dean of the School of Liberal Arts and Social Sciences at the Beaconhouse National University, Lahor; and the Vice Chairman of the Institute of Public Policy, Lahore; the Chairman of the country's Panel of Economists which is an independent advisory committee for the government) stated in the 31st PSDE Conference in Islamabad that 50-percent of the local university graduates are either unemployed or not part of the labour force (Nadeem, January 04, 2016).

Universities thus need to upgrade with market-oriented curricula with minimum university-industry gap to accommodate their graduates (Bilal & Imran, 2012; Raza & Naqvi, 2011).

The reflection of a university-performance is primarily mirrored in its students' performance during and after their graduation (University of Florida, 2014). So, the university education must aid in student services. Otherwise they might fail to satisfy the needs of a number of other stakeholders as a whole including "legislators, employers, students' parents, and the overall public (Schuck, Gordon & Buchanan, 2008; Niculescu et al., 2013; Zebal & Goodwin, 2012). Hence, student advising/mentoring dimension of MO (Niculescu et al., 2013; Hampton et al., 2009; Rivera-Camino & Ayala, 2010) might better tackle students for their improved retention and satisfaction (Young-Jones, Burt, Dixon & Hawthorne, 2013) be it the academic or developmental advising (Schroeder, 2012) because a high level of student dissatisfaction in HEIs of Pakistan is evident (Nayyar & Mehmood, 2014; Aziz, Bloom, Humair, Jimenez, Rosenberg & Sathar, 2014; Asgar, 2013; Shawana, Iqbal & Mohammad, 2012; Malik, Hassan & Iqbal, 2012; Abbasi et al., 2011). Moreover, attracting and retaining the growing number of satisfied students can also substitute the declining public funding grants (Wajtrakul, 2014).

The growing financial constraints have further complicated the scenario of higher education in Pakistan (Memon, Joubish & Khurram, 2010; Memon, 2007; Iqbal, 2004; Ali & Siddiqui, 2013, Haider, 2008) because the HE has been de-prioritized for other public social services

(Jongbloed, 2004; Slaughter & Rhoades, 1996). Tremendously low level of government investment has also accounted for the poor performance of education sector in Pakistan (Memon, Joubish & Khurram, 2010; Hoodbhoy, 2009) as only 1.9% of GDP is allotted for education in total rather than a minimum desirable level of 4% (Ghani, 2013; Husnain, 2014).

On the other hand, the growing market-orientation (MO) by private HEIs has pulled public universities into a competitive struggle (Olivares & Wetzel, 2014; Zebal & Goodwin, 2012; Hashim & Rahim, 2011). Based on such state of affairs in Pakistan, a comparative study conducted for assessing empirically the enrollment trend in the public and private universities in Pakistan reports that although the overall trend for research based degree programs (MS/M.Phil/Ph.D) has sought more popularity in Pakistan yet the private sector universities appear to be relatively more successful in attracting higher percentage of newly enrolled students (Khuwaja & Nadeem, 2007). More over the technological spreads have further complicated the HE scenario (Randheer, 2015; Koris & Nokelainen, 2015; Watjatrakul, 2014) such as, virtual courses, e-portals, 24/7 response (Archibald & Feldman, 2008). In such complex settings, the universities can capitalize on the effective information generation and the responsiveness dimension of MO (Niculescu et al., 2013; Zebal & Goodwin, 2012) to stay more innovative and competitive (Asif & Searcy, 2014; Mitra, 2009; Liefner, 2003).

Furthermore, for a reported issue of poor administration and ineffective policies in HEIs of Pakistan (Akhtar & Kalsoom, 2012; Ali & Siddiqui, 2013; Iqbal, 2004), the administration-leadership dimension of MO can further help improve university-performance (Niculescu et al., 2013). As a result of poor administration leadership of universities in Pakistan, 57% of the allotted development funds stood unutilized in 2012-2013 (Ghani, 2013).

Even the university teachers in Pakistan also lack themselves in motivation due to the dearth of enough rewards for undue burdens of teaching and administration (Obaid, 2006; Haider, 2008).

While some researchers emphasize that the university teachers should understand and adopt market-orientation for their motivation and professional development (Hampton et al., 2009; Flaviane & Lozano, 2007; Soonhong, Mentzer & Ladd, 2007).

Furthermore, the analysis of previous literature also reveals theoretically supporting evidences regarding the role of innovation to mediate the the basic relationships of interest of this study i.e. MO and UP (Ozkaya et al., 2015; Algarni et al., 2014; Huhtala, 2014; Altuntaş et al., 2013; Jimenez-Jimenez et al., 2008; Cheng et al., 2012; Modi, 2012). While in case of this study, it is evident that besides the need for university-MO, a lack of innovation has also been reported to be among the main causes of unsatisfactory university-performance in Pakistan (Abbasi et al., 2011; Bilal & Imran, 2012). The future of knowledge societies regarding their socio-economic progress is based on their capability for innovation (Alexander & Yuriy, 2015, Hoidn & Kärkkäinen, 2014; Deem, Mok & Lucas, 2008). In past the innovative projects have also enabled universities in some parts of the world to secure extra public and private funding (Australian Literacy Testing Centre, 2015; Hoidn & Kärkkäinen, 2014). While, the positive innovation—performance relationship has also been supported in literature since 1980s (Damanpour & Evan, 1984; Damanpour et al., 1989; Zahra, Belardino & Boxx, 1988).

Therefore, for a raised organizational-performance to attract and retain growing number of students in the competitive markets and to keep replenishing their shrinking funding slots, the universities particularly in public-sector, need to demonstrate growing MO and innovation (Algarni & Talib, 2014; Zebal & Goodwin, 2012; Modi, 2012; Hashim & Rahim, 2011).

Henceforth, with the literature support, this study has tried to investigate for providing empirical evidence to resolve the the given issues of university-performance in Pakistan through a context-specific MO, mediated by innovation as Algarni and Talib (2014) suggest that there is acute dearth of studies of such nature.

### 1.3 Research Questions

The research questions for the underlying study are:

1. Is there a significant influence of market-orientation on university-performance?
2. Is there a significant influence of dimensions of market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) on the university-performance?
3. Is there a significant influence of market-orientation on the innovation?
4. Is there a significant positive influence of the dimensions of market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation on responsiveness) and the innovation?
5. Is there a significant influence of innovation on the university-performance?
6. Does the innovation mediate the relationship between the market-orientation and the university-performance?
7. Does the innovation mediate the relationship between the dimensions of market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance?

## 1.4 Research Objectives

The general objective of this study is to examine the chain relationship of market-orientation, innovation and university-performance.

Hence, based on above research questions, the specific objectives of this study are as under:

1. To investigate the influence of market-orientation on the university-performance.
2. To investigate the influence of the dimensions of market-orientation (i.e. administration-leadership, advising and mentoring and the intelligence-generation and responsiveness) on the university-performance.
3. To investigate the influence of market-orientation on the innovation.
4. To investigate the influence of the dimensions of market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) on the innovation.
5. To investigate the influence of innovation on the university-performance.
6. To investigate the mediating role of innovation in the relationship between market-orientation and university-performance.
7. To investigate the mediating role of innovation in the relationship between the dimensions of market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance.

## 1.5 Significance of the Study

Investigating the performance of universities is quite essential due to the crucial role of higher education (HE) in the transformation of a nation, hence, the growing public expectation in universities is demanding for investigating university-performance (UP) with reference to modern, market based principles and paradigms (Asif & Searcy, 2014; Niculescu et al., 2013; Bilal & Imran, 2012; Hoodbhoy, 2009; Haider, 2008; Hampton et al., 2009; Hemsley-Brown & Oplatka, 2006; O'Neill & Palmer, 2004; Immerwahr, 2002; Cervera, Molla & Sanchez, 2001; Alexander, 2000)

With the perspective of resource based theory (RBT) and organizational learning theory (OLT), although there is a great deal of literature available on “market-orientation—innovation—organizational-performance” relationship in the enterprise context (Algarni & Talib, 2014; Huhtala, 2014; Shoham, et al., 2006), yet a detailed review of literature reveals only a little effort on the turnaround of universities with the market-based and customer-focused modern concepts and tools (Khuwaja et al., 2015; Asif & Searcy, 2014; Hampton et al., 2009; Hemsley-Brown & Oplatka, 2006). Whereas in the particular context of universities in Pakistan, this study appears more significant because the relevant literature on theories like RBT as well as OLT indicates a noticeable gap, because there could not be surfaced any significant studies as such with specific focus on adoption of strategic-orientations (like market-orientation and innovation) and their impact on university-performance particularly in Pakistan (Usman, 2014; Nayyar & Mehmood, 2014; Bilal & Imran, 2012; Abbasi et al., 2011).

Abbasi et al. (2011) express that unfortunately HE authorities in Pakistan have never regarded the quality of student services as a matter of survival which the problem statement of this study has already pointed out (Aziz et al., 2014; Asgar, 2013; Shawana, Iqbal & Mohammad, 2012; Abbasi et al., 2011). Whereas, Niculescu et al. (2013) warns that failure to provide quality



services to students may result in failure of satisfying many other university constituencies as well such as legislators, employers, students' parents, and the overall public with a consequent question mark on survival of universities. Therefore, using RBT, Algarni and Talib (2014) emphasized on investigating the university-market-orientation (MO) accompanied by the catalyst of innovation, as an important research consideration for the sustainable university-performance.

This state of affairs required an immediate research attention in Pakistan. Therefore, in order to handle the contemporary problems in HE-sector of Pakistan, the investigation of proposed variables for this study and their relationship with university-performance (as not found in earlier literature) appeared as a purposeful unique endeavor to bridge the given theoretical as well as practical gaps in the HE literature and practice (Algarni & Talib, 2014; Hampton et al., 2009; Agarwal, Erramilli & Dev, 2003; Han et al., 1998), particularly in the context of higher education sector of Pakistan. Therefore, the researcher has tried to contribute into the RBT and OLT literature and to bridge the given practical/theoretical gaps as detailed in previous sections.

Another important contribution that this study has tried to extend into the literature of given theories is the analysis of all the dimensions of MO independently in relation to innovation as well as university-performance in order to detect if there is any significant difference or synchronization of results for separate dimension of a given generic/universal construct as recommended by previous research (Umrani, 2016; Ozkaya et al., 2015; Huhtala, 2014; Niculescu et al., 2013; Cheng & Krumwiede, 2012; Zaifuddin, 2010; Zahra, 1993). To the best of researcher's knowledge and effort, none other previous research has tried to assess the relationship of given dimensions of MO conjointly with 'innovation and university-performance' in any given context. This study is therefore, definitely going to appear not only as an effective guideline for a better conduct of (public) higher education system particularly in

the developing countries, but it is also going to contribute adequately into the pertinent literature regarding the theories of RBT as well as OLT.

This study is essentially expected to be an effective policy tool to guide “all the educational authorities such as Ministry of Education Government of Pakistan, Higher Education Commission of Pakistan, Chancellors of Public and Private Universities, Vice Chancellors & Rectors, concerned Deans, and everyone responsible to enhance the quality and standards of higher education in order to enable public universities to attract more resources and retain more students as well as funds”.

This study will hopefully prove to benefit the general administrating authorities not only inside the universities but some external stake holders too such as the overall government, which is normally responsible for managing the public-sector universities; the donors/sponsors to extend sponsorships and development funds; staff/employees for their role clarity; corporate sector/employers for coordination to help universities stay abreast of market needs; researchers to shift their focus on the right areas; and most importantly the prospect students in their choice of a better university for their desired career, locally as well as internationally.

## **1.6 Scope of the research**

In Pakistan, the state appears to be the primary role player in governance of higher education (Akhtar & Kalsoom, 2012), hence, based on previous background discussion through a review of literature, this study has focused public-sector universities, to assess the influence of market-orientation (MO) on the university-performance (Hemsley-Brown & Oplatka, 2010; Mitra, 2009; Flavián & Lozano, 2007) in Pakistan (Khuwaja et al., 2017), along with examining the mediating role of innovation between the said relationship (Huhtala, 2014; Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012).

Based on concrete support from literature on ‘MO — organizational-performance’ relationship through the university teachers as the suitable respondents (Poole, 2017; Mokoena & Dhurup, 2016; Felgueira & Rodrigues, 2015; Felgueira & Rodrigues, 2012; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hemsley-Brown & Oplatka, 2010; Rivera-Camino & Ayala, 2010; Mitra, 2009; Hampton et al., 2009; Oplatka & Hemsley-Brown, 2007; Hampton, 2007; Flavian & Lozano, 2007; Flavián & Lozano, 2006; Liefner, 2003; Oplatka, Hemsley-Brown & Foskett, 2002; Siu & Wilson, 1998), this study also considers university teachers as better representatives of universities to constitute the target population because they are regarded as the legitimate scholastic leaders in universities due to their broad academic and administrative role they play (Blasé & Kirby, 2000; Smylie & Denny, 1990). It is their academic supremacy that conquers respect and offers them a basic role in decision-making (Blasé & Kirby, 2000; Smylie & Denny, 1990). Moreover, the scale used in this study has a focus shift from an organizational and top management level to a faculty level perspective (Niculescu et al., 2013).

At any university, teachers are the important ‘frontline service-professionals’ with the task of educating and retaining students (Hampton et al., 2009) through a system of ethics, task commitment, high level of expertise, freedom to manage the task, and capacity to maintain teaching and research standards (Voon, 2006; Chapman & Pyvis, 2005; Wallace, 1995b; Realin, 1987). Teachers are the immediate producers and suppliers of the core university services (teaching/research/consultancy) not only to the students, but to the many other university-constituencies too including the students’ parents, legislators, employers, and the overall public (Niculescu et al., 2013; Zebal & Goodwin, 2012).

Teachers are in better position to direct the academic affairs (Hallinger, 1992), heading towards better consequences in terms of students’ achievements, teachers’ work life and overall

scholastic reforms (Blasé & Kirby, 2000; Darling-Hammond & Goodwin, 1993) with a bigger legitimacy as academic leader (Smylie & Denny, 1990).

Highlighting the central role of teachers in universities, Mitra (2009) expresses that it is the teachers who actually bring in the revenue for their university. Marks and Printy (2003) and Rowan (1990) express that some effective leaders in universities recognize the skills, knowledge and professionalism of teachers and involve them as the central agents of change towards improved institutional performance and for an enlarged impact of their own leadership.

Keeping in view certain constraints like limited resources available in the form of time, funds, access, and security, the best possible and specific sample was drawn based on proportionate systematic random sampling that would effectively represent the whole population (Sekaran & Bougie, 2013, Ross, 2015). For this purpose, this study has taken into account the five largest and oldest public-sector universities in the province of Sindh, Pakistan that accommodate the highest number of students, faculty and the disciplines offered (Higher Education Commission, 2014).

The total population under study is composed of 2906 university teachers (HEC, 2014) that required 340 number of respondents (Krejcie & Morgan, 1970). More over based on suggestion by Salkind (1997) a 40% of the required sample size was further added to handle the issue of uncooperative respondents and unusable questionnaires. Hence, a total of 476 questionnaires were distributed to the university faculty members using a proportionate systematic random sampling method (Sekaran & Bougie, 2013, Ross, 2015). Because it is generally agreed upon fact that the larger the sample size, the greater the power of statistical test (Borenstein, Rothstein & Cohen, 2001; Kelley & Maxwell, 2003; Snijders, 2005).

## **1.7 Definitions of key terms**

### **1.7.1 University Performance**

Organizational-performance of a university can be both objective (financial) as well as subjective (service quality and/or stakeholders' satisfaction), with three major aspects of academic as well as administrative performance, which are “overall university performance, funding, and the students' retention and recruitment” (Niculescu et al., 2013; Agarwal et al., 2003; Caruana, Ramaseshan & Ewing 1998, 1999).

### **1.7.2 Market-Orientation**

Sheppard (2011), Brettel, Engelen & Heinemann (2009), Zatezalo, and Gray (2000), Gray, Matear, Boshoff, and Matheson (1998) and Deng and Dart (1994), define MO in the light of the basic models of MO by Kohli and Jaworski (1990) and Narver and Slater (1990), as an approach to execute the business philosophy of “marketing-concept” which entails the definition of MO as under:

*The generation of appropriate market intelligence pertaining to current and future customer needs and the relative abilities of competitive entities to satisfy these needs; the integration and dissemination of such intelligence across departments; and the co-ordinated design and execution of the organization's strategic response to market opportunities.*

### **1.7.3 Innovation**

Innovation is another effective strategic-orientation (Keskin, 2006) with its footings in earlier marketing literature (Zaltman et al., 1973; Damanpour & Evan, 1984; Zahra et al., 1988; Damanpour et al., 1989; Khan & Manopitchetwattana, 1989).

In common jargon, innovation refers to the launching of a new idea, technique, or tool. In an administrative standpoint by Peter Drucker, ‘innovation is a modification that brings in the new performance avenues (Hesselbein, Goldsmith & Somerville, 2002).

The similar assortment of meanings of innovation pertains in higher education, where innovation can be taken as some improved way of functioning, or any amendment that makes the academic or administrative performance better, or an experience of paradigm shift based on a new way of thinking (White & Glickman, 2007).

Damanpour (1991) considers the technical and administrative aspects of innovation. Technical innovation includes “new products or services and processes”, or alterations in the mechanism used to produce or deliver products/services (Avermaete, Viaene, Morgan & Crawford, 2003). Administrative innovation refers to the execution of new ideas to advance the “organizational structures, systems and processes” (Damanpour, 1991; Weerawardena, 2003).

### **1.8 Organization of the Thesis**

The remainder of the thesis is organized in a systematic manner, discussing individual components of the study. The next section, chapter two, thoroughly presents the literature support regarding the main concepts of this study such as: the scenario of higher education particularly in Pakistan; the underpinning theories for this study; and all the endogenous as well as exogenous constructs for this study. Moreover, the chapter also offers a critical appraisal of the literature outlining the links between independent and dependent variables. The chapter concludes with an overall chapter-summary.

Consequently, chapter three presents detail regarding the deployed research technique and methods including research paradigm, hypothesis, research design, and data

collection approach. Therein, the chapter also discusses sampling technique and data analysis approaches used in the current study. While the chapter four provides the details about the data analysis results whereby, chapter five presents a comprehensive discussion on research findings followed by theoretical and practical implications. Limitations and recommendations for future scholars are also provided in chapter five.

### **1.9 Summary of the chapter**

Starting with the background of this study, this chapter describes in detail the problem statement regarding the higher education in Pakistan, followed by list of research questions and research objectives.

Next it tries to highlight the significance of this study for important constituencies and stakeholders of higher education especially in the context of Pakistan. This study might be significant more specifically for “all the educational authorities including ministry of education government of Pakistan; higher education commission of Pakistan; chancellors of both public and private universities; vice chancellors and rectors; concerned deans; and everyone responsible to enhance the quality and standards of higher education”

Final section depicts the scope of this study, highlighting the basic areas and respondents covered, followed by the definitions of all basic terms of variables used in this study.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

The chapter under sight, highlights overall scenario of higher education (HE), followed by its description in context of Pakistan. Then the underpinning theories have been defined. Later the chapter provides critical review of literature regarding the criterion variable (university-performance) and predictor variables (i.e. market-orientation (MO) and its dimensions) and the innovation as a mediating variable.

Major source of data for the issues of interest in HE-sector of Pakistan, are the monthly and annual reports as well as website of Higher Education Commission (HEC) Pakistan along with support pursued from previous research studies and other pertinent literature.

#### 2.2 The Overall Scenario of higher education

Previous literature recognizes two major traditional classifications of higher-education-institutions (HEIs). Either the ones, highly self-sustainable and largely harmonized with market interactions i.e. ‘market-oriented institutions’, or the others highly government-organized, i.e. ‘state-oriented’, dependant on government policies for resource allocation as well as curriculum development (Liefner, 2003; McDaniel, 1997; Dill 1997). However, most of the public HEIs in Europe and America take up the characteristics of both market-oriented as well as state-oriented systems (Trow 1997; Liefner, 2003)

Higher education keeps evolving globally (Spellings, 2006). Right from Plato’s Academy origination at the ancient Greece, to the Oxford University College



foundation in 1249, and to the Morrill Act of 1862 in the United States in order to legislate the grant universities till the introduction of online courses in late twentieth century, the higher education (HE) landscape has been constantly evolving, advancing and expanding. Hence, capitalizing on this evolutionary phenomenon requires market-based innovation and flexibility (White & Glickman, 2007).

This chapter further elaborates the overall picture of contemporary higher education in general first, and then in the context of Pakistan.

### **2.2.1 A paradigm shift in higher education**

Higher education is a large and complex social system. Over the last decade, Higher Education around the world has been facing numerous challenges. Sarker et al. (2010) provide a list of major challenges for the contemporary universities world over, namely: compatibility of curriculum; graduate employability; expanded participation; teaching and learning quality; research quality; accreditation; global collaboration and competition; student retention; adoption of emerging technologies; appraisal; plagiarism; funding; diversity of staff and students; tenure; particular grouping in support of teaching/learning; critical thinking; structuring individual and collective knowledge; cross-curricularal integration of knowledge and capital; contribution to economic development; and good governance

Higher-education-institutions (HEIs) are worth much more than just the producers of degrees of qualifications, rather they are more complex, competitive beings for scholarly service (Hemsley-Brown & Oplatka, 2006; Cervera, Molla & Sanchez, 2001). Therefore, the traditional product-oriented approach of universities to be the degree

producers may damage their moto and overall goal attainment (Hampton et al., 2009; Clayson & Haley, 2005).

A wave of paradigm-shift is evident since the universities are recognized as the key economic catalysts, where the ideas or information generation and its manipulation is far more important than the traditional 'factors of production' (O'Neill & Palmer, 2004; Immerwahr, 2002; Best, 1994). The corporatization and entrepreneurial style of management is highly evident in the changing culture of higher-education-institutions offering the universities an 'institutional autonomy' (Oplatka & Hemsley-Brown, 2007; Yonezawa, 2007; Bok, 2009). Yonezawa (2007) further says that the shift of roles by the both universities and enterprises is already in place whereby certain commercial enterprises have started offering knowledge activities in the form of training and research on one hand, while on the other hand the universities are also trying to expand their activities into the commercial domains traditionally occupied by private service industries.

The governments are progressively looking towards HEIs for expediting the learning phenomena of their citizens and improving workers' skills and abilities to harvest technology needed for the raised productivity and strong global economic position of their respective nations (Alexander, 2000).

Significant environmental changes are in progress, as the higher education has become a global encorporatized phenomena (Oplatka & Hemsley-Brown, 2007), therefore, like any other dynamic organization, HEIs must also watch and accommodate and marketize according to the constantly changing geo-political, socio-economic, and info-tech environment to sustain their survival (Hemsley-Brown & Oplatka, 2006; Binsardi & Ekwulugo, 2003).

The trendy government-owned HEIs tend to be more conservative in their structures and be less innovative as well as less responsive to the changing market demands. Hence, their resource allocation is negatively affected due to more state-dependence as the changing economic conditions have changed state priorities for allocating resources (Mitra, 2009). Therefore, universities need to demonstrate growing MO and innovation to replenish their shrinking resources for raised organizational-performance in the competitive markets to attract and retain a growing number of students (Modi, 2012; Liefner, 2003).

The revolution of information technology has shaken the foundations of value delivery system, such as 24/7 communication services for prospect query response, e-portals, and virtual courses. Such global technology intensive developments have challenged the HE, with an immediate impact on university-performance (Archibald & Feldman, 2008; Clark, 1996).

For HEIs, the budget constraints to their host governments have brought in reduction of centrally allocated grants, replaced by a more limited number of scholarships, forcing them for price hike ups and an increased number of self-financed programs to prospect students (Hemsley-Brown & Oplatka, 2006). Students under such situation, demand relatively better quality and may prefer only those universities that may offer the desired courses with better quality standards. Such economic pressures push universities to cost cutting and/or revenue growing measures (Bejou, 2005; Poprzeczny, 1996). Bejou (2005) and Caruana et al., (1998) observe that HEIs need to offer a thorough, carefully chosen, relevant and updated academic programs to satisfy their students' as well as their own long-term motives.

This situation has triggered more universities to increasingly spotlight on and improve those areas that can generate revenue besides focusing on cost reduction. Some

universities are therefore aggressively promoting training services to market, while others are searching the potential to offer consultancy services. Another lucrative alternative is the overseas market where numerous universities are running significant programs (Archibald & Feldman, 2008; Young, 2004; Alexander, 2000).

A shift of universities from State-funding dependence to other competitive funding sources is quite apparent, so, HEIs need to embrace an entrepreneurial adaptation of universities to align their activities with changing needs of the markets, in response to changing dynamics of external environmental actors that direct organizational funding (Mundy, 2007; Slaughter & leslie, 1997).

Universities are now forced to seek extra income sources due to continuing decline of public funding. So, the university-facilities like the infrastructure may be offered to be used by industry along with corporate collaborations. University research facilities may be another supplementary resource center, if university industry interests get merged or the customized industry research projects may be conducted. Universities can also serve the industrial clients to enhance their knowledge base by offering them executive trainings and management development programs as well as business consultancy. This would help the universities to deploy their facilities for generation of additional revenue and thereby reducing dependence on government support (Mitra, 2009).

Liefner (2003) and Hodgkinson (1989) state as a universal fact, that in the arena of reduced resources, the affordable provision of education can help a society reduce a number of costlier expenses in future like illiteracy, unemployment and the consequent mental retardation as well as crimes, as the health care and prisons are more expensive services.

Dealing with competitive and economic pressures, these institutions need to identify their own funding rather than relying heavily on the government and look at other cost cutting and revenue increasing mechanisms (Thomson, 2002; Caruana et al., 1998). Apart from that, HEIs are also facing increasingly complex social needs, competition for human resources, increased regulation with more accountability and escalating costs (Alexander, 2000).

Hence, universities are growingly expected to be more competitive to obtain higher levels of resources, by offering market-oriented teaching, research and incorporating both educational as well as organizational innovations (Zebal & Goodwin, 2012; Mitra 2009; Liefner, 2003).

Regarding the competitive value delivery by universities, Kotler (2000), suggests that the students being the pivotal source of university value chain components – inbound logistics (prospect students), process (current students) and the outbound logistics (graduates/alumni) – are the life blood for any university. Therefore, universities according to Abbasi et al. (2011) must package their offerings into, core-services, actual-services and augmented-services for them. Core-services encompass, “knowledge, intellectual abilities, interpersonal skills, and communication skills”, actual services include “undergraduate, graduate and postgraduate degrees by means of regular teaching and research, and the augmented services comprise the “infrastructure i.e. building, transportation/logistics facilities, libraries, labs, computer labs, hostel/boarding facilities, medical, sports, and class room facilities coupled with administrative support”. O’Neill and Palmer (2004) express that it is not only the core academics rather the augmented support services too that determines the university choice for students today.

### **2.2.2 Scenario of Higher Education in Pakistan**

In Pakistan, the higher education is in practice at three notable levels. Firstly, the degree-colleges affiliated with universities. Secondly, the degree awarding institutions and finally, the public and private universities (Khan, Siraj & Sultana, 2010).

Based on the general academic principles, the prime objective of HEIs is to allow the society in general to capitalize on existing knowledge by its preservation, dissemination and new applications, but universities in Pakistan are going through academic crises (Government of Pakistan, 2012) along with serious challenges faced in terms of strategic planning and management for their sustainable growth (Waheed, 2011). Education is a primary growth component of not only economic, political and cultural life of a nation, but it is also important for social, physical, mental, psychological, spiritual development of people in any nation. However, in Pakistan, people seek secondary and college education only to prepare for entering into a university.

Even after more than six decades of independence the HEIs in Pakistan couldn't secure the desirable performance level rather went even declining (Nayyar, 2012). Under University Grants Commission of Pakistan (UGC), five consecutive education policies of 1970, 1972, 1979, 1992 and 1998, along with eight 'Five Years Plans' could not succeed during 1947-2002 that is prior to constitution of 'Higher Education Commission' (HEC), the current regulatory body for HE in Pakistan (Shami, 2005). This state of affairs resulted in shutting down of UGC itself. According to Nayyar (2012), during post HEC era of 2002-2011, the higher education in Pakistan was steered better towards more market-oriented entrepreneurial transformation through the huge HE reforms such as 'the establishment of HEC-2002 (the predecessor of former UGC); The Boston Group Report-2001; Education Sector Reforms-2001-2004; National

Education Policy, 1998-2010; Parliamentary Steering Committee on Higher education-2002; Task Force on Improvement of Higher Education in Pakistan-2002; Medium-Term Development Framework for higher education-2005-2010; World Bank Higher Education Policy Note-2006; New Education Policy-2009-2015; and others.

Despite that the participation rate of Pakistani graduates was very unsatisfactory (UNESCO, 2009). Even after six decades of independence, education participation rate by the age group of 17-23 years with 16.2 percent is relatively much lower in Pakistan, compared to around 40 percent and above in developed countries in the region (Husnain, 2014; Memon, Joubish & Khurram 2010; Hoodbhoy, 2009; Iqbal, 2004), which indicates that the HEIs in Pakistan are not really successful in attracting and retaining enough of the population from country for higher education. 75% of the graduates in Pakistan pass out from public universities whereby the education quality is hardly creditable since the quality education appears in the private-sector institutions i.e operating for profit and hardly affordable by the common man (Ibad, 2017). Hence, such state of affairs also supports the idea of MO to be adopted by (public-sector) HEIs/universities in Pakistan (Khuwaja et al., 2017).

Bilal and Imran (2012), and Haider (2008), express a ray of hope for Pakistan that although Pakistan is not very advanced in education, yet its population is essentially competent and curable if necessary diagnosis and appropriate prescription is available to them. But the current state of affairs is not compatible to it.

Global Education Digest-2009, reports that till 2007, only 6.3% of total population qualified to graduate (UNESCO, 2009). By 2015 and by 2020 Pakistan plans to increase this figure to 10% and to 15% respectively (Eduniversal Business School Ranking-

EBSR, 2014). So, attracting and retaining a growing number of students in the institutions of higher learning is one of the significant targets in education sector of Pakistan.

The yields of higher education system in Pakistan have remained questionable for decades as these are not suitable to demands of different stakeholders. That is demonstrated, for example, in the form of high rate of graduates' unemployment, unbalanced number of students in various disciplines and dearth of initiatives research aligned with market needs. On the other hand, the growing financial constraints have further complicated the scenario of higher education in Pakistan. Yet the ratio of graduates to its population has also been very unsatisfactory in Pakistan. (Obaid, 2006; Bilal & Imran, 2012; Abbasi et al., 2011; Khan, Ahmed & Nawaz, 2011; Hoodbhoy, 2009; Haider, 2008)

The nature of major problems which higher-education-institutions (HEIs) of Pakistan confront, is 'structural, managerial, cultural, financial and environmental' (Hoodbhoy, 2009; Haider, 2008). The pedagogical limitations, limited access, poor quality, tilt towards liberal arts, inefficient use of resources, lack of university industry linkage, weak research base, inadequate student support services, obsolete curricula, low recovery of cost and underfunding are more prominent issues to mention. (Asgar, 2013; Akhtar & Kalsoom, 2012; Nayyar, 2012; Abdus Salam, 1998)

Nayyar (2012) recognizes that the ambiguous allocation of authority, responsibility and accountability for governing the institutions with lack of coordination to be the main deficiency prevailing in Higher-Education institutions of Pakistan on one hand. On the other, the excessive centralization deriving a monotone therein to hinder their response to the 21st century challenges posed by rapid technology adaption, more intensive competition, more complicated students- industry demands, and shrinking funding



baskets, consequently not allowing them for effective planning and management therein, hence, leaving their performance to stay at the lowest common denominator.

Memon, Joubish and Khurram (2010) in their study declare the tremendously low level of government investment, to be the major cause of poor performance of education sector in Pakistan. Hence, for universities to ensure self-sustainability as well as consistent replenishment of funding and other resources, MO could serve as an effective means (Hashim & Rahim, 2011; Liefner, 2003).

Moreover, Memon et al. (2010) also recognize a couple of other augmenting factors to poor performance of education sector in Pakistan such as less efficient execution of plans and poor quality of human resources for the necessary monitoring and control. Ghani (July 11, 2013) reported deficiency of governing bodies in education who could utilize only PKR. 31.3, which is only 43% of the allotted development budget of PKR.71.3, although the allocated amount is already only 1.9 percent of Pakistan's gross domestic product, (which is already much less than the desirable minimum of 4 percent).

Husnain (2014), reports through UNESCO education development index, about Pakistan as the 113th ranked country out of 120, and that after Nigeria, it has the second highest number of around 5.5 million out of school children with a very high dropout rate at all levels of education, with a higher proportion of allotted funds spent on salary and administrative account, allowing only smaller proportion for academic betterment, with even worsening elements like insufficiently qualified faculty, inappropriate curriculum, shortage of text books and other infrastructural facilities . According to Husnain (2014) Central Intelligence Agency (CIA) World Fact book sheet declares Pakistan, in the South Asian region, as the lowest spending country on education proportionate to its GDP as the following Table 2.1 ahead shows.

Table 2.1

*Comparison of Public-Sector Education Spending in South Asian region*

<b>Country</b>	<b>Public-Sector Spending (As % of GDP)</b>	<b>Literacy RatesIn (%)</b>
Bangladesh	2.4	59.8
Bhutan	4.8	52.0
India	3.1	73.8
Iran	4.7	85.0
Maldives	11.2	99.0
Nepal	4.6	66.0
Pakistan	1.9	60.0
Srilanka	2.6	91.2

**Source:** Pakistan Economic Survey 2013-14 (Government of Pakistan, 2014)

Haq (2013), reported that the combined budget allocation in 2013-14 amounts to be only 1.9 percent of total GDP of Pakistan instead of four percent promised by governing political party. He further quotes from UNDP Human Development Report 2013, that Pakistan is the eighth lowest spending country on education. According to a later news report by Junaidi (June 5, 2014), Federal Education Budget 2014-15, announced on Tuesday, June 03, 2014, turned out to be 1.6 percent less than last year's revised announcement. He further quoted from economic survey 2013-14 for inflation to be 8.7 percent, resulting in an overall 11 percent decrease in real budget, leading it to be even a more distant dream to be the minimum four percent of country's GDP. Ghani (July 11, 2013) and Husnain (2014) also reported the same. Hence, according to Algrani and Talib (2014) and Hashim and Rahim (2011), universities can improve their resource-consistency and self-sustainability by adopting MO and innovation approaches.

Nayyar (2012) states that HE in Pakistan is overwhelmed by many other glitches too, hence, not allowing the HEIs to achieve their due targets and milestones for the country to provide it with knowledge-led society based on intellectual excellence. It is the academic ability that can develop logical reasoning and can contribute effectively towards the overall socio-economic and technological development of the country but in case of Pakistan it is quite lacking (Hoodbhoy, 2009). "Flawed institutional

framework, inefficiency and ineffectiveness, problematic nature of design and delivery of service, irrelevance and wastage, under-funding and low productivity in the research” are among the most pressing issue for HE in Pakistan.

A host of problems in HE of Pakistan are the result of national negligence for this important sector, which hindered it from the efficient transition at the advent of the new millennium. Despite the exertions by government to improve overall education scenario, the growing demand for education with diminishing financial input along with student disorder, has blocked the education process, with a consequent lack of interface between universities and industries (Ali & Siddiqui, 2013). Pakistani universities are quite away from knowledge frontiers in their present form as they are not working as true knowledge factories but the producers of degrees (Eagle & Brennan, 2007; Khuwaja et al., 2015). This looks as if due to low investment commitment, resource scarcity and lack of funds to this sector. However, an inefficient use and wastage of public funds is apparent in HEIs. So, the universities appear with a weak research base, inadequately equipped laboratories and libraries. A dearth of qualified teachers endures to hamper the progress of HE towards international standards. The system of affiliated colleges is another source of great discontent (Aziz, Bloom, Humair, Jimenez, Rosenberg & Sathar, 2014; Nayyar, 2012; Safdar, 1996)

Since 1947 till date, a huge growth is quite distinct in the figure of degree awarding institutions (DAIs) and universities, in both sectors public and private with a consequent shortage of teaching resources in the country. This also impacted on academic as well as social planning for both creating new options along with extending the existing ones in the country. More of this complicated situation resulted from the miscarriage of the “University Grants Commission” (UGC), a legitimate body to regulate the HE in Pakistan, replaced in 2002 with HE Commission (HEC) of Pakistan, that was found to

tackle the HE to the optimum use of national benefit (Asgar, 2013; Jahangir, 2008). Haider (2008) and Nayyer (2012) further elaborates that HE of Pakistan is essentially undergoing the following major challenges:

### **2.2.2.1 Student Discontent**

One of the primary benefit of satisfied students is that increasing retention and further attraction helps universities substitute the declining public funding (Watjatrakul, 2014). But in case of Pakistan, due to lack of physical and academic facilities as well due to the faculty incompetence, the HE students appear quite unsatisfied, consequently diverting themselves to political activities in universities, resulting in the breeding of their negligent and undesirable attitude towards their socio-economic and geo-political fronts. (Abbasi et al., 2011; Butt & Rehman, 2010; Malik, 2001).

Although a number of academicians/researchers have been directly or indirectly pointing out regarding the high level of discontentment found in the students of higher studies in Pakistan (Aziz et al., 2014; Asgar, 2013; Shawana et al., 2012; Malik et al., 2012; Nayyar, 2012; Abbasi et al., 2011) yet the required level of attention to the issue is still lacking (Bilal & Imran, 2012; Hoodbhoy, 2009) despite the fact that the university-performance is primarily mirrored in its students' performance (University of Florida, 2014).

### **2.2.2.2 Faculty**

The current size, quality and qualification of present faculty is claimed by Rehman, Gujjar, Khan, and Iqbal (2009) and Mughal and Manzoor (1999) to be very unsatisfactory according to the general international standards. Rao (2003) claims the same even for M.Phil. and Ph.D. level teachers. Haider (2008) and Adeeb (1996) attributes this situation to the financial rewards which are incompatible to the inflating living cost as well as lack of necessary technical and staff support to faculty.

### **2.2.2.3 Administrative Restructuring**

In last few decades, Pakistan appears to concentrate more on university administration. But despite the growing resource availability for university expansion, they could not best utilize them (Ahmed & Ali, 2012; Khwaja, Zafar, Aslam & Hussain, 2008). Ghani (July 11, 2013) reported deficiency of governing bodies to utilize the HE-development budget to be PKR. 31.3, out of PKR. 71.3 allocated to them which is already only 1.9 percent (out of 4 percent as minimum desirable) of Pakistan's GDP. Husnain (2014) reports from UNESCO, education development index, about Pakistan to be ranked 113th country out of 120. Akhtar and Kalsoom (2012) attribute such situation to the lack of proper administration and suggest that competent faculty should be involved, especially in the development and execution of academic policies such as the methods of instructions and subject contents, research facilities and support for both faculty and students, admission criteria students". On the other side of administrative issues, we may see that according to Nayyar (2012) there is actually not any single body in charge to ensure the motivation and opportunity uniformity for students and teachers in the country. Three different authorities exist in the provinces with a kind of an unworkable structure and having little coordination such as: (a) HEC, a funding and regulatory agency by Federal Government's, (b) Chancellors in the form of provincial Governors for administrative control (c) Universities themselves, as the autonomous organizations. As for as the "university-external bodies' relationship" is concerned, a board of trustees might be more productive in handling it, whereas the routine administration issues may be dealt by a university council (Akhtar & Kalsoom, 2012).

### **2.2.2.4 Graduate Unemployment**

In universities, the students must be deeply equipped with knowledge of citizenship values, with the sense of "nationalism, spirit of sacrifice, justice and tolerance" so that

narrow vested interests can be transformed into the interest of nation at large (Bejou, 2005; Tilbury, 2002), but the universities in Pakistan are not really doing well (Butt & Rehman, 2010; Bilal & Imran, 2008; Hoodbhoy, 2005)

HE Students' academic and technical skills appear to be incompatible to the social requirements as well as the labor market needs due to lack of market focus in curricula, resulting in a mismatch for them to be absorbed in various sectors of the economy (Rasool, 2014; Shah, 2013; Butt & Rehman, 2010). Universities in Pakistan do not cater, to encourage entrepreneurial spirit and initiatives to self-employment (Fatima Warraich & Ameen, 2011; Memon, Joubish & Khurram 2010; Haider, 2008; Mohanthy, 2000).

#### **2.2.2.5 Population Flare-up**

The growth of population in Pakistan by leaps and bounds is another concern causing overcrowding in universities as they are not efficient enough to accommodate it. (Nayyar, 2012; Haider, 2008; Memon, Joubish & Khurram, 2010; Memon, 2007; Mohanthy, 2000). In desire of finer employment prospects, the growing enrolment pressure has resulted in the increasing cost of “books and equipment, utilities and other consumables” that has badly flattened the per-student cost that government has to incur. The administrative and monitoring arrangements have also become more complicated (Higher Education Policy Note, 2006).

#### **2.2.2.6 Degree Programs**

Serving as the feeder institution for master program, the Degree programs are actually the foundation of university education. For the international standard to meet, there has always been a concern that the degree program should involve a minimum of 15 to 16 years of proper education, entailing the bachelor degree itself to be completed in 3 to 4 years as

followed in the developed countries like, Australia, India, Netherlands, New Zealand, Britain and the US and so on. (Jahangir, 2008).

The “National Commission on Education 1959, the Education Policy of 1972, the National Education Policy of 1992 and the National Education Policy of 1998”, they all emphasized that the degree program must be of minimum three-years. Although a first attempt was made in early sixties to introduce the degree course with three years, yet the government then had unfortunately to surrender to the protests by students against it and had to revert it back to the two-year package again, (Isani & Virk 2005).

Meanwhile, monitoring of degree colleges became inefficient as the responsibility taken by their affiliating universities was confined to conducting examinations and awarding degrees for these colleges, left with no real regulating authority over the research/teaching/research. Similarly, the affiliating boards for these colleges was also confined to conducting only examinations for them. This situation left administrative control of these degree colleges solely to the education department, who could not monitor them effectively, resulting in compromise on the education quality with a resulting poorer yield progressively for the universities and other DAIs (Nayyar, 2012; Ameen, 2007; Erfan, 1990).

#### **2.2.2.7 Research and Quality**

Quality is pertinent to all the components of education alike, be it the teachers, Students, or support staff as well as the administrative or research and development activities. According to Hoodbhoy (2009), although several plans are put forward to enhance the academic quality in Pakistan, but Haider (2008) says that the perceived limitation of the idea of “quality”, to be a selective phenomenon and attainable by few only, tends to squeeze its scope and effort to attain it even in HEIs of Pakistan. There is no efficient and sufficient mechanism for the on-service as well as pre-service teachers’ training. For a decent living,

their salary configuration for appears to be inadequate. Promotions system is too slow, more through seniority in service rather than the work quality delivered.

The faculty and management seem to be forced to bow to the due or undue demands of the overpowered students' unions, with a consequent loss of teachers' time that discourages teachers for participating enough in academic endeavors. (Husnain, 2014; Chughtai & Zafar, 2006). The libraries and laboratories are not equipped enough nor being utilized productively. Due to self-added long working hours, the regular teaching community of university seems to be growingly composed of 'The busy people', as they keep teaching for the private sector universities in the evening shifts too, for more monetary gains, with a consequent squeeze of teachers' time, leaving them no more capable of conducting any productive research (Rehman et al., 2009). Besides that, the low research productivity was also caused by shortage of research grants for research travelling, participation and publication in international conferences and seminars, as well as research journals, especially before 2004 as the HEC based research funding improved onwards. The lack of research output also seems consequent to the insufficient number of teachers with PhD qualification. (Naoreen & Adeeb 2014). Furthermore, the interaction amongst the industry-university researchers was almost extinct (HEC, 2011). Universities are the research factories in the developed countries (Bramwell & Wolfe, 2008) but in Pakistan, their role has been confined to teaching and examinations (Khuwaja et al., 2015). Until 2002 it was only the course-based master's level programs offered by the major Pakistani universities, except a few institutions with facilities for offering the research-based M. Phil program as the master's degree (Nayyar, 2012).

Universities of Engineering and medical colleges were also confined to offer a limited number of specializations. Although some universities in agricultural sciences stood better in offering research-based degree programs, but their research stayed unutilized in its true



sense, leaving these universities at no real advantage (Higher Education Policy Note, 2006). So, due to such research negligence, the country has been forced to utilize other countries' research output that has been borrowed at a very high cost (Kazmi & Hyder, 2012).

#### **2.2.2.8 Budgeting and Finance**

Healthy budgets are very significant for the real delivery of any type of public-service, be in education, health, or municipal services, the appropriateness of financial provisions makes a real difference (Higher Education Policy Note, 2006).

Memon, Joubish and Khurram (2010) in their study declare the tremendously low level of government investment, to be the major cause of poor performance of education sector in Pakistan. Husnain (2014), and Ghani (July 11, 2013) added that even the below standard allotment of funds for HE in Pakistan remain underutilized. Memon (2007) expresses that appropriate budget is of course a remedy to a number of maladies if utilized well. Gibbons (1998) suggests the faculty consultation and involvement in planning and execution of major university expenditures. The primary purpose of a university budget like every other business is not only to insure fiscal solvency, rather its continuing yearly renewal through some auto mechanized fashion may be devised to prevent universities from degenerating reactions to unanticipated budget pressures (Jongbloed, 2004; Liefner, 2003).

In past, around 50% to 70% of funding source of public-sector universities was government (Jahangir, 2008). But a huge population growth in Pakistan has also resulted in financial pressure on the HEI with growingly shrinking publicfunding per student. The number of students and any other supplementary variables must be financially accommodated to improve the HE state of affairs (Higher Education Policy Note, 2006). Although the inception of new regulatory setup for HE in the form of HEC, has appeared to be quite productive in terms by budget rise manifold, but a considerable budget portion from this,

is consumed by salaries and supplementary recurring expenses like utilities. Yet the development expenditure for physical facilities, including buildings, laboratories, libraries and research appears to be compromised. The situation gets further aggravated when universities initiate for new departments added without adequate funding arrangement for it ((Husnain, 2014; Higher Education Policy Note, 2006, Issani & Virik, 2005).

Ghani (July 11, 2013) reported deficiency of the governing bodies for education to utilize the development budget to be PKR 31.3m out of PKR. 71.3m allocated to them which is already only 1.9 percent (out of 4 percent as minimum desirable) of Pakistan's GDP. Haq (2013) reported that the combined budget allocation in 2013-14 amounts to be only 1.9 percent of total GDP of Pakistan instead of four percent promised by governing political party. He further quotes from UNDP Human Development Report 2013, that Pakistan is the eighth lowest spending country on education. According to a later news report by Junaidi (june 5, 2014), federal education budget 2014-15, announced on Tuesday, june 03, 2014, turned out to be 1.6 percent less than last year's revised announcement. He further quoted from economic survey 2013-14 for inflation to be 8.7 percent, resulting in an overall 11 percent decrease in real budget, leading it to be even a more distant dream to be the minimum four percent of country's GDP. Ghani (July 11, 2013) and Husnain (2014) also reported the same.

#### **2.2.2.9 Examination system**

Examinations must be comprehensive enough to test the students' ability to capitalize on their meaningful learning in different situations they are likely to come across in professional life. Thus, the culmination point of the teaching and learning process is the examination system that forms a feedback mechanism as well for better academic planning (Bashir, 2001). But unfortunately, the examination system in either form (annual or semester system) has stood flawed due to a number of malpractices in Pakistan. On one hand it encourages cramming and rote learning. On the other hand, it provided illegal influence of students and their parents over

the teachers who are the examiners too, for undue grades to secure admissions in further higher levels of education (Rehmani, 2003).

Around all the public examinations, “the examiners, the paper setters, the invigilators, and the examination departments” all appear to take equal part in “the vicious circle of corruption” In various conditions and forms, Even the corrupt staff of “boards of Intermediate and Secondary Education” (BISE) have been found involved in award of the inflated grades to the bribing students.

Similarly, the students’ have not left themselves behind in this kickback-phenomenon in order to bring their children to professional colleges. This set of circumstances has led to two types of immediate impairment to education system: “(a) lack of confidence in the results of public examinations, and (b) distortion in admissions to professional colleges”. So, this has become the contaminated channel to test “good, average and bad” students. So, the back door allows the ineligible candidates to enter into the next upper level classes along with the good ones (Rehmani, 2003; Higher Education Policy Note, 2006).

#### **2.2.2.10 Admission Intake**

The inequitable system of education in country, with urban areas (being more efficient) and rural areas (being less efficient), allows weak students with lower relative grades to secure admission at the same level of higher degrees. This system however leads to a dual kind of intake to universities to be dealt equally, though with the students having a huge difference in their language proficiency levels and academic competences. This further complicates the admission as well as the teaching process (Husnain, 2014; Higher Education Policy Note, 2006). Therefore, some institutions such as “institutions like Agha Khan University (AKU), Lahore University of Management Sciences (LUMS) and Institute of Business Administration Karachi (IBA)” started administrating an aptitude test for recognizing more

appropriate candidates to admit, the test to be conducted and assessed by themselves for a more acceptable equitable academic aptitude as well as language proficiency. This eventually improved the quality of fresh entrants for these particular institutions.

#### **2.2.2.11 Course and Syllabus Design:**

An efficient and up-to-date syllabus provides basis for a more effective and contextually relevant outline for the teaching/learning process. The overall curriculum and course contents in most of universities in Pakistan are deficient as per the requirements of modern standards of HE and normally designed on the basis of professors' personal likes and dislikes, without being appropriately checked by department heads (Khan, Ahmed & Nawaz, 2011; Akhtar & Kalsoom, 2012; Bilal & Imran, 2012; Haider, 2008).

Although a uniform curriculum is normally developed for the subjects to be taught in universities but its wishful manipulation and varying level of commitment by the teachers as well as students makes it's reliability questionable (HEC, 2005). One ideal solution to such a dangerous state of affairs may be well-balanced and up to date syllabus/curricula to be used and manipulated effectively by the highly committed and well-trained instructors, for teaching enthusiastic students, counter checked by an effective examination system. But this kind of an ideal solution needs enough amounts of "time, training, resources, commitment and patience", which seems scarce in our HE system (Nayyar, 2012).

Previously, through an act by Government of Pakistan (Government of Pakistan, 1976), the university grants commission (UGC) was set responsible to revise the curricula periodically according to the changing socio-economic, cultural, religious, and the technological needs. And keep supplementing the curricula with respective and pertinent books as well as trainings and any other necessary resources needed. Based on this legal cover, UGC formed the 'National Curriculum Revision Committees' (NCRC), composed of members from faculty,

experts from relevant areas, industry representatives for preparation of a draft of a revised curriculum to be shared with the concerned institutions and their respective boards in order to attract more suggestions and recommendations. The resulting recommendations suggested a serious revision of curriculum as well as the books along with relevant teacher training.

It would be worth mentioning here that the applicability of text books has been facing a twofold problem in Pakistan. On one hand the publication of text books is more controlled by a powerful lobby that keeps maneuvering this process in their own favor by publishing the books of certain favorite authors only. On the other, more a kind of imported books are introduced especially in the area of management sciences where the relevance of these books to the local circumstances is a big question (Higher Education Policy Note, 2006)

Hence, the initiatives by UGC for updating curriculum could not stand so fruitful due to a number of factors such as “little emphasis on research along with lack of faculty motivation and involvement in academic planning process and vested interests of the power centers including students’ and teachers’ bodies” (TBG, 2001). This failure was also accompanied by the failure of the government of that time to support this process enough by political, financial and administrative means, as the certain selective private sectors institutes seem more successful in the same phenomenon (Higher Education Policy Note, 2006)

#### **2.2.2.12 The Role of Private Sector**

Until 1972, the private sector played very significant role in higher education (HE), especially in the form of certain “missionary schools and colleges” whereby some of the best policy makers and leaders of the country got appearance. But in 1972, the government of the country, following the “socialist model of governance” decided to nationalize all these institutes besides the industry, with no single private university left (Nayyar, 2012; Abdus Salam, 1998). The number of taken over institutes was around

19432, including 346 madaras (the religious schools). But unfortunately, this step turned out to be very dreadful for general quality of education in Pakistan as the sole regulatory administrative body of government badly failed in not only delivering the same quality as the private sector did in past, but the quality kept progressively deteriorating very fast. A number of political but incompetent appointments were in place with a consequent frustration of the competent people in the system, ultimately leading to such educational catastrophe. More over the government was also heavily burdened financially as being taxed additionally for these institutions (Jahangir, 2008).

The following military government recognized the ground realities with the effects of nationalization and initiated the National Education Policy of 1979, allowing private sector to take part in the education industry by establishing additional private institutes (Iqbal 2004; Government of Pakistan, 1998). In the following era, “Agha Khan University was the first to appear in 1983, in Karachi, followed by “Lahore University of Management Sciences” in 1985. Till 2001, the number grew to twenty-one private universities and DAIs due to a more liberal government policy during 1990s (HEC, 2003). This rapid growth of private sector universities was fueled not only the incapacity of government to capitalize on, but also by a heavy market demand by a population growing quite rapidly i.e. at the annual rate of about 2.5%, with around 20 million of youth population encompassed by the ideal age group of 17-23 years.

More over this opportunity became even more vibrant due to growing international demand for skilled and qualified labor force, specially noticed in the form of human capital flow to the Gulf States in 1970s-80s. Additionally the substantial returns on investment made this industry even more lucrative for private sector. In 2001-2002, the enrollment number turned out to be 135743 and 21491 in both public-sector Universities and private sector Universities respectively with the ratio of 6:1.30. Such a growth also

resulted in deteriorating the quality in a number of private sector institutes too. So, HEC has been actively trying to point them out by grading them using the criteria of academic and infrastructural resources (HEC, 2007). In this regard based on a writ by HEC, three underperforming and unlawful universities namely “Boston University, American International University and Nicon College of Computer Sciences” had been closed down in the capital city Islamabad, by its city administration. But this shows only “a tip of the iceberg”, whereas the factual challenge is that around 150 unlawful universities are operating in the country under the provincial governments’ territorial jurisdiction and offering substandard education or fake degrees (HEC, 2010). According to its Executive Director, HEC and the government in the country have been jointly taking measures in the form of “parent alert” activities to disclose and point out such fake universities. As seen evidently in a statement by the prime minister that “We do not want graduates holding a piece of paper called a degree but no real knowledge”.

Although the strict initiatives by HEC in this regard gave birth to a cry by the low graded private sector institutes, yet it has yielded better consequences by forcing many of them to follow the quality procedures in order to continue with the status of HEC recognized degree awarding institute. HEC has provided an open access list of criteria to establish a new HE institution. The given circumstances make the fact of inadequate government effort as more evident, soliciting a better set of policies and plans to be executed (Hoodbhoi, 2009; Jahangir, 2008; Iqbal, 2004)

#### **2.2.2.13 University Grants Commission Failure**

University Grants Commission (UGC) was the prior constitutional body at federal level, established to monitor and administrate in order to ensure the smooth running of HE in the country. Its existence for 28 years could not enable it for its mission to achieve. Hence, it could not enable HE to take the path to “credibility, progress and

prosperity". Consequent to the lack of commitment on the part of Government, the essential constitutional support, the necessary policies and the essential financial provision to support UGC turned out to be inadequate, hence, they could not fuel the desirable change in HE-sector in the country (Higher Education Policy Note, 2006).

At the provincial level UGC could not exercise its advisory, recommendatory and facilitative right in establishment of a number of new DAIs and universities more specifically in the provinces of Punjab and KPK (the then NWFP) where the recommendations by UGC appear to be neglected (Nayyar 2012). On the other hand, UGC also failed to persuade the administration of universities teachers' associations for making PhD as a necessary qualification to enter to for university teaching position. More over the universities and other DAIs could not be convinced by UGC to offer a minimum four years degree program in all disciplines for completion of a bachelor's degree within sixteen years of education that is compatible with the bachelor degrees offered in other developed countries (Higher Education Policy Note, 2006). Although the government funding for universities was channelized through UGC, yet the administrative powers remained with the provincial governors for provincial universities and the country president for federal universities. And this incompatible administrative and financial authorities allowed the universities to exercise more than due autonomy, with ineffective control mechanism (Higher Education Policy Note, 2006; Issani & Virk, 2005; Iqbal, 2004).

UGC at that time seems so helplessness that it was hardly ever able to conduct an academic audit of universities or, even if it did, it could never make them truly public. Even the appointment of vice chancellors was made by president or the provincial governors as the chancellors having sole appointment discretion, without any significant role what so ever played by UGC (Jahangir, 2008). These appointments



were normally made with no selection criteria but based on either political pressures or the personal likes and dislikes. But for any university to be academically as well as administratively vibrant, it is vital to have a vice chancellor with enough academic as well as administrative capability and experience, which the UGC could not manage.

For the sake of university capacity building it is also indispensable for a university to have vigorous pursuit of research, a developed faculty and a capable support staff under the leadership of an experienced and well qualified vice chancellor (VC). Although UGC initiated some “faculty development programs”, but it could not do a good job for universities to have an effective VC, along with necessary management staff like “the Registrar and his team, the Treasurer and his team, the Controller of Examinations and his team and the Librarian and his team” (Memon, 2007; TBG, 2001).

Endowment Fund is another crucial need for universities to sponsor initiatives like books and other publications, research and improvement of financial as well as other infrastructural aspects. But unfortunately, no significant role could UGC play as such in that regard. Nor could it contribute in establishing real meaningful industry-university linkages necessary for desirable alumni consumption as well as practical research productivity (Nayyar, 2012).

#### **2.2.2.14 Other Earlier Effects**

After its existence in 1947, Pakistan inherited a very poor HE base with only one university, established in 1882, the University of the Punjab at Lahore, that looked after the entire HE in the country excluding Sindh. It was basically an affiliating and examining university with limited teaching functions. Sindh was affiliated with the Bombay University. For Sindh, a university was in process of being set up. After

independence, although HE received greater attention in the country but the initial pace of development was quite slow (Memon, Joubish & Khurram, 2010; PEP, 2006).

First decade, remained limited to four universities. Six more universities appeared in next decade. The number rose to 18, 26, 43 and in the next decades of 1967-77, 1977-1987 and 1987 – 1997 respectively (Nayyar, 2012). Since 1998 till date the number of universities has increased to 98 in public-sector and 74 in private sector, see Appendix 2. Between the periods of 1998 to date, the number of new universities which have been established is 74. As the population grew very high so, the number of colleges in the initial decades kept doubling till 1978 followed by an exponential physical expansion (HEC, 2015). But only 2.7 % of the eligible group of population is able to get admission in HE (Nayyar, 2012).

Most of such issues and failures can be attributed to the lack of governments' "reliable implementation analyses" to assess the root causes. As in its report the World Bank (1992) states that "The HE and scientific research sector in Pakistan manifests four institutional deficiencies. Their resolution is a necessary, although insufficient, precondition for significant and sustained improvement in the sector's performance. Ambiguous assignment of powers of governance, coordination and oversight diffuses ultimate responsibility. It is unclear who is in charge and who should be held accountable; consequently, effective planning and management are impossible. Excessive centralization of authority and bureaucratic rigidity, both within and across institutions, produces stultifying uniformity; all institutions work to the lowest common denominator of performance".

## **2.3 The Underpinning Theories**

A theory is a well established observable fact about links and associations among events and incidents; or it is a story about why certain actions, events, compositions and judgments occur (Vera & Crossan, 2004; Crossan, Lane & White, 1999). Following are two major theories established from literature for underpinning the underlying study in order to ascertain the specified relationships in the given theoretical framework.

### **2.3.1 Resource Based Theory (RBT)**

This study primarily bears its footings on the Resource-Based Theory (RBT) (Penrose, 1959; Rubin, 1973; Wernerfelt, 1984; Barney, 1991). One of the main reasons for why RBT has been recognized as the principal underpinning theory for this study is justified by the RBT-meta analysis conducted by Kozlenkova et al. (2014) who documented 500% growth in use of in only marketing research within last one decade. He also noted that the RBT provides such a solid and robust basis for a number of academic/research domains — including human-resource management, entrepreneurship, strategic management, branding, marketing innovation, strategic planning, international marketing among others — that it can effectively accommodate the studies with not only organizational unit of analysis, but the individual unit of analysis too (Kozlenkova et al., 2014; Alvarez & Busenitz, 2001).

Thus, several studies have observed the extended application of RBT to the Individual unit of analysis for intangible resources (Bhatnagar & Biswas, 2010; Palmatier et al. 2013; Alvarez & Busenitz, 2001; Samaha et al. 2011; Kozlenkova et al., 2014). Table 2.2 provides only a glance of the broad review of both the organizational level and the individual level studies conducted on market-orientation and innovation using RBV.

Table 2.2

*Review of studies on market-orientation and innovation using RBV*

<b>Author</b>	<b>Theme of study on performance indicators</b>
Ozkaya, Droge, Hult, Calantone and Ozkaya (2015)	Market orientation, knowledge competence, and innovation.
Fang, Chang, Ou and Chou (2014)	Internal market orientation, market capabilities and learning orientation.
Kozlenkova et al. (2014)	Resource-based theory in marketing.
Ahmed and Othman (2017)	Relationship between Organizational Resources and Organizational Performance: A Conceptualize Mediation Study.
Ngo and O'Cass (2012)	Performance implications of market orientation, marketing resources, and marketing capabilities.
Fang, Palmatier and Grewal (2011)	Effects of customer and innovation asset configuration strategies on firm performance.
Lages, Silva and Styles (2009)	Relationship capabilities, quality, and innovation as determinants of export performance.
Tokarczyk, Hansen, Green and Down (2007)	A Resource-Based View and Market Orientation Theory Examination of the Role of "Familiness" in Family Business Success.
Faiz (2015)	The mediating effect of market orientation on the relationship between Total Quality Management, Entrepreneurial Orientation and performance of banks in Libya.
Auh and Menguc (2009)	Broadening the scope of the resource-based view in marketing: The contingency role of institutional factors.
Menguc and Auh (2006)	Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness.
Merrilees, Rundle-Thiele and Lye (2011)	Marketing capabilities: Antecedents and implications for B2B SME performance.
Atuahene-Gima, Slater and Olson (2005)	The Contingent Value of Responsive and Proactive Market Orientations for New Product Program Performance.
Ketchen, Hult and Slater (2007)	Toward greater understanding of market orientation and the resource-based view.
Algarni and Talib (2014)	A Framework of Measuring the impact of Market Orientation on the outcome of Higher Education Institutions mediated by innovation
Hooley et al. (2005)	Market focused resources, competitive positioning and firm performance
Evanschitzky (2007)	Market orientation of service networks: Direct and indirect effects on sustained competitive advantage
Alam (2009)	The Combined Effect of Market Orientation and Owner/Manager's Innovativeness on Innovation and Business Performance of Small and Medium Sized Manufacturing Firms in Pakistan.
Hult et al. (2005)	Toward greater understanding of market-orientation and the resource-based view.
Hult and Ketchen (2001)	Does market orientation matter? A test of the relationship between positional advantage and performance.
Hult, Hurley and Knight (2004)	Innovativeness: Its antecedents and impact on business performance.
Hult, Cravens and Sheth (2001)	Competitive advantage in the global marketplace: A focus on marketing strategy.
Noble, Sinha and Kumar (2002)	Market orientation and alternative strategic orientations- a longitudinal assessment of performance implications.
Alvarez and Busenitz (2001)	The entrepreneurship of resource-based theory.
Naranjo-Valencia, Jiménez-Jiménez and Sanz-Valle (2016)	Studying the links between organizational culture, innovation, and performance in Spanish companies.
Modi (2012a)	Market orientation in nonprofit organizations: innovativeness, resource scarcity, and performance.
Hooley et al. (2005)	The performance impact of marketing resources.
Zaifuddin (2010)	The Mediating Effects of Innovation on the Relationship of Market Orientation Dimensions and ICT Small and Medium Sized Enterprises' Performance.

Further to that, RBT provides a parsimonious foundation for multiple theoretical perspectives with the capacity to subsume/include/integrate into it the other theories as a single framework (Peteraf 1993; Mahoney & Pandian, 1992; Kozlenkova et al., 2014). For example, during a meta analysis by Kozlenkova et al. (2014) regarding RBT, the study recognized “Agency theory” (Basu et al., 1985; Eisenhardt, 1989), “Resource advantage theory” (Hunt & Morgan, 1995) and “Transaction cost economics theory” (Williamson, 1975, 1985) to be highly compatible to and to be subsumed in the RBT framework, while these theories are said to compliment the RBV as well (Kozlenkova et al., 2014). Peteraf (1993, pp. 189–190) asserts that RBT “is a unifying theory which is capable of integrating research in all strategic areas.

The key assumption of RBT suggests that the organizational-performance stands on its valuable, rare, inimitable and non-substitutable (VRIN) resources with above average returns. The later literature also supports similar assumptions (Ozkaya et al., 2015; Faiz; 2015; Alam, 2009; Algarni & Talib, 2014; Ngo & O’Cass, 2012; Zaifuddin, 2010; Ketchen, Hult & Slater, 2007; Bridoux, 2004; Liefner, 2003; Alvarez & Busenitz, 2001). So far, the market-orientation (MO) and innovation are the rare, valuable, and inimitable organizational-level resources to complement each other (Ahmed & Othman, 2017; Kozlenkova et al., 2014; Algarni & Talib, 2014; Ketchen, Hult & Slater, 2007; Tokarczyk, Hansen, Green & Down, 2007; Day, 1994; Hunt & Morgan, 1995; Menguc & Auh, 2006).

Any sort of a ‘competitive advantage’ to be consequent of utilizing MO depends upon how the organization builds and configures resource by exploiting the ‘complementary resources’ like innovation which may be available to them (Zaifuddin, 2010; Ketchen et al., 2007; Menguc & Auh, 2006).

The proponents of ‘RBT’ encompass the strategic resources into four basic categories: (1) transformational (2) managerial (3) input-based and (4) output resources (Lado & Wilson, 1994).

For a study like this, the transformational resources are particularly important such as market-orientation, innovation and learning orientation among others which are essential to favorably transform the inputs into outputs (Faiz, 2015; Menguc & Auh, 2006; Lado, Boyd & Wright 1992; Zaifuddin, 2010).

Other studies on MO—performance also confirm its’ underpinning into RBT (Ahmed & Othman, 2017; Naranjo-Valencia et al., 2016; Ozkaya et al., 2015; Faiz, 2015; Modi, 2012; Lado, Maydeu-Olivares & Rivera, 1998; Morgan & Strong, 1998; Day, 1994; Hult et al., 2005; Noble, Sinha & Kumar, 2002). These studies state that MO and innovation as the intangible unique resources can enable universities to have a competitive advantage over their counterparts, through a higher relative performance, leading them to attract a raised level and number of students, teachers, staff and other resources (Algarny & Talib, 2014; Menguc & Auh, 2006; Ma & Todorovic, 2011).

Based on the typical conservative view of scholastic ethics, the competition between HEIs is discouraged as perceived to be unethical in the HEIs domain (Hemsley-Brown & Oplatka, 2010). However, in order to guide HEIs in the UK to handle the ethical issues in their practices a CIHE booklet was issued by ‘the council of industry and higher education’ (CIHE, 2005) with ‘institute of business ethics’, “Managing ethical issues in HE”. This booklet acknowledges that a clear ethical department could add for an HEI to be more fascinating to prospective students and staff, while it is not unethical for HEIs to attract new candidates and improved institutional image, which are pure marketing activities. But CIHE (2005: p.26) specifically emphasized that: “All

marketing and promotional materials will be relevant, accurate at the time of publication, not misleading, accessible and designed to help applicants make informed decisions”. Furthermore, in the competitive sphere, “The institution will collaborate and compete with other HEIs in a fair, honest and appropriate manner” (CIHE, 2005: p.10).

Noble et al. (2002) and Day and Wensley (1983) suggest that sustainable competitive advantage theory (as rooted in resource-based theory) supports the MO—performance relationship because the MO as an intangible resource helps the organizations develop certain competitive advantage that other firms find difficult to match.

Market-oriented firms outperform their less market-oriented competitors due to the ability of creating longer term superior value for their customers through unmatched resources (Faiz, 2015; Ramayah, Samat & Lo, 2011; Zaifuddin, 2010; Menguc & Auh, 2006). Liefner (2003) notes that behavior and commitment level of university management and faculty is highly influenced by the sources, forms and ways of resource allocation to the universities. Whereas the ‘quantity and quality’ of resources is also determined by the level of competitiveness of any organization as well. In practice, the process of resource allocation often slots in a number of inherent and critical strategic passages that may lead an organization to a competitive advantage. (Menguc & Auh, 2006; Mintzberg, Raisinghani & Theoret, 1976; Day & Wensley, 1983; Khuwaja et al., 2015)

Hence, universities are growingly expected to be more competitive to obtain higher levels of funding, and other resources through market-oriented high-quality teaching, research and both educational as well as organizational innovations by attracting the growing number of students and other customer constituencies. This is because an

increasing proportion of resources for higher education are constituted through market-based funds in the form of tuition and fees for a number of university services, research contracts, private grants and aids (Modi, 2012; Mitra, 2009; Liefner, 2003).

Thus, the principal theory that underpins this study is the Resource-Based Theory (RBT) having its origins in the studies by (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) which refers to a direct or indirect bearing of an organization's performance to its resources both tangible and intangible. Same is the case regarding MO—Innovation—performance in the context of higher education (Khuwaja et al., 2015; Algarni & Talib, 2014; Ma & Todorovic, 2011; Menguc & Auh, 2006; Hult, Ketchen & Slater, 2005).

Finding back from the origins of RBT, Barney (1991), Wernerfelt (1984), Rubin (1973) and Penrose (1959) propose that rather than unique products, it's the unique resources that can bring any organization at certain competitive advantage with a number of strategic options. Their basic assumption is that the organizations can acquire stable but heterogeneous resources. But the one that possess these resources with four specific characteristics like "Value, rareness, inimitability and sustainability" will stay at an advantage over its competitors. Such advantage would enable the organization for better overall performance in the market.

Ramayah et al. (2011) and Menguc and Auh (2006) denote that MO is also one of the organization level resources that tend to be highly valuable, unique, rare, inimitable and complex and non-substitutable. Whereas one of the basic implications of RBT is the consideration of competitive performance of a firm as a result of complex, inimitable, rare, and high value resources (Barney, 1991) that need reinvestment for their updating/innovation and replenishment due to depletion of these resources (Bharadwaj,



sundar, varadarajan & fashy, 1993). Hence, it is contended that by implementing MO, level of deriving any competitive advantage will highly depend upon configuration and innovation of the available organizational resources in a unique manner (Ozkaya et al., 2015; Zaifuddin, 2010; Menguc & Auh, 2006).

Only those firms can take strategic actions leading to higher level of performance through creating a competitive advantage that have the “valuable, rare, inimitable, and non-substitutable” (VRIN) kind of resources. This ultimately allows firms to create a competitive advantage, which in turn enhances organizational-performance (Menguc & Auh, 2006). Heterogeneity of the resources across the organization is the primary condition of RBT (Alvarez & Busenitz, 2001; Barney, 1991).

Finally, it is important to notice that the theory of RBT has also been criticized to be tautological in nature (Connor, 1991). In response to this criticism Hult, Ketchen and Slater (2005) and Ketchen et al. (2007) declined Connor’s critique by arguing that although resources and organizational-performance are not directly related, yet a firm’s effective strategic actions will determine firm’s performance by capitalizing on the potential value of resources. Henceforth, capitalizing on this potential, it requires alignment with other important organizational elements (Ketchen et al., 2007).

Hence, based on plenty of literature judgments, supporting RBT as a pillar to investigate organizational-performance (Ahmed & Othman, 2017; Faiz, 2015; Algarni & Talib, 2014; Modi, 2012; Ma & Todorovic, 2011; Zaifuddin, 2010; Mitra, 2009; Olavarrieta & Friedmann, 2008; Ketchen et al., 2007; Menguc & Auh, 2006; Hult, Ketchen & Slater, 2005; Liefner, 2003; Peteraf & Bergen, 2003; Noble et al., 2002; Alvarez & Busenitz, 2001; Trow, 1997; Lado, Boyd & Wright, 1992; Barney, 1991; Day & Wensley, 1983; Wernerfelt, 1984; Mintzberg et al., 1976; Rubin, 1973; Penrose, 1959),

we can still confidently conclude that RBT is a strong, incident-driven theory that will persist to be a main source of conceptual underpinning for organizational strategic management research.

However, in contrast to the RBT, some literature suggests that the size or availability of certain resources is not always enough to secure desirable level of sustainable innovation; rather it is the ongoing organizational-learning that facilitates organizational innovation and resource-sustainability for a constant growth (Aragón-Correa, García-Morales & Cerdón-Pozo, 2007; Nonaka & Takeuchi, 1995; Crossan, Lane & White, 1999). Hence, the literature on organizational-performance also draws attention to organizational-learning theory (OLT), used here as a support theory in addition to RBT for the given research framework of this study.

Yet a few glances of some critique on RBT (Connor, 1991) and the support for organizational-learning theory (OLT) (Ozkaya et al., 2015; Aragón-Correa, García-Morales & Cerdón-Pozo, 2007; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986; Crossan, Lane & White, 1999) solicits for OLT to be used specially for underpinning of innovation—performance relationship besides MO—performance relationship.

So, this study is going to test the RBT as the primary underpinning theory in addition to OLT by examining the proposed MO—Innovation—Performance relationship in the higher education context of Pakistan.

### **2.3.2 Organizational Learning Theory (OLT)**

Due to some limitations of resource-based theory (RBT) as mentioned in the previous section and in the background of the study, this study is further supported by organizational-learning theory (OLT) rooted in some earlier literature such as (Hirschman & Lindblom, 1962; Cyert & March 1963; Cangelosi, 1965; Cangelosi &

Dill, 1965; Argyris & Schön, 1978). Those studies view an organization as a learning and adjusting structure, through incremental goals as ambitions, and through ongoing adaptation of conventions and standard operating procedures for making decisions.

Basic assumption of OLT is that managing organizations is a phenomenon of (amplifying variety and) reducing the organizational uncertainty by the creating and capitalizing on (complicated) information by arranging managerial trainings to encourage organizational efficiency, creativity, and effectiveness (Sullivan & Nonaka, 1986; Bartunek, Gordon & Preszler-Weathersby, 1983; Berger & Bradac, 1982). Sullivan and Nonaka attribute OLT as the best description of successful behavior of Japanese managers.

like RBT, the OLT also has an internal focus where learning is a core competency that enables any organization to gain a sustainable competitive advantage (Ozkaya et al., 2015; Atuahene-Gima & Wei, 2011; Baker & Sinkula, 2007; Zhou, Yim & Tse, 2005; Brockmand & Morgan, 2003; Sinkula, Baker & Noordewier, 1997) by generating and converting the environmental information into a strategic resource (Fang, Chang & Chou, 2014; Akilah, 2012; Simeon, 1996), through institutionalizing the organizational experiences and customs into some system for learning (Walsh & Ungson 1991; Nelson & Winter, 1982; Kimberly, 1979). Unlike RBT, the OLT requires a shift in focus from existing structural resources to the development of new (improved) relationships with greater emphasis on acquiring and sharing new knowledge (Dada & Fogg, 2016; Hamel, 1991)

Some literature argues that OLT is even a more effective phenomenon than RBT to underpin the organizational innovation—performance relationship because the size and availability of resources is often not enough to bring sufficient level of organizational

innovation (Ozkaya et al., 2015; Aragón-Correa, García-Morales & Cordon-Pozo, 2007; Baker & Sinkula, 2007; Zhou, Yim & Tse, 2005; Nonaka & Takeuchi, 1995; Crossan, Lane & White, 1999).

In general, the concept of OL appears to be prominent in literature after early 1960s when some growing number of researchers trashed it out around five decades back (Hirschman & Lindblom, 1962; Chandler, 1962; Cyert & March 1963; Cangelosi, 1965; Cangelosi & Dill 1965).

A number of studies have determined that the organizational-performance is directly proportional to the organizational-learning (OL) (Jiménez-Jiménez & Sanz-Valle, 2011; Zheng et al., 2010; Keskin, 2006; Ussahawanitchakit, 2008; Brockmand & Morgan, 2003; Darroch & McNaughton, 2003; Bontis, Grossan & Hulland, 2002; Dodgson, 1993; Fiol & Lyles, 1985). The impact of OL on organizational-performance is also further mediated by innovation. More specifically the literature argues that it is actually the OL that enables organizations to produce the capacity for innovation, which ultimately enhances the overall organizational-performance (Ozkaya et al. 2015; Baker & Sinkula, 2002).

Several studies in literature support the idea that OL leads the organizations towards innovation (Ussahawanitchakit, 2008; Chang, and Cho, 2008; Yeung et al., 2007; Keskin, 2006; Lee and Tsai, 2005; Mavondo et al., 2005; Baker & Sinkula, 2007; Zhou, Yim & Tse, 2005; Salavou & Lioukas, 2003; Hall & Andriani, 2003; Sørensen & Stuart, 2000; Forrester, 2000; Leonard-Barton, 1999; Hage, 1999; Cohen & Levinthal, 1990; Coombs & Hull, 1998; Nooteboom, 1999; Nonaka & Takeuchi, 1995; Kogut & Zander, 1992; Stata, 1989). While the innovation takes the organization to their enhanced performance (Alexander & Yuriy, 2015; Agarwal & Ndubisi, 2014; Nasution,

Mavondo, Matanda & Ndubisi, 2011; Rajaguru & Matanda, 2009; García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Carrillat et al., 2004; Mavondo & Farrell, 2003)

Organizational-learning has been considered as a key factor for organizational revival (Weerd-Nederhof, Pacitti, da Silva Gomes & Pearson, 2002; Brockmand & Morgan, 2003; Baker & Sinkula, 1999; Huysman & Blonk, 1998; Sinkula, 1994; Slater & Narver, 1995) whereby the strategic revival of an organization places additional demands on the organizational-learning theory (OLT) making it more dynamic for better understanding of tensions occurring between exploration and exploitation of knowledge for organizational revival (Akilah, 2012; Crossan, Lane & White, 1999; Nonaka, Toyama & Byosière, 2001).

Some other earlier studies also appear in line with Crossan, Lane & White (1999) by suggesting the “Resource/information exploration-exploitation approach” composed of multiple OL activities to supplement the vibrant learning conduct in the organizations (Nonaka & Takeuchi, 1995; Levinthal & March, 1993). They define exploration as the simulation, exploration, discovery and testing processes which may result in innovation. While exploitation according to them is more effective and reliable capitalization and materialization of the discovery into improved processed, products and behaviors.

In its quintessence, the exploration generates learning behaviors necessary for discovery and accumulation of new resources, synergies and innovative mechanisms, whereas exploitation produces competitive advantage by utilizing the pre-existing resources and synergies for innovation (Levinthal & March, 1993; Simeon, 1996).

Hence, based on the literature on organizational-learning (OL), the nature of OL appears to be very dynamic and thorough as its administration requires a multilevel,

multifocal, and longitudinal interplay of social as well as psychological processes between individuals, teams and organization (Akilah, 2012; Argote & Miron-Spektor, 2011; Crossan, Lane & White, 1999; Slater & Narver, 1995).

Taking a historical perspective, the traditional organizational-learning theory (OLT) appears to remain a bit vague (Crossan, Lane & White, 1999), because from early 1960s to late 1990s a number of diverse research studies had been trying to apply and interpret the concept of OL into diverse realms. For example, it has been referred to as new formations and structures (Chandler, 1962); new knowledge (Hedberg, 1981; Argyris & Schon, 1978); new methods (Jelinek, 1979; Miles, 1982); new acts and accomplishment (Miller & Friesen, 1980; Cyert & March, 1963); learning and unlearning (Starbuck, Greve & Hedberg, 1978). In some later studies OL is taken with an information-processing viewpoint composed of four elements such as information acquisition, interpretation, distribution and preservation (Pawlowsky, 2001; Huber, 1991), while Nonaka and Takeuchi (1995) related OL to the innovation through information systems, operating technologies and databasis. Huysman and Blonk (1998) and Dodgson (1993) explain that OL is the process of unleashing the organizations for ongoing fabrication and exploitation of new knowledge on external/internal environment through a consistent phenomenon of employee skill development.

OL is the route for constant innovation through establishment of new knowledge (Quinn, Anderson & Finkelstein, 1996; Nonaka & Takeuchi, 1995). It is a continuing practice while the staff members engage in knowledge work (Davenport & Prusak, 1998). Huysman and Blonk (1998) signify information systems as an effective organizational learning. OL is a dynamic and multilevel phenomenon of executing the social and psychological processes of 4Is: Intuition, interpretation, integration and

institutionalization (Crossan, Lane & White, 1999) for exploration and exploitation of knowledge with an aim of organizational growth.

OL is a key variable to enhance organizational-performance and to secure a sustainable competitive advantage (Brockmand & Morgan, 2003; Dodgson, 1993; Fiol & Lyles, 1985; Garvin, 1993). OL process that comprises acquiring, distributing, interpreting the knowledge and preserving that knowledge into organizational memory/database (Tippins & Sohi, 2003; Weerd-Nederhof et al., 2002; Baker and Sinkula, 1999; Huysman & Blonk, 1998; Sinkula, 1994; Slater & Narver, 1995)

OL is considered as a social process of participating in practice communities (Broendsted & Elkjaer, 2001). Liao, Chang, Cheng & Kuo (2004) defines it as ongoing knowledge upgradation of employees based on their shared experiences. For Chen (2005) the organizational-learning is attributed to the sustainable development. OL is referred to as a process of employee capacity building. Whereas Argote and Miron-Spektor (2011) also take it as the evolutionary innovation of an organization.

Akilah (2012) defines OL as the knowledge construction-reconstruction process for seeking and accommodating to new knowledge by means of recognizing, interpreting, distributing and storing new knowledge) for the sake of sustainable growth and competitive advantage through consistent innovation.

Hence, based on previous literature on OL we can conclude that “organizational-learning is an ongoing phenomenon that empowers an organization and its members for a consistent development and resource mobilization, to seek additional knowledge, innovation and consistent performance, for a sustainable competitive advantage” (Simeon, 1996)

For handling the turbulent environment, it is indispensable for the service organizations to incorporate some sort of a learning phenomenon in all facets of organization' feats for developing and utilizing new knowledge as well as sustainable resources in order to secure a consistent performance (Akilah, 2012; Argote & Miron-Spektor, 2011; Simeon, 1996; Fiol & Lyles, 1985).

As a theoretical perspective, both the RBT as well as OLT appear analogous as they both emphasize on unique resources for crafting and sustaining the organizational skillfulness to meet the changing demands of the turbulent environment (Jiménez-Jiménez & Sanz-Valle, 2011; Wilson, 2011; Meso & Smith, 2000; Fiol & Lyles, 1985; Hamel 1991) but actually the “exploration-exploitation approach” of OLT makes it more preemptive which enables the organization to meet the latent market demands by generating and utilizing strategic knowledge and resources necessary to bring in more innovative and sustainable performance outcomes (Nasution, Mavondo, Matanda & Ndubisi, 2011; Levinthal & March, 1993; Simeon, 1996).

The literature on organizational-learning theory (OLT) also highlights some of its pertinent problems. Crossan, Lane and White (1999) have pointed out a serious problem for executing the organizational-learning (OL) that in the well established organizational entities which have already been practicing a high degree of institutionalized learning, they need to first unlearn those practices and then relearn and apply newer and more effective knowledge and its application in their specific context. But they find it extremely hard to set aside (destroy) those old practices to be replaced with newly surfaced more creative ones. Schumpeter (1959) also refers the similar phenomenon as “creative destruction” in which the objective, proven and less risky practices are to be set aside for the subjective, unproven and more risky ones to be



experimented. For such issues to be handled, Hurst (1995) puts up a resolution in the form of raising the motivational incentives conditioned to the revenue from the new ventures launched as practiced by some organizations like 3M.

Simeon (1996) express that the raised organizational-performance is not always the instant and direct result of learning rather sometimes the learning could be misled as well as misleading. Fiol and Lyles (1985) view the dysfunctionality of OL through development of certain norms, associations and superstitions that encourage dysfunctional behaviors and unwillingness to change, maintaining status quo and game-playing until the organizations get stormed with severe crises and shocks for unlearning and relearning.

But the overall cost-benefit analysis of OL concludes that the consequences of not learning are far more harmful to the organizations in long run more specifically in the contemporary competitive scenario (Simeon, 1996; March 1991).

## **2.4 Organizational-Performance**

### **2.4.1 Organizational-Performance in general**

Generally, performance has been manifested in a number of different criteria in literature. The organizational-performance has been normally operationalized on objective and subjective basis. Objective operationalization of performance covers the areas like profitability, market share, return on assets or on investment, new product realization, and the merged measures of these variables in the for-profit sector. Whereas Levy (2002) express in accordance with Narver and Slater (1990) as well as Kotler and Levy (1969) that the subjective aspects of organizational-performance encompass ‘attainment of organizational goals; efficiency or effectiveness, and the similar

measures. Organizational-performance may be objective i.e. measured through financial scales, as well as judgmental i.e. measured through the service quality and customer satisfaction (Agarwal et al., 2003). Most literature in nonprofit sector appears to assess the subjective or a combination of subjective and objective performance. Subjective evaluation of organizational-performance considers the managers' opinions of performance assessment of their organizations such as relative to other organizations. While the objective performance evaluation uses absolute measures to assess the actual performance of organizations (Shoham et al., 2006).

Schlegelmilch and Ram (2000) found that it is the perceived rather than actual performance in the commercial/profit-oriented businesses that gets affected by MO. Jaworski and Kohli (1993) discovered that MO had a positive impact on subjective/judgmental rather than on an objective measure of performance, whereas, the superior judgmental performance is indispensable for superior objective performance. Hence, they claimed that MO studies suit more for assessment of subjective performance because they account for the particular strategies of an organizations. So, this study appears more inclined to the judgmental (subjective) performance of universities than objective performance.

#### **2.4.2 University Performance**

Before discussing the university-performance in detail, it is important to clarify its operationalization for this study. The operationalization of university-performance (with three dimensions namely: the overall performance, the retention and recruiting of students and the funding) has been adopted from the work of Caruana et al. (1998, 1999), to be measured with the help of university teachers who were the respondents, as justified in chapter one (Mokoena & Dhurup, 2016; Felgueira & Rodrigues, 2013;

Niculescu et al., 2013; Zebal & Goodwin, 2012; Rivera-Camino & Ayala, 2010; Hemsley-Brown & Oplatka, 2010; Hampton et al., 2009; Mitra, 2009; Flavian & Lozano, 2007; Hampton, 2007; Liefner, 2003). Similar operationalization of university-performance with respect to teachers as respondents had also been assessed by Niculescu et al. (2013), and Hampton (2007). This operationalization appears more compatible to the problem statement of this study because based on literature on higher education, this operationalization better represents the major issues in universities of Pakistan.

Agarwal et al. (2003) considers organizational-performance as a two-dimensional construct that is objective performance (measured through financial scales), as well as judgmental performance (measured through the service quality and the satisfaction of primary stake holders like teachers and students in case of universities), where the superior judgmental performance is indispensable for superior objective performance.

Furthermore, the “achievement level of output-goals” in terms of knowledge-creation and dissemination by a university may also be used to describe university-performance, such as the qualified employable graduates, research output and the other products and services (Algarni & Talib, 2014; Graves, 2011; Boden & Nedeva, 2010; Hemsley-Brown & Oplatka, 2010; Kuster & Aviles-Valenzuela, 2010; Storen & Aamodt, 2010; Mason, Williams & Cranmer, 2009; Tomlinson, 2007; Cranmer, 2006; Cabrera, Colbeck & Terenzini, 2001; Alexander, 2000; Neely, Mills, Platts, Richards, Gregory, Bourne & Kennerley, 2000). University of Florida (2014) emphasizes that the students’ performance (during/after their education) is the true reflector of university-performance.

Universities are expected to raise their performance significantly and become more receptive to the national socio-economic needs, in order to accommodate the growing expectations from society, as the contemporary universities are growingly becoming

the socioeconomic development catalysts (Cortese, 2003; Tilbury, 2002; Alexander, 2000; Barnet, 1992). Despite an excellent achievement attributable to HE during the last few decades, the public discontent with university-performance continues to grow, forcing many institutions to reconsider their performance goals in terms of academics as well as funding opportunities (Archibald & Feldman, 2008).

Zebal and Goodwin (2012) states the road to excellence begins with performance assessment which in HE is quite complex, multifaceted, judgmental, and it requires the participation of key stakeholders in most cases. The need for performance excellence in HE is driven by growing competition, cuts in public expenditures by governments, an intrinsic need for internal performance enhancement, and extrinsic compression from stakeholders to generate value for money (Caruana et al., 1998; Algarny & Talib, 2014).

As a basis for better performance and its manifestation, the usage of performance indicators (PIs) is very essential. We can use PIs to monitor the performance of fundamental practices such as teaching, research and funding among others. However, the application of PIs in HEIs is not so simple (Asif, Raouf & Searcy, 2013; Taylor, 2001). Further, HEIs like many other organizations, have limited resources including financial, human, informational, technology, material, infrastructural resources, available capabilities, and time. It is important to manage performance so that limited organizational resources are used appropriately.

PIs are defined as “factual or opinion information gathered from existing databases about the functioning of organizations or their constituent units”. PIs offer a tool for performance check and balance. It is also pertinent to use the PIs to make the “transparency, public accountability, and Stakeholders’ information” evident. The stakeholders in higher education include “students, faculty, government, funders,

employers of the graduates, parents, the community, and professional and accreditation bodies, among others” (Asif & Searcy, 2014; ECPE, 2011).

To address stakeholder needs, different types of PIs have been reported in the literature. Ball and Wilkinson (1994) have classified indicators as internal, external and operational. Examples of internal PIs include graduation rates and classes of degree; an example of external PIs is publications by staff and citations; and an example of operational PIs is the faculty-to-student ratio (Ball and Wilkinson, 1994).

A number of studies discuss the performance of HEIs at national level such as Coates (2005), Patrick and Stanley (1998), and Ball and Wilkinson (1994), among others. However, Asif and Searcy (2014) suggest that there is a need for more studies on performance measurement in universities by developing PIs that reflect the unique context of a HEIs. The context-specific PIs, with a number of advantages, can also be categorized more effectively by the key concerns of HEIs namely research, teaching, service, and financial performance (Asif & Searcy, 2014).

In the context of universities, the level of achievement of the scholastic output-goals may also depict university-performance, such as the qualified employable graduates, research output and the other products and services (Neely, Mills, Platts, Richards, Gregory, Bourne & Kennerley, 2000).

For universities, there are four approaches commonly used in measuring such value (Ewell & Jones; 1994; Alexander, 2000). Firstly, the outcome-based approach through ‘value-addition assessment’ to the graduates by means of “inputs, processes, and outcomes”. Secondly, efficiency assessment for resource utilization. Thirdly, based on ‘Return on Investment’ in the form of overall need fulfillment to assess “effectiveness and

productivity” of the university. Finally, based on the idea of consumerism to measure the impact of HE in meeting individual and state needs has also been commonly used.

In addition, Algarni, and Talib (2014) suggest another set of four dimensions/goals as a criteria to measure university-performance based on certain studies such as, teaching (Cabrera, Colbeck & Terenzini, 2001), research (Hemsley-Brown & Oplatka, 2010), graduate-employability (Boden & Nedeva, 2010; Graves, 2011; Jeremy, Abigail & Robin, 2000; Mason, Williams & Cranmer, 2009; Tomlinson, 2007; Harvey, 2001; Cranmer, 2006; Storen & Aamodt, 2010) and institution-prestige (Kuster & Aviles-Valenzuela, 2010)

Alexander (2000) further notes that certain governments in the developed nations also use the bench mark of university-performance as a fund allocation tool. By 1993, the higher education finance commission in England (HEFCE), overseeing 131 institutes, established some performance criteria as a mechanism for funding universities. Such as the research assessment being at the top (El-Khawas & Massey, 1996), encompassing quality publications (to measure output), number of citations (to measure quality of impact), research income, research students, and peer review is available in literature. Similarly, a ‘HE Charter’ was implemented in UK, which focused on the notional obligations of “consumer satisfaction,” which includes “satisfaction surveying of consumers, students, research contractors, employers, and members of the local community”.

Finland also used similar university funding model in 1997 (Hamalainen & Moitus, 1999; Holtta, 1998), based on five gauges, measuring institutional-performance in academic activities: “first, by measuring an institution's ability to attract external funding from domestic and international sources; second, by measuring an institution's relative position in the institutional rankings in international student and faculty exchange; third, by measuring the efficiency of adult education services; fourth, by

measuring career placement of graduates in the labor market; fifth, by measuring the success of the institution in creating academic quality in teaching and research” (Holttta, 1998). In the Netherlands, policymakers have implemented a research funding mechanism similar to the British plan where research productivity is assessed on a government rating scale (Alexander 2000; El-Khawas & Massey, 1996). A summary of the key themes in the research on performance measurement in higher education is provided in Table 2.3.

In short, most of the approaches used to describe university-performance encompass the universities services to its primary consumer that is the students satisfaction for their retention, as emphasized in an official page by university of Florida, that it is the students who represent a basic reflection of the university-performance, where quality normally can be checked in both the entry class scores of students and in their following performance after graduating (University of Florida , 2014). Hence, for the sake of better serving and retaining students (as they form primary constituency for any university) as well as meeting the expectations of other university constituencies like legislators, employers, students’ parents, university authorities, and the overall public (as an overall performance) requires a constant university fund replenishment (Jongbloed, 2004; Liefner, 2003). In case of universities in Pakistan, Bilal and Imran (2012), Abbasi et al. (2011) and Hoodbhoy (2005) express that in Pakistan, shortage of necessary funds to attract competent students as well as the lack of market-based innovation, qualified faculty and infrastructural facilities have resulted in lower university commitment towards the desirable level of their overall goal accomplishment.

Table 2.3

*Review of Performance Indicators in Higher education*

<b>Author</b>	<b>Theme of study on performance indicators</b>
Asif (2015)	In higher education (HE), top three benchmarks for performance are, Knowledge creation, Operational excellence, Stakeholder-satisfaction.
Algarni and Talib (2014)	A set of four dimensions to measure university-performance like teaching, research, graduate-employability, Institution-prestige.
Cao and Li (2014).	Three dimensions of performance including academic quality, Administrative quality and relationships quality
Asif and Searcy (2014)	A classification of PIs based on research, teaching, service, and financial performance.
Randheer (2015), Brochado (2009), Abdullah (2006), Abdullah (2005),	Debate on a six-dimensional tool, for measuring performance in HE namely, non-academic aspects, academic aspects, institutional reputation, approachability, program issues and understanding of students' needs.
Asif and Rauf (2013)	Performance assessment in HE based on relationship of Customer and supplier. The Education Quality models developed in HE. Series of analytic questions given to determine PIs in HE.
Bedgood and Donovan (2012)	Student satisfaction as the most important criteria of PIs in HE
Ma and Todorovic (2011)	Job satisfaction based on Faculty members degree of MO
Hammond and Webster (2011)	Overall performance
Hemsley-Brown and Oplatka (2010)	High quality of Research and teaching performance
Kuster and Aviles-Valenzuela (2010)	Reputation, research and employability
Flavian and Lozano (2007)	Success in teaching and Research activities
Bratti, McKnight, Naylor and Smith (2004).	Four aspects of PIs compatible to the standard developed by higher education funding council for England (HEFCE); a) Access and participation, b) Retention and progression, c) research and (d) employability.
Agarwal et al. (2003)	A two-dimensional performance construct. (1) Objective performance (measured through financial scales), (2) Judgmental performance (measured through the service quality and the satisfaction of primary stake holders like teachers and students)
Cruickshank (2003).	Total quality management (TQM) to create more effective and efficient business processes even in HE, with improvements on a continuous basis by all employees in an organization.
Ball and wilkinson (1994)	Internal, external, operational catagories of PIs in HE



In short, most of the approaches used to describe university-performance encompass the universities services to its primary consumer that is the students satisfaction for their retention, as emphasized in an official page by university of Florida, that it is the students who represent a basic reflection of the university-performance, where quality normally can be checked in both the entry class scores of students and in their following performance after graduating (University of Florida , 2014). Hence, for the sake of better serving and retaining students (as they form primary constituency for any university) as well as meeting the expectations of other university constituencies like legislators, employers, students' parents, university authorities, and the overall public (as an overall performance) requires a constant university-fund replenishment mechanism (Jongbloed, 2004; Liefner, 2003). In case of universities in Pakistan, Bilal and Imran (2012), Abbasi et al. (2011) and Hoodbhoy (2005) express that in Pakistan, shortage of necessary funds to attract competent students as well as the lack of market-based innovation, qualified faculty and infrastructural facilities have resulted in lower university commitment towards the desirable level of their overall goal accomplishment.

Thus, narrowing down to the scope of the underlying study, the operational definition of university-performance, as mentioned in the beginning of this section, has been adopted from the work of Caruana et al. (1998, 1999), which has also been studied by Niculescu et al. (2013). Under this operationalization, the dimensions of university-performance assessed are: the overall performance, retention and recruiting of students and fund raising for the university.

## 2.5 Need for Adoption of Some Strategic-Orientations by Universities

Universities are advised to adopt some sort of strategic-orientation as their guiding philosophy (Dodor, 2008). This idea is supported by a number of studies (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Hampton et al., 2009; Duque-Zuluaga & Schneider, 2008; Kohli & Jaworski, 1990).

The concept of strategic-orientation is defined as ‘the guiding principles that influence a firm's marketing and strategy-making activities’ (Noble et al., 2002; Urde, Baumgarth & Merrilees, 2013). Dodor (2008) and Gioia and Thomas (1996) operationalize strategic-orientation as the extent of an organization’s strategy to be defensive (reactive) or offensive (proactive) in satisfying its customers.

Literature refers to a number of organizational-strategic-orientations (Grinstein, 2008) but a vast effort is undertaken to address market-orientation (MO) in conjunction with other strategic-orientations (Noble et al., 2002), such as: entrepreneurial orientation (Miles & Arnold, 1991; Zhou, Gao, Yang & Zhou, 2005), learning orientation (Baker & Sinkula, 2002), production and cost orientation (Noble et al., 2002; Olson, Slater & Hult, 2005), and innovation or technology orientation (Berthon, Hulbert & Pitt, 1999; Gatignon & Xuereb, 1997; Olson, Slater & Hult, 2005; Zhou, Yim & Tse, 2005). Moreover, Noble et al. (2002), also tried to differentiate the unique categories of MO.

Based on the support from literature as presented ahead, this study takes into consideration the two-basic strategic-orientations to determine the performance of universities keeping in view the contemporary issues in higher-education-institutions (HEIs). These two strategic-orientations are the market-orientation and the innovation, which are the two basic aspects of any business organization as stated by the pioneer management guru Peter Drucker in mid nintees (Drucker, 1954).

Algarni, and Talib (2014) and Han et al. (1998) suggest that although a number of studies have found a straight forward positive MO—organizational-performance relationship, yet to enhance the confidence in the construct of MO, the innovation construct may be included as a mediator to identify any empirical irregular results or to reconcile regular results in past studies regarding the supposed relationship. This is because the pertinent literature also provides some discordant findings about the MO—performance relationship, for example while studying 157 Turkish firms, Keskin (2006) found no direct but only indirect relationship between MO and organizational-performance. Chan and Chau (1998) discovered no statistically significant impact of market-orientation on some of the performance indicators in children and youth centers of Hong Kong. Similarly, the said relationship was not found to exist noticeably when Becherer and Maurer (1997) studied it in the newly established small businesses.

Christensen and Bower (1996) contend that market-oriented firms may lose their industry leadership position for being too attentive to their customers. In some other studies, it is suggested that the market-oriented firms may detract from the potential developments as they are more responsive (Voola & O’Cass, 2010; Narver et al., 2004; Berthon, Hulbert & Pitt, 1999), as a result the organizations become risk averse and loose potential opportunities (Slater & Narver, 1995). Furthermore, the market-oriented firms may be misdirected to the prejudiced research and development (R&D) (Frosch, 1996), or they could confuse their business processes (Macdonald, 1995).

Moreover, MO is not a booster of sustainable competitive advantage for all types of organizations (Menguc and Auh 2006; Day, 1994) or in all situations (Johnson and Huizenga, 2001; Heiens, 2000). Rather in certain professions the existence of MO is taken as barrier (Morgan & Pierce, 1991; Whittington & Whip, 1992). More

particularly the health care professionals as well as academicians, who appear more product oriented, find them in conflict with MO (Altuntaş et al., 2013; Hampton, 1992; Heiens, 2000; Webb, Webster & Kreppa, 2000).

Hence, a couple of other studies also disagree upon the existence of any significant relationship between the MO and organizational-performance (Haugland et al., 2007; Shoham et al., 2006; Johnson & Huizenga, 2001; Hult & Ketchen, 2001; Heiens, 2000)

Based on these observations above, a number of studies suggest the relationship of market-orientation and organizational-performance to be revisited with the presence of innovation as a mediator between them (Khuwaja et al., 2015; Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010; Menguc & Auh, 2006).

Baron and Kenny (1986) also propose adoption of some moderating/mediating variable when various studies declare inconsistent results, while investigating similar kind of relationship. Furthermore, some studies in 1990s by Slater and Narver (1994) and Deshpande et al. (1993) also suggested that MO may lead to better innovation that may en-route improved organizational-performance. Although the said proposition of innovation with the mediating role, is rooted even in further earlier marketing literature as seen in Zaltman et al. (1973), yet the present empirical support for the MO—innovation—performance chain relationship especially in the context of HE is only a piecemeal as reported by Algarney and Talib (2014) and Khuwaja et al. (2017). MO is supposed to antecede innovation (Huhtala et al., 2014; Hult et al., 2004; Kirca, Jayachandran & Bearden, 2005; Menguc & Auh, 2006).

Modi (2012) declares that only MO is not adequate in the said relationship, but innovation must augment the MO—performance link. MO offshoots incremental

service innovation, which in turn, enhances performance of new services (Cheng & Krumwiede, 2012). Agarwal et al. (2003) claim that the direct impact of MO is to offshoot the innovation which in turn further augments the organizational-performance. Innovation is particularly important to the service firms for a competitive advantage, as the services are hard to protect by means of patents or copyrights (Agarwal et al., 2003).

Although the proposition of including the innovation as a mediator is also supported by various other researchers (refer Han et al., 1998; Baron & Kenny, 1986; et al., 1993; Slater & Narver, 1994; Hult et al., 2004; Agarwal et al., 2003; Kirca et al., 2005; Menguc & Auh, 2006; Modi, 2012; Cheng & Krumwiede, 2012; Ahmed & Othman, 2017), yet there is minimal research evidence available in literature relevant to the innovation used between the broad relationships of MO and university-performance, especially in the context of Pakistan.

Hence, in order to handle the current state of affairs, universities need to adopt 'context-specific market-orientation' (MO) as a unique powerful resource (Hampton et al., 2009; Hashim & Rahim, 2011; Khuwaja et al., 2015; Niculescu et al., 2013; Zebal & Goodwin, 2012). Universities could gain more sustainable performance if their MO is supported with mediation of innovation which is another unique resource that would lead to a raise in university-performance (Ahmed & Othman, 2017; Khuwaja et al., 2015; Algarni & Talib, 2014). Some earlier studies also put up similar assumptions for a better university-performance (Narver & Slater, 1993; Kohli & Jaworski, 1990).

### **2.5.1 Market Orientation — An Alternate Strategic-Orientation**

Before defining market-orientation (MO) in detail in the next section, it is important to note that the operationalization of MO for this study in university context has been

adopted from the work of Hampton (2007), and Hampton et al. (2009) who have considered MO as a three-dimensional variable namely, administration-leadership; advising and mentoring; and intelligence-generation and responsiveness.

Later Niculescu et al. (2013) have also adopted in their study in same context of higher education. MO is further explained in the following discussion.

The adapted framework for this study was designed by Hampton (2007) in university context based on earlier mechanisms for MO designed by Brady and Cornin (2001), Caruana et al. (1998, 1999), Kohli et al. (1993) and Saxe and Weitz (1982).

Niculescu et al. (2013) and Zebal and Goodwin (2012) also support the more context-specific operationalization of MO for higher education by stating that the primary and most popular measures of MO developed by Kohli and Jaworski (1990) and Narver and Slater (1990) in the for-profit context which are although theoretically sound, yet they are evidenced to be inappropriate to measure MO in the context of higher education. Hence, for a more context-specific operationalization of MO in higher education, the dimensions of intelligence-generation and responsiveness stood same as originally given by Kohli et al., (1993). While the intelligence-dissemination dimension was replaced with two new elements which were firstly the students' advising and mentoring and secondly the role of 'department head or leadership'. These two (as defined in the last part of next section) represent the core student related activities by teachers in the process of higher education services (Niculescu et al., 2013; Hampton et al., 2009; Hampton, 2007).

### **2.5.1.1 The Concept of market orientation**

To define the concept of market-orientation (MO) in a very specific manner there is probably no single fully decisive and universally accepted definition (Kirca et al., 2005; Kohli et al., 1993). MO should ideally comprise both “attitudinal and behavioral” aspects (DiAConu & PANDEIICă, 2012; Avlonitis & Gounaris, 1999).

Lado, Maydeu-Olivares, and Rivera (1998) emphasize the effect of “distributors and other environments” on MO. Sharp (2001) on the other hand argues that MO would reflect both “the customer and product development”. Hult, Cravens and Sheth (2001) consider MO as “a phenomenon that describes elements in the market value chain”. Matsuno, Mentzer, and Rentz (2005) theorize that the perception of MO should embody all influencing factors such as “social, regulatory, and macroeconomic”. Yet Algarni, and Talib (2014) consider the internal MO aspect as well to be its’ important feature.

In its original literature, according to Narver and Slater (1990) the MO is indeed the cultural phenomenon of an organization that develops effective behaviors that are significant for creating superior customer value and continuous superior organizational-performance. While according to Kohli and Jaworski (1990), MO is an absolute form of “sustainable competitive advantage” created through the organization-wide actions of information generation, its broadcasting, and market responsiveness through intelligence”. As mentioned earlier, Narver and Slater (1990) approved the view of Kohli and Jaworski’s (1990) and proposed three behavioral constituents that grasp the Kohli and Jaworski’s (1990) activities of marketing information acquisition and dissemination and the overall coordinated creation of customer value. Narver and Slater (1990) explain MO to be composed of customer orientation (comprehending the target customers’ needs for a continuous delivery of value to them), competitor orientation

(comprehending the “capabilities and strategies” of potential and current competitors), and inter-functional coordination (coordinating all customer related activities for optimum resource utilization in order to create superior customer value). Later literature also synchronizes the conception of MO by Narver and Slater (1990) and Kohli and Jaworski’s (1990) (refer DiAConu & PANDEIICă, 2012; Avlonitis & Gounaris, 1999).

MO was originally theorized as a long term organizational-guiding-philpsophy fundamentally developed in the context of commercial organizations (Narver & Slater, 2004; Caruana et al., 1998; Narver & Slater, 1990; McGee & Spiro, 1988; Webster, 1988; Felton, 1959). However, the differing set of more prior objectives in non-commercial organizations may vary to accommodate MO (Kotler 1972).

MO notion has been occasionally used synonymous to customer-orientation (Deshpande et al., 1993; Shapiro, 1988). It is a typical concept in marketing. Drucker (1954), Shapiro (1988), Kohli and Jaworski (1990) and Narver and Slater (1990) are the seminal writers on the topic.

The concept of MO was originated from the philosophy of marketing-concept which is a cornerstone of marketing discipline (Pantouvakis, 2014). Drucker (1954) defined marketing as “the whole business seen from customers’ point of view” and argued that “there is only one valid definition of business purpose i.e. to create customers”. The marketing-concept i.e. a philosophical foundation of MO, was introduced in 1950s. It represents a basis of marketing notion (Borch 1957; McKitterick 1957; Felton, 1959).

Akonkwa (2009) also confirms that MO is normally taken as an execution of Marketing-concept. It is further seen at the “heart of modern marketing management and strategy” (Lambin, 2000; Narver & Slater, 1990), as it has sought lot of initial attention by academic textbooks (Deshpande, 1999; Lambin, 2000; Singh, 2004;



Sargeant & Wymer, 2007), and scholarly papers (Kohli & Jaworski, 1990; Narver & Slater, 1990). According to Shapiro (1988), as rooted in the marketing concept, the philosophy of MO is defined as a set of all procedure encompassing all facets of an organization directed to customer satisfaction, with direct involvement of top management. This objective seeks free flow of market information about “all purchasing influences on buyers”, into every functional area of the organization with ensured access to the corporate leaders for a solid understanding of customers’ priorities. Similar themes are followed by a number of later studies, namely a few like (Deshpande et al., 1993; Deng & Dart, 1994; Siu & Wilson, 1998; Han et al., 1998; Rafiq & Ahmed, 2000; Padanyi, 2001; Gainer & Padanyi, 2002; Narver, Slater & MacLachlan, 2004; Szmigin, Canning & Reppel, 2005; Kirca et al., 2005; Menguc & Auh, 2006; Morgan, Vorhies & Mason, 2009; Homburg, Wieseke & Bornemann, 2009; Hampton et al., 2009; Ferrell, Gonzalez-Padron, Hult & Maignan, 2010; Tadajewski & Jones, 2012; Camelia & Doral, 2013; Niculescu et al., 2013; Pantouvakis, 2014). According to these earlier studies, the marketing concept can be further defined as a corporate-mentality state that perpetuates business profitability by integrating and harmonizing all the marketing functions, as well as all other business functions.

Hence, it appears reasonable to conclude from the literature that a market-oriented organization is one in which the three pillars of the marketing-concept (customer focus, coordinated marketing, profitability) are operationally manifested (Andreasen & Kotler, 2003; Shapiro, 1988). These three pillars of marketing-concept are also highlighted in some preliminary studies (Andreasen & Kotler, 2003; Kohli & Jaworski, 1990; McGee & Spiro, 1988; Runyon, 1980), hence, they also confirm MO as a viewpoint, derived from marketing-concept that is composed of three core organizational facets:(i) a customer-orientation; (ii) integration of all effort; and (iii)

objectives and profitability”. Jaworski et al. (2000) and Kohli and Jaworski (1990) attribute these three facets to the marketing orientation as follows.

(i) The Customer focus: Jaworski et al. (2000) and Kohli and Jaworski (1990) claimed the customers to be the pivotal aspect of MO. They say that unlike traditional view, the customer focused marketing research goes far beyond the pursuit of customer-generated information regarding their present-day needs and priorities as well as collection of information regarding external market factors like regulation and competition that shape customer needs.

(ii) Coordinated marketing: Not only the marketing department is solely responsible for MO. It is critical for several departments to be responsive to customer needs through interdepartmental coordination pertaining to market intelligence (Jaworski et al., 2000).

(iii) Profitability: This element in literature appears as the consequence rather than determinant of MO (Jaworski et al., 2000; Kohli & Jaworski, 1990)

Thus, the MO is fundamentally a more operational view encompassing “customer focus and coordination”, i.e. the initial two pillars of marketing-concept (Jaworski et al., 2000; Kohli & Jaworski, 1990). “Customer satisfaction, customer loyalty or customer lifetime value” are the distinctive performance measures of a market-oriented company. (Homburg & Pflesser, 2000; Jaworski & Kohli, 1993; Narver & Slater, 1990).

Explaining MO, Malik and Naeem (2009) cites the initial convincing explanation of Marketing-concept by Drucker (1954), that the establishing a satisfied-customer is the only credible definition of any business purpose. Later on, many other researchers e.g. Kotler (1977) expressed that market-oriented organization is one that focuses on fulfilling customer needs better than competitors. However, specific characteristics of

a market-oriented organization were not adequately described or investigated until the initiative taken by Narver and Slater (1990) and Kohli and Jaworski (1990).

Two extensively used measures of MO were offered by Kohli and Jaworski (1990) and Narver and Slater (1990), both of which have appeared to be theoretically comprehensive, although each of them evaluates different aspects of MO. Cadogan and Diamantopoulos (1995) and Cadogan, Diamantopoulos and Mortanges (1999) paralleled and assimilated these two aspects and recognized many mutual themes. MO being a cultural phenomenon as attributed to Narver and Slater (1990) with its three components “customer-orientation; competitor-orientation; and interfunctional coordination” tap a similar domain endorsed by Kohli and Jaworski (1990) as “intelligence generation, dissemination, and responsiveness” (Cadogan & Diamantopoulos, 1995; Cadogan et al., 1999).

Niculescu et al. (2013) and Zebal and Goodwin (2012) claim that in the context of business enterprises, the two basic and most popular measures of MO by (Kohli & Jaworski, 1990; Narver & Slater, 1990) are although theoretically sound yet proved to be inappropriate to measure MO in the context of higher education. Therefore, as mentioned earlier that Hampton (2007) and Hampton et al. (2009) went for a more context-specific measure of MO by adapting from the original work of Kohli and Jaworski (1990) as well as Caruana et al. (1998, 1999).

Five different frameworks on the functionality of MO were put forward in literature during late 1980s and early 1990s (Zebal & Goodwin, 2012). Those were consisted of ‘decision-making paradigm’ by Shapiro (1988), ‘market-intelligence paradigm’ by Kohli and Jaworski (1990), ‘cultural-behavior paradigm’ by Narver and Slater (1990), ‘strategic paradigm’ by Ruekert (1992) and ‘customer paradigm’ by Deshpande, Farley

and Webster (1993). Hashim and Rahim (2011) claim for two of them to be most vital as they consider customers with a pivotal focus. One of those frameworks is given by Kohli and Jaworski (1990) and other by Narver and Slater (1990). Cadogan and Diamantopoulos (1995) later compared the two and found them to be complementary rather than mutually exclusive.

Hence, it is vital for organizations to understand their customers' current and prospect needs, meet those needs by crafting value for them (Hashim & Rahim, 2011; Kotler, 2011; Ruekert, 1992; Kohli & Jaworski, 1990; Narver & Slater, 1990; Shapiro, 1988).

Other findings from marketing literature put it like, MO involves overall departmental coordination for (a) defining contemporary and potential customers' needs and their determinants, (b) share this information across the board for mutual understanding of these needs, and (c) engaging various departments in actions directed to meet all viable customer needs. Finally, MO entails the organization wide “generation, dissemination, and responsiveness” to market intelligence. Besides that, the element of responsiveness component consists of two groups of actions. One is response-design for planning of market-intelligence, the other is response-implementation for execution of such plans (Jaworski et al., 2000; Kohli & Jaworski, 1990)

The operationalization of MO by Narver and Slater (1990) is criticized by Kohli et al. (1993) in three aspects. (a) Limiting the market to only customers and competitors, neglecting the other environmental forces affecting them. (b) Neglecting the velocity of market information generation and dissemination. (c) Neglecting the particular behaviors and activities of MO (Cervera, Molla and Sanchez, 2001).

Another important critic was also posed by Jaworski and Kohli (1993) that whether should every business concentrate on MO or not. This is an essential consideration, as

allocating resources towards a MO may be extravagant if it does not bring in a higher-level performance in particular environments. This may be true for the businesses with small size and low competition, as well as for the businesses whose MO is more anteceded by the external factors rather than the internal ones, such as economic conditions of market or the competitive intensity among others. But the managers can manipulate internal originators of MO more than external ones (Kotler, 2009).

Carrillat et al. (2004) and Jaworski et al. (2000) concern that the MO-principle of first understanding and then accommodating to the market requirements can limit the organization to stay as a follower and market-driven, with a negligible prospect for a sustainable competitive advantage. Whereas for a superior value proposition to offer, it requires the business to stay market driving which is beyond the basic MO principles.

Hashim and Rahim (2011), Webb, Webster and Kreppa (2000) and Desphandé, Moorman, and Zaltman (1993) criticize that previous research on MO has exclusively attended it with a perspective of manager/employee, which is argued to be one sided and myopic that ultimately neglects the fundamental role of customers in value creation.

In case of HEIs, this argument becomes more applicable where academic programs are condemned of being inconsistent with ground reality (Zebal & Goodwin, 2012).

Drucker (1954) actually pointed out the same issue around five decades back where he considered marketing as, not just a specialized business function, rather the whole organization to be seen with the customer's lenses.

Ross, Grace and Shao (2013) as well as Hashim and Rahim (2011) suggest that the Emerging side of the MO requires basic insights from customers to be sought in order to incorporate customer perspective on identifying, defining and adopting the

organizational level of MO. This view of MO shifts the focus of defining MO from managers to the customers of any organization.

In contrast to Hashim and Rahim (2011), who tried to assess MO in the context of higher education but from customer (student) point of view, some other MO studies conducted in the same context by Niculescu et al. (2013) and Zebal and Goodwin (2012) determined the student-focused MO from teachers' point of view, as the teachers are more suitable than students to determine MO in a university context (Zebal & Goodwin, 2012; Hampton, 2007; Hampton et al., 2009).

Since the nature of universities is different from business enterprises especially on the basis of their information-generation and dissemination. Thus, the measures used for MO in the business enterprises are not fully appropriate for universities as they might lack the capability to internalize the nature of university goals and functions. Therefore, a more context-specific operationalization of MO needs to be discovered for higher education (Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011).

Therefore, an adapted framework was designed by Hampton (2007) based on earlier mechanisms for MO designed by Brady and Cornin (2001), Caruana et al. (1998, 1999), Kohli et al. (1993) and Saxe and Weitz (1982). In this new operationalization of MO in university-context, the dimensions of intelligence-generation and responsiveness stood same as originally given by Kohli et al. (1993). While the intelligence-dissemination dimension was replaced with two new elements which were firstly the students' advising and mentoring and secondly the role of department-head or administration-leadership. These two represent the core student-related activities by teachers in the education process (Niculescu et al., 2013; Hampton et al., 2009; Hampton, 2007).

All the three dimensions of MO as given by Kohli et al. (1993) are defined below.

**(a) Intelligence generation:** The gathering and analysis of both customer needs and their environmental influences by multiple departments.

**(b) Intelligence dissemination:** The process of market based information sharing within a particular organization both horizontally (interdepartmental) and vertically (inter-level) as well as both formally and informally.

**(c) Responsiveness:** The actions taken in response to the market intelligence that is generated and disseminated.

It is important to further elaborate the earlier mentioned point about the intelligence-dissemination dimension of MO that, for a more context-specific operationalization of MO in universities, the intelligence-dissemination dimension was replaced with two new elements which were: firstly the students' advising and mentoring and secondly the role of department-head or Administration-leadership to represent the core student related activities by teachers in the process of higher education services (Niculescu et al., 2013; Hampton et al., 2009; Hampton, 2007).

These two elements may be further elaborated in a bit more detail as follows:

**(i) Students' advising and mentoring:** Advising and mentoring (A&M) by university is one of the greatest contributors to student retention (Habley & McClanahan, 2004). Academic advising can be traced back to 1870 (Rudolph, 1962) with a gradual evolution over the past 140 years (Gordon, 2006). Academic advising can be defined as a process that helps students develop professional, interpersonal, and academic success through a relationship with and the guidance of an advisor (Schroeder, 2012).

An extended form of advising, called mentoring is all about forming a lasting and evocative association with another person, mutual respect, teaching-learning and capitalization of each other's interpersonal skills (Salinitri, 2005; Wenger, 1998).

In the literature on higher education, mentoring has been linked to personal growth and contentment (Ehrich, Hansford & Tennent, 2004), career progression (Higgins, 2000, 2001; Burke & McKeen, 1997) and boosted self-confidence (De Vries, 2005), mutual respect and lasting relationships (Salinitri, 2005; Wenger, 1998), higher rate of student success and retention (Lotkowski, Robbins and Noeth, 2004), greater organizational commitment (Payne & Huffman, 2005), elevated organizational-performance (Niculescu et al., 2013), and increased research funding (Gardiner, 2005).

Unfortunately, the vital contribution of academic advising is usually undervalued in student retention and success. Hence, further investigation is needed to recognize the impact of academic advising on the student retention and the overall university-performance. (Young-Jones, Burt, Dixon & Hawthorne, 2013; Light, 2001; Schroeder, 2012; Nutt, 2003).

**(ii) Administration-leadership:** Bryman (2007) defines administration-leadership in terms of power to influence on and/or motivate others to accomplish organizational goals. Leadership is the pivot to the organizational processes of developing effective structures, creating cultures and systems that result in improved organizational-performance (Kavanagh and Ashkanasy, 2006). Leadership stimulates the organizational absorptive capacity for new information-generation and dissemination through an effective and open network of information (Cohen & Levinthal, 1990; Van den Bosch, Volberda and de Boer, 1999).



Literature reveals that the transformational style of leadership usually generates higher organizational-performance than transactional leadership (Bass & Avolio, 2000). It is the capacity of transformational leaders to execute the new horizons of knowledge and cultivate innovation in their organizations for higher levels of organizational-performance (García-Morales, Lloréns-Montes & Verdú-Jover, 2008).

In the context of education, numerous studies have emphasized on the role of leadership in the elevation of institutional-performance (Niculescu et al., 2013; Bryman, 2007; Benoit & Graham, 2005; Marks & Printy, 2003; Trocchia & Andrus, 2003; Bass, Avolio, Jung & Berson, 2003; Brown & Moshavi, 2002; Winter & Sarros, 2002; Murry & Stauffacher, 2001; Davies, Hidesand & Casey, 2001; Winter, Taylor & Sarros, 2000; Silins, Mulford, Zarins & Bishop, 2000; Sebring & Bryk, 2000; Senge, Roberts, Ross, Smith & Kleiner, 2000, 1999; Leithwood & Jantzi, 1999; Firestone & Louis, 1999; Gomes & Knowles, 1999; Heck, Larsen & Marcoulides, 1990)

Hence, on the basis of analyzing a number of studies on MO, the researcher also found the framework used by Niculescu et al. (2013), Hampton et al. (2009), and Hampton (2007) more relevant and suitable to adopt for assessing MO in the context of universities in Pakistan

#### **2.5.1.2 Market orientation in public and nonprofit organizations**

In literature, the application of certain marketing tools can also be evidenced in public/nonprofit organizations (Dwairi, Akour & Sayer, 2012; Modi, 2012; Hashim & Rahim, 2011; Rodrigues & Carlos, 2010; Diefenbach, 2009; Shoham et al., 2006; Cripps, Ewing & McMahon, 2004; Herman & Renz, 2004; Schmid, 2004; Dees, Emerson & Economy, 2001; Padanyi, 2001; Cervera, Molla & Sanchez, 2001; Walsh, 1994; Jaworski & Kohli, 1993; Narver & Slater, 1990).

The citizens are supposed to be the customers of public-sector organizations, thus adoption of market-orientation/public orientation in public-sector organizations is very viable in order to get closer to citizens for satisfying their needs more effectively. Yet the citizens are quite heterogeneous consumers, so, the governments need to balance among their heterogeneous interests to preserve a general homogeneity as marketing in such setups is characterized by democratic mechanisms and political goals (Dwairi, Akour & Sayyer, 2012; Walsh, 1994)

Modi (2012) express that the concept of MO has a potential application and use in the nonprofit sector, although derived from the profit-oriented organizations. MO even in nonprofit sector improves organizational reputation, and modernization (Padanyi, 2001)

The swift growth of nonprofit setups has also created for them a more competitive pursuit of 'funds, better staff, and other supporting stake holders' (Schmid, 2004). Along with simultaneous demand for a raised organizational-performance, the factors such as reduced government funding and declining sponsorships have augmented competitive pressure for the public-sector organizations (Dees, Emerson, Economy, 2001; Herman & Renz, 2004).

Cervera, Molla and Sanchez (2001) express that, the MO helps overcoming internal and external barriers even for a public organization by shaping and transforming its political and administrative structure through directing the responsibilities and delegation of power.

Cripps, Ewing, and McMahon (2004), express that, as the part of the organizational restructuring process, the governments even in developed countries now place additional attention on MO and seek superior levels of customer-satisfaction. Service

sector including HE is no exclusion to it. Previous literature also supports the evidence of relationship between MO and the organizational-performance in public-sector (Hashim & Rahim, 2011; Diefenbach, 2009; Shoham et al., 2006; Jaworski & Kohli, 1993; Narver & Slater, 1990).

### **2.5.1.3 Market orientation in higher education institutions.**

With regards to use of marketing in education, Krachenberg (1972) appears to be among the earliest proponents who asserted that the universities are already conducting marketing activities in one form or another, yet they don't admit it officially. Camelia & Dorel (2013) also confirms the same.

Although the “Baldrige Education Criteria for Performance Excellence” (BNQP, 2005), the AACSB standards AACSB (2005), and numerous authors since late sixties (Kotler & Levy 1969a, 1969b; Miller et al., 1990; Kohli & Jaworski, 1990) till recent literature (Khuwaja et al., 2016; Algarni & Talib, 2014; Niculescu et al., 2013; Hashim & Rahim, 2011; Hampton et al., 2009; Duque-Zuluaga & Schneider, 2008; Hammond, Webster & Harmon, 2006; BNQP, 2005) have discussed and demonstrated applicability of marketing and MO to higher education, yet the empirical research surrounding MO has been limited and has not addressed its applications to universities (Algarni & Talib, 2014; Niculescu et al., 2013; Hashim & Rahim, 2011; Hampton et al., 2009; Duque-Zuluaga & Schneider, 2008; Hammond, Webster & Harmon, 2006; BNQP, 2005).

Being intangible in nature the educational services too are difficult for customers to evaluate, hence, the customers (students) have to rely on the expertise of a service provider. So, the MO by the academicians may help their students assess the utility and accommodate accordingly (Clayson & Haley, 2005; Licata & Frankwick, 1996). But

universities have not been very effective in practicing a MO with a true customer focuses like other traditional products (Comm & LaBay, 1996).

The implication of MO in universities is that by satisfying students' needs, educational institutions can attract and retain students and better meet the university's goal to survive and grow in a competitive environment (Camelia & Dorel, 2013). Therefore, for universities it should be one of the first initiatives to to become student/customer oriented by using marketing as a means to create a satisfactory exchange between the university and its customers (Motekaitienė & Juščius, 2008).

Association of Advance Collegiate Schools of Business (AACSB) which is among the top accreditation agencies has also been emphasizing on market orientated compatibility of academic standards in business education (Hatfield & Taylor, 1998). According to the “Baldrige Education Criteria for Performance Excellence” (BNQP, 2005; LeRoy, 2005) the minimum likely advantage of surpassing in MO behaviors and actions to the non-business organization is to develop ability to achieve performance-excellence.

A review of “Baldrige Education Criteria for Performance Excellence” revealed that all the necessary “behaviors and actions” that signify MO are indicated to be important components of this criteria leading to performance excellence in higher education (BNQP 2005). This is certainly in line with the primitive marketing literature (Barksdale & Darden, 1971; Houston, 1986; Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Sigauw, Brown & Widing, 1994), which theoretically and empirically emphasizes on superior levels of MO leading to superior organizational-performance.

All components of MO as described in the marketing literature (Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Slater & Narver, 1994) are incorporated into the criteria given in “Baldrige Education Criteria for Performance Excellence”

(Hammond, Webster & Harmon, 2006; BNQP, 2005). For fulfilling the current and future needs of its primary customers (students) and other stakeholders, this criterion seeks, an educational institute as must to recognize its own competitive strengths, weaknesses, and support the organization-wide coordination for creating, delivering, higher value and satisfaction to students and stakeholders through gathering, disseminating, and utilizing information about needs, preferences and expectations of these clients (LeRoy, 2005).

Zebal and Goodwin (2012) and Akonkwa (2009) note that the MO has enough grounds to be effectively adopted in higher education. Some of the very pertinent researchers on academic capitalism, such as in France (Chevaillier, 2004), in UK (William, 2004; Theisens, 2003), in Netherlands (Salerno, 2004) , in Belgium (Thys-Clement, 2001) and among many others in Australia, Canada, the UK and the USA (Altbach, 2012; Slaughter & Leslie,1997) have recognized a number of changes taking place in education sector such as massified demand for Higher Education (HE), infusion of technology, professionalization, resource diversification, greater demands by stakeholders for higher levels of accountability with quality control and the other financial and nonfinancial limitations along with the different ways how universities need to respond to such fluctuations. These changes force higher-education-institutions (HEIs) to adopt the basic principles of marketing. Hence, MO has turned out to be a very highly relevant strategy in the context of contemporary HE (Zebal & Goodwin, 2012; Akonkwa, 2009; BNQP, 2005; Coaldrake, 2002; Bricall, 2001).

According to Niculescu et al. (2013) and Zebal and Goodwin (2012), the empirical findings have a number of signals for MO to be potentially valuable for universities. Previous literature indicates that this idea may be quite usefully applicable to societal organizations as well for their superior performance (Duque-Zuluaga & Schneider, 2008).

The market-orientation obviously directs universities to be more customer oriented (student oriented), as the students are the primary customer constituency for any university. Hence, the university education must support students in accomplishing their career needs, such as the instant knowledge, philosophies, perceptions, skills, consultation and motivation needed to enter the job market, as well as other intellectual competences useful throughout their practical life (Camelia & Dorel, 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Schuck, Gordon & Buchanan, 2008; Walkenhorst, 2008).

A higher degree of market-orientation by a university is also associated with generation of more non-government funding for that university (Camelia & Dorel, 2013; Caruana et al., 1998 a, b). MO also allows universities to increase their enrollment level and the retention rate of current students (Webster, Harmon and Rothwell, 2010). Webster et al. (2010) further reports that MO also brings into universities the more chances of involvement and partnerships with the corporate sector through satisfied alumni. Flavián and Lozano (2007) also associate MO with effective teaching and research activities. MO increases customer-perceived service quality, satisfaction and loyalty of university customers (Voon, 2008).

Hence, in university settings, the application of market-orientation may help administrators and instructors in creating a student friendly environment, through its value components of “Customer-orientation, competitor-orientation, and interfunctional coordination” (Oplatka & Hemsley-Brown, 2007). To make the most of this philosophy, administrators and instructors both must be persuaded for the positive impact it can generate upon students. Competitive advantage besides a better student service is the potential outcome of applying this philosophy for higher education (Voon, 2007).

Unfortunately, the contemporary universities seem neglecting MO with a specific focus on students' needs, maybe because education seems to have different characteristics from the traditional products (Hampton et al., 2009; Comm & LaBay, 1996).

Never the less the contemporary competitive conditions have forced the HEIs to continue refining their strategies and procedures to ensure a purposeful survival through adoption of market-based approaches (Hampton, Wolf, Albinsson & McQuitty, 2009; Khuwaja et al., 2015). Potential students expect the contemporary universities to offer more advanced programs accompanied by improved quality service. Need for growing student enrollment, the stress to meet industry demands and growing complexity has lead HEIs to treat students in a MO perspective. As per the nature of their services, the universities require a human interface with their external and internal customers, so, the MO is particularly essential for them (Zebal & Goodwin, 2012; Hashim & Rahim, 2011).

For the universities, there is a growing pressure to adopt MO arising from the turbulent environment around the globe that is in the form of exceptional socio-economic as well as technological growth and the confounding competitiveness along with its consequential geo-political variations (Zebal & Goodwin, 2012).

Furthermore, the enormous growth of higher education without the equivalent government budget support has created severe funding pressure, forcing universities to look for market-based options to generate revenue (Green, 2014; Mitra, 2009; Newman, Couturier & Scurry, 2010). Mitra (2009) claims that it is observed over and over again in history that most of the government funded universities normally appear to be the most ineffective ones whereas the more market-oriented are the most efficient ones.

Consequently, in order to handle the growing environmental pressures specially in terms of funding, the HEIs must opt for the market-based opportunities along with cost

controlling initiatives rather than the sole government funding reliance (Cheung & Chan, 2010; Caruana et al., 1998). Besides that, there are “more complex social needs, growing affluence, competition for human resources, increased regulation and accountability and escalating costs” that universities are facing (Alexander, 2000).

The manifesto of nonprofit institutions for their beneficiaries and donors is affected by their MO as it intensifies their struggle on two primary but separate fronts with separate target audience and their different needs (Padanyi, 2001; Shapiro, 1973; Segal, 1991) whereas for the profit seeking commercial organizations resource allocation as well as resource generation is simultaneous, quote Kara et al. (2004). Hence, the significant environmental changes are in progress. Therefore, like the commercial firms, HEI must also watch and accommodate according to the constantly changing geo-political, socio-economic, and info-tech environment to sustain their survival. The revolution of information Technology has shaken the foundations of value delivery system, such as 24/7 communication services for prospect query response, e-portals, and virtual courses (Young, 2004; Tierney, 1998).

While such global technology intensive developments challenge to all HEIs, the enduring economical and the political changes in their host countries often pose immediate impact on university-performance. Budget constraints to their host governments have brought in reduction or even abandonment of centrally allocated grants, replaced by a more limited number of scholarships, forcing them for price hike ups and self-financed programs to prospect students. Students under such situation, demand relatively better quality and may prefer only those universities that appear to offer desired courses with better quality standards. Such economic pressures push universities to cost cutting and/or revenue growing measures (Archibald & Feldman, 2008).



According to Caruana et al. (1998), HEI's need to offer thorough, carefully chosen, relevant and updated academic programs to satisfy their students' and their own long-term motives. This situation has triggered more universities to increasingly spotlight on areas that can generate revenue besides focusing on cost reduction. Some are aggressively promoting training services to market, while others are searching the potential to offer consultancy services. Another lucrative alternative is the overseas market where numerous universities are running significant programs (Jongbloed, 2004; Larsen, Martin & Morris, 2002; Illing, 1996).

According to Hashim and Rahim (2011) and Desphandé et al. (1993), previous researches on the construct of MO have exclusively attended it with a perspective of managers/employees, which is argued to be one sided and myopic, neglecting the fundamental role of customers in value creation says. In case of HEI's, this argument becomes more applicable where academic programs are condemned of being inconsistent with reality.

Mitra (2009) determines that all university constituencies especially the learners and the employers of these learners as the central beneficiaries of university programs, they both need the teaching excellence and productive research, which is the prime task of the academic staff. Mitra further quotes that it is the teachers who bring about the revenue for their university and it is their academic power that secures respect for themselves, their students and the university as a whole. That is what makes them major decision-makers (Hampton et al., 2009). The administration therefore must play the role of teachers' facilitator rather than governing them (Mitra, 2009). Algarney and Talib (2014), Hashim and Rahim (2011), and Mitra (2009) emphasize that the universities must take over a market-oriented approach in order to cater better services to help students in their

desirable career pursuit by redrafting the curriculum according to the up to date standards, whereby the students might also be allowed to participate in the university affairs for supporting the faculty in the process of knowledge creation.

Hence, it can be concluded that although a number of research studies have been carried out for MO in various contexts such as; SME's by Pelham (2000); across diverse industries in various countries such as Denmark, Norway and Sweden by Selnes, Jaworski and Kohli (1996), in Saudi Arabia by Bhuian (1997), in Hungary, Poland and Slovenia by Hooley, Cox, Fahy, Shipley, Beracs, Fonfara, and Snoj (2000), in Mexico by Felix and Hinck (2005), in Finland by Elg (2008). The issues regarding the determinants and development of MO and its impact are yet relatively under researched, especially in developing countries, with a more precise focus on HE. (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Hampton et al., 2009; Duque-Zuluaga & Schneider, 2008; Caruana et al., 1998; Kohli & Jaworski, 1990)

Even though a reasonable number of past research studies on MO in the context of higher education measured the impact on university-performance, however, some researchers emphasize on developing a new construct of measuring university-specific MO (Rivera-Camino & Ayala, 2010; Hampton, 2007; Hampton et al., 2009; Voon, 2008).

Although a detailed review of literature presents the role of MO in higher education, nevertheless a quick review of past studies regarding MO and higher education is presented in Table 2.4.

Table 2.4

*Review of past studies on Market-orientation in the context of Higher education*

<b>Study</b>	<b>Tool</b>	<b>Method / Sample</b>	<b>Country</b>
Koris and Nokelainen (2015)	SCOQ (Student-customer market-orientation)	Survey from 300 students	Estonia
Khuwaja et al. (2015, 2017)	UNIVERSITY-MARKOR (University market-orientation)	Conceptual study	Pakistan
Algarni and Talib (2014)	INMO and EXMO (internal and external market-orientation)	Meta-analysis / Literature review	Saudi Arabia
Mainaides, Raposo and Alves (2014)	MO for multiple university-stakeholders	Literature review debate	Portugal
Niculescu et al. (2013)	UNIVERSITY-MARKOR (University market-orientation)	Survey from 300 faculty members	USA
Bellei and Cabalin (2013)	MO (Market-Orientation)	A case study of Chile	Chile
Felgueira and Rodrigues (2013)	IMO (Individual market-orientation)	Survey from teachers in public universities	Portugal
Camelia and Dorel (2013)	SERVEMO (service market-orientation)	A conceptual study	Romania
Zebal and Goodwin (2012)	Refined MKTOR (Market-orientation)	Survey from 134 faculty members of the 15 private universities	Bangladesh
DiAConu and PANDEIICă (2012)	MCMO (multiple constituency market-orientation)	Methodological study based on an extensive bibliographic research	Romania
Carlos and Rodrigues (2012)	IMO (Individual market-orientation)	Country wide Survey from 86 professors.	Portugal
Hashim et al. (2011)	CDMO (Customer- defined market-orientation)	Survey from 300 university students	Malaysia
Akinyele (2011)	CDMO (Customer- defined market-orientation)	Survey from 300 university students	Nigeria
Rivera-Camino and Ayala (2010)	UMO (university market-orientation)	University professors and researchers	Spain
Pavičić et al. (2009)	MCMO (multiple constituency market-orientation)	Survey from faculties of 60 higher education institutions	Croatia
Hampton et al. (2009)	MARKOR (Market-orientation)	Survey from 120 university professors	USA
Voon (2008)	SERVEMO (service market-orientation)	Survey from 588 senior students	Malaysia
Duque-Zuluaga and Schneider (2008)	Conceptual Framework Proposed	A conceptual study	Europe
Deng and Hu (2008)	NMO (nonprofit market-orientation)	223 Non-profit organizations	China
Caruana et al. (1999)	MARKOR (market-orientation)	502 HoDs of Public-sector organizations	Australia & NewZealand
Buchbinder (1993)	MO for Universities	Conceptual proposition	Canada

#### **2.5.1.4 Market orientation in universities of Pakistan**

There is quite a number of researchers' work evident in literature in the area of MO, to start referring to some pioneers such as; (Jaworski & Kohli, 1993; Narver & Slater, 1990; Narver et al., 1992; Shapiro 1980; Slater & Narver, 2000). These pioneer studies provide the basis for the later literature to reexamine the construct in different contexts (Akinyele, 2011; Hashim & Rahim, 2011; Dwairi, Akour & Sayyer, 2012; Niculescu et al., 2013; Algarni & Talib, 2014).

As for as the study of market-orientation in (universities of) Pakistan is concerned, there is no such effective research endeavor evidenced in literature besides Ghani and Mahmood (2011), Malik and Naeem (2009) and Alam (2009) which are all beyond the scope of HE, necessitating this study under consideration. Thus, in the context of universities in Pakistan, a number of relevant studies can be guiding for the purpose of underlying study such as: Khuwaja et al. (2015), Hashim and Rahim (2011), Han et al. (1998), Padanyi (2001), Hasan, Ilias, Rahman, and Razak (2009), Niculescu et al. (2013) and Algarni and Talib (2014).

For example, Hashim and Rahim (2011) suggest for universities that, in order to be more responsive to their prospects, by offering precise, systematic, and relevant academic options in modern fashion, it seems particularly important for universities to adopt market-orientation, as they seek a great deal of human interaction with their internal as well as external customers. They further express that in contrast to for-profit entities, with a simultaneous mechanism for both tasks of "resource allocation as well as resource attraction", the nonprofits including universities, have a dual challenge for the same, as these tasks are directed towards two different sets of market, "the beneficiaries and the donors". Therefore, to continue existing and growing sustainably, the universities need to be more compatible to the market needs, through MO (Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Niculescu et al., 2013; Algarni & Talib, 2014).

### 2.5.2 Innovation

The idea of innovation is not really a very new phenomenon; rather, it is as old as the human being itself (Fagerberg, 2004). Fagerberg (2004) points out that despite its obvious significance, innovation has not always been noticed by scholars as much as it deserves (Fagerberg, 2004). However, in the pertinent literature, the roots of innovation research can be traced back to the economic innovation theory in the earlier writings of Joseph Schumpeter (Hoidn & Kärkkäinen, 2014; Schumpeter, 1934)

Management and business literature has investigated innovation intensively (Garcia & Calantone, 2002). According to Keskin (2006), innovation is another effective strategic-orientation, with footings in earlier literature (Zaltman et al., 1973; Damanpour & Evan, 1984; Zahra et al., 1988; Damanpour et al., 1989; Khan & Manopitchetwattana, 1989).

Menguc and Auh (2006) suggest that organizational innovation is not as simple as an overnight transformation rather it is sought after undergoing a long resistance. It can't be bought or transferred from external markets, but it has to be cultivated within the organization. To realize innovation, the organizations need. Mulgan and Albury (2003) emphasize that as it helps raise the level of client value, so, fostering innovation at all organizational levels is quite essential for a continual development of any organization, particularly in the public-sector.

Although according to their own perspectives, scholars provided different definitions of innovation, however, they seem to mutually agree-upon 'openness

to new ideas and propensity to and acceptance of change' to be the common characteristics of an innovative organization (Baregheh, Rowley & Sambrook, 2009).

Likewise, O'sullivan and Dooley (2009) describe innovation as "the process of making changes, large or small, radical or incremental, to products, processes, and services that results in the introduction of something new for the organization that add value to customers and contributes to the knowledge store of the organization". From this definition, innovation seems overlapping with marketing-concept by its customer focus. Kafetzopoulos and Psomas (2015) point out several types of innovation like product innovation, process innovation, organizational innovation, management innovation, production innovation, and marketing innovation.

It is defined as an aspect of organizational culture and a dynamic organizational capability for successful innovations (Hurley & Hult, 1998; Menguc & Auh, 2006). Bakker and Sinkula (2002) categorises innovation as (1) radical innovation which is rapid improvement within shorter span of time and inimitable (2) incremental innovation which is gradual change with in longer term but vulnerable to be copied by competitors. Further defining innovation broadly, Baker and Sinkula (2002) depicts it as breeding and application of new products, processes and ideas, by means of the capacity to innovate.

Innovation is also defined as a unique resource, an aspect of organizational culture and a dynamic organizational capability for novelty (Modi, 2012; Menguc & Auh, 2006; Hurley & Hult, 1998). According to Agarwal et al. (2003), and Han et al., (1998), innovation refers to the technical and administrative

breakthroughs of an organization. Keskin (2006) and Calantone et al. (2002) defined firm innovativeness as openness to new ideas as an aspect of a firm's culture by a willingness to try out new ideas, seek out new ways to do things, be creative in its methods of operation and rate of product introduction.

According to Carmen and José (2008) and Deshpande et al. (1993) innovation is the ability of a business to develop new products/services based on information and knowledge generated from customers, competitors and technology. The generally accepted description of the term in marketing literature appears as the breakthrough novelty in the organizational products and processes (Altuntaş et al., 2013; Keskin, 2006; Han et al., 1998).

Nevertheless, in nonprofit establishments the most evident innovations are commonly incremental, or continuous in nature. Being more risk averse in nature, due to a number of factors like, "relevance of social objectives, flexibility, the weight of external sponsors and the difficulty in assessing the long-term success of the new program", the large nonprofit setups appear to be very slow in creating R&D for adapting innovation to their products and processes (Barczak, Kahn & Moss, 2006). Hull and Lio (2006) therefore suggest that for such risk averse organizations, the process innovation is more compatible than product innovation it turns to be less risky and more economical.

In the academic context, Rosing, Frese, and Bausch (2011) define innovation as the deliberate introduction and practice of "ideas, processes, products or procedures", applied to benefit the individuals, a group, an institute or society as a whole. Innovation as a social process is a unique form of creativity with more implementation attribute as creativity is more characterized by generation of

ideas than implementation (Axtel, Holman, Unsworth, Waterson & Harrington, 2000).

Besides all above, the literature extricates different categories of innovation ( Jiménez-Jiménez and Sanz-Valle, 2011; Kim, Kumar & Kumar, 2012). Some researchers assessed a single type of innovation like ‘process innovation’ (Abrunhosa & Sa, 2008) or ‘product innovation’ (Prajogo & Sohal, 2004), while others viewed both ‘process and product innovation’ (Feng, Terziovski & Samson, 2008; Martinez-Costa and Martinez-Lorente, 2008).

Some others theorize innovation as marketing and organizational innovation (Chang, Linton & Chen, 2012; Evangelista and Vezzani, 2010; Wang and Ahmed, 2004; Wonglimpiyarat, 2010; Gunday, Ulusoy, Kilic & Alpan, 2011). Avermaete et al. (2003) claimed that all these are the areas of innovation such as ‘product, process, organizational and market innovation’.

For this study, the operationalization of innovation has been adopted from the work of White and Glickman (2007) and Damanpour (1991). According to White and Glickman (2007), the innovation is some improved way of functioning, or any amendment that makes the academic or administrative performance better, or an experiential paradigm shift based on a new way of thinking. Damanpour (1991) considers the technical and administrative aspects of innovation. Technical innovation includes “new products or services and processes”, or alterations in the mechanism used to produce or deliver products/services (Avermaete et al., 2003). Administrative innovation means the execution of new ideas to advance the “organizational structures, systems and processes” (Damanpour, 1991; Weerawardena, 2003).



### **2.5.2.1 Innovation into the higher education**

As the innovation has been elaborated with detail in previous section, henceforth, the same array of interpretations of innovation applies to higher education as well where innovation might refer to the new ways of undertaking things, or a change that increases administrative or educational performance, or a transformational experience based on a new way of thinking (White & Glickman, 2007).

The future of knowledge societies in terms of their socio-economic progress is based on the innovation, where higher education is a very critical role player in equipping the societies with necessary skills required for corresponding with the indispensable innovation process to capitalize on. Hence, to fulfill this objective, the higher education itself needs to be innovative by developing (in academicians as well as learners) the innovation skills which are also referred to as ‘the 21st century skills’ such as: technical skills, thinking and creativity skills and Social/behavioral skills (Hoidn & Kärkkäinen, 2014; Deem, Mok & Lucas, 2008).

Mulgan and Albury (2003) emphasize that the innovation must be sought at all the levels of an organization, particularly in public-sector organizations, including higher-education-institutions because it raises not only the organizational-performance, but it also raises the quality of services and overall value proposition. But unluckily the public organizations are characterized by the features that hinder innovation, which must be overcome such as lack of profit motive, risk aversion, obsolete technology and short-term delivery pressure (Mulgan & Albury, 2003)

White and Glickman (2007) assert that focusing on the new technology, the universities need to determine how they can capitalize on innovations in operational and service novelty. Information technology impacts not only the academic content delivery but also subsidiary

operations. Institutions that are more prone to change will reap much greater benefits along with a consequent higher ranking and funding.

For higher education, the innovation can offer flexibility to enable institutions to adapt more readily in a constantly changing environment, as a means by which colleges and universities can address the concerns typically associated with mature enterprises malaise; they can also ease the increasing cost pressures and gain efficiencies through better operations and better matching of innovative resources and goals (White & Glickman, 2007; Donofrio, Sanchez & Spohrer, 2010; Selwyn, Gorard & Williams, 2001). Friedman (2005) has referred to this twenty-first century world as flat for being highly interconnected due to technological innovations. Thomas Friedman emphasizes that this situation brings deeper insights and urgency for education sector as well that needs to be tackled innovatively.

According to a report by Spellings (2006) higher education has become tougher to innovate as it has reached the level of a mature enterprise malaise, characterized by unduly expensive, highly risk averse and at times self-contented. But the initiatives like the IT-supported 'Universal Design for Learning' (UDL) as well as the 'Baldrige Award' can be utilized to foster systematic ways to adapt higher education with new processes and programs with evident fruits. Although a bit too late yet innovation can be incorporated in higher education today. The spellings report (2006) further solicits that HEIs must develop a result oriented innovation, by developing the better ways to ensure and measure the learning outcomes of their scholastic mechanism. Donofrio, Sanchez & Spohrer (2010) calls for diversified collaboration to break the pessimism and disciplinary barriers grown in mature institutions. Such a divergent organizational alliance increases the problem-solving and opportunity-hunting capacity of the innovative project (Levinthal & March, 1993)

An increased focus on innovative teaching/learning is also evident. European Commission (2010) promotes multifaceted capabilities for all inhabitants and it campaigns that European training and education should comprise the objectives of “creativity, innovation and entrepreneurship” at all levels of education. Growing trend of shifting focus on ‘student-centred’ learning instead of ‘teacher-driven’ provision can be recognized in Europe (Crosier, Purser and Smidt, 2007). The “New Commission on the Skills of the American Workforce”, in USA has emphasized the leadership from education, government, civil rights and business to come up with developing education sector in accordance with the 21st century challenges (National Center on Education and the Economy, 2006)

Today’s higher education leaders need to seek continued innovation as it exists in the form of “24/7 quarry response, online curricular programs, , e-portals, virtual courses, technology based delivery mechanisms, support services, synchronized administration and operations through IT packages” (Archibald & Feldman, 2008; Clark, 1996), in order to handle internal and external pressures produced by forces such as rankings and increased competition for students and faculty as well as by the bodies for regulating and accrediting universities, who expect growing accountability, transparency, and tangible evidence of success (Hoidn & Kärkkäinen, 2014). Innovative institutions are more flexible to adapt more readily in a turbulent environment through better matching and capitalizing on their resources and opportunities from real time problems (Hoidn & Kärkkäinen, 2014).

Innovation is a vital characteristic of entrepreneurial-orientation (Algarny & Talib, 2014). Thus, “entrepreneurial universities play a diverse role in university-pushed, government-pulled and corporate-led innovation” (Etzkowitz & Zhou, 2007, p.2). Furthermore, the entrepreneurial and innovative university is capable to complete a circulation of trilateral-cooperation between academia, industry and government (Li-Hua et al., 2011).

## **2.6 The Constructs' Relationship Defined**

The given research framework of this study (refer Figure 2.1) outlines the relationship among all the endogenous as well as exogeneous constructs under focus.

A research framework elucidates the configuration of a theoretical territory and guides us towards a potential theory (Crossan, Lane & White, 1999). There are certain requirements for a framework to be good, such as (i) Potential to spot some incident of interest, as in our case university-performance, (ii) Ability to state the basic assumptions pertinent to the framework (Weick, 1995; Bacharach, 1989), (iii) Capacity to describe the relationships among the components of the framework (Sutton & Staw, 1995; Weick, 1995; Whetton, 1989).

### **2.6.1 Market-Orientation and Organizational-Performance Relationship**

Market-orientation (MO) being fascinating in nature, has remained a high concern facade for research (Malik & Naeem, 2009). Cripps, Ewing, and McMahon (2004), express that, as the part of the organizational restructuring process, the governments even in developed countries now place additional attention on MO and seek superior levels of customer-satisfaction. Service sector including HE is no exclusion to it (Zebal & Goodwin, 2012).

Previous literature provides a number of studies (Jaworski & Kohli, 1993; Narver & Slater, 1990; Caruana, Ramasheshan & Ewing, 1999; Hashim & Rahim, 2011; Neculescu et al., 2013; Algarney & Talib, 2014; Latif, Abdullah, Jan & Thaheer, 2016) that extend the supportive evidence regarding the positive relationship between MO and the organizational-performance, even in higher education sector.

Regarding service sector, Agarwal, Erramili and Dev (2003) claim that, MO offers a unidirectional focus for all the business endeavors by every individual and departments, leaving the overall organization on the path of delivering superior customer value, which leads to higher employee morale and commitment, resulting in superior organizational-performance. Niculescu et al. (2013) express that most essentially, MO often harvests distinguished organizational-performance.

Camelia and Dorel (2013) as well as Caruana et al., (1998) assert that universities with higher degree of MO are more capable of generating more non-government funding. MO is also reported to play a significant role for universities to raise their enrollment level and the retention rate of current students (Webster et al., 2010). Webster et al. (2010) further reports that MO also brings in universities the more chances of potential involvement and partnerships with the corporate sector through their alumni. Flavián and Lozano (2007) also associate MO with effective teaching and research activities. MO also increases customer-perceived service quality, customer satisfaction and loyalty to university (Voon, 2008).

Although a robust positive relationship between MO and organizational-performance has been observed by certain researchers (Ozkaya et al., 2015; Zaifuddin, 2010; Morgan et al., 2009; McNaughton, Osborne & Imrie, 2002; Noble et al., 2002; Jaworski & Kohli, 1993), yet a few others found some discordant results as well such as Keskin (2006) found only an indirect relationship of MO and performance, whereas Becherer and Maurer (1997) found no evidence for the said relationship. Similarly, certain other studies also came up with inconsistent results suggesting the incorporation of some mediating or moderating variables like innovation between MO and organizational-performance (Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012;

Modi, 2012; Morgan et al., 2009; Menguc & Auh, 2006; Kirca et al., 2005; Aldas-Manzano, Küster & Vila, 2005, 2005; Hult, Hurley & Knight, 2004; Agarwal et al., 2003).

McNaughton et al. (2002) as well as Reichheld and Sasser (1990) also emphasize that MO positively affects the ‘customer perceived value’ and generates more customer satisfaction and loyalty as a consequence. MO ultimately appears to have a positive correlation with firm’s progression-goals through recognizing as well as exploitation of the prospect untouched market opportunities (Baker & Sinkula, 2009). Yet the necessary departmental coordination and mutual decision making followed by necessary action is another prospect contribution that the MO has towards supplementing the organizational-performance (Lings & Greenley, 2009). This may ultimately lead to the enhanced organizational capacity to better recognize the customer needs (Borges, Hoppen & Luce, 2009).

Moreover, some other studies declare that MO can also serve as an effective tool to secure a competitive advantage (Zebal & Goodwin, 2012; Morgan et al., 2009; Hunt & Morgan, 1995), better service innovation (Ordanini & Maglio, 2009), scalated level of commitment as in the public-sector (Dwairi, Akour & Sayer, 2012; Caruana et al., 1999), progressive returns on investment for firm titleholders (McNaughton et al., 2002), and an ability of firm to introduce increased number of new products successfully (Narver et al., 2004).

Similarly, Soehadi, Hart and Tagg (2001) also report that MO can tempt ‘superior customer value’ as well as a boosted ‘supplier partnership status’. Furthermore, the employee motivation for improved customer care is another extended outcome of this strategy (Herington & Weaven, 2009). Finally, MO is also reported to crop the boosted

leadership capabilities, as well as improved customer attraction and retention (Narver et al., 2004; Narver & Slater, 1990). Hence, the significance of a MO is vital to every facet of any modern organization and the universities presumed to be the nonprofits are not exclusion to it (Padanyi, 2001).

Hence, an empirical support for an often-assumed relationship between a MO and performance has been reported in a number of relevant studies (Dwairi, Akour & Sayyer, 2012; Akinyele, 2011; Haugland et al., 2007) and even for nonprofit setups (Randheer, 2015; Koris & Nokelainen, 2015; Watjatrakul, 2014; Behdioğlu & Şener, 2014; Green, 2014; Vouri, 2013; Sharabi, 2013; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; O'Neill & Palmer, 2004).

Nevertheless, arguments have been more refined in literature signifying that a MO might have a powerful or a weak impact on organizational-performance, subject to the given environmental circumstances such as market instability or competitive intensity as well as internal capacities, hence, a number of studies confirm the mixed results for the said relationship of MO and organizational-performance (Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Morgan et al., 2009; Menguc & Auh, 2006; Kirca et al., 2005; Aldas-Manzano et al., 2005; Agarwal et al., 2003; Greenly, 1995; Jaworski & Kohli, 1993).

In the late 1980s and early 1990s, five different frameworks regarding the operationalization of MO versus organizational-performance were put forward in literature. They comprised of “decision-making perspective (Shapiro, 1988), market intelligence perspective (Kohli & Jaworski, 1990), culturally based behavioral perspective (Narver & Slater, 1990), strategic focus perspective (Ruekert, 1992) and customer-oriented perspective (Deshpande, Farley & Webster, 1993)”.

However, the imminent perspective of researchers such as Steinman et al. (2000) and Webb et al. (2000) advise that an organization is market-oriented, only when all its offerings are recognized as value to market. The relationship between customer satisfaction and MO makes an appealing sense when it is examined in customer-court (Hashim & Rahim, 2011). Same proposition was earlier extended by one pioneering author Shapiro (1988), who defined that the philosophy of MO is a set of all procedure encompassing all facets of an organization directed to customer satisfaction as the primary indicators of performance, through direct involvement of top management.

Such kind of objectives seeks free flow of market information about “all purchasing influences on buyers”, into every functional area of the organization with ensured access to the corporate leaders for a solid understanding of customers’ priorities. The said influences include non-buyer/non-user influences including family, consultants, procurement departments and traders. It is going to be too late to deliver value he notices, if the organization waits for marketing/sales guys to recognize the potential target customers first and then to design, develop and deliver the said product/service.

So, the recognition of target market and its influences by the organization as a whole allows it to have a pretty much set product-mix. This approach requires top-down direction with the leadership first, to be committed with the said Philosophy, and then for the functional differences to recognize and coordinate for introducing mutually acceptable trade-offs (Akinyele, 2011; Conduit & Mavondo, 2001).

According to Haugland et al. (2007) and Narver et al. (2004) due to a continuous evolution in needs and wants of customers over time, carrying out high quality goods and services consistently seeks an ongoing monitoring and response to these evolved needs and that is how being a market-oriented is. So, as per Zebal and Goodwin (2012),



Haugland et al. (2007) and Kohli and Jaworski (1990), MO more formally is “the organization-wide generation of market intelligence, dissemination of the intelligence across departments, and organization-wide responsiveness to it” that leads to an enhanced organizational-performance.

Hence, the MO literature provides substantial evidence on the relationship between MO and performance in public/nonprofit sector in a number of studies.

So far as the application of this concept is concerned to university settings, there is a couple of literature that supports the idea of using modern marketing aspects in universities (Asif & Searcy, 2014; Bilal & Imran, 2012; Hoodbhoy, 2009; Haider, 2008; Hampton et al., 2009; Hemsley-Brown & Oplatka, 2006; Stewart, Zinkhan, 2006; O’Neill & Palmer, 2004; Immerwahr, 2002; Cervera, Molla & Sanchez, 2001; Alexander, 2000) and more specifically the adoption of MO is set to be more lucrative for the higher education industry (ALgarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Camelia & Dorel, 2013; Felgueira & Rodrigues, 2013; Hashim & Rahim, 2011; Ross, Grace & Shao, 2013; Mitra, 2009; Hampton et al., 2009; Olavarrieta & Friedmann, 2008; Shoham et al., 2006).

Although most of the studies cited above highlight the measurement of MO—performance relationship in the context of business organizations. Hence, the different nature of higher education solicits a more context-specific measurement of the said relationship that has been conducted by a very limited number of researchers (Hampton, 2007; Hampton et al., 2009; Hashim & Rahim, 2011; Niculescu et al., 2013; Algarni & Talib, 2014).

A number of these above studies have used a more context-specific operationalization and measure of MO that represent the university-MO more effectively because the other

tools previously used to measure the MO—performance relationship were found to be less effective in the context of higher education, as those were formed in the context of business enterprise. Hence, keeping in view the student-focused activities of the teachers, the construct of MO (for universities) has been adapted and refined by Hampton (2007) with a variation of three dimensions: i) Administration-leadership, ii) Advising and mentoring and iii) Intelligence-generation and responsiveness, each reported with a significant impact on university-performance as measured with UNIVERSITY-MARKOR scale, having a 0.90 value of Cronbach's Alpha that is relatively higher than the other MO scales (Niculescu et al., 2013; Hampton, 2007; Hampton et al., 2009). This variation has been posed based on earlier mechanisms for MO designed by Brady and Cornin (2001), Caruana et al. (1998, 1999), Kohli et al. (1993) and Saxe and Weitz (1982).

Numerous other studies have supported the relationship of given components of MO to the organizational-performance as well (Young-Jones, Burt, Dixon & Hawthorne, 2013; Schroeder, 2012; Rosing, Frese & Bausch, 2011; Akinyele, 2011; Grinstein, 2008a; Morgan et al., 2009; Kirca & Hult, 2009; McNaughton et al., 2002; Noble et al., 2002; White, Thompson & Patel, 2001; Gray et al., 1998; Anderson, Fornell & Rust, 1997; Atuahene-Gima, 1996; Jaworski & Kohli, 1993; Hampton, 1992; Morgan & Pierce, 1991; Greenley & Matcham, 1986).

The MO—performance relationship, which is well established in the profitable and nonprofit business settings, it also seems to exist in the context of HE (Algrani & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012). Hammond, Webster, and Harmon (2006) admitted that: those universities that have secured a superior focus on

“students, other stakeholders, and competitors”, through better coordinated activities and information, they are able to achieve advanced levels of performance.

As far as the literature is concerned regarding the more specific relationship of ‘MO and university-performance’ with the context-specific and particular dimensions of MO, certain studies discern that no matter what is the significance of relationships reported between the universal/generic variables, there may however be a deviation of given relationships when tested through individual dimensions in different points in time and area (Umrani, 2016; Ozkaya et al., 2015; Niculescu et al., 2013; Cheng & Krumwiede, 2012; Zaifuddin, 2010; Zahra, 1993). Hence, with the help of literature support, the following sections briefly describe how the organizational-performance is related to the dimensions of MO.

#### **2.6.1.1 Relationship between the administration-leadership (ADML) and the organizational-performance**

Leaders are the pivots to the organizational processes of developing effective structures, creating cultures and systems that result in improved organizational-performance (Kavanagh & Ashkanasy, 2006).

A number of studies since 1990’s have attended the leadership and its organizational-effectiveness (García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Bryman, 2007 ; Benoit & Graham, 2005; Marks & Printy, 2003; Trocchia & Andrus, 2003; Brown & Moshavi, 2002; Winter & Sarros, 2002; Murry & Stauffacher, 2001; Evans, 2001; Winter, Taylor & Sarros, 2000; Silins et al., 2000; Sebring & Bryk, 2000; Senge, Cambron-McCabe, Lucas, Smith, Dutton & Kleiner, 2000; Leithwood, Jantzi & Steinbach, 1999; Blasé & Blase, 1999; Leithwood, Omlinson & Genge, 1996;

Leithwood,1994,1995; Leithwood, Dart, Jantzi & Steinbach,1993; Leithwood & Jantzi, 1990; Leithwood, Jantzi & Fernandez,1994) among others.

Today's knowledge-society seeks the leaders who can handle the modern challenges by enculcating new horizons of knowledge and innovation in their organizations for higher levels of organizational-performance (Alexander & Yuriy, 2015; García-Morales, Lloréns-Montes & Verdú-Jover, 2008). The leader's role in the innovating firm is as a catalyst and facilitator, not as an all-knowing autocrat (Nonaka, Kenney, 1995). In this information age, It is not only the knowledge of organizational members in itself which is strategically vital, but rather it is the capacity of organizational leader to capitalize on that knowledge innovatively for developing the essential competences required to improve organizational-performance, by allowing the organizational members to use their tacit knowledge with greater liberty (Barrett & Sexton, 2006; García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Hurley & Hult, 1998; Grant, 1996; Nonaka & Takeuchi, 1995).

Some charismatic leaders have the ability to develop a clear communication network throughout the organization for uninterrupted information, openness and trust spirit in their followers for a better organizational-performance (Win, 2006; Senge, 1990; Slater and Naver, 1995). Leadership stimulates the organizational absorptive capacity for new knowledge and accordingly accommodates organizational structure design and elevates the developmental investment for high performance (Cohen & Levinthal, 1990; Van den Bosch, Volberda and de Boer, 1999). A study by Evans (2001) reveals that leadership has an indirect impact on job related attitude of employees and their performance.

As found in literature, one type of leadership categories encompasses transactional and transformational styles of leadership. Bass, Avolio, Jung and Berson (2003) discovered that both the transactional and transformational leadership styles have strong positive relationship to their unit's performance in army squads.

Research suggests that transformational type of leaders have greater capacity to determine and persuade the essential attitudes and perceptions of their followers, towards mutual organizational goals. This transformational leadership style usually generates higher organizational-performance than transactional leadership (Bass & Avolio, 2000).

Transformational leaders spotlight on root causes for a problem, seeking more appropriate solution for it. They collaborate with stakeholders, create their self-interest, seek their enhanced commitment with fullest potential for their overall performance improvement of organization (Marks & Printy, 2003; Silins et al., 2000; Leithwood, Tomlinson & Genge, 1996; Sagor & Barnett, 1994; Bass & Avolio, 1993; Hallinger, 1992).

With a capacity to utilize intellectual capital and challenge the status quo, the transformational leaders are able to make the most of the changing internal and external circumstances leading to improved organizational learning, innovation with higher level performance (Hurley & Hult, 1998; Glynn, 1996; Argyris & Schon, 1996; Senge, Roberts, Ross, Smith & Kleiner, 1994). By stimulating the transfers of explicit and tacit knowledge in their organizational members, these leaders can generate sustainable competitive advantages and improvements in organizational-performance (Argyris & Schon, 1996). Transformational leaders can better show others their professional paths, enabling others with a greater task liberty, which allows other members to make better

intellectual decisions based on their tacit knowledge, which (the tacitness) in itself is a source of competitive advantage (Sarros et al., 2002; Nonaka & Takeuchi, 1995).

The transformational leaders have the capability to literally transform their organization from a market driven to a market driving force where the customer needs are not just recognized rather redirected with enhanced value proposition. Such leaders always encourage their associates for out of box thinking, for more creative and high valued solutions for even the latent customer needs (Carrillat et al., 2004; Harris & Cai, 2002; Jaworski et al., 2000; Kumar, Scheer & Kotler, 2000)

In the context of education, Davies, Hides and Casey (2001) emphasize that nurturing of academic leaders is highly indispensable for survival of universities. Performance of academic institutions depends on leadership (Senge et al., 2000, 1999). Bryman (2007) and Gomes and Knowles (1999) express that although institutional heads have been there since decades but the research on their leadership impact on institutional performance is a piece meal.

In the leadership capacity, the principals may ignite and maintain the transformational cultures in their institutions (Leithwood & Jantzi, 1999; Firestone & Louis, 1999). The principal is termed as “leader of instructional leaders/teachers” (Glickman, 1989) who coordinates with teachers in determining the overall academic and administrative organizational improvements through creating and maintaining high expectations of students as well as teachers (Sebring & Bryk, 2000).

Davies, Hides and Casey (2001) argue that the contemporary academic leaders must exercise the blend of collegiality ethos of their universities with the modern, business-like approach which may be highly responsive to customers (students) to stay more competitive. Silins et al. (2000) and Heck, Larsen, and Marcoulides (1990) confirm

significant effects of 'principal's instructional leadership' on the overall student engagement. Louis (1994) express that effective principal's leadership capacity determines and accentuates teachers' conscientiousness and accountability for the desirable change.

Leithwood, Chapman, Corson, Hallinger and Hart (2012) and Firestone (1996) affirm from their studies in academic setup that the transformational leadership fabricates institutional capacity while the instructional leadership develops individual and collective competencies

While the overall resources abundance is an important consequence of transformational leadership along with the raised academic productivity of colleges as a whole. This happens due to the ability of transformational leaders to motivate colleagues and other followers by increasing their awareness of organizational goals and by stimulating them to surpass their own self-interest for the sake of the organization (Marks & Printy, 2003).

In their studies Sebring and Bryk (2000) and Murphy (1990) noted that instructional leadership was significantly found in the principals of more productive schools, with their involvement in the activities like developing mission and goals; coordinating for effective monitoring and assessment of curriculum; forming more congenial environment to facilitate teaching and learning phenomena.

While the head of school holds the capacity of transformational leader, the teachers with professional knowledge and skills execute a kind of collaborative leadership with their principal for a mutual co-learning phenomenon (Ackerman, Katzenmeyer & Moller, 1996). Such leadership-collaborations have been reported to result in constructive transformation in the tutorial practices (Blasé & Blase, 1999).

Two Australian studies revealed that ‘the consideration characteristic’ of academic leaders is positively related to employee commitment (Winter, Taylor & Sarros, 2000; Winter & Sarros, 2002). Same was confirmed by Fernandez and Vecchio (1997) but for upper level employees including teachers rather than for low level. Trocchia and Andrus (2003) studied the leaders’ integrity trust and fair treatment with their subordinates that boost faculty morale and their performance.

Murry and Stauffacher (2001) found the academic leader’s open communication and encouragement for suggestive as well as participative culture to be an important determinant of trust and fair treatment. This has a critical impact on the research output of a university. Hence, the idealized image of leadership with mentoring capabilities has a special significance in university settings (Bryman, 2007; Benoit & Graham, 2005; Brown & Moshavi, 2002)

In their study, Niculescu et al. (2013) found administration-leadership to be significantly related to the given dimensions of university-performance (overall performance, student retention and funding). They further emphasize that administration-leadership component of market-orientation appears to be an overlooked component into market-orientation scales in the business sectors.

However, despite plenty of support for the significant impact leadership on the university-performance, the empirical results of this study could’t signify the hypothesized positive relationship between the administration-leadership and the university-performance. This means that the university-teachers don’t consider the administration-leadership as an important element for a truly market-oriented university in Pakistan. One possible reason for this might be the argument by Aziz et al. (2014) which also discloses the lack of cognitive and political skills among the university



leaders. This is essentially due to the issues of political involvement into the process of appointments of university leaders who are not capable of driving universities with modern market-oriented attitude. This notion is also consistent with the arguments by Jahangir (2008) and Usman (2014).

Hoodbhoy (2011) also raises similar issue in terms of lack of enough training for teachers and administrators of the government educational institutions. Hoodbhoy further emphasized on the more effective transfer of administration to more experienced and professional administrators. More over Ghani (2013) holds the poor administrative leadership of universities in Pakistan, responsible for under-utilization of the allotted development funds. Usman (2014) also recognizes lack of effective university-leadership in Pakistan.

A number of other studies reported insignificant relationship of administration-leaders on the employee performance resulting in poor organizational performance (Poortvliet, Anseel & Theuwis, 2015; Menguc, Auh, Fisher & Haddad, 2013; Karatepe & Olugbade 2009; Hengel, Blatter, Joling, van der Beek & Bongers, 2012; Wu, Chen, Huang & Cheng, 2013)

#### **2.6.1.2 Relationship between the advising and mentoring (A&M) and the organizational-performance**

Universally recognized as a prerequisite to social success, the Higher education (HE) is everyone's demand today. While retaining varying skilled students has become a challenging issue for the contemporary universities. Such condition signifies the relevance of additional research on university student retention especially in presence of extensive competition for prospect students (Pitkethy & Prosser, 2001; Hicks, 2003;

Johnson, 2001; Salinitri, 2005; Colton, Conner, Shultz & Easter, 1999; Peltier, Laden & Matranga, 1999).

For around 175 years the institutions of higher learning appear concerned especially about the retention of first-year students (Salinitri, 2005; Levine, 1991). The universities in Canada and America have acknowledged this issue since the early 1970s (Hicks, 2005; Strommer, 1993).

According to Rudolph (1962), the university academic advising can be traced back to 1870 into the initial elective system executed by Charles Eliot the then Harvard President that required to advise students about the course options. Schroeder (2012) and Gordon (2006) express that over the past 140 years, academic advising has evolved and is now commonly defined as a process that helps students develop professional, interpersonal, and academic success through a relationship with and the guidance of an advisor.

An extended form of advising, called mentoring is all about forming a lasting and evocative association with another person, mutual respect, teaching-learning and capitalization of each other's interpersonal skills (Salinitri, 2005; Wenger, 1998).

Schroeder (2012) declares that advising has two basic categories: academic advising and developmental advising. The academic (traditional/prescriptive) advisor bridges the university-student gap by sharing and facilitating the mutual expectations, roles and responsibilities by telling simple 'Do's and Don'ts', which seldom allows the formation of a relationship. Whereas the developmental advising is a form of mentorship beyond the university boundary which forms a lasting bond between advisor and advisee to clarify and facilitate the students' overall academic and career success (Salinitri, 2005; Crookston, 1972).

Initially taken from the groundbreaking work of Crookston (1972), a number of other studies have been proponents of developmental advising as a preferred advising style (Grites & Gordon, 2009; King, 2005; Fielstein, 1994; Winston, Ender & Miller, 1982; O'Banion, 1972).

Mentoring and advising has long been taken as an important process for persuading and nurturing the career ambitions of staff and scholarly development of students in higher education (Charleston, Gilbert, Escobar & Jackson, 2014; Darwin & Palmer, 2009; Daloz, 1986). Drake (2011) and Kuh, Kinzie, Schuh & Whitt (2005) consider advising in universities as a strong lever in refining the college experience of student and in supporting an institution's performance regarding students' retention and timely graduation because it helps universities to direct students' behavior for the desirable activities.

In the literature on higher education, mentoring has been linked to personal growth and contentment (Ehrich, Hansford & Tennent, 2004), career progression (Higgins, 2000, 2001; Burke & McKeen, 1997) and boosted self-confidence (De Vries, 2005), mutual respect and lasting relationships (Salinitri, 2005; Wenger, 1998), higher rate of student success and retention (Lotkowski, Robbins & Noeth, 2004), greater organizational commitment (Payne & Huffman, 2005), elevated organizational-performance (Niculescu et al., 2013), and increased research funding (Gardiner, 2005).

Kelley (2008) express that the research focus on assessing academic advising as a source of student success is as earlier as that of classroom learning. Advising and mentoring is an effective tool towards the consistent students' performance and their retention. Unfortunately, the vital contribution of academic advising is usually undervalued in student retention and success. Hence, further investigation is needed to

recognize the impact of academic advising on the student retention and the overall university-performance. (Young-Jones, Burt, Dixon & Hawthorne, 2013; Schroeder, 2012; Nutt, 2003; Light, 2001). Charleston et al., (2014) recognized that the mentoring initiatives by Future Faculty/Research Scientist Mentoring (FFRM) program contributed significantly in decreasing the gap of minorities' participation in the higher education and research in America.

Referring to NACADA (2006), Campbell and Nutt (2008) asserts that academic-advising is fundamental to fulfill the higher-education-mission. It enables students to think critically about their academic as well as social roles and responsibilities as students. Academic-advising engages students beyond their own world views, while acknowledging their individual characteristics, values, and motivations as they enter, move through, and exit the institution (Campbell & Nutt, 2008, p.5).

Mostly the studies on impact of academic advising have focused on student satisfaction rather than student achievements (Campbell & Nutt, 2008; Propp & Rhodes, 2006; Hemwall & Trachte, 2003; Light, 2001). Although the importance of student satisfaction cannot be undermined (Propp & Rhodes, 2006), yet assessment of advising effectiveness needs considerably more than measuring student satisfaction. A model by Tinto (1975, 2007) appears as one of the first endeavors to identify institutional features (like advising among others) rather than the student characteristics as contributors to student success. Tinto's model argues that Academic advisors play a vital role in interpreting the conveying institutional expectations to students in more realistic manner that facilitate the institutional and student goals for timely graduation. Further research tends to support Tinto's affirmation such as Patton, Morelon, Whitehead and Hossler (2006), Hawthorne and Young (2010) and others. Otherwise the risk of

students' dropping out remains high (Payne & Huffman, 2005; Lotkowski, Robbins and Noeth, 2004).

Habley and McClanahan (2004) report that the “university advising and mentoring” is one of the greatest contributors to student retention. Noel-Levitz (2006) expresses that for determining student retention, the academic advising has been frequently ranked to be the next most important element of the college experience after the instructional quality.

Young-Jones, Burt, Dixon, and Hawthorne (2013) conclude that the advising and mentoring is a means for higher-education-institutions (HEIs) to correspond with and to ease the students for the successful individualized steering of their college experience. This may lead students to capitalize on their campus resources and to participate in other academic as well as non-academic opportunities leading to timely graduation and onwards (Schroeder, 2012; Pascarella, Smart & Ethington, 1986; Tinto, 1975).

Young-Jones et al. (2013) noted that as a result of A&M, the students get enabled to secure improved academic scores by means of perceived support, a raised self-efficacy, study skills, and a higher sense of responsibility. Niculescu et al. (2013) reveal the advising and mentoring as a significant predictor of overall university-performance.

National Academic Advising Association, NACADA's (2004) “Statement of core values in academic advising” suggests a holistic approach that the advising process should be shaped by understanding the needs of an institution and its students. As Propp and Rhodes (2006) note that the students want to express their needs like the customers so, the students' expectations about advising tend to be quite diverse. Yet they expect their teachers to be their academic advisors as well as personal mentors. Some surveys

on students' expectations about academic advising revealed some sort of the interpersonal components and relationship based academic advising to be more satisfactory for students (Mottarella, Fritzsche & Cerabino, 2004; Belcheir, 2000; Sybesma, 2007),

As both the students and faculty are primarily headed towards students' overall success which is determined through a blend of a variety of institutional endeavors in curricular as well as extracurricular areas (Kuh, 2001), thus a detailed scrutiny in these endeavors may enable institutions to facilitate the process of teacher-student interaction through academic advising (Habley, 2004). Hunter and White (2004) also support the same idea for better pursuit of students' career and life goals along with the academic goals.

But a survey by NACADA and the American College Testing (ACT) program point out that many universities do not take the advantage of quality advising to improve student success and retention (Lotkowski et al., 2004). Similar findings are expressed by a number of other studies (Noel-Levitz, 2006; Khalfayan, 2011; Habley & Morales, 1998; Harrigan, 2008; Hsu & Bailey, 2007; Saving & Keim, 1998).

A study by Lynch (2004) revealed that the professional advisors tend to be more developmental and satisfactory than faculty advisors, as the same noted by other studies as well (Avants, 2004; Kadar, 2001; Metzner, 1989)

The idea of 'mentoring circles' is an effective mentoring mechanism which allows both, the group of mentors and the group of mentees to capitalize on multiple perspectives, synergistic advising, multidimensional solutions to mutual problems, advanced discussions, knowledge creation, better role clarity and enhanced commitment and motivation for organizational goals (Darwin & palmer, 2009; Ambrose, 2003).

### **2.6.1.3 Relationship between the intelligence generation and responsiveness (IG&R) and the organizational-performance**

In every aspect of life, the revolution of information technology has shaken the foundations of value delivery system, such as 24/7 communication services for prospect query response, e-portals, and virtual courses (Young, 2004; Tierney, 1998).

In relation to the impact of information/intelligence on organizational-performance, the notion of information generation and its utilization regarding ‘customers, competitors and internal organizational affairs’ has been supported by a number of studies in literature in a variety of different contexts. A few among many others may be (Altuntaş et al., 2013; Candemir & Zalluhoğlu, 2013; Liu, 2013; Urde et al., 2013; Cheng & Krumwiede, 2012; Jaw, Lo & Lin, 2010; Laforet, 2008; Carmen & José, 2008; Todorovic & Ma, 2008; Ketchen et al., 2007; Menguc & Auh, 2006; Carrillat et al., 2004; Tokarczyk et al., 2007; Aldas-Manzano et al., 2005; Narver et al., 2004)

In its earlier literature on market-orientation, the significant role of intelligence has been highlighted for better recognition and fulfillment of customer needs (Slater & Narver, 1998, 1995; Narver & Slater, 1990; Slater & Narver, 1995; Kohli & Jaworski, 1990; Jaworski & Kohli, 1993; Desphande, Farley & Webster, 1993; Slater & Narver, 1998), watching competitors' moves (Menguc & Auh, 2006; Day & Wensley, 1988; Peteraf & Bergen, 2003) and then responding accordingly by the revised strategies to maximize customer value and gain competitive advantage (Slater and Narver, 1998, 1995; Narver & Slater, 1990; Slater & Narver, 1995; Kohli & Jaworski, 1990; Jaworski & Kohli, 1993).

Menguc and Auh (2006) argue that the proactive exploitation of market intelligence allows the organizations to stay ahead of other market players consistently. Carrillat et al. (2004) emphasize the ability of any business to make most of market-based information in order to

be the market driving company which may even change the customer preferences and values. Such firms may redirect customer needs by offering improved and increased value proposition for their customers (Harris & Cai, 2002; Jaworski et al., 2000; Kumar et al., 2000). In a more market-oriented organization that entails an enhanced market intelligence, the employees also have an increased sense of esprit de corps, which is the enhanced level of commitment and willingness to work for the organizational goals (Schlosser & McNaughton, 2009; Harris & Ogbonna, 2001). According to Candemir & Zalluhoğlu (2013), some studies later added market information as a distinct dimension of market-orientation, due to its significant role in organizational-performance.

A number of other studies also support the same argument about significance of some effective intelligence system in the organizational set up (Candemir & Zalluhoğlu, 2013; Felgueira & Rodrigues, 2013; Niculescu et al., 2013; Hashim & Rahim, 2011; Menguc & Auh, 2006; Carrillat et al., 2004).

In the context of higher education, a few studies have endeavored to examine the implications of intelligence/information generation and response dimension of market-orientation (Khuwaja et al., 2017; Niculescu et al., 2013; Hampton, 2007).

Algarni and Talib (2014) suggest that ‘the role of information generation and its use in the internal as well as external MO needs further investigation especially in the presence of innovation of the universities. While the Felgueira and Rodrigues (2013) has emphasized on the importance of individual members of organization (teachers) to capitalize on even their tacit knowledge to supplement their teaching and research performance. This ultimately leads the organization to a more sustainable competitive advantage.

Niculescu et al. (2013) conducted a comparative analysis of three competitive measures of market-orientation which are MARKOR, MKTOR, and UNIVERSITY-MARKOR. They



found a significantly positive effect of intelligence-generation and responsiveness on overall university-performance. Hashim and Rahim (2011) studied the same construct with the students' point of view and extended the similar results. Hence, a number of researchers recognize the significant role of generation and utilization of information/intelligence in determining the organizational-performance (Hampton, Albinsson & McQuitty, 2009; Mahrous & Kortam, 2012; Modi, 2012; Agarwal et al., 2003; Padanyi, 2001)

Hence, based on the discussion above and the empirical evidence from literature, this study posits the following hypothesis regarding the relationship between university market-orientation and university-performance in Pakistan:

**H<sub>1</sub>:** There is significant positive relationship between the market-orientation (administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance.

**H<sub>1a</sub>:** There is a significant positive relationship between the administration-leadership and the university-performance.

**H<sub>1b</sub>:** There is a significant positive relationship between the advising and mentoring and the university-performance.

**H<sub>1c</sub>:** There is a significant positive relationship between the intelligence-generation and responsiveness and the university performance.

## **2.6.2 Market-Orientation and Innovation Relationship**

The argument as to the existence of a conclusive influence of market-orientation (MO) on innovation is yet to be settled (Lukas & Ferrell, 2000; Christensen, Cook & Hall, 2005).

Although some studies have also declared MO to have either neutral or negative effect on innovation, more particularly on the product innovation with the argument that product innovation is normally enabled by the dynamics outside the firm's industry, and therefore, customers and competitors as emphasized by the market-oriented firm, are insufficient sources for new products (Zaifuddin, 2010; Khuwaja et al., 2015).

While in the majority marketing literature, the common understanding observed is that MO boosts organizational innovation as it requires to respond changing market conditions by doing something new or different (Grinstein, 2008a; Jaworski & Kohli, 1993). Market-oriented organizations enhance innovation by emphasizing use of information and learning, after they find latent needs of the customer (Narver et al., 2004; Atuahene-Gima, 1995), because customers have difficulties articulating their latent needs beyond current consumption experiences (Christensen et al., 2005)

Henard and Szymanski (2001) also confirm the positive association between MO and innovation. Market-oriented small businesses with strong competition tended to be relatively more innovative (Salavou, Baltas & Lioukas, 2004). Salavou et al. (2004) recognize that MO increases the innovative activities of

a small business. Hassim, Asmat-Nizam & Bakar (2011) also extend positive support for MO—innovation relationship.

One of the prime exhibitions of MO is the success of innovative launches with a consequent improved performance ultimately (Agarwal et al., 2003; Slater & Narver, 1995). Sandvik and Sandvik (2003) also found a strong impact of MO on the product newness.

Carrillat et al. (2004) argue that with more proactive system of market intelligence, the MO enables the firms to reshape the competitive markets and redirect customer needs by offering the solutions to the latent market needs through enhanced value proposition envisioned before their counter parts. This ultimately keeps such firms at a constant competitive advantage (Harris & Cai, 2002; Jaworski et al., 2000; Kumar et al., 2000).

If MO is blended with innovation it replicates the concept of “monovalent satisfiers” as per Kant's customer delight model (Rust, Moorman & Dickson, 2002; Menguc & Auh, 2006). Vargo, Nagao, He and Morgan (2007) defines monovalent satisfiers as those product features that delight customers if present and functioning well, however they are relatively resistant to dissatisfaction, even if do not function well achieved. Thus, the blend of MO and innovation will not only meet but exceed customer's expectations, with a consequent customer delight that will give a consistent raise to performance (Rust, Moorman & Dickson, 2002; Menguc & Auh, 2006).

Grinstein (2008) reports a significant positive MO—innovation relationship to exist, essentially in the service industries. As on one hand the service innovations are not only more difficult to protect through patents/copyrights to

enjoy consistent competitive advantage, but it is also more difficult to be recognize and trusted by customers than product innovations, on the other hand the services are likely to face more intense competition than products. This means that for a higher service innovation performance in order to seek consistent superior customer recognition, a higher degree of MO would be required than just products. This is because the quality of customer relations determines the success of innovative deals. Similar expressions are confirmed by the previous literature (Aldas-Manzano et al., 2005; Agarwal et al., 2003)

Hence, a number of other studies confirm innovation as the offshoot of MO such as (Sandvik & Sandvik, 2003; Han et al., 1998; Hurley & Hult, 1998; Lukas & Ferrell, 2000; Matear et al., 2002; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003; Hult et al., 2004; Verhees & Meulenbergh, 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005; Menguc & Auh, 2006; amongst others)

Atuahene-Gima (1996) studied the relationship of product innovation and service innovation with MO with its dimensions of intelligence generation, dissemination (as replaced here with advising/mentoring and administrative leadership) and the responsiveness. He concludes that MO has a greater impact on service innovation, and that MO is significantly related to the innovation—market fit, inter-functional team work and the overall market success. A review brief of past studies on MO—Innovation—Performance is presented in Table 2.5

Table 2.5

*A brief review of past studies on MO–Innovation–Performance relationship*

<b>Study</b>	<b>Relationship/Analysis</b>
Ndesaulwa and Kikula (2017)	Innovative marketing has a positive impact on sales and profits
Wang, Zhao and Voss (2016)	customer-orientation has a positive impact on both ‘service and product’ innovativeness
Khuwaja et al. (2015)	Proposition to test the for mediation of innovation between MO and university-performance relationship
Algarney and Talib (2014)	MO–performance relation is mediated by Innovation
Boso, Cadogan and Story (2013)	MO innovation drives the successful new products
Liu (2013)	MO and innovative-performance relation is not moderated but only mediated by service innovation in service sector
Cheng and Krumwiede (2012)	Different elements of market-orientation has different impact on service innovation
Hassim, Asmat-Nizam and Bakar (2011)	MO is good only in presence of innovation for a business
Zhang and Duan (2010)	Proactive MO and responsive MO both enhance Innovation
Zaifuddin (2010)	Strong support noticed for mediation of innovation between MO and performance relationship
Medina and Rufi’n (2009)	MO–performance relation is mediated by Innovation
Jime’nez-Jimenez and Valle (2008)	MO–performance relation is mediated by Innovation
Im, Hussain and Gupta (2008)	MO enhances creativity
Grinstein (2008a)	MO boosts organizational innovation while the Innovation brings in new ways to satisfy customers
Low, Chapman and Sloan (2007)	MO and performance are both enhanced by Innovation
O’Cass and Ngo (2007)	Innovation culture impacts on brand performance and MO
Menguc and Auh, 2006	The blend of MO and innovation creates monovalent satisfiers that exceed customer’s expectations. MO-performance relation is moderated by (high level) Innovation
Chimhenzi and Stewart (2005)	MO–relation is mediated by Innovation
Atuahene-Gima, Slater and Olson (2005)	MO effects the new product development and sale positively
Christensen, Cook and Hall (2005)	MO and innovation synergize and introduce with latent needs
Narver et al. (2004)	MO enhances innovation through information
Carrillat et al. (2004)	The market-oriented firms redirect customer needs through proactive system of market intelligence and innovation.
Salavou et al. (2004)	MO increases the innovative activities of a small business
Sandvik and Sandvik (2003)	There is strong impact of MO on the product newness.
Agarwal et al. (2003)	MO enhances the success of innovative launches
Mydeu-olivares and Lado (2003)	MO–performance relation is mediated by degree of Innovation
Matear et al. (2002)	MO–performance relation is mediated by Innovation
Harris and Cai (2002)	Proactiveness and innovation keeps the business at a competitive advantage
Henard and Szymanski (2001)	MO and innovation are positively associated
Atuahene-Gima and Ko (2001)	MO–performance relation is moderated by Innovation
Tzokas et al. (2001)	MO–performance relation is moderated by Innovation
Lukas and Ferrell (2000)	MO–innovation relationship is yet to be settled
Baker and Sinkula (1999 a, b)	MO positively impacts on successful new products’ launching
Appiah-Adu and Ranchold (1998)	MO has a negative impact on new products’ launching

### **2.6.2.1 Relationship between the administration-leadership (ADML) and the innovation.**

A reasonable amount of evidence can be retrieved from the literature on the relationship of traditional dimensions of market-orientation and innovation. Among other studies, a few are: (Ozkaya et al., 2015; Huhtala, 2014; Zaifuddin, 2010; Menguc & Auh, 2006; Felgueira & Rodrigues, 2013; Narver et al., 2004; Atuahene-Gima, 1996; Lukas & Ferrell, 2000; Matear et al., 2002; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003; Hult et al., 2004; Verhees & Meulenber, 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005)

Whereas, for the recently adapted MO-dimension of administration-leadership (ADML) in the context of higher education (Khuwaja et al., 2015; Niculescu et al., 2013; Hampton, 2007), there is a significant endeavor desirable to investigate leadership with innovation. Hence, the literature on ‘innovation as well as leadership’ has a reasonable potential gap to seek the needed evidence for the given relation between overall leadership and innovation.

De Jong & Den Hartog (2007) claims that “As a leader it seems impossible not to affect employees’ innovative behavior (p.57)”. Various studies proclaim leadership to be one of the most powerful determinant of innovation (Rosing, Frese & Bausch, 2011; Jansen, Vera & Crossan, 2009; De Jong, & Den Hartog, 2007; Aragón-Correa, García-Morales & Córdón-Pozo, 2007; Mumford, Scott, Gaddis & Strange, 2002; Nemanich & Vera, 2009; Yukl, 2009). The leaders are indispensable catalysts in engendering innovation (García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Tushman & Nadler, 1986). While De Jong & Den Hartog (2007) found that the leaders in knowledge-intensive services influence innovative behaviour not only by means of formally planned actions for it but they

also create innovation inspiration among other employees through their every-day regular activities.

In today's information age, it is the capability of leaders to grasp the effective execution and upgradation of the key process of managing knowledge and innovation to develop, renew and capitalize on the flow of information in the innovative ways for securing the essential competences in order to improve the overall organizational-performance (Bryant, 2003; Grant, 1996; Barrett & Sexton, 2006; Hurley & Hult, 1998; Nonaka & Takeuchi, 1995). The true leaders' role is to keep intervening as a catalyst as well as a facilitator in the process of the organizational innovation (De Jong, & Den Hartog, 2007).

In their study Rosing, Frese, and Bausch (2011) revealed that all circumstances don't support the relationship of leadership and innovation but only under some specific conditions. There is a large heterogeneity of leadership and Innovation relationship which leads to inconsistent findings, referring to inclusion of a third variable with different leadership styles. With an indirect effect of leadership on innovation, the construct of organizational-learning has also been frequently recognized as the third variable to mediate in between (Mumford, Scott, Gaddis & Strange, 2002; Mumford, Hunter & Byrne, 2009; Mitchell & James, 2001).

Rosing, Frese, and Bausch (2011) further suggest that one particular leadership style is not sufficient to trigger effective innovation, rather a mutually supportive blend of diverse leadership behaviors is desirable in compatibility with and timing as well as complexity and velocity of innovation (Ancona, Goodman, Lawrence & Tushman, 2001; Mitchell & James, 2001).

Innovation researchers have been widely focusing on various characteristics of leaders (Storey, 2000) with varying impact on innovation. (Aragón-Correa, García-Morales & Cordon-Pozo, 2007). Certain leadership styles are also recognized as a strategic factor influencing innovation (Harbone & John, 2003; McDonough, 2000; Sethi, 2000; Nonaka & Takeuchi, 1995; Senge, Roberts, Ross, Smith & Kleiner, 1994; Howell & Avolio, 1993), where transformational style of leadership has been recognized to influence organizational innovation much greater than the transactional style of leadership (García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Aragón-Correa, García-Morales & Cordon-Pozo, 2007; Farr & Ford, 1990; Dess & Picken, 2000; Howell and Avolio, 1993). In contrast to transactional (traditional) leadership, the transformational leadership has been recognized to have a wider strategic vision for change (Dess & Picken, 2000), open communication norm (Hult, Ferrell, Hurley & Giunipero, 2000), greater focus on people development (Barczak & Wilemon, 1992), and trial and error acceptance (Snell, 2001).

Transformational leaders tackle the changing circumstances by employing intellectual capital and challenging the status quo to impact the organizational-learning and innovation with higher level performance (Bryant, 2003; Hurley & Hult, 1998; Glynn, 1996; Argyris & Schon, 1996; Senge et al., 1994).

Transformational leaders encourage new ways of thinking, different and better solutions to problems by inculcating an indepth discovery thought processes in their followers. They do it by adding into intrinsic motivation and engendering higher-order needs that stimulate creativity in their followers (Marks & Printy, 2003; García-Morales, Lloréns-Montes & Verdú-Jover, 2008). They stand and stay



as role models and mentors, weaving a common vision of innovation (Bass & Avolio, 2000; Argyris & Schon, 1996; Bryant, 2003; Senge et al., 1994).

Being more stimulating in nature, the transformational leadership challenges the status quo; hence, it is a better determinant of innovation than Transactional leadership (Rosing, Frese & Bausch, 2011; Keller, 2006; Bass, 1999) as the later does not support trialing. But the transformational leadership is more tuned for high diversity teams (Keller, 2006); research projects (Jansen, Vera & crossan, 2009) elevated atmosphere for excellence in the teams (Eisenbeiss, Knippenberg & Boerner, 2008), shared team interest for knowledge seeking with greater support, energy and direction (Eisenbeiss, Knippenberg & Boerner, 2008; Blackler & McDonald, 2000; McDonough, 2000; Nadler & Tushman, 1990)

Jung, Wu, and Chow (2008) claims transformational leadership to be insignificantly correlated with innovation, until its contingency on the organizational features such as, ‘highly congenial climate for innovation with low formalization and centralization as well as support for risk taking and competition’ is not taken into account. While García-Morales, Matias-Reche, and Hurtado-Torres (2008) recognizes innovation and transformational leadership in a a higher correlation in presence of high organizational learning

Even in the context of academic institutions, the transformational leadership has a great significance in the principal’s centrality as a reform agent to form the organizational culture especially for innovation related initiatives. The transformational leaders in education sector are recognized to provide intellectual support for innovation by nurturing teachers as decision making partners (Marks & Printy, 2003; Conley & Goldman, 1994)

Effective instructional principals with transformational characteristics are found to be more prone to facilitate teachers' initiatives in instructional matters and overall educational reforms (Senge et al., 2000; Glanz & Neville, 1997; Little, 1993). If teachers perceive that their administrative leaders' behaviors is pertinent, they exhibit improved commitment and willingness to innovate (Sheppard, 1996).

Hence, instructional leadership (teachers) itself can be transformational as well by getting involved into innovative ventures. Conventional forms of instructional leadership don't suit in face of competent and committed teachers (Sergiovanni, 1991). While the head of school holds the capacity of transformational leader, the teachers at the same time with professional knowledge and skills execute a kind of collaborative leadership with their principal for a mutually co-learning phenomenon (Marks & Printy, 2003). Such collaborations have been reported to result in constructive transformation of tutorial practices through more innovative techniques and raised willingness to take risk (Blasé & Blase, 1999).

With a better professionalism and a direct exposure to students' approach towards learning and motivation, the teachers have more legitimacy to proceed as academic leaders for deciding more innovative curriculum design and improved mechanism for academic as well as administrative affairs (Blasé & Kirby, 2000; Conley & Goldman, 1994). As an instructional leader and partner with principal, the teacher has the capacity to reshape the goals and culture of their institutions (Marks & printy, 2003).

### **2.6.2.2 Relationship between the advising and mentoring (A&M) and the innovation**

“A great mentor has a knack for making us think we are better than we think we are”  
(Marshall & Sharp, 2010, p.19)

As mentioned earlier that for investigating and measuring MO in the university context, the advising and mentoring (A&M) dimension of MO has been added by Hampton (2007) in replacement of the traditional ‘Intelligence dissemination’ dimension of MO introduced by Kohli and Jaworski (1990) that was more suitable in the business context.

With reference to the earlier operationalization of MO by Kohli and Jaworski (1990), the relationship of all three dimensions of market-orientation with innovation has been tested by many researchers and found it with significant impact (Menguc & Auh, 2006; Felgueira & Rodrigues, 2013; Narver et al., 2004; Atuahene-Gima, 1996; Lukas & Ferrell, 2000; Matear et al., 2002; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003; Hult et al., 2004; Verhees & Meulenber, 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005; among others).

A well-matched blend of mentor and mentee can synergize to accomplish much larger and advanced goals. Whereas a good mentor can facilitate the mentee’s effective transition from mental status quo enabling the mentee think and act in new horizons of knowledge. While in this process of newness exposition to the mentee, the mentor helps minimize the chance of trial errors (Bozionelos, 2004; Wright, Trudel & Culver, 2007; Lentz & Allen, 2009; Marshall & Sharp, 2010)

The importance of mentoring and advising for innovation can also be judged from the literature on proactive market-orientation. As Narver et al. (2004), Atuahene-Gima, Slater and Olson (2005) and Slater, Mohr, and Sengupta (1995) emphasize that

alongwith traditional or responsive MO, there is an anticipatory aspect of MO which is proactive in nature to keep an eye on the forthcoming radical changes in the emerging markets.

In such state of proactive MO, it is the consistent mentoring that may synchronize the teams working on the radical products for the new segments of emerging markets and about the anticipated or prospect market changes and the latent customer needs (Atuahene-Gima, Slater & Olson, 2005). Even mentoring of customers for redirecting their latent needs may also be desirable here. Hence, it is the MO in any form—responsive or proactive—that should form the foundations for any innovation in business. As Hurley and Hult (1998) and Han et al. (1998) assert that innovation and MO are mutually complementary to each other.

Masalimova, Schepkina, Leifa, Shaidullina, and Burdukovskaya (2014) suggest that mentoring has become a vital instrument for the contemporary enterprises' competitiveness based on mentees' new-fangled exposure, as it helps reduce the deficiencies of traditional vocational education in the employees. In the context of career counseling domain, the innovative job fulfillment and a better career plateauing phenomenon are reported to be the vital outputs of on-job employee mentoring (Lentz & Allen, 2009).

Even in the modern enterprising setups, the external trainings lack in the internal specifics of the enterprise, hence, making the internal hands on mentoring more necessary. Mentoring helps the participants reveal their internal potential for personal as well professional skills, taking them to think and act better (Masalimova et al., 2014). Organizational investments in arranging regular programs for external trainings along

with internal mentoring enable the development of human capabilities for innovations, which leaves the competitors in a consistent catch-up mode (Menguc & Auh, 2006).

Similar contentions regarding the relationship of advising/mentoring and innovation may be accommodated in the context of higher education. Charleston et al. (2014) asserts that the innovative contribution of minorities in the computing/science universities of America was effectively triggered by the initiative of Future Faculty/Research Scientist Mentoring (FFRM) program.

Loes, Saichaie, Padgett and Pascarella (2012) suggests that despite a sizeable amount of research on the effectual 'teaching, coaching and mentoring' behaviors, the higher education literature appears to lack behind in measuring their impact on the basic innovation skills like intellectual development, inclination to inquire and continued learning. Hence, the research needs to review the efficacy of different types of guiding behaviors of instructors and academic mentors against development of various innovation skills.

As an innovative and more effective mentoring mechanism in higher education, Darwin and Palmer (2009) recommend the use of group mentoring by multiple mentors simultaneously with a consequent multiple creation and application of knowledge for more creative skill development in the mentees. Mentoring circles according to Darwin and palmer (2009) and Ambrose (2003) is a more effective mechanism which allows both, the group of mentors and the group of mentees to capitalize on many different perspectives, synergistic advising, multidimensional solutions to mutual problems, advanced discussions, knowledge creation, role clarity and enhanced commitment and motivation for mutual goals.

Hoidn and Kärkkäinen (2014) recognizes a positive impact of ‘instructional organizing and clarity by the teacher or a mentor’ on the innovation skills such as ability to consider diverse perspectives, critical thinking, synthesising diverse ideas.

Salintri (2005) supports formal mentoring of low achievement students as it enables students to learn more effective paradigms and patterns of handling their academic affairs from their mentors. Especially the mentoring circles synergize the mentoring and advising process from multiple perspectives by multiple minds for multiple information-generation and applications (Ambrose, 2003; Darwin and palmer; 2009).

### **2.6.2.3 Relationship between the intelligence generation and responsiveness (IG&R) and the innovation**

Initially with a significant impact on organizational-performance, the intelligence-generation and the responsiveness dimensions of market-orientation were earlier introduced by Kohli and Jaworski (1990) and supplemented in the contemporary research studies by Narver and slater (1990) and Narver, Jaccobson and slater (1993).

Later some other studies found that MO, through these dimensions (i.e. intelligence-generation and responsiveness) initially offshoots innovation which ultimately boosts the organizational-performance emerging (Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Menguc & Auh, 2006; Kirca et al., 2005; Aldas-Manzano et al., 2005; Hult et al., 2004; Agarwal et al., 2003).

Regarding its impact on innovation, various other studies support the notion of generating and capitalizing on the intelligence as the core dimension of MO. (Atuahene-Gima, 1996; Lukas & Ferrell, 2000; Matear et al., 2002; Agarwal et al., 2003;

Leskiewicz & Sandvik, 2003; Hult et al., 2004; Verhees & Meulenbergh, 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005)

The implementation of innovations is facilitated through the formal communication and mobilization of the market intelligence throughout the organization (Carrillat et al., 2004), which ultimately creates customers' value addition (Rust, Lemon & Zeithaml, 2004; Kennedy, Goolsby & Arnould, 2003).

Organizational-learning based on market market intelligence is the basis for organizational innovation (Day, 1994; Sinkula, 1994; Sinkula et al., 1997). Hunt (2002) and Hurley and Hult (1998) emphasize that the communication networks equipped with effective intelligence system offshoot the organizational-learning and innovation capacity resulting into the attainment of differential advantage.

Menguc and Auh (2006) emphasizes the role of intelligence system in development, dissemination and acceptance of a different attitude or mind-set throughout the organization, which consequently allows an amount of tacitness that offshoots such innovations which cannot be easily articulated or codified by other counterparts.

Through the intelligence system of proactive market-orientation which is anticipatory in nature, the organizations can not only recognize the latest market trends, but it also enables the organizations to sense the prospect future trends of the emerging markets along with latent customer needs. This would ultimately allow the firms to comeup with the radical new products, services, programs to serve these emerging markets better than competitors (Jaworski et al., 2000; Kumar et al., 2000; Narver et al., 2004; Atuahene-Gima, Slater & Olson, 2005; Slater, Mohr & Sengupta, 1995)

Proactive MO reproduces a culture of exploration and sharper intelligence system leading to a consistent learning behavior through quest for diverse ideas that yields innovative and radical market value propositions for the latent customer needs (Atuahene-Gima, Slater & Olson, 2005; March, 1991). Such a divergent-information focus of the firm increases the problem-solving and opportunity-hunting capacity of the innovative project (Levinthal & March, 1993). Proactive MO may also vigilant the organization through new horizons of knowledge and enable it to challenge the on-hand cause-effect relationships, thereby resulting into radical technology developments with unique benefits (Atuahene-Gima, Slater & Olson, 2005).

The phenomenon of proactive intelligence system allows the organization to be market-driving rather than market-driven, as it enables the firm allows the firm to uplift and better match customer value proposition with its own innovative capabilities (Carrillat et al., 2004). With a capability to change the composition of market structure through their proactive intelligence and consistent innovation, the market-driving organizations can better secure a sustainable competitive advantage (Jaworski et al., 2000; Kumar et al., 2000). An innovative culture which is a prerequisite for a market-driving organization comes as a result of consistent pursuit of innovative market opportunities based on an effective intelligence system (Drucker, 2002; Jaworski et al., 2000; Gatignon & Xuereb, 1997).

However, an extreme pursuit of proactive intelligence may also create information overload and may divert the firms' attention from the core objectives to the unnecessary and costly diversifications leading to a higher degree of inefficiency, by drowning the project teams into an ocean of information that may be very far from current as well as future market needs (Ulwick, 2002; Levinthal & March, 1993).



Summing up on the relationship between MO and innovation, we posit the following hypothesis, based on all the discussion above:

**H<sub>2</sub>:** There is significant positive relationship between market-orientation (administration-leadership; advising and mentoring; and the intelligence-generation and responsiveness) and innovation.

**H<sub>2a</sub>:** There is a significant positive relationship between administration-leadership and innovation.

**H<sub>2b</sub>:** There is a significant positive relationship between the advising and mentoring and the innovatio.

**H<sub>2c</sub>:** There is a significant positive relationship between the intelligence-generation and responsiveness and the innovation.

### **2.6.3 Innovation and Organizational-Performance Relationship**

In today's information age the effective exploitation of new knowledge in innovative ways is the key process needed to secure the essential competence for a raised overall organizational-performance (Alexander & Yuriy, 2015; Akilah, 2012; García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Grant, 1996; Barrett & Sexton, 2006; Hurley & Hult, 1998; Nonaka & Takeuchi, 1995).

Innovation is viewed as a change that triggers the novel aspects of organizational-performance and successful exploitation of new ideas (Hesselbein, Goldsmith & Somerville, 2002). It is the organizational innovation and its implementation that determine the superior level of organizational-performance (Carrillat et al., 2004). Firms which that can synergize on the capacity to innovate and the firm's unique

resources are more capable of accommodating themselves to their environments and developing better means to respond it with greater innovative capacity, which leads to competitive advantage and a consequent superior performance. This ultimately results in firm's ability to attract more demand for its innovative products and enhance growth (Danneels, 2002; Agarwal & Ndubisi, 2014; Hurley & Hult, 1998).

Most facets of innovations have a positive link to organizational growth (Danneels & Kleinschmidt, 2001). The more worth, inimitable and unique are the innovations, the better is the organizational-performance, the better is the market response and the more is the sustainable competitive advantage to the organization (Alexander & Yuriy, 2015; García-Morales, Lloréns-Montes & Verdú-Jover, 2008).

Organizations that don't encourage proactive innovation in their products and processes, they will face with declining productivity and overall organizational-performance (Loof & Heshmati, 2002).

Agarwal and Ndubisi (2014) chains as in line with Porter's (2008) stance that organizations can generate continued above-average returns resulting from stronger industry position if they can capitalize on innovation to set high level of entry barriers for competitors. Global competition allows the organizations with technological innovations to be a step ahead of competitors in persuading market success (Mitchell, 1990). Innovation ensures long-term survival and not just growth in a growingly aggressive market environment (Han et al., 1998).

A couple of studies in the context of on SMEs also declare innovation to be one of the core determinants of organizational-performance (financial and non-financial) among many others (Alexander & Yuriy, 2015; Nasution, Mavondo, Matanda & Ndubisi, 2011; Rajaguru & Matanda, 2009; Mavondo & Farrell, 2003). Innovative

products/services, processes and administration, leads the organizations towards achieving superior quality performance (Agarwal & Ndubisi, 2014; Atuahene-Gima, 1996).

The equivalent range of interpretations for innovation applies to higher education as well, where innovation might be referred to as the new ways of undertaking things, or a change that increases administrative or educational performance, or as a transformational scholastic experience based on a new way of thinking (White & Glickman, 2007). One example of academic innovation given by Maglio, Srinivasan, Kreulen and Spohrer (2006) suggests that the system of education may be innovated by substituting 20% of academic activities to eLearning upfront, allowing 20% of freed time for faculty, to be utilized in designing new course material which is compatible to not only changing industry needs but also for designing more intellectually stimulating contents.

Culp, Honey and Mandinach (2005) state that technology supported learning settings can enhance the efficiency and effectiveness in the way students learn and the way professors teach. However, some studies also reveal that the innovative way of teaching/learning by use of technology, does not necessarily impact academic performance positively (Rivera & Rice, 2002; Brallier, Palm & Gilbert, 2007). Wurst, Smarkola and Gaffney (2008) conclude that introduction of laptops in the class rooms did not contribute in students' performance as in GPA terms and their satisfaction level of to grow. While other studies like (Hembrooke & Gay, 2003; Fried, 2008) report even a negative impact of technology on student performance due to more multitasking by them.

Some other studies also suggest significant improvement in the teacher/student performance due to computer assisted process of teaching/learning (Poirier & Feldman, 2004; Maki, Maki, Patterson & Whittaker, 2000; Saunders & Klemming, 2003)

Hoidn and Kärkkäinen (2014) and Deem, Mok and Lucas (2008) express that for the better organizational-performance, higher education itself needs to be innovative by developing (into academicians as well as learners) the innovation skills which are also referred to as ‘the 21st century skills’ such as: technical skills, thinking and creativity skills and Social/behavioral skills.

Besides the pressures produced by forces such as rankings and increased competition for students and faculty, there are number of regulating and accrediting bodies that are demanding growing accountability, transparency, and tangible evidence of success. Therefore, the academic leaders in HEIs need to seek continued innovation in “curricular programs, delivery mechanisms, support services, and operations” in order to handle these pressures. While handling such pressures, innovative universities have a greater relative flexibility to adjust more readily in a changing environment through better matching of resources with real time opportunities (Hoidn & Kärkkäinen, 2014; Strobel & Barneveld, 2009).

White and Glickman (2007) emphasize that innovative ways of operations have enabled a number of universities to uplift their productivity. For example, outsourcing for the supplementary services, developing conglomerates with other institutions for a large range of academic programs, increased use of technology with lower average costs, and better input-output match and others.

Hoidn and Kärkkäinen (2014) and Looney (2009) highlight that universities with more innovative approach are able to secure more financial support from government as well as private sector. Governments in certain countries have special support for the institutional innovative teaching and learning such as Ministry of Education, Culture, Sports, Science and Technology in Japan offers funding incentives to encourage innovative teaching/learning experimentation in higher education (Yonezawa & Kim, 2008).

Similarly, among other examples are; the Australian Learning and Teaching Council (ALTC) that encourages higher education innovation by offering funding schemes like the “Innovation in Learning and Teaching grant” besides others (Australian Literacy Testing Centre, 2015; Looney, 2009). Whereas German government has recently introduced funding scheme to recognize and hold up innovative teaching in higher education. Hilt (2012) reveals that a grant of fourty million dollars was endowed to Harward University in 2012 to supplement the innovative initiatives by university students and teachers. While in 2008 an undergraduate reform plan was launched in France to promote innovative teaching and learning. With specific attention on ‘critical thinking and innovative problem-solving skills’, the “Council for Aid to Education” in United States launched the “Collegiate Learning Assessment” (CLA) which has been introducing a number of support schemes. The Higher Education Academy in United Kingdom has many supporting initiatives including the bid-based grants for academic innovations (Looney, 2009; Hoidn & Kärkkäinen, 2014).

Strobel and Van Barneveld (2009) recommend that instructional innovation has a significant impact on university-performance especially the long-term student

retention improved significantly when the problem-based learning (PBL) system of instruction was introduced in certain universities. Barrett and Moore (2011) claim that as an interdisciplinary student-centered process, PBL has been adopted by educators around the world.

According to Pascarella, Seifert and Whitt (2008) the students' exposure to innovative kind of instructional conducts facilitate their enhanced learning and sense of contentment resulting in their increased persistence and retention at an institution.

The better use of technology has brought in more operating efficiencies and effective substitution of resources for teaching and development of students and faculty as a whole which has enabled universities for raising student success and retention, cost efficiencies and ultimately a support to the squeezing funds (White & Glickman, 2007).

A list of studies has been presented in previous section that outlines a review of studies conducted on MO—Innovation—performance relationship

Hence, from the literature above the evidence for relationship between innovation and organizational-performance leads this study to positing the hypothesis that:

**H<sub>3</sub>:** There is significant positive relationship between innovation and university-performance.

#### **2.6.4 Innovation as a Mediator between Market-Orientation and Organizational-Performance**

Among other issues in universities of Pakistan, some studies also report lack of innovation as an important cause of poor performance of higher-education-institutions (HEIs) (Bilal & Imran, 2012; Abbasi et al., 2011; Hoodbhoy, 2005). Therefore based on literature support this study is going to view innovation critically with its mediating role in market-orientation (MO) and performance relationship in HEIs of Pakistan.

In the MO research, the idea of examining role of innovation as a mediator between MO and organizational-performance is quite emerging (Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010; Menguc & Auh, 2006; Kirca et al., 2005; Aldas-Manzano et al., 2005; Hult et al., 2004).

Even though, to the knowledge and access of researcher, there is hardly any concrete organizational innovation research work retrievable in university settings linking the market-orientation (MO) and university-performance (UP), except a few proposals such as Algarni and Talib (2014) and Carmen and José (2008). However, from the for-profit service sector of the industry, a number of relevant studies can be reported. So far as the impact of MO on innovation is concerned, it is concluded by a substantial package of literature that MO offshoots the innovation (Matear et al., 2002; Agarwal et al., 2003; Hult et al., 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005; Menguc & Auh, 2006; Zaifuddin, 2010). Thus, some empirical evidence can be sought to support the given role of innovation as a mediator between MO—performance relationship by borrowing literature from the context of commercial enterprise settings.

High level of organizational-innovation, if blended with the MO will give a multifold strength to MO—performance relationship as it will replicate the concept of monovalent-satisfier defined earlier (Menguc & Auh, 2006, Rust, Moorman & Dickson, 2002). A strong

emphasis has been placed on adoption of MO by academic institutions too, for raising their organizational-performance (Algarni & Talib, 2014; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Akonkwa, 2009; Hampton, et al., 2009; Duque-Zuluaga & Schneider, 2008; Oplatka & Hemsley-Brown, 2007; Voon, 2007; Hammond, Webster & Harmon, 2006; BNQP, 2005; Coaldrake, 2002; Bricall, 2001; Padanyi, 2001; Caruana et al., 1998, Hatfield & Taylor, 1998; Desphandé et al., 1993)

Organizations that emphasize on MO and neglect innovation may avert from fully capitalizing on the true essence of MO. A firm that is satisfied existing in a status quo of its comfort zone might erode its competitive advantage and get their market share encroached by competitors. At the same time concentrating too much on innovation at the expense of MO could push an organization to be technology oriented with a diverted focus from the markets, resulting in unnecessarily hiked up costs for new trial and errors. Thus, a balanced blend of the both of critical resources, 'MO as well as innovation' is desirable for an optimum organizational-performance (Ozkaya et al., 2015; Zaifuddin, 2010; Menguc & Auh, 2006). Innovation is the key to business success, based on accurate gathering of market information. Many empirical/conceptual studies can be found in literature, that echoe the significance of firms' innovation and its impact on enhanced performance especially in the for-profit sector (Agarwal et al., 2003; Hult et al., 2004; Zheng et al., 2005; Keskin, 2006; Fadeeva & Mochizuki, 2010; Altuntaş et al., 2013; Ergün & Kuşcu, 2013).

In response to the changing market conditions, the MO basically requires the organizations to come up with something unique that ultimately leads to innovation. (Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Menguc & Auh, 2006; Kirca et al., 2005; Aldas-Manzano et al., 2005). Such innovative behavior of the market-oriented firms increases the likelihood of launching the new products more successfully (Narver et al., 2004). In this manner, the firms with innovative attitude come up with not only a bigger number of innovations than their competitors but their



degree of innovativeness is even higher (Carmen & Jose 2008). Lukas and Ferrell (2000) exert that the more market-oriented a firm is the more degree of product innovation it has. Similar conclusion is derived in a MO study of hotel industry by Leskiewicz and Sandvik (2003) with more focus on customer-orientation and inter-functional coordination. In another study to observe the effects of “responsive and proactive dimensions” of MO on new product development, Atuahene-Gima et al. (2005) find that responsive MO has a more positive relation with new product development especially with higher level of strategic consensus among managers.

Firms with higher level of managerial and technical innovations are faced with environmental challenges, leading them to superior organizational-performance, if managed effectively because these two kinds of innovations synergize the performance by positively interacting with each other. (Ozkaya et al., 2015; Zaifuddin, 2010; Agarwal et al., 2003; Han et al., 1998). Hult et al. (2004) also agree that the greater ability of firms to innovate enables them to respond more successfully to environmental challenges and gain the competitive advantage. In the same vein, Zheng, Yim and Tse (2005) also notice that both “technical as well as market innovations” compliment the performance, the former with relatively more influence than the latter. Keskin (2006) also evidenced the affirmative effect of innovation on organizational-performance.

Jiménez-Jimenez, Valle, and Hernandez-Espallardo (2008) determined that innovation is fostered by MO, where it fully mediates its impact on firm performance. In the museums industry, Carmen and José (2008) found that the technological and organizational innovation partially mediates the positive relationship between MO and the museums’ socioeconomic performance. Laforet (2009) asserted that MO has an influence on new product development, process innovation and innovation strategy that ultimately leads to raised organizational-performance. However, in literature, the analytical effort regarding innovation as a mediating factor on different contexts does not

appear to be enough as such, but a few more studies like Han et al. (1998), in the context of banks; Matear, Osborne, Garrett, and Gray (2002) in the context of service firms and Zaifuddin (2010) in the context of small businesses found a highly positive mediation of innovation between MO and performance. Matear, Osborne, Garrett and Gray (2002) also confirm the same in the context of service firms. Similarly, Agarwal et al. (2003) studied the hotel industry and assumed that the innovation is a mediating factor between MO and performance link. Menguc and Auh (2006) also evidenced that the innovation loving firms, have much higher impact of MO on organizational-performance, while in the innovation averse firms the situation is quite opposite.

As for as the nonprofit sector is concerned, only a meager effort can be noticed regarding innovation research and its impact on organizational-performance, such as (Carmen & Jose, 2008; Burt & Taylor, 2003; Voss, Montoya-Weiss & Voss 2006). Carmen and Jose (2008) have tried to study the “mediating effect of technological and administrative innovation as a link between MO and the economic and social performance of museums”. While the Burt and Taylor (2003) considered two volunteer organizations to examine the positive role of communication and information technologies on their innovations. Hence, the findings suggest how well the innovation allows an organization for a better service rendering, more effective campaigning of any kind, and more standardizing of operating procedures. Whereas Voss et al. (2006) observed the theater industry with finding that innovation has a significantly positive link to objective performance.

While in the context of higher education, Li-Hua, Wilson, Aouad and Li (2011) stated that in universities the outcome of organizational-learning is the improved organizational-performance on one hand, whereas on the other hand it results in achieving innovation in HEIs, which ultimately leads to a further raised organizational-performance. HEIs are experiencing a cultural conversion as an entrepreneur to play a substantial role in the information-based society for promoting economic development

where this role is better mediated by innovation as the innovation is a vital characteristic of entrepreneurial orientation (Lumpkin & Dess, 1996; Algarni & Talib, 2014).

For better retention of students through technologically-supported innovative advising and mentoring, White and Glickman (2007) express that by capitalizing on the latest technological exploitation, it may enable both teachers and students to make the most of it. Among many other benefits, students for example can seek their background match by accessing the online tutorials available prior to registering them into any course or for a particular teacher of their choice. Similarly, teachers can secure on spot feedback during class meetings to recognize and supplement the weaker areas of their students rather than focusing on stronger aspects of students' knowledge.

Summing up the discussion, it seems reasonable to posit the following hypothesis, based on all of the approaches and the empirical evidence noticed above:

**H<sub>4</sub>:** Innovation mediates the relationship between the market-orientation (administration-leadership; advising and mentoring; intelligence-generation and responsiveness) and the university-performance.

**H<sub>4a</sub>:** Innovation mediates the relationship between the administration-leadership and the university-performance.

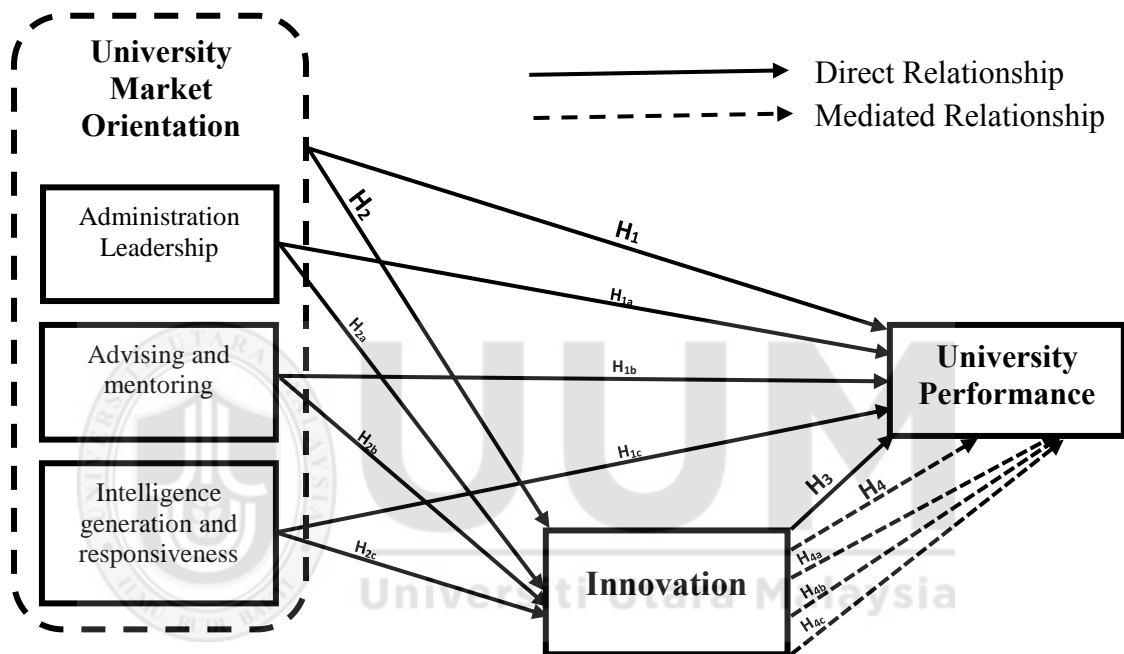
**H<sub>4b</sub>:** Innovation mediates the relationship between the advising and mentoring and the university-performance.

**H<sub>4c</sub>:** Innovation mediates the relationship between the intelligence-generation and responsiveness and the university-performance.

## 2.7 Theoretical Framework of the Study

The Theoretical framework for explaining the proposed relationships for the underlying study is plotted in Figure 2.1 ahead.

Figure 2.1 Theoretical framework



Based on the framework, the prime focus of this study is on measuring the relationship between market-orientation (MO) and university-performance. In this study, the MO is employed as an independent variable composed of three context-specific dimensions (administration-leadership; advising and mentoring; and intelligence-generation and responsiveness). Whereas, university-performance is undertaken as dependent variable for the study (as indicated in Figure 2.1). The said relationship has been investigated in the presence of innovation as a mediating variable.

## 2.8 Hypothesis

Based on the theoretical framework presented above and the relevant empirical evidence from literature, this study posits the following hypothesis regarding the relationship between MO and university-performance in Pakistan, mediated by innovation.

- H<sub>1</sub>** There is a significant positive relationship between the market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance.
- H<sub>1a</sub>** There is a significant positive relationship between the administration-leadership and the university-performance.
- H<sub>1b</sub>** There is a significant positive relationship between the advising and mentoring and the university-performance.
- H<sub>1c</sub>** There is a significant positive relationship between the intelligence-generation and responsiveness and the university-performance.
- H<sub>2</sub>** There is a significant positive relationship between the market-orientation (administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the innovation.

- H<sub>2a</sub>** There is a significant positive relationship between the administration-leadership and the innovation.
- H<sub>2b</sub>** There is a significant positive relationship between the advising and mentoring and the innovation.
- H<sub>2c</sub>** There is a significant positive relationship between the intelligence-generation and responsiveness and the innovation.
- H<sub>3</sub>** There is a significant positive relationship between the innovation and the university-performance.
- H<sub>4</sub>** Innovation mediates the relationship between the market-orientation (administration-leadership; advising and mentoring; intelligence-generation and responsiveness) and the university-performance.
- H<sub>4a</sub>** Innovation mediates the relationship between the administration-leadership and the university-performance.
- H<sub>4b</sub>** Innovation mediates the relationship between the advising and mentoring and the university-performance.
- H<sub>4c</sub>** Innovation mediates the relationship between the intelligence-generation and responsiveness and the university-performance.

## 2.9 Summary of the Chapter

Starting with introduction of the chapter, this chapter presents a detailed review of literature regarding the underlying study.

Immediately after introduction, a general higher education scenario is presented which is narrowed down to a detailed description of issues faced by higher education in Pakistan.

Next section focuses on the literature regarding the principal theories that underpin this study “the Resource-Based Theory (RBT) as well as Organizational-learning theory (OLT)”, which is followed by a detailed description and discussion on the three basic variables used in this study: ‘organizational-performance, market-orientation and innovation’.

Later part debates on the given relationships to be assessed in this study along with their respective hypothesis proposed such as MO versus performance, MO versus innovation and innovation versus performance. After this the mediating role of innovation is reviewed and discussed, which is accompanied by the respective hypothesis for this study.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter comprises the methodology used for exploring the relationship between ‘university-performance and MO’ (along with its dimensions), in presence of a mediating variable which is innovation. Moreover, this chapter contains a detailed description of ‘research design; the population and sample; measurement instruments and their validity procedure for data collection and analysis.

#### 3.2 Research Paradigm

A research philosophy is the fundamental and core belief system that advocates and guides the investigation (Guba & Lincoln, 1994, p.105). Holden and Lynch (2004) suggest that understanding the philosophical solution to why the research is conducted is important before deciding upon the how to research and what to research. The authors also argue that research should be taken forward methodologically and deciding upon the philosophy is the first step. In the views of Collis and Hussey (2013), research philosophy can be categorized into two, namely positivistic paradigm and interpretive paradigm. They are also called objectivist and subjectivist research paradigms. French philosopher Auguste Comte has made a notable contribution towards positivist paradigm (Moore, 2010; Mack, 2010). Auguste is considered as the founder of sociology and therefore, his doctrine is widely quoted in social sciences (Bernard & Bernard, 2012).

Positivists research philosophy views and believes that reality can be studied in the social aspects of life independently from the researcher and assumes that social incidents and life experiences can be outlined and denoted quantitatively via examining



the correlation and experimentation effect to understand the influence or cause and effect relationship between the variables (Tuli, 2011).

Importantly, positivists' research philosophy adopts deductive probing approach whereby hypothesis gets tested to reflect the casual relationships between theoretically driven and empirically proven variables (Creswell, 2009; Bryman & Bell, 2007). The key role of deductive research is to forward conclusions that are generalizable and to offer revision of the research model of theoretical concept. The positivist research paradigm is more objective in nature, seeks quantitative measures, tests casual theoretical frameworks with statistical data and encourages replication of the studies.

On the contrary, interpretive, also known as anti-positivist philosophical expression was given by German mathematician and philosopher Edmund Husserl. This paradigm, assumes that human being exists in a critical social arena which can be investigated and explored by qualitative means through observations (direct/indirect), case studies, and interviews with others. Importantly, interpretivist paradigm is subjective and constructed socially by researcher(s) and target participants to develop comprehension regarding a certain phenomenon/happening (Creswell, 2009; Guba & Lincoln, 1994).

Since core aim of this study was to test the extended market-orientation (MO)—Performance model through resource-based theory which suggests the organizational-performance to stand on its valuable, rare, inimitable and non-substitutable (VRIN) resources (Ozkaya et al., 2015; Faiz; 2015; Alam, 2009; Algarni & Talib, 2014; Ngo & O'Cass, 2012; Zaifuddin, 2010; Ketchen, Hult & Slater, 2007; Bridoux, 2004; Liefner, 2003; Alvarez & Busenitz, 2001). Hence, the MO and innovation are the VIRN resources to complement each other for a better

organizational-performance (Ahmed & Othman, 2017; Ozkaya et al., 2015; Algarny & Talib, 2014; Day, 1994; Hunt & Morgan, 1995; Menguc & Auh, 2006).

As this study hypothesized that firstly the MO and innovation can significantly predict university-performance (UP) in the public-sector universities of Pakistan, and secondly the innovation significantly mediates the MO—UP relationship. A total of seven objectives have been proposed with 13 hypotheses for further test and verification.

Therefore, through the given research framework, this study is to test a theory and verify rather than developing and/or establishing a new theoretical ideology, hence, applying deductive approach. Conclusively, the study draws upon objectivity of positivist philosophical paradigm.

### **3.3 Research Design**

This study is designed to investigate the relationship between university-performance (dependent variable) and market-orientation (MO) along with its respective dimensions (independent variables) mediated by innovation (mediating variable). This study has an organizational unit of analysis that is ‘universities’ represented by teachers (and administrators) from the public-sector universities of Pakistan as the respondents.

The choice of an appropriate research design is very critical for the success of a research (Bordens & Abbot, 2011). Yet, Davis (1996) express that determining and choosing the best research design does not really have any definitive means. The quality of conclusions and recommendations drawn from the research results depends upon the appropriate choice amongst the available options for the research design (Bordens & Abbot, 2011). A number of techniques and their functions such as experiments, surveys, and observational studies are normally used to categorize the organizational research (Zikmund, 2003). The self-administrated survey design appears to be the most widely

used approach for organizational research, which is termed as the best method to study and describe large populations swiftly and more economically (Davis, 1996).

Due to their versatility, indeed, the survey method can be adapted to almost any kind of research settings, but the most surveys have the primary objective of exploring the relationships between certain variables (Sonquist & Dunkelberg, 1977). The surveys have been essentially helpful in testing the hypothesis, describing the populations, developing some useful measurement scales and suggesting improvements in other methodological business research area (Davis, 1996). Therefore, a cross-sectional quantitative survey method was adopted for the underlying study.

Apart from being swift, economical and time saving, survey method is also effective in collecting data from a larger sample size in comparison to interview method (Leedy & Ormrod, 2005). Respondent's background confidentiality is also ensured while collecting data. The survey method also ensures to facilitate researchers not only for data collection, but also for performing statistical analysis, as well as conducting the reliability and validity tests effectively on the instrument (Alreck & Settle, 2004).

Babbie (2005) states while explaining the advantages of survey method, that firstly, it (survey method) is feasible to large sample. Secondly, it has the provision of responding to many questions on a given topic and thirdly, it is reliable as well.

### **3.4 Population and Sample**

Based on concrete support from previous studies regarding the assessment of market-orientation and university-performance relationship through university teachers (Poole, 2017; Mokoena & Dhurup, 2016; Felgueira & Rodrigues, 2015; Felgueira & Rodrigues, 2012; Niculescu et al., 2013; Zebal & Goodwin, 2012; Hemsley-Brown & Oplatka, 2010;

Rivera-Camino & Ayala, 2010; Mitra, 2009; Hampton et al., 2009; Oplatka & Hemsley-Brown, 2007; Hampton, 2007; Flavian & Lozano, 2007; Flavián & Lozano, 2006; Liefner, 2003; Oplatka, Hemsley-Brown & Foskett, 2002; Siu & Wilson, 1998), the target population for this study is also constituted by the university teachers (and administrators), including lecturers, assistant professors, associate professors and the professors from five largest and oldest public-sector universities of Sind province, Pakistan, offering a huge variety/mix of courses and degree programs, accommodating maximum number of students and faculty from variety of socio-economic clusters that represent all segments/classes of the country's population (HEC, 2015 b). These universities accommodate more than 50% of total population for this study (refer Table 3.2 and Table 3.3). Reasons to focus only the Sind province out of whole country of Pakistan are briefly given below:

i) Sind province contains the largest number of higher-education-institutions in Pakistan as compared to the other provinces as shown in Table 3.1 and Appendix 2.

Table 3.1  
*Number of Public and Private Sector Universities/DAI by region, 2014*

<b>Region</b>	<b>Public</b>	<b>Private</b>	<b>Total</b>
Punjab	20	22	44
<b>Sind</b>	<b>21</b>	<b>30</b>	<b>51</b>
KPK	19	10	29
Baluchistan	6	2	8
Federal	24	6	30
AJK	4	2	6
GB	1	0	1
<b>Total</b>	<b>95</b>	<b>72</b>	<b>163</b>

**Source:** HEC Pakistan, Official Webpage, retrieved on 2<sup>nd</sup> June, 2015.

ii) Sind province has been a center of attraction for a very huge mix of population dwelling there because it offers relatively better economic and trade opportunities as it accommodates the largest and most industrialized city of the country

along with a very modern well equipped and highly vibrant seaport therein, besides a huge irrigation system sustained by river Indus (Dunya, 2015).

iii) Most of the public-sector departments appear to have certain homogeneous problems, hence, this state of affairs may enable the generalization of results of a study in public-sector organizations throughout the country (Haque, 2015; Flynn, 2007). All the public-sector universities in the Pakistan are going through more or less homogeneous circumstances with similar pay packages offered (Hoodbhoy, 2011, 2009). They follow the same constitution under the same governing body, known as higher education commission (HEC) of Pakistan (HEC, 2014).

iv) Due to confrontation of political, ethnic, linguistic and religious groups, a state of anarchy is highly prevailing in Pakistan, inhibiting researcher's mobility to access to all areas in other provinces of the country, putting the life of researcher at stake.

v) Furthermore, there are limitations with regards to time, funds and access for data collection from all public-sector universities of the Sind province, hence, the focus of this study for data collection remained confined to five largest public-sector universities from Sind province, Pakistan that encompasses more than 50% of total population (refer Table 3.2 and Table 3.3). These universities also offer a wide range of degree programs from undergraduate to masters and post-graduate studies in multiple areas of studies, and they accommodate maximum number of students in comparison to the rest of universities in Pakistan (HEC, 2015).

The detailed breakup of total number of public and private universities and degree awarding institutes (DAI) is provided in Table 3.1, whereas the number of faculty members in both public and private sectors of each province is provided in Table 3.2.

While the relevant details about the target universities in Sind Province, Pakistan are provided in Table 3.3.

Further details about the sampling technique and the sample size are given in the following section

Table 3.2  
*Higher Education, Full Time Faculty in Public and Private Sector by Region in Pakistan, 2014*

Province	Public	Private	Total Faculty
Balochistan	893	371	1264
Khyber Pakhtoon khuwa	3499	1452	4951
Punjab	8092	3359	11451
<b>Sind</b>	<b>5600</b>	2324	7924
Federal	5296	2198	7494
Azad Jammu & Kashmir	665	278	943
Distance Learning	295	122	417
<b>Total</b>	(70.67%) 24340	(29.33%) 10104	(100%) 34444

Source: HEC Pakistan, Official Webpage, retrieved on 2<sup>nd</sup> June 2015.

Table 3.3  
*Details about the target Public-Sector Universities in Sind, Pakistan, 2014*

University Name	Year of Establishment	Number of Students enrolled	Number of Faculty Members
University of Sind, Jamshoro	1972	22,345	671
University of Karachi	1972	11,235	826
Shah Abdul Latif University, Khairpur	1986	5678	205
Mehran University of Engineering & Technology, Jamshoro	1977	7621	419
Liaquat University of Medical & Health Sciences, Jamshoro	1951	2822	785
<b>Total.</b>			<b>2906</b>

Source: HEC Pakistan, Official Webpage, retrieved on 2nd June, 2015.

### 3.4.1 Sample Size

Referring to Krejcie and Morgan's (1970) for determining the appropriate sample size, Table 3.4 presents the details about total population and the proportionate number of responses required from each university. According to Krejcie and Morgan's (1970) the required sample size for the population of 2902 is 340.

Additionally, the response rate of the previous research from university faculty in Pakistan is reported to have huge variations ranging from 40% to 70% (Khalid, Irshad & Mahmood, 2012; Akbar & Akhter, 2011; Ahmad & Shahzad, 2011; Nawab & Bhatti, 2011; Nawab, Naeem & Danish, 2010; Shahzad, Bashir & Ramay, 2008; Malik, Tahir, Mahmood & Shafique, 2008; Javed, Naeem, Kingdon, Irfan, Izhar & Ayub, 2006; Chughtai & Zafar, 2006). Hence, to minimize the low response rate from uncooperative respondents, the sample size of 340 was increased by 40%, as suggested by Salkind (1997). By adding this percentage to 340 finally we had a sample size of 476 in order to account for any uncooperative respondents and any unusable returned questionnaires.

Table 3.4  
*University wise Percentage of Population and Required Proportionate Sample Size*

<b>Name of University</b>	<b>Number of faculty members in each university (Population)</b>	<b>% of Total population in each university</b>	<b>Required proportionate number of Sample size</b>
University of Sind, Jamshoro	671	23%	109
University of Karachi	826	28%	133
Shah Abdul Latif University, Khairpur	205	7%	33
Mehran University of Engineering & Technology, Jamshoro	419	15%	72
Liaquat University of Medical & Health Sciences, Jamshoro	785	27%	129
<b>Total</b>	<b>2906</b>	<b>100%</b>	<b>476</b>

### **3.4.2 Sampling Technique**

For an equal chance of participation to every respondent, and to avoid closely located respondents into clusters, a systematic random sampling technique was used in order to ensure for a better chance of covering all possible diversified members of population from all the organizational levels (Sekaran & Bougie, 2012; Ross, 2015).

From the selected universities, the list of respondents was generated through the respective administration sections and heads of respective departments. Hence, for a self-administrated survey, the respondents were contacted proportionately on a systematic random basis, whereby every sixth faculty member was selected randomly for securing the required 476 responses out of total population of 2902 (Sekaran & Bougie, 2012). In case of unavailability of sixth one, the participant next to the sixth and so on was contacted (Sekaran & Bougie, 2012).

## **3.5 Operational Definitions of Proposed Variables**

### **3.5.1 University Performance**

In general, the organizational-performance (OP) can be described through ‘attainment of organizational-goals’ (Levy, 2002). This is also in accordance with description of OP by Narver and Slater (1990) as well as Kotler & Levy (1969). OP may comprise the objective as well as judgmental organizational-goals (Agarwal et al., 2003). While the superior judgmental performance is indispensable for superior objective performance (Jaworski & Kohli, 1993).

For this study, the context-specific operationalization of university-performance has been adapted from the work of Caruana et al. (1998, 1999) as a three-dimensional



construct namely the overall performance, retention and recruiting of students and university-funding. This operationalization of university-performance in relation to university market-orientation (MO) has also been assessed by Hampton (2007), Hampton et al. (2009) and Niculescu et al. (2013).

### **3.5.2 Market Orientation**

Market orientation (MO) involves the carrying out of marketing-concept (Sheppard, 2011; Brettel et al., 2009). It has been sometimes used synonymous to customer-orientation as well (Camelia & Doral, 2013; Hampton et al., 2009; Siu & Wilson, 1998; Deshpande et al., 1993; Shapiro, 1988). It is considered as an organizational level resource which is inimitable, rare, and quite valuable for a competitive advantage (Khuwaja et al., 2015; Menguc & Auh 2006).

The context-specific operationalization of market-orientation (MO) for this study has been taken up from the work of Hampton (2007), and Hampton et al. (2009), who have considered MO as a three-dimensional variable, namely the administration-leadership; the advising and mentoring; and the intelligence-generation and responsiveness. Later Niculescu et al. (2013) also adopted same operationalization in their study conducted in the context of higher education.

This university-specific operationalization of MO, (Hampton, 2007; Hampton et al., 2009; Rivera-Camino & Ayala, 2010), has its roots in the two widely used classical measures of MO offered by Kohli and Jaworski (1990) and Narver and Slater (1990) respectively. Although these two approaches measure different aspects of MO, nevertheless both of these are declared to be valid and reliable (Niculescu et al., 2013). Both conceptualizations of MO were compared and recognized to have many common themes (Cadogan & Diamantopoulos, 1995). Cadogan and Diamantopoulos (1995) and

Cadogan et al. (1999) recognized and declared them to have many common themes. “Customer-orientation, competitor-orientation, and interfunctional coordination” by Narver and Slater (1990) rap a similar domain as intelligence generation, dissemination, and responsiveness given by Kohli and Jaworski (1990).

### **3.5.3 Innovation**

For this study, the context-specific operationalization of innovation has been adapted from the work of Kafetzopoulos and Psomas (2015) and Liu, Luo and Shi (2002) as a uni-dimensional variable.

In marketing literature innovation is generally described as the breakthrough novelty in the organizational products and processes (Altuntaş et al., 2013; Keskin, 2006; Han et al., 1998). Nevertheless, in nonprofit establishments the most evident innovations are commonly incremental, or continuous in nature. Keskin (2006) declares it as another effective strategic-orientation, with footings in earlier literaturelike (Zaltman et al., 1973; Damanpour & Evan, 1984; Zahra et al., 1988; Damanpour et al., 1989; Khan & Manopitchetwattana, 1989).

Considering the context of universities, White and Glickman (2007), define innovation as ‘some improved way of functioning’, or ‘any amendment that makes the academic or administrative performance better’, or ‘an experiential paradigm shift based on a new way of thinking’. While Damanpour (1991) considers the ‘technical and administrative’ aspects of innovation. Technical innovation includes “new products/services and processes”, or alterations in the mechanism used to produce or deliver products/services (Avermaete et al., 2003). Administrative innovation means the execution of new ideas “to advance the organizational structures, systems and processes” (Damanpour, 1991; Weerawardena, 2003).

### 3.6 Questionnaire Design and Measurement Scale

This study aims to measure the relationship between market-orientation (MO) along with its dimensions and university-performance in the higher education sector of Pakistan, alongwith the mediating effect of innovation on the relationship between MO and university-performance.

Although there are no definitive means for any perfect data collection instrument, yet the questionnaire design has to be aligned with research objectives to ensure that the instrument represents the desired data (Davis, 1996). Hair, Money, Page, and Samouel (2007) necessitates pre-testing to validate the questionnaires, which had been undertaken for this study as well prior to actual/full-scale study (refer Section 3.8).

Table 3.5 provides a summery of the measurement tools for the variables of interest.

Table 3.5  
A summarized description for the measures of the study variables

Variables (Measurement Tool)	Number of items	Reliability	Source
Performance (University performance)	13 items	AVE > 0.5 CR-Coefficient > 0.70 $\alpha = 0.89$	(Caruana et al., 1998 & 1999).
Market-orientation (UNIVERSITY-MARKOR)	22 items	AVE > 0.5 CR-Coefficient > 0.70 $\alpha = 0.90$	(Hampton, 2007).
Innovation (Innovation; Entrepreneurial Orientation)	12 items	AVE > 0.5 CR-Coefficient > 0.70 $\alpha = 0.86$	(Kafetzopoulos & Psomas, 2015; Liu, Luo & Shi, 2002).

For this study, all the constructs were measured on a 5-point scale (1-Strongly Disagree and 5-Strongly Agree) as the likert scale has been one of the most extensively used mechanism for measurement of the similar constructs for the organizational-performance (Al-Marri, Ahmed & Zairi, 2007) based on numerous grounds. A five-point likert scale is more convenient for respondents to choose a more appropriate response, as Frary (1996) mentions that the

measurement-scales containing several extended points generally require more time and effort to respond. Hence, it could be a source of confusion for the respondent (Ahmed, 2016).

Dawes (2008) comparatively analyzed the 5, 7 and 10-point scales and concluded that the five and seven-point scales formed the same mean scores. Nevertheless, the ten-point scale produced slightly lower relative mean scores than either the 5 or 7-point scales. Yet the 5 or 7-point scales offer a midpoint unlike the 10-point scale. Losby and Wetmore (2012) have indicated that not giving a neutral point in the scale (just like 3 in 1 to 5 scale), indirectly forces the respondents to go on the extreme sides, hence, they fail to outline something that they are not pretty sure about. Five-point likert scale has also been recommended by other recent survey studies (Ahmed, 2016; Umrani, 2016).

The questionnaire for this study was composed of three sections representing the variables associated with MO and its dimensions, university-performance and innovation. All the instruments adapted for this study have empirically displayed the standard validity and reliability in the previous studies (Niculescu et al., 2013; Kafetzopoulos & Psomas, 2015; Kaya, 2006)

### **3.6.1 Measurement of Independent Variable: Market Orientation**

For the sake of measuring MO and its dimensions, 'UNIVERSITY-MARKOR Scale' was used with a five-point Likert scale (1= strongly disagree to 5=strongly agree). This scale has been adapted from the study of Niculescu et al. (2013), with its reliability reported with the value of  $\alpha = 0.90$ . This scale was originally developed by Hampton (2007). In addition to it, for a more comprehensive survey, five items have also been adapted from the MARKOR scale (Caruana et al., 1998 & 1999), with its overall reliability reported with the value of  $\alpha = 0.76$  (Niculescu et al., 2013).

Although several MO scales have been developed and assessed in different conditions such as the two most frequently adapted scales by a number of later researchers, turnout to be (1) MARKOR by Kohli and Jaworski (1990) and (2) MKTOR by Narver and Slater (1990). Several later studies added more value by extending some additional aspects into these scales such as Deng and Dart (1994), Lado, Maydeu-Olivares, and Rivera (1998) and Matsuno, Mentzer, and Rentz (2005) among others. But unfortunately, most of these scales measured MO in the business context (Modi, 2012; Hampton, 2007; Niculescu et al., 2013). Hence, the need for a more context-specific tool to measure MO in the higher education sector was dire as these earlier scales did not appear compatible when tried in universities (Rivera-Camino & Ayala, 2010; Hampton, 2007; Hampton et al., 2009). Later, the UNIVERSITY-MARKOR scale (Hampton, 2007) was developed exceptionally for bridging this gap.

The UNIVERSITY-MARKOR scale is rooted in some previous MO studies such as (Caruana et al., 1998, 1999; Kohli et al., 1993) and customer-orientation (Brady & Cornin, 2001; Saxe & Weitz, 1982). The development of this scale also resulted in a viewpoint shift from ‘top management perspective to a faculty perspective, with a specific focus on faculty related MO-activities, regarding teacher-student interaction (Niculescu et al., 2013; Hampton, 2007) (refer Appendix 1). ‘Intelligence-generation and responsiveness’ are quite similar to the MO-dimensions used in the traditional Jaworski and Kohli’s, (1993) ‘MARKOR scale’. Furthermore, the ‘intelligence-dissemination’ dimension in the MARKOR scale has been substituted with two newfangled factors: (1) students’ advising and mentoring, and (2) Administration-leadership with the role of department head, as these two of the teachers’/professors’ activities appear as most vital in their academic as well as administrative services to their students. However, with some similarity to the items in the basic MO scales, the

newfangled factors appear more distinctively aligned with students' needs pertaining to faculty activities (Niculescu et al., 2013). Later studies including Niculescu et al. (2013) found a significant relationship between university-performance and the university MO with its reformed three components i.e. the administration-leadership; the advising and mentoring; and the intelligence-generation and responsiveness.

### **3.6.2 Measurement of Mediating Variable: Innovation**

In order to measure innovation more comprehensively, a total of eleven item scale has been adapted by taking into account the synergy of two different scales. Six items have been adapted from Liu, Luo and Shi (2002) which is rooted in the work of Covin and Slevin (1989), whereas five items have been adapted from Kafetzopoulos and Psomas (2015). The validity of the above scales has been confirmed into the other studies as well (Kaya, 2006; Kafetzopoulos & Psomas, 2015). All items are measured through a 'Five-point' Likert scale (1-strongly agree to 5- strongly disagree)

### **3.6.3 Measurement of Dependent Variable: University Performance**

In order to measure university-performance, a 13-item scale has been adapted from the work of Niculescu et al. (2013) with the value of  $\alpha = 0.89$ . This scale was originally developed by Caruana et al. (1998 & 1999). The given performance scale takes into account three dimensions of university-performance namely, an overall performance measured with five items, retention and recruiting measured with three items, and funding measured with five items, all measured through a five-point Likert scale (1- very poor to 5- very good).

### 3.7 Pre-test and Pilot test

As mentioned earlier that this study has utilized the adapted questionnaire as the basic tool for data collection regarding the measurement of variables of interest. Davis (1996) emphasizes that the questionnaire design has to be aligned with research objectives to ensure that the instrument represents the desired data. Hence, pre-testing of questionnaire has been emphasized for confirming its validity (Hair, Money, Page & Samouel, 2007). According to Bryman (2001) and Miller and Salkind (2002) the pretest helps researchers for approximation of the time required to complete the questionnaire. Furthermore, Bryman (2001) puts up that the pretests also confirm the respondents' understanding and clarity about the questions included in the questionnaire.

The survey questionnaire used in this study had been therefore pretested based on the feedback on the 'assessment of the survey instrument' from five subjects who had been involved in higher education sector research and teaching. From the academic and research circle of the researcher, the participation of subjects requested was decided based on participants' involvement and experience in research and higher education. These individuals were kept exempted from the sample population. After completion of this pretest assessment, these respondents were asked if they had come across any ambiguities or if they could assume any other problem(s) on behalf of actual respondents while answering the questions, along with an approximate completion time of the questionnaire, so that such issues may be accommodated to confirm the simplicity and clarity of the questionnaire in order to make it more efficient and effective.

During the pretest, the experts found a few questions such as in the advising and mentoring section as well as in the performance section need to be rephrased better

because those appeared a bit difficult to get comprehended by the respondents. Hence, those questions had been refined accordingly.

In order to further confirm the reliability and validity of instruments a pilot study was also conducted (Flynn, Sakakibara, Schroeder, Bates & Flynn, 1990) since for this study a pilot test is considered to be essential because scales have been adapted from various studies originally conducted in different contexts (Hampton, 2007; Niculescu et al., 2013; Kohli & Jaworski, 1990; Caruana et al., 1998 & 1999; Kafetzopoulos & Psomas, 2015; Liu, Luo & Shi, 2002)

For the pilot study, a total of 100 questionnaires were sent out, based on the guidelines by Riefler, Diamantopoulos and Siguaw's (2012) however, only a total of 80 teaching staff members from various universities located in the Sind province of Pakistan completed the questionnaires. This gives a response rate of 80%. Using Smart PLS 2.0 M3 software (Ringle, Wende & Will, 2005), the internal consistency reliability and discriminant validity of the constructs was determined. More specifically, PLS Algorithm (Geladi & Kowalski, 1986) was calculated to obtain the average variance extracted (AVE) and the composite reliability (CR) coefficients. Ideally the CR coefficient should be at least 0.70 or above (Bagozzi & Yi, 1988; Hair, Ringle & Sarstedt (2011), whereas the AVE score should be 0.5 or above (Fornell & Larcker, 1981). Fornell and Larcker (1981) additionally suggest that for an adequate discriminant validity to achieve, the square root of the AVE should be above the correlations among the latent constructs. Table 3.6 presents the AVE and CR coefficients of the five latent constructs.



Table 3.6

*Measurement Model (Average Variance Extracted and Composite Reliability coefficients)*

<b>Latent variable</b>	<b>AVE</b>	<b>CR</b>
MO_adL	0.67085	0.92425
MO_aM	0.50847	0.75322
Innovation	0.55438	0.9084
MO_inR	0.63395	0.94989
UP	0.60136	0.93122

**Note.**MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; and UP denotes University-Performance

As given in Table 3.6, the CR coefficient of each latent construct appears within the range of 0.75 and 0.94 which is above the minimum acceptable level of .70, hence, it also suggests adequate internal consistency reliability of the given measures used in the pilot study (Bagozzi & Yi, 1988; Hair et al., 2011). Similarly, as given in Table 3.6, the AVE values also appear acceptable as they range between .50 and .67. In Table 3.7 the correlations among the latent constructs have been compared with the square root of AVE in order to assess the discriminant validity where all the square roots of AVE appear greater than the correlations among latent constructs, suggesting adequate discriminant validity (Fornell & Larcker, 1981).

Table 3.7

*Measurement Model (Latent Variable Correlations)*

<b>Latent variable</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>MO_adL</b>	<b>0.819053</b>				
<b>MO_aM</b>	0.338089	<b>0.713085</b>			
<b>Innovation</b>	0.578222	0.399836	<b>0.796212</b>		
<b>MO_inR</b>	0.568779	0.359992	0.649482	<b>0.744566</b>	
<b>UP</b>	0.606661	0.333415	0.732809	0.701346	<b>0.775474</b>

**Note.** Entries in the boldface represent the square root of the average variance extracted; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; and UP denotes University-Performance

### **3.8 Data Collection Procedure**

As justified in previous sections regarding the use of self-administered survey method, that was implied for this study to collect data based on a number of benefits suggested by pertinent literature (Leedy & Ormord, 2005; Babie, 2005; Alreck & Settle, 2004; Zikmund, 2003; Davis, 1996; Sonquist & Dunkelberg, 1977).

Based on the contact list of faculty members, generated from the respective administration sections of the target universities and from their respective heads of departments, a self-administered questionnaire was executed to collect data. The questionnaires also contained a brief introduction of the study and its purpose. Telephone number and email address of the researcher were also provided for any further clarifications sought regarding the study/questionnaire. The anonymity and privacy of the respondents with respect to their response was also assured. To ensure the timely response, a regular follow-up through the short-messaging-service (SMS) was also performed as a soft reminder to the respondents, two weeks after the initial receipt of questionnaires by the respondents. Besides that, the personal visits with prior appointment were also used for a better followup.

### **3.9 Data Analysis Technique**

#### **3.9.1 Data Screening**

This section takes into account the crucial steps taken before the complete analysis of data. These steps include identification of missing data and the possibility of the existence of outliers. Its purpose is to ensure that the existence of missing data and outliers would not reduce the data from this study up to an inadequate sample (Hair, Black, Babin & Anderson, 2010). Hair et al. (2010) provides the description of missing

data as the valid values unavailable for analysis on certain variable/s. Furthermore, any questionnaires found incomplete, as received for this study were discarded as considered unusable.

Hair et al. (2010) defined outliers as “observations with a unique combination of characteristics identifiable as distinctly different from the other observations”. Moreover, Sekaran and Bougie (2010) suggest a detailed investigation of outliers in order to ensure that they are well identified appropriately, as the outliers have a large impact on the results of the research. Hence, the existence of no extreme values must be ensured to make the data suitable for multiple regression. For this purpose, the ‘Mahalanobis distance’ method was used to detect and clean data.

Hair et al. (1995) recommend that in most cases, the value of Mahalanobis distance must not exceed the critical value chi-squared with the Degree of Freedom (df) that equals to the number of predictors (questions for the independent variables) (IVs) and  $\alpha = 0.001$ , otherwise, the extreme values would enforce difficulties to handle the data.

### **3.9.2 Validity**

Bordens and Abbot (2011) define the scale’s validity as the extent to which a scale determines what it is intended to determine. In other words, it is the degree to which a scale rightly denotes the notion of a study as being free from any ‘systematic or non-random error’. Hair et al. (2010) explained while differentiating ‘validity and reliability’ that the validity is more concerned with how well a concept is demarcated by a scale or its measures, whereas, the reliability seeks the consistency of the scale(s).

Referring to this, the validity tests were conducted for this study to ensure that the given instrument measures what it intends to (Bordens & Abbot, 2011).

Cambell and Stanley (1966) and Zikmund (2003) declare the forms of validity tests to be 'external or internal'. The internal validity is desirable to investigate whether it is the 'independent variable' that is the one and only cause to alter the dependent variable, however the external validity is conducted to assess extent that the results of the study are generally applicable in the empirical world (Zikmund, 2003). As a conclusion, the external validity enables the scale to be generalized to other population beyond the data of the study at hand.

In the area of business research, the two most extensively used and generally accepted validity tests are the 'Content or face validity' and 'construct validity' (Bordens & Abbot, 2011).

Face validity or content validity according to Zikmund (2003) is the professionals' independent agreement that a particular scale, with its adequate contents, it is capable to reflect precisely what it intends to measure. In other words, it is actually the capacity of a particular instrument for "how well it measures, what it is designed to measure (Bordens & Abbot, 2011).

In the content or face validity for a scale which is normally pretested with multiple sub-population or any other means, the expert judges are used to assess the correspondence between all the items in an instrument, individually, and the concept is also subjectively assessed by these expert judges (Hair, Black, Babin, Anderson & Tatham, 2006; Churchill, 1979; Robinson, Shaver & Wrightsman, 1991).

In order to pretest the questionnaire for this study, five field experts with higher education teaching and research experience were approached to assess the statements in the questionnaire and the overall contents of the scales chosen. The feedback sought regarding any ambiguities found, was incorporated in the questionnaire to make it more comprehensive, clear and easily understandable for the intended respondents.

According to Bordens and Abbot (2011) despite lacking in face validity, an instrument may be capable of measuring what it is designed for. But for the sake of extending a certain desired level of confidence to the researchers as well as to the study as a whole, it is crucial to have face-validity. Otherwise there are equal chances of developing a negative attitude about the usefulness of an instrument which is not perceived as valid by the respondents (Cohen & Swerdlik, 2010).

Bordens & Abbot (2011) claim that the next commonly used validity test is the construct validity, which defines how well the particular constructs used in the test measures against what it claims. Construct validity involves the theoretical and statistical assessment aspects (Raemah, 2010). The theoretical aspect requires justifications for the concept, based on certain evidence in the past literature on the construct variables, while the statistical aspect of the construct validity is recognized based on the statistical analysis of the data. (Davis & Cosenza, 1998).

This study consists of the variables namely the market-orientation (and its dimensions), the innovation', and the university-performance. These variables relate to the literature from business, marketing, and organizational behavior, whereas the statistical aspects of the construct validity have been further confirmed by assessing the convergent and the discriminant validity after the statistical analysis of the data.

**Convergent Validity** according to Hair et al. (2010), is the degree to which a set of variables measure the concept well, on a given construct and according to Bagozzi and Yi (1988) and Hair et al. (2010) how well is that all confirmed by using the items reliability, composite reliability, and average variance extracted (AVE), which means that if all the items are significantly important in measuring their constructs, the composite reliability values should be at least 0.7 and the AVE ought to be at-least 0.5 then the convergent validity can be confidently confirmed.

Whereas, the **Discriminant validity**, measures the extent to which an item-set of a construct varies from others in a given model or the concepts as well as its measures which are expected to be unrelated are really unrelated (Compeau, Higgins & Huff, 1999).

The convergent validity and discriminant validity for this study were confirmed using factor analysis and the other PLS-SEM procedures.

### 3.9.3 Reliability

A scale is said to be reliable when it produces analogous results in the repeated measurements under identical conditions (Bordens & Abbot, 2011). For a scale to be reliable, the inter-correlation of individual terms or indicators of a proposed scale should be high enough (Churchill, 1979; Nunnally, 1978).

For reliability test, the research suggests two most common diagnostic measures namely 1) item-to-item correlation or the correlation of the items to the summated scale score and 2) the inter-item correlation or the correlation among items (Hair et al., 2010). The item-to-item correlations should exceed the value of 0.50 whereas the inter-item-correlation should exceed the value of 0.30 (Robinson, Shaver & Wrightsman, 1991a).

Another type of diagnostic measure for scale reliability is the 'reliability coefficient', which is used to assess the entire scale's consistency with most commonly used Cronbach's alpha (Cronbach, 1951; Nunnally, 1978; Peter, 1979) which was also implied for this study, due to its universal application in the scale reliability tests.

The accepted lower limit for Cronbach's alpha is generally 0.70 (Nunnally, 1978; Nunnally & Berstein, 1994; Robinson et al., 1991a, 1991b; Sekaran, 2005). Whereas, Robinson et al. (1991a) suggest that in exploratory research the value of Cronbach's alpha may decrease up to 0.60.

#### **3.9.4 Non-response Bias**

According to Berg (2005) non-response bias refers to the likely errors for estimation of population characteristics based on a survey data collected from a sample, whereby certain types of survey respondents may be underrepresented because of non-response. This bias occurs when non-responders out of potential subjects (who do not respond to survey) differ from responders (those who respond) in a survey with a certain degree of heterogeneity. In order to test a non-response bias for this study, the independent sample t-test is used.

#### **3.9.5 Normality Test**

In case of normal distribution of data with linear relationship amongst the variables, the correlation and regression tests are more suitable (Hair et al., 2006). If the data is normally distributed, and bell-shaped with no presence of noticeable skewness, then it is considered to be a good data (Coakes & Steed, 2001). Norusis (1997) suggests that the simple method of testing the normality of a data is by looking at the histogram of the residual. The normal distribution of data can be confirmed by focusing on the

vertical lines of histogram. However, due to the limitations which occur at sampling stage it is quite challenging to get a perfect normal distributed data (Norusis, 1985). Besides the use of histogram for observing the normality of data, a normal probability plot can also be used (Hair et al., 2006).

Finally, Skewness and Kurtosis are also used for testing the normality of the data. Chua (2006b) explained that the data is normally distributed when the skewness and kurtosis value falls between -2 and +2. Further, Hair et al. (2010) stated that the Skewness values falling outside the range of -1 to +1 indicate a substantially skewed distribution (Hair et al., 2010).

### **3.9.6 Linearity**

An important consideration for the regression analysis is the linearity where independent and dependent variable's relationship has to be linear. According to Tabachnick & Fidell (2001) if there exists some kind of non-linear relationship, then it will underestimate the actual extent of the relationship of variables under investigation. Therefore, the linearity is examined through residual plots of each independent variable.

### **3.9.7 Multicollinearity**

Multicollinearity is the degree of relationship between the independent variables used in the model (Hair et al., 2010). If there is strong correlation in the variables, it would indicate multicollinearity, which is considered problematic in the regression analysis, as multicollinearity will complicate the interpretation of different variables effects. According to Stevens (2002), the procedure of multiple-regression assumes that no independent variables have a perfect linear relationship with each other.



To identify the multicollinearity problem in this study, the tests of Variance Inflated factor (VIF) and the Tolerance values have been performed. As Hair et al. (2010) suggests that multicollinearity is assumed to exist when VIF values exceeds 10.0. In the other situation, the tolerance value should not be less than 0.10.

### **3.9.8 Homoscedasticity**

Homoscedasticity is the equal variance of the error terms for all explanatory random variables considered in the model (Hair et al., 2006). Homoscedasticity is also screened in this study using SPSS.

### **3.9.9 Test of Common Method Bias**

The amount of spurious covariance shared among variables is known as common method bias or common method variance (CMV) because the common method is used in the collection of data (Buckley, Cote & Comstock, 1990). These method biases create problem as the actual phenomenon under investigation becomes hard to differentiate from measurement artifacts (Hufnagel & Conca, 1994; Avolio, Yammarino & Bass 1991).

The common method biases may be caused by a number of sources, some of most widely cited are ambiguous wording (Hufnagel and Conca 1994), and scale length (Harrison et al. 1996). Therefore, the issue related to wording used in questionnaire and scale length has to be paid much attention in order to avoid and/or at-least minimize this tendency from its occurrence through a pre-tested questionnaire. The past research suggests that Harman's single-factor test is one of the most widely used techniques for addressing the issue of common method variance. Therefore, it has been employed for this study.

### 3.9.10 PLS-Structural Equation Modeling

Based on previous literature, the structural equation modeling (SEM) is recognized to be particularly useful for developing, extending and testing of theories and for testing of prediction-oriented models (Hair, Sarstedt, Hopkins & Kuppelwieser, 2014; Hair, Ringle & Sarstedt, 2013; Ringle, Sarstedt & Straub, 2012; Hair, Sarstedt, Ringle & Mena, 2012; Hair, Ringle, Sarstedt, 2011; Henseler et al., 2009; Shook, Ketchen, Hult & Kacmar, 2004; Steenkamp & Baumgartner, 2000; Hulland, 1999). Two different statistical methods are used for estimation of SEM (Hair et al., 2014).

(1) Covariance-based SEM also called CB-SEM (Diamantopoulos & Sigaw, 2000; Joreskog, 1978, 1982; Rigdon, 1998).

(2) Variance-Based Partial Least Squares path modeling also known as PLS-SEM (Hair et al., 2013; Lohmoller, 1989; Rigdon, 2012; Wold, 1982).

Researches such as Hair et al. (2012), Ringle, Sarstedt & Straub (2012), and Lee, Lee & Pennings (2001) state that as a method, the PLS-SEM is experiencing a widespread application in academic research practice. Some distinguished researchers (Ringle et al., 2012; Chin, 2010; Vinzi, Chin, Henseler & Wang, 2010; Chin & Newsted, 1999; Chin, 1998) suggest that PLS is suitable for the research where (a) the theoretical model is relatively new or not well-formed (b) the model is relatively complex with large number of latent variables and/or structural paths. (c) Urbach and Ahleman (2010) provide an interesting feature about PLS, that it can handle any sample size (small or large) with no requirement for the data to be normally distributed to predict the relationships (Hair et al., 2014). (d) It is especially useful when the goal of the study is to predict relationships (Urbach & Ahleman, 2010) and (e) it requires nearly half number of observations in

comparison with CB-SEM to provide desired level of statistical power (Reinartz et al., 2009). (f) In comparison to CB-SEM, the PLS-SEM on the otherhand appears to be more superior because, by using weighted composites (proxies) of the variables under consideration, it facilitates accounting for measurement errors as well, which ultimates optimizes  $R^2$  by minimizing the standard error (Hair et al., 2016, p.15). (g) PLS-SEM does not required model fit (GoF) as required in CB-SEM (which normally needs to delete a big number of items, making the research model less effective (Hair et al., 2017). (h) unlike CB-SEM, PLS-SEM does not have the limitation of “Factor indeterminacy” (Hair et al., 2017). (i) For more parsimony, PLS-SEM is better for 2<sup>nd</sup> order construct assessment, where the predictive relevance is better assessed in Smart-PLS (Sleiger, 1997). (j) Peticularly in case of multivariate analysis, PLS-SEM is relatively easier to predict, interpret and report findings (Hair et al., 2017).

Therefore, these evidences support to employ PLS-SEM to be more appropriate package for this study, because this study firstly aims to collect primary data using survey approach with a certain level of uncertainty in generating the desired level of response from the target population. Secondly, the chances for the data collected to be either normal or completely non-normal, which may have significant effect on (i.e. inflate or deflate) the statistical results especially the t-values of the relationships hypothesized. Moreover, the proposed theoretical model for this study comprising certain latent variables (both first order as well as second order) along with a mediating effect, turned out to be a complex model. In such a state PLS-SEM appeared to be a more suitable option for analyzing data for the underlying study, as justified in preceding paragraph.

### **3.10 Chapter summary**

This chapter consists of the research methodology for this study, wherein a detailed research design has been discussed, along with a comprehensive elaboration of population and sample. The chapter further encompasses the details about the adaptation of the instruments for this research, and more over the data collection procedures are also discussed in detail.

Finally, the data analysis methods used in this study have also been described, whereas the results of such analysis are presented in Chapter 4.



## CHAPTER FOUR

### RESULTS

#### 4.1 Introduction

This chapter comprises the results of this study. Initially it reports the process of initial data screening and some preliminary analysis for determining the suitability of data to be further used for the assessment of measurement model and hypothesis testing. The description of demographic profile is also presented in detail about the respondents of this study. Then a detailed descriptive statistics report for all the latent variables is presented for a ready reference of the reviewers.

Main results of this study are presented into two major final sections of this chapter. Section one is composed of description and discussion about the measurement-model analyzed to find out ‘individual item reliability, internal consistency reliability, convergent validity and discriminant validity’. Whereas section two, provides the results of structural-model with the discussion about ‘significance of the path coefficients (for the direct and mediated relationships hypothesised), level of the R-squared values, effect size, and predictive relevance of the model’.

Lastly, the chapter concludes with the overall summery of this chapter.

#### 4.2 Response Rate

Based on the recommendations by Krejcie and Morgan (1970) the sample size was determined to be 340, for the given population of 2902 (refer Table 3.4 from section 3.5 for further details). Researchers generally agree that the larger the sample size, the greater the power of statistical test (Borenstein, Rothstein & Cohen, 2001; Kelley &

Maxwell, 2003; Snijders, 2005; Umrani 2016). Therefore, based on the suggestion by Salkind (1997), another 40% was added to the determined sample size of 340 in order to further reduce the effect of any uncooperative respondents and unusable questionnaires. Hence, a total of 476 self-administrated questionnaires were given out to the respondents. To improve the response rate at the highest possible level, a regular weekly follow-up was ensured through personal visits as well as telephone calls and short messages (Silva, Smith & Bammer, 2002; Traina, MacLean, Park & Kahn, 2005). Ultimately the number of filled questionnaires collected back stood 381, out of which 369 were usable. Remaining 12 questionnaires were discarded because firstly they were either not well completed, secondly, they contained straight lined or frivolous responses (e.g. responses with uniform scores of the items).

Hence, the total response rate of 77.5 percent was maintained (refer Table 4.1) which is consistent with the response rate suggested by Jobber (1989). Additionally, according to Sekaran (2003) a response rate of 30 percent or above is acceptable in the survey settings. Furthermore, Baruch and Holtom (2008) have also suggested that 35 percent of the response rate is acceptable for a survey study.

Table 4.1  
*Response Rate*

<b>Response</b>	<b>Frequency/Rate</b>
Number of distributed questionnaires	476
Returned questionnaires	381
Returned and usable questionnaires	369
Returned and excluded questionnaires	12
Questionnaires not returned	131
Total Response Rate	77.5%

### **4.3 Data Cleaning and Preliminary Analysis**

According to Hair et al. (2007) it is quite essential to screen the data prior to actual analysis to avoid any possible violations of the key assumptions regarding the application of multivariate techniques of data analysis. It also helps the researchers for developing better understanding about the data collected for further analysis (Hair et al., 2007). Prior to the major analysis through PLS-SEM, the data from remaining 369 questionnaires was therefore checked through a preliminary screening with the help of SPSS for an acceptable quality of data analysis (Kristensen & Eskildsen, 2010).

The preliminary data-screening was composed of a series of tests such as the missing value treatment, outlier assessment, tests for normality and multicollinearity (Hair, Black, Babin & Andreson, 2010; Tabachnick & Fidell, 2007).

#### **4.3.1 Analysis of Missing Values**

Missing data is a commonly found phenomenon in data analysis (Hair et al., 2010) due to respondents' failure to understand questions, or their incapacity to answer, or lack of motivation to answer (Sekaran & Bougie, 2010). Missing data is necessary to be treated appropriately prior to conducting the actual data analysis because in PLS-SEM analysis, the functionality of available tools and techniques becomes ineffective if the data set contains any missing data (Schumacker & Lomax, 2004).

The original SPSS dataset for this study consisted of 17343 data units out of which, 0.8 percent were randomly missing. Particularly, market-orientation had 57 missing values, innovation had 49 and university-performance had 34 missing values. Refer to Appendix 3 for further details about missing value detection.

The rate of missing data at 5 percent or less is deemed as non-significant (Schafer, 1999; Tabachnic & Fidell, 2007) whereby the mean substitution should be applied (Hair et al. 2010; Tabachnic & Fidell, 2007; Little & Rubin, 1987; Raymond, 1986). Hence, through SPSS software, the present study also went for mean replacement for treating randomly missing values (Tabachnic & Fidell, 2007). See Table 4.2 for further description about randomly missing values in total and its percentage.

Table 4.2  
*Total and Percentage of Missing Values*

<b>Latent Variables</b>	<b>Number of Missing Values</b>
Market-orientation	57
Innovation	49
University-Performance	34

Total 140 out of 17343 data points; Percentage 0.8%.

#### **4.3.2 Assessment of Outliers**

According to Barnett and Lewis (1994) the outliers are “observations or subsets of observations which appear to be inconsistent with the remainder of the data” (p. 7). In any data set the occurrence of outliers can seriously jeopardize the regression coefficient estimation, ultimately leading to defective results (Verardi & Croux, 2008).

Following the recommendations of Tabachnick and Fidell (2007), outliers were detected through multivariate technique analysis using Mahalanobis distance (D2). According to Tabachnick and Fidell (2007) Mahalanobis distance (D2) is “the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables” (p. 74). Based on 47 observed variables in the present study, the recommended threshold for chi-square was calculated to be 82.72 (p=0.001) to identify multivariate outliers using Mahalanobis distance. This process helped recognize a total of 33



multivariate outliers for this study which were deleted to avoid any biasness. Refer to the Appendix 4 for further details about multivariate outliers' detection.

For further confirmation of outliers, a test of univariate analysis was also conducted for this study, where by a total of 4 univariate outliers were also identified with the standardized z-value of  $\pm 4$  for a large enough data set like this study contains (Hair et al., 2010, p.67). Refer to Appendix 5 for further details about univariate outliers. Hence, a total of thirty-seven outliers were detected which were all deleted for this study to avoid any biasness in the results. For any further details about the total number of outliers detected, refer to Appendix 6.

As the data set for this study was large enough, therefore, all the thirty-seven outliers were deleted from the given data to avoid any chance for the outliers to jeopardize the results of this study (Hair et al., 2010, p.67; Verardi & Croux, 2008; Hair et al., 2006, p.75). Hence, the number of cases finalized for data set were 332.

#### **4.3.3 Normality Test**

The regression and correlation tests are normally performed for a normally distributed data, having a linear relationship amongst the variables (Hair et al., 2006). Coakes and Steed (2001) suggests that the bell-shaped data with no occurrence of noticeable skewness is a normally distributed data which is considered to be quite good. According to Norusis (1997), looking at the histogram of the residual is a straightforward method for testing the normality of a data. Norusis (1985) also explained about identification of a normality of data that the vertical lines of histogram can be an effective representation of data. Nevertheless, seeking a perfectly symmetric data is quite difficult due to certain sampling limitations (Hair et al., 2006). Additionally, Hair et al. (2006) mentioned that beside the use of histogram for

observing the normality of data, normal probability plot can also be used for the same purpose.

Skewness and Kurtosis are also used for testing the normality of the data. The data is considered normally distributed when the skewness value falls between -2 and +2 and kurtosis value falls between -3 and +3 (Chua, 2006b). While Hair et al. (2010) suggests that if the skewness values fall outside the range of -1 to +1 then this indicates a substantially skewed distribution (Hair et al., 2010). According to Chernick (2008) if the data is highly skewed or kurtotic, then the bootstrapped standard error estimation can be inflated. This may ultimately lead to underestimation of the statistical significance of the path coefficients (Dijkstra, 1983; Ringle, Sarstedt & Straub, 2012a). Hence, the Hair, Sarstedt, Ringle, and Mena (2012) recommend that researchers need to perform normality test on the data. Therefore, the calculated skewness and kurtosis values for all the items of this study were found within acceptable range which confirms that the data is quite normal. Refer Appendix 7 for further details about the skewness and kurtosis.

Field (2009) suggests that instead of checking the skewness and kurtosis statistics particularly where the sample is large enough, it is more important to assess the graphical shape of distribution. Field (2009) further puts up that the standard error may decrease in large samples, which in turn may pump up the values of skewness and kurtosis statistics. Hence, it is more appropriate to use the graphical method for judging normality.

Following the idea of Field (2009) and Tabachnick and Fidell (2007), the graphical method was also used in this study to assess the normality of the collected data. The histogram and normal probability plot were examined for ensuring non-violation of normality assumptions. Figure 4.1(a) shows that all the bars on histogram are close to the normal curve, hence, it is evident that the collected data for this study follows a normal pattern with no violation of

normality assumption. For a more detailed view of normality graphs for each construct, refer Appendix 8.

Similarly, to further assess the normal approximation of the data distribution in Figure 4.1(b) the p-p plot for the given data also affirms the same assumption whereby it depicts that the given data is close to the center mean line of normality (Wilk & Gnanadesikan, 1968). Hence, in the current study the normality assumptions for given data were found to be preserved.

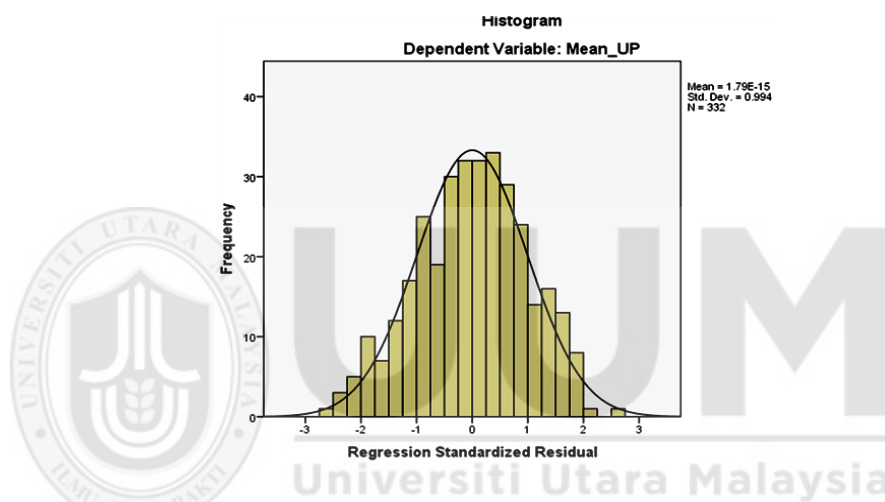


Figure 4.1(a)  
*Histogram for normality of data*

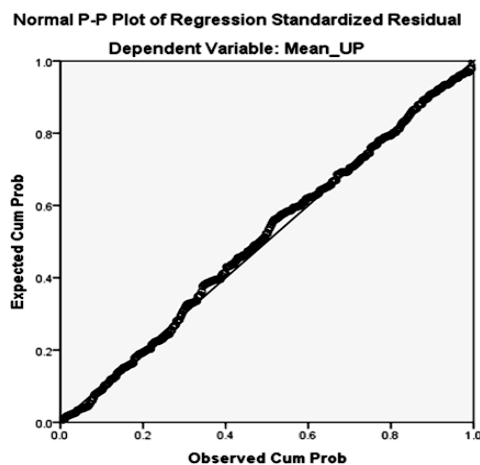


Figure 4.1(b)  
*Normal Probability Plot*

#### **4.3.4 Linearity Test**

Testing linearity establishes the relationship of independent variables with dependent variable to help locating the right direction of any hypotheses (Al-Dhaafri, 2014). According to Tabachnick and Fidell (2007), since the correlations between the dependent variable and each of its covariates provide the basis for factor analysis, therefore it must be analyzed before a factor analysis to ensure that the data is and free from any curvilinear relationship provided that data is composed of enough sample size of 150 and above (Pallent, 2007). Hence, there should be a linear relationship between the dependent variable and each of its covariates represented with roughly a straight line throughout the given scatter plot. The shape of a scatter plot in case of a linear relationship should produce oval-shape roughly (Tabachnick & Fidell, 2007). The scatter plots for this study (simple and matrix) made it very evident that the data under assessment does not violate the assumption of linearity. Refer Appendix 9 for a clear picture of linearity for each construct through scatter plots.

In addition, scatter plots to determine linearity (Pallant, 2007) in the data set for this study, the Pearson's correlation matrix was also used which also confirms the fulfillment of linearity assumption by depicting significant correlations at the level 0.01(one tailed) among all constructs of interest in this study (Zwain, 2012). Appendix 10 can be referred to review details about Pearson Correlation for linearity.

#### **4.3.5 Multicollinearity Test**

For a given model of any study, the degree of relationship among the exogenous or independent variables is defined as multicollinearity (Hair et al., 2010). For any regression analysis, the existence of multicollinearity in the form of a strong correlation among the

variables is a serious concern, as multicollinearity makes it difficult to interpret the effect of different variables by substantially distorting the assessment of regression coefficients (Umrani, 2016, Hair, Black, Babin, Anderson & Tatham, 2006; Chatterjee & Yilmaz, 1992). In particular, the existence of multicollinearity raises the coefficient's standard errors, ultimately rendering the coefficients as statistically insignificant (Tabachnick & Fidell, 2007). According to Stevens (2002), for the procedure of multiple-regression to be effective, it is assumed that all the independent variables must be free from any sort of perfect linear relationship with each other.

For the present study, two methods were used for detecting multicollinearity. Firstly, an assessment of correlation matrix of the exogenous latent constructs was carried out (Umrani, 2016; Peng & Lai, 2012; Chatterjee & Yilmaz, 1992;) as presented in Table 4.3. The multicollinearity between the exogenous latent constructs is said to exist if the correlation coefficient turns out to be 0.90 or above (Field, 2009; Hair et al., 2010). But it is quite evident from Table 4.3 that the multicollinearity is not a serious concern for this study as all the exogenous latent constructs of the present study with the correlations below the defined threshold of 0.90 or more were not highly correlated.

Table 4.3  
*Correlation Matrix of the Exogenous Latent Constructs*

<b>Latent Constructs</b>	<b>1</b>	<b>2</b>	<b>3</b>
Advising and Mentoring	1		
Administration-leadership	.407**	1	
Intelligence-generation and responsiveness	.218**	.415**	1

Note: \*\* Correlation is significant at the 0.01 level (1-tailed).

Secondly, to find out the existence of multicollinearity based on the suggestion by Hair, Ringle and Sarstedt (2011), as presented in Table 4.4, the variance inflated factor (VIF), tolerance and condition index values were also examined. According to Hair (2011) the

multicollinearity has to be taken as a serious concern if the respective values determined for VIF are greater than 5; for tolerance are less than 0.20, and for condition index are above 30 regarding all the exogenous latent constructs.

Table 4.4  
*Tolerance, Variance Inflation Factors (VIF) and Condition Index*

Latent Constructs	Collinearity Statistics		
	Tolerance	VIF	Condition Index
Advising and Mentoring	.832	1.202	13.578
Administration-leadership	.723	1.384	16.798
Intelligence-generation and responsiveness	.825	1.213	26.121

Table 4.4 indicates that all the values for VIF, tolerance and condition index are found compatible to the suggested cut-offs (Hair et al., 2011), thus, multicollinearity is not an issue of any serious concern for the present study.

#### 4.3.6 Homoscedasticity Assessment

According to Osborne (2012) homoscedasticity is “an assumption of equality of variance” with a connotation that the variation of any particular variable stays steady and stable over a certain range of some other variable. Tabachnick and Fidell (2007) and Hair et al., 2010, p. 73 simplify homoscedasticity by stating that a data set is homoscedastic if the variance of a particular variable (dependent) is the same at all values of the other variables (predictor variables).

Homoscedasticity is necessary because under the dependence relationship the variance of a particular variable (dependent) being explained should not be concentrated in only a limited range of the independent (predictor) values (Hair et al., 2010).

Assumption of homoscedasticity for the data set in this study was appraised by means of visual assessment or the inspection of scatterplots settled on a given confidence interval of

ninety five percent (Hair et al., 2010) as plotted in Figure 4.2. Hence, Figure 4.2 demonstrates clearly that there is no evidence of heteroscedasticity found means there is no violation of homoscedasticity assumption as the data appears with the elliptical or oval distribution which is found free from any observation of shapes of cone or diamond shapes (Hair et al., 2010; Choi, 2005).

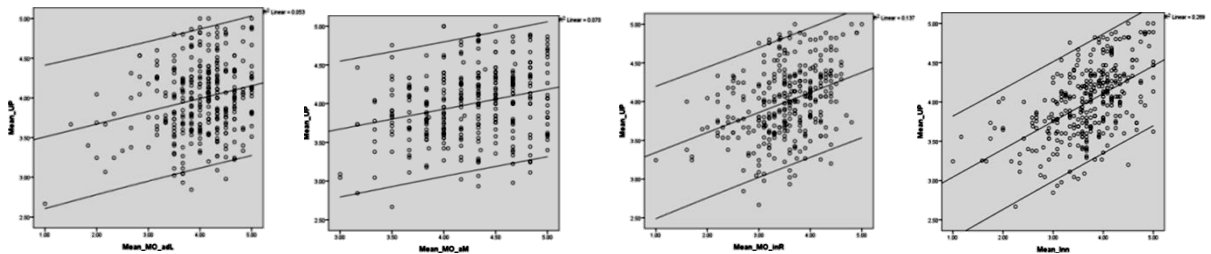


Figure 4.2  
*Scatterplots of Advising and mentoring for MO; 'Administration-Leadership for MO; 'Intelligence-generation and responsiveness for MO and Innovation*

#### 4.3.7 Common Method Variance Test

Common method variance (CMV) is defined as the amount of unauthentic covariance (being spurious) which is mutually found among the variables due to the common method used for collecting data (Buckley et al. 1990). Podsakoff, MacKenzie, Lee and Podsakoff (2003) suggest that CMV arises due to the measurement method rather than the construct of interest (p. 879). Majority of researchers believe that in self-reporting survey method, the CMV should be a major concern to be treated before the actual data analysis (Podsakoff et al., 2003; Spector, 2006; Lindell & Whitney, 2001). Among many other sources to cause such biases, some of the most frequently cited ones are scale length (Harrison et al., 1996), and ambiguous wordings (Hufnagel & Conca, 1994).

Such sort of method biases might jeopardize the actual results as the actual incident under investigation becomes hard to differentiate from measurements` artifacts. (Hufnagel &

Conca, 1994, Avolio & Bass, 1995). In addition, CMV bias exaggerates the relationships between variables measured by self-reporting (Conway & Lance, 2010, p.35). While conducting a meta-analytic review of 55 studies, Organ and Ryan (1995) stated that due to CMV, the studies which are conducted using self-report survey method are confronted with high level of correlations.

For the present study, several procedural remedies were followed to minimize the CMV effects as recommended in several studies (MacKenzie & Podsakoff, 2012; Podsakoff, MacKenzie & Podsakoff, 2012; Viswanathan & Kayande, 2012; Podsakoff et al., 2003; Podsakoff & Organ, 1986). Firstly, the respondents were informed that there is no right or wrong answer to the given items the response sought for. Additionally, the confidentiality of responses was also assured to respondents. Secondly, prior to actual data collection for this study, the improving-scale items approach was also employed to reduce method biases by means of writing the context-specific study items using simple, and clear language. This process was further affirmed through a process of pretest and pilot test.

Besides above remedies, the Harman's single factor test was also executed to assess the common method bias (Podsakoff & Organ, 1986). Under the CMV process, all variables of the study were subjected to the factor analysis where the results of the unrotated factor solution were assessed for ascertaining the number of factors necessary to account for the variance in the variables (Podsakoff & Organ, 1986). Based on the assumption of Harman's (1967) single factor test, if a substantial amount of common method exists, either a single or a general factor emerges, this would then account for most of the covariance in the predictor and criterion variables (Podsakoff & Organ, 1986). Based on these guidelines, all the items in the present study were subjected to a principal component factor analysis. For this study, the common method bias is unlikely to inflate relationship between the given



variables of the study because a total of eight factors have turned out with a cumulative variance of 61.829. Hereby, the factor with largest variance has explained 28.739 percent of the total variance which accounts for only a smaller proportion that is less than the fifty percent. Accordingly, these results conclude that there is no single factor contributing to the majority of covariance amongst the predictor and criterion variables (Podsakoff et al., 2012). Therefore, there are no chances that the common method bias can exaggerate the relationship between the given variables of this study, hence, it is therefore not a serious concern. Refer Appendix 11 for further details about the total variance explained.

#### **4.3.8 Non-response Bias**

Berg (2005) defines bias as the errors that one is likely to commit during the assessment of a population attribute, for a sample of survey data. Due to some level of non-response, certain proportion of survey respondents is underrepresented. Hence, the non-response bias takes place when the non-responders (who do not respond to survey) differ substantially from responders (those who respond) during a survey.

The non-response bias can also be explained as “the differences in the answers between non-respondents and respondents” (Lambert & Harrington, 1990, p.5). Therefore, for estimating the likelihood of non-response bias, Lambert and Harrington (1990) suggest employing the time-trend extrapolation approach, by comparing responses that were received early and late (i.e non-respondents) because the late-respondents are said to have similar characteristics as of the non-respondents (Armstrong & Overton, 1977).

Hence, based on the argument of Armstrong and Overton (1977), all the respondents of this study were divided into two major groups such as those who responded within 45 days (considering them as early respondents) and those who responded after 45 days

(Late respondents) (Vink & Boomsma, 2008). A total of 238 (72%) responses were received within 45 days after questionnaire distribution, while 94 (28%) were received after 45 days. In order to detect any possible non-response bias, or the existence of any other discrepancy between the early and late responders, an independent t-test was employed on the variables of the study for comparing the the means of the two groups (Pallant, 2011). The results of the test are presented in Table 4.5.

Table 4.5  
*Results of Independent Samples T test for Non-Response Bias*

Variables	Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances	
					F	Sig.
Advising and Mentoring	Early response	238	4.238	0.477	1.338	.248
	Late response	94	4.308	0.443		
Administration-leadership	Early response	238	4.013	0.667	.195	.659
	Late response	94	4.042	0.611		
Intelligence-generation and responsiveness	Early response	238	3.563	0.644	.375	.541
	Late response	94	3.433	0.674		
Innovation	Early response	238	3.691	0.673	.423	.516
	Late response	94	3.680	0.742		
University-Performance	Early response	238	3.990	0.456	.009	.925
	Late response	94	4.009	0.459		

According to Pallant (2010) and Field (2009) the significance values of Levene's test for equality of variance should be greater than 0.05. The independent-samples t-test results presented in Table 4.5 portray that the significance values in the equality of variance for all the variables of the study were found above 0.05. Thus, for the present study the non-response bias can be concluded as no matter of serious concern.

Table 4.5 also depicts that (with p-value at a significance level of 0.05) there is no significant difference between the behavior of two groups for all the measurements of constructs. It corresponds that the respondents from both the groups ultimately shared the same population characteristics; therefore, the responses attained in this study are free of any kind of measurement or other bias.

#### 4.3.9 Demographic Profile of Respondents

The demographic profile of respondents is presented in Table 4.6 below.

Table 4.6  
*Demographic Characteristics of the Respondents*

Characteristics	Frequency	Percentage	Cumulative Percentage
<b>University</b>			
Liaquat University of Medical & Health Sciences	93	28.0	28.0
Mehran University of Engineering & Technology	45	13.6	41.6
University of Sind	76	22.9	64.5
University of Karachi	94	28.3	92.8
Shah Abdul Latif University	24	7.2	100.0
<b>Jobtitle</b>			
Teacher	280	84.3	84.3
Teacher and Administrator	52	15.7	100.0
<b>Gender</b>			
Male	209	63.0	63.0
Female	123	37.0	100.0
<b>Age of respondent</b>			
30 years and below	106	31.9	31.9
31-40 years	111	33.4	65.4
41-50 years	72	21.7	87.0
51-60 years	37	11.1	98.2
Above 60 years	6	1.8	100.0
<b>Qualification</b>			
Bachelors	28	8.4	8.4
Masters	174	52.4	60.8
Ph.D	130	39.2	100.0
<b>Work Experience</b>			
10 years and below	174	52.4	52.4
11-20 years	88	26.5	78.9
21-30 years	42	12.7	91.6
31-40 years	26	7.8	99.4
41-50 years	2	.6	100.0
<b>Age of University</b>			
31-40 years	193	58.1	58.1
41-50 years	45	13.6	71.7
Above 50 years	94	28.3	100.0

Table 4.6 shows that majority of the respondents were male 209 (63%), whereas the females were only 123 (37%). Majority of respondents that is 94 (28.3%), are from University of Karachi, i.e. the biggest and second oldest university in the Sind province of Pakistan. The second highest number of respondents which is 93 (28%), are from Liaquat University of Medical & Health Sciences. It was followed by the respondents from University of Sind i.e. 76 (22.9 %). The remaining respondents were from Mehran University of Engineering & Technology i.e. 47 (13.6%), and Shah Abdul Latif University Khairpur 24 (7.2%) respectively.

With regards to age group, a majority of the participants belonged to age group of 30 years and below with 106 respondents (31.9%); the second largest age group of the respondents was 31-40 with 111 respondents (33.4%). This was followed by age group of 41-50 years with 72 respondents (21.7%). Next was the age group 51-60 years with 37 respondents (11.1%). The last category of 60 years and above represented 6 respondents with 1.8 percent. Table 4.6 further suggests that there is a high proportion of the respondents with the Masters degree with 174 respondents (52.4%), followed by Ph.D degree with 130 respondents (39.2%) and the respondents with Bachelors degree were 28 (8.4%).

With reference to job title, majority of the respondents were teachers 280 (84.3%), while the remaining 52 (15.7%) were with the title of 'teacher and administrator'.

Based on the given sample, 174 (52.4%) respondents had less than 10 years' work experiences. The next group of 88 (26.5%) respondents had the experience of 11-20 years. About 42 (12.7%) of the respondents had the work experience of 21-30 years, while the remaining 28 respondents composing only 8.4% served in universities for above thirty years.

#### 4.3.10 Descriptive Analysis of the Latent Constructs

Based on the computed means and standard deviations for the latent constructs, this section is composed of descriptive statistics for the latent constructs such as the advising and mentoring; the administration-leadership; the Intelligence-generation and responsiveness; the innovation; as well as the university-performance in order to explain the general situation of the given constructs in the target public-sector universities in the Sind province of Pakistan.

Results of descriptive statistics, in the form of mean and standard deviation calculated for the latent constructs for this study, as tabulated in Table 4.7 reflect the level of implementation of the given constructs in a certain context of higher education of Pakistan. For measuring these latent variables, the present study used a five-point Likert scale, anchored from 5 (strongly agree/very good) to 1 (strongly disagree/very poor).

Table 4.7  
*Descriptive Statistics for Latent Variables*

<b>Latent Constructs</b>	<b>Mean</b>	<b>Standard Deviation</b>
Advising and Mentoring	4.258	0.468
Administration-Leadership	4.021	0.651
Intelligence-generation and responsiveness	3.526	0.654
Innovation	3.688	0.693
University-Performance	3.995	0.456

Table 4.7 reveals that the advising and mentoring construct had the highest mean value of 4.258 with the standard deviation of 0.468. These results suggest that most of the teachers from the target (public-sector) universities in Pakistan have highly emphasized on the importance of the advising and mentoring for universities. In addition to this, the

standard deviation value of 0.468 suggests that these teachers had no significantly different opinions with regards to the importance of the advising and mentoring and the overall university-performance.

The next important factor was administration-leadership with a reported mean value of 4.021 and the standard deviation of 0.651. This also suggests that the teachers in the target universities also regard administration-leadership as highly important. The given standard deviation value (0.651) for administration-leadership also suggests that the respondents did not have highly differing opinions regarding the critical nature of administration-leadership to foster overall university-performance.

Another important factor was innovation with a mean value of 3.688 and standard deviation of 0.693. These values suggest that the university teachers perceived the innovation as a critical factor, after the advising and mentoring and the administration-leadership, hence, they did not have significant difference of opinions with regards to innovation. Finally, the construct of intelligence-generation and responsiveness has been reported with 3.526 mean value and 0.654 standard deviation. This suggests that with no significant difference in opinions over the importance of intelligence-generation and responsiveness, the teachers in target universities also considered intelligence-generation and responsiveness as another important factor to support university-performance.

The university-performance which is the dependent variable for this study, also had a relatively high mean value of 3.995, suggesting above average performance of universities under the survey. The standard deviation of 0.456 also infers that the opinions of all the target teachers about the overall university-performance of their respective universities did not differ significantly

#### 4.4 Assessment of PLS-SEM Path Model Results

This study takes up a two-step process for assessing and describing results of PLS-SEM analysis (Henseler et al., 2009). It is important to note that the goodness-of-fit (GoF) index is not suitable for model validation as the GoF could not separate the valid and invalid models, and this evidence was provided in a simulated study that was conducted by using PLS path models (Hair, Ringle & Sarstedt, 2013; Henseler & Sarstedt, 2013; Hair et al., 2014).

Therefore, for the evaluation and reporting of PLS-SEM path models results, the present study adopted a two-step approach (Figure 4.3), consisted of an assessment of measurement model and assessment of structural model (Henseler et al., 2009).

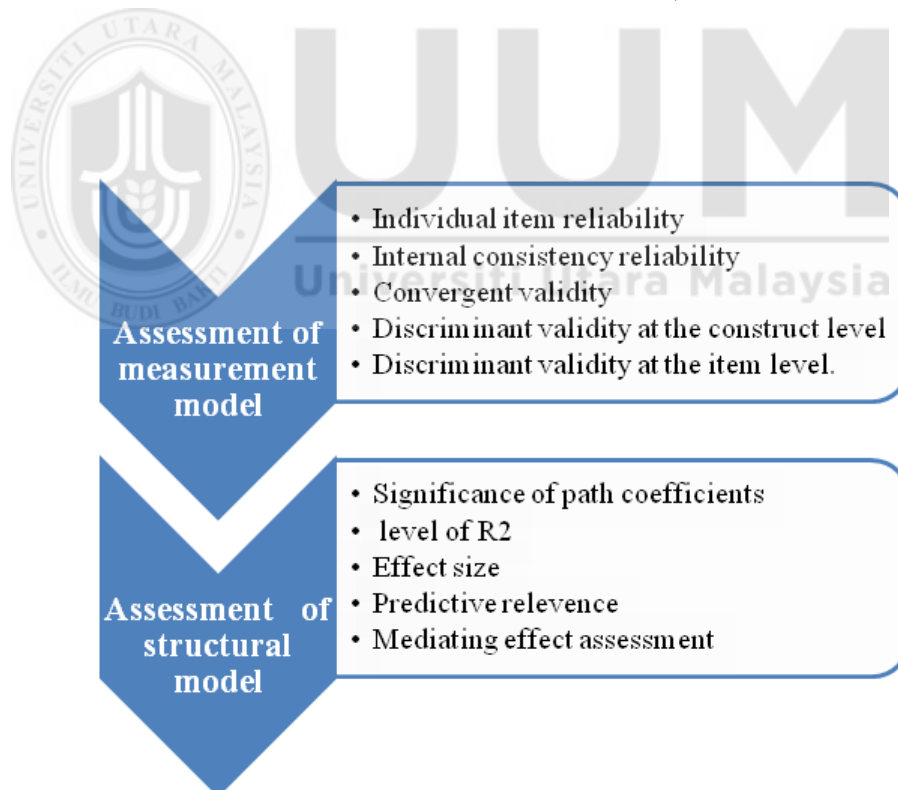


Figure 4.3  
*Two Step Process for PLS Path Model Assessment*  
(Source: Henseler et al., 2009)

#### 4.4.1 Assessment of Measurement Model

To assess measurement model, the current study followed the recommendation of several prominent researchers in the PLS analysis area (Hair et al., 2014; Hair et al., 2010; Henseler et al., 2009), in order to determine the i) individual item reliability, ii) internal consistency reliability, iii) convergent validity, iv) discriminant validity at the construct level, and v) discriminant validity at the item level.

For each construct the ‘individual item reliability’ is assessed by examining outer loadings of items for each measure (Hair et al., 2014; Hair et al., 2012; Duarte & Raposo, 2010; Hulland, 1999). The items between .40 and .70 can be retained but the remaining need to be deleted (Hair et al., 2014).

‘Internal consistency reliability’ is the extent to which all the items of a given scale measure the same concept (Bijttebier et al., 2000; Sun et al., 2007). For the assessment of ‘internal consistency reliability’ of a scale, the ‘Cronbach’s alpha and composite reliability coefficients’ appear to be the most commonly used estimators in the organizational research settings (Bacon, Sauer & Young, 1995; McCrae, Kurtz, Yamagata & Terracciano, 2011; Peterson & Kim, 2013). Therefore, to ascertain the internal consistency reliability of the adapted measures for this study, the researcher has also utilized the ‘Cronbach’s alpha’ and the ‘composite reliability coefficient’. However, the literature suggests that the use of composite reliability is more appropriate than Cronbach’s alpha due to following reasons.



Firstly, the ‘composite reliability coefficient estimates’ are far-less biased than the ‘Cronbach’s alpha coefficients’ due to the assumption of Cronbach’s alpha for all the items to contribute equally towards a particular construct. It also considers the contribution of individual loadings (Barclay, Higgins & Thompson, 1995; Götz, Liehr-Gobbers & Krafft, 2010).

Secondly, the Cronbach’s alpha may over or under-estimate the scale reliability, whereas composite reliability procedure takes into consideration that all the indicators have different loadings and can interpret in the same way as Cronbach’s alpha (that is, no matter which particular reliability coefficient is used, an internal consistency reliability value above .70 is regarded as satisfactory for an adequate model, whereas a value below .60 indicates a lack of reliability). Bagozzi and Yi (1988) and Hair et al. (2011) provided a rule of thumb for interpreting composite reliability coefficient value of a particular construct which should be 0.7 or above.

The convergent validity is defined as the extent to which items truly represent the intended latent variable and correlate with other measures of the same latent variable (Hair et al., 2006). The Average Variance Extracted (AVE) was used for this study to assess the convergent validity for each of the latent constructs (Fornell & Larcker, 1981). According to Chin (1998), an AVE of .50 or more is necessary to indicate sufficient convergent validity of a construct.

Discriminant validity is defined as the extent to which a specific latent construct is different from other constructs (Duarte & Raposo, 2010). The discriminant validity at the construct level was assessed following Fornell and Larcker’s (1981) criterion, which suggests that for a sufficient amount of

discriminant validity the square root of AVE of a particular construct be higher than its inter-correlations with other constructs. On the other hand, the discriminant validity at the item level was ascertained by inspecting the indicator loadings with its corresponding cross loadings (Chin, 1998). Chin recommends that a sufficient amount of discriminant validity is achieved when all the indicator loadings are greater than their cross-loadings.

#### **4.4.1.1 Results of the Measurement Model Assessment**

The measurement model of the current study is depicted in Figure 4.4. Out of the total of 47 items, one item 'MO\_aM3' was deleted due to insufficient loading (Hair et al., 2014). Whereas based on the recommendation by Chin (1998, 2010), one additional item 'UP\_op1' was also deleted due to its individual item loading being less than its corresponding cross loadings. Appendix 12 provides the cross-loading values for all the items which appear below the corresponding values for all the individual item loadings in bold face (Chin, 1998, 2010). Hence, Appendix 12 ascertains the discriminant validity of the measurement model for this study.

The psychometric information for the measurement model is summarized in Table 4.8 through Table 4.9.

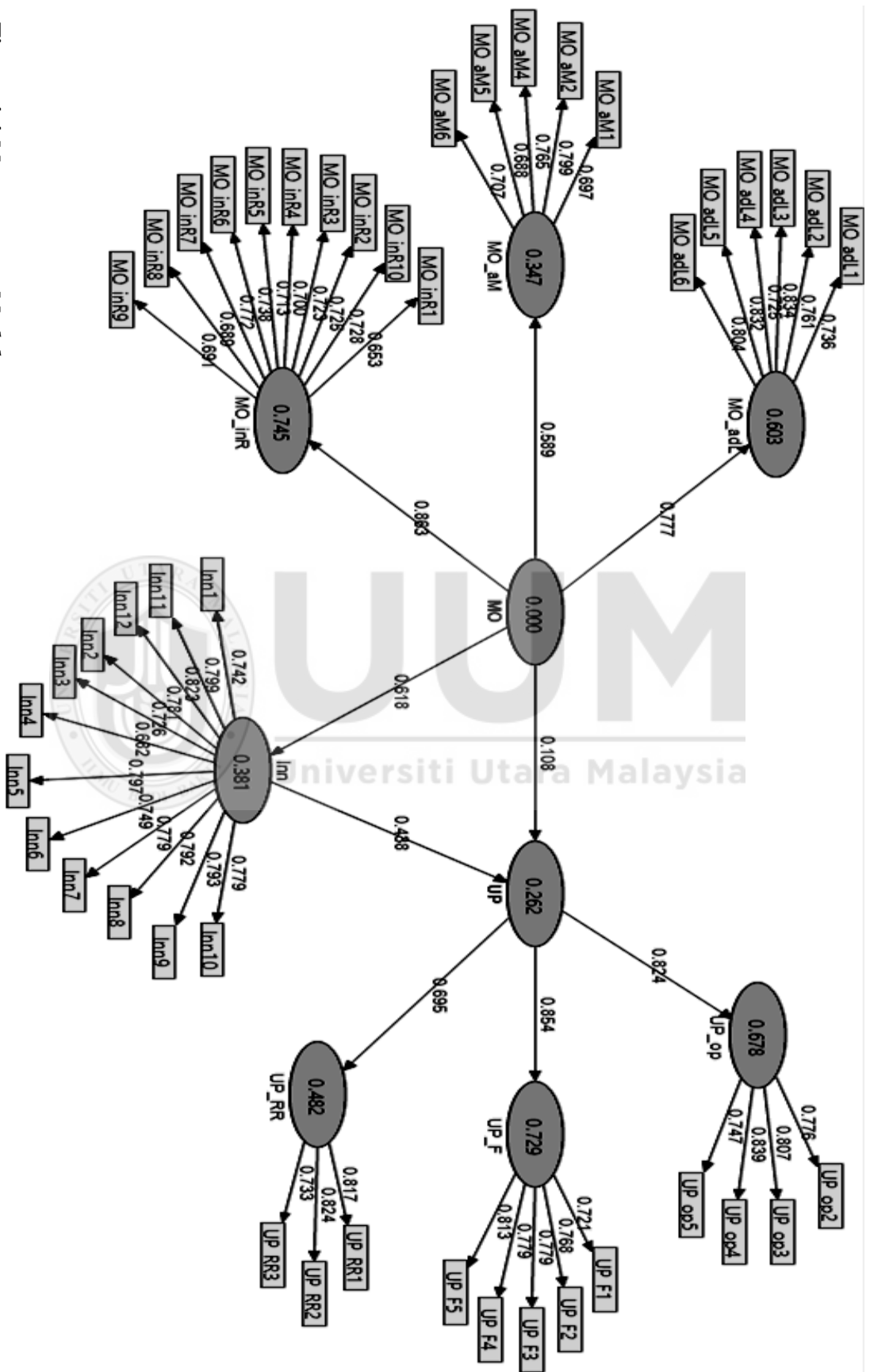


Figure 4.4 Measurement Model

Table 4.8

*Standardized Loadings, AVE, Composite Reliability and Cronbach's Alpha*

Second-order constructs	First-order constructs	Items	Standardized Loadings	AVE	Composite Reliability	Cronbach's Alpha
Market-orientation		MO_adL	0.777	0.565	0.909	0.895
		MO_aM	0.589			
		MO_inR	0.863			
	Administration-Leadership (MO_adL)	MO_adL1	0.736	0.536	0.852	0.784
		MO_adL2	0.761			
		MO_adL3	0.834			
		MO_adL4	0.725			
		MO_adL5	0.832			
		MO_adL6	0.804			
	Advising and mentoring (MO_aM)	MO_aM1	0.697	0.613	0.905	0.873
MO_aM2		0.799				
MO_aM4		0.765				
MO_aM5		0.688				
Intelligence-generation and responsiveness (MO_inR)	MO_aM6	0.707	0.510	0.912	0.893	
	MO_inR1	0.653				
	MO_inR2	0.725				
	MO_inR3	0.723				
	MO_inR4	0.700				
	MO_inR5	0.713				
	MO_inR6	0.738				
	MO_inR7	0.772				
	MO_inR8	0.689				
	MO_inR9	0.691				
University-Performance	UP_F	UP_F	0.854	0.630	0.887	0.861
		UP_RR	0.695			
		UP_op	0.824			
	Funding (UP_F)	UP_F1	0.721	0.597	0.881	0.831
		UP_F2	0.768			
		UP_F3	0.779			
		UP_F4	0.779			
		UP_F5	0.813			
	Recruitment and Retention (UP_RR)	UP_RR1	0.817	0.629	0.871	0.803
		UP_RR2	0.824			
		UP_RR3	0.733			
	Overall Performance (UP_op)	UP_op2	0.776	0.628	0.835	0.702
UP_op3		0.807				
UP_op4		0.839				
UP_op5		0.747				
Innovation		Inn1	0.742	0.595	0.946	0.938
		Inn2	0.781			
		Inn3	0.726			
		Inn4	0.682			
		Inn5	0.797			
		Inn6	0.749			
		Inn7	0.779			
		Inn8	0.792			
		Inn9	0.793			
		Inn10	0.779			
		Inn11	0.799			
		Inn12	0.823			

**Note:** INN denotes Innovation; MO\_adL denotes Administration-Leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

Present study reveals satisfactory level of convergent validity as all the variables have the AVE of above 0.50 (Chin, 1998, 2010) as shown in Table 4.8. Thus, for the given model a total of 45 items were retained due to their acceptable loadings ranging between 0.589 and 0.863. Table 4.8 gives detailed information on the item loadings.

Table 4.8 also presents the composite reliability coefficients for each latent variable of this study, ranging from 0.835 to 0.946, suggesting the adequate internal consistency reliability of the given measures for this study (Hair et al., 2011; Bagozzi & Yi, 1988). While the Cronbach's Alpha values for this study ranged between 0.938 and 0.702 which are also up to the minimum acceptable threshold of .70 (Nunnally, 1987).

Similarly, the Table 4.9 indicates below that the squared root of average variance extracted is above the correlations among the latent variables. Therefore, it could be concluded that all the measures used in the present study have adequate discriminant validity as per guidelines of Fornell and Larcker (1981).

Table 4.9  
*Latent Variable Correlations and Square roots of Average Variance Extracted*

	INN	MO_aM	MO_adL	MO_inR	UP
INN	<b>0.7711</b>				
MO_aM	0.2869	<b>0.7296</b>			
MO_adL	0.3830	0.4195	<b>0.7826</b>		
MO_inR	0.6391	0.2720	0.4299	<b>0.7125</b>	
UP	0.5040	0.2846	0.2055	0.3744	<b>0.7804</b>

**Note.** Entries in the boldface represent the square root of the average variance extracted; INN denotes Innovation; MO\_adL denotes Administration-Leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; and UP denotes university-performance.

The evidence for discriminant validity at the item level is demonstrated in Table 4.10 which allows a comparison of each indicator loadings with other indicators. All the indicator loadings were found sufficiently higher than their cross-loadings, thus suggesting the measures demonstrating adequate discriminant validity.

Table 4.10  
*Cross Loadings*

Items	Inn	MO_aM	MO_adL	MO_inR	UP_F	UP_RR	UP_op
Inn1	<b>0.74165</b>	0.231571	0.27134	0.55380	0.40120	0.22992	0.28998
Inn2	<b>0.78089</b>	0.25758	0.26722	0.47338	0.41849	0.24184	0.34496
Inn3	<b>0.72554</b>	0.14735	0.28680	0.42624	0.37137	0.20002	0.27522
Inn4	<b>0.68220</b>	0.20493	0.22875	0.36932	0.31824	0.18086	0.22441
Inn5	<b>0.79719</b>	0.19888	0.32697	0.53787	0.34384	0.24874	0.27553
Inn6	<b>0.74857</b>	0.12265	0.30666	0.48951	0.29867	0.20393	0.19304
Inn7	<b>0.77910</b>	0.15628	0.23786	0.51242	0.33934	0.14508	0.27702
Inn8	<b>0.79202</b>	0.18586	0.24158	0.51421	0.38634	0.24806	0.32616
Inn9	<b>0.79340</b>	0.22698	0.25996	0.46697	0.37428	0.19843	0.35336
Inn10	<b>0.77938</b>	0.25863	0.41803	0.48012	0.35205	0.22324	0.30478
Inn11	<b>0.79929</b>	0.29228	0.32295	0.45437	0.40508	0.30349	0.32140
Inn12	<b>0.82280</b>	0.27393	0.34001	0.51028	0.40773	0.29374	0.35880
MO_aM1	0.23587	<b>0.69657</b>	0.28742	0.17231	0.14475	0.12812	0.21419
MO_aM2	0.25246	<b>0.79857</b>	0.39257	0.26851	0.16766	0.25125	0.26819
MO_aM4	0.24499	<b>0.76460</b>	0.30330	0.25914	0.12646	0.17729	0.23232
MO_aM5	0.11216	<b>0.68768</b>	0.28167	0.06937	0.06141	0.11630	0.16225
MO_aM6	0.14785	<b>0.70729</b>	0.23292	0.19738	0.03733	0.13273	0.22646
MO_adL1	0.22631	0.27494	<b>0.73612</b>	0.29574	0.07089	0.12738	0.11116
MO_adL2	0.28213	0.32446	<b>0.76057</b>	0.33884	0.17548	0.14117	0.09123
MO_adL3	0.35118	0.32199	<b>0.83357</b>	0.38916	0.14080	0.11440	0.13392
MO_adL4	0.29966	0.39900	<b>0.72542</b>	0.29469	0.11123	0.11426	0.14941
MO_adL5	0.29228	0.30148	<b>0.83154</b>	0.30853	0.12278	0.15016	0.11754
MO_adL6	0.33047	0.32878	<b>0.80380</b>	0.35846	0.14353	0.11610	0.16868
MO_inR1	0.37737	0.38419	0.32687	<b>0.65284</b>	0.14295	0.09784	0.18804
MO_inR2	0.42495	0.28745	0.30971	<b>0.72540</b>	0.21802	0.09962	0.19572
MO_inR3	0.37286	0.18532	0.20970	<b>0.72294</b>	0.15480	0.00406	0.13801
MO_inR4	0.41477	0.15245	0.25703	<b>0.70000</b>	0.11291	0.10257	0.15726
MO_inR5	0.39211	0.16608	0.21577	<b>0.71318</b>	0.15141	0.11397	0.21371
MO_inR6	0.44613	0.06111	0.23443	<b>0.73808</b>	0.19878	0.12485	0.19489
MO_inR7	0.46087	0.10673	0.27348	<b>0.77194</b>	0.26132	0.17153	0.28992
MO_inR8	0.45364	0.23836	0.42326	<b>0.68934</b>	0.22261	0.19559	0.25188
MO_inR9	0.54625	0.23833	0.36851	<b>0.69125</b>	0.40140	0.25915	0.28605
MO_inR10	0.56717	0.12640	0.37094	<b>0.72834</b>	0.39170	0.19426	0.26360
UP_F1	0.54523	0.10195	0.17599	0.39929	<b>0.72105</b>	0.23409	0.28571
UP_F2	0.30308	0.08292	0.08730	0.24449	<b>0.76846</b>	0.29097	0.32621
UP_F3	0.35848	0.14729	0.14693	0.26000	<b>0.77882</b>	0.33982	0.34552
UP_F4	0.28034	0.09709	0.08455	0.16383	<b>0.77859</b>	0.35175	0.43321
UP_F5	0.39055	0.15898	0.14513	0.20475	<b>0.81281</b>	0.33977	0.51553
UP_RR1	0.27759	0.18807	0.16803	0.21261	0.31345	<b>0.81655</b>	0.37440
UP_RR2	0.22999	0.21984	0.13691	0.14385	0.35008	<b>0.82406</b>	0.37843
UP_RR3	0.19545	0.12998	0.07525	0.10179	0.30044	<b>0.73288</b>	0.320724
UP_op2	0.24678	0.26377	0.07134	0.14702	0.36072	0.36138	<b>0.776106</b>
UP_op3	0.27923	0.21273	0.16323	0.24705	0.39077	0.33826	<b>0.80709</b>
UP_op4	0.33714	0.22529	0.10431	0.25913	0.44616	0.37721	<b>0.839392</b>
UP_op5	0.36123	0.27345	0.18598	0.32258	0.38922	0.35978	<b>0.747172</b>

**Note:** INN denotes Innovation; MO\_adL denotes Administration-Leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

#### 4.4.2 Assessment of the Structural Model

After ascertaining the measurement model, the study then assessed the structural model where the standard bootstrapping procedure (with 5000 bootstrap samples and 332 cases) was employed to determine the significance of the path coefficients. This was carried out based on the guidelines pertinent literature (Hair et al., 2016, 2014, 2012; Henseler et al., 2009). Table 4.11, Figure 4.5, Figure 4.6, Figure 4.7, and Figure 4.8 provide full estimates of the structural model. Table 4.12 further summarizes the overall results for hypothesis testing.

Table 4.11  
*Structural Model Assessment and Hypothesis testing results*

Hypotheses	Relationships	Beta	SE	T-value	P-value	Sig.	Decision
<b>H<sub>1</sub></b>	MO → UP	0.375	0.047	7.972	0.000	p<0.001	Supported
<b>H<sub>1a</sub></b>	MO_adL → UP	-0.033	0.060	0.544	0.293	not sig.	Not Supported
<b>H<sub>1b</sub></b>	MO_advM → UP	0.205	0.055	3.728	0.000	p<0.001	Supported
<b>H<sub>1c</sub></b>	MO_intR → UP	0.348	0.045	7.790	0.000	p<0.001	Supported
<b>H<sub>2</sub></b>	MO → INN	0.438	0.050	8.693	0.000	p<0.001	Supported
<b>H<sub>2a</sub></b>	MO_adL → INN	0.100	0.055	1.814	0.036	p<0.05	Supported
<b>H<sub>2b</sub></b>	MO_advM → INN	0.090	0.046	1.943	0.026	p<0.05	Supported
<b>H<sub>2c</sub></b>	MO_intR → INN	0.572	0.052	10.991	0.000	p<0.001	Supported
<b>H<sub>3</sub></b>	INN → UP	0.618	0.047	13.160	0.000	p<0.001	Supported
<b>H<sub>4</sub></b>	MO → Inno → UP	0.271	0.037	7.241	0.000	p<0.001	Supported
<b>H<sub>4a</sub></b>	AdL → Inn → UP	0.043	0.024	1.758	0.040	p<0.05	Supported
<b>H<sub>4b</sub></b>	AdvM → Inn → UP	0.038	0.020	1.877	0.031	p<0.05	Supported
<b>H<sub>4c</sub></b>	IntR → Inn → UP	0.244	0.037	6.527	0.000	p<0.001	Supported

All the given hypotheses were tested using Smart-PLS 2.0. Based on the guidelines of Hair et al. (2014), initially two separate models were drawn, one for assessment of a direct relationship of high order multidimensional constructs (see Figure 4.5) and other for assessment of mediated relationship of the same (see Figure 4.6).

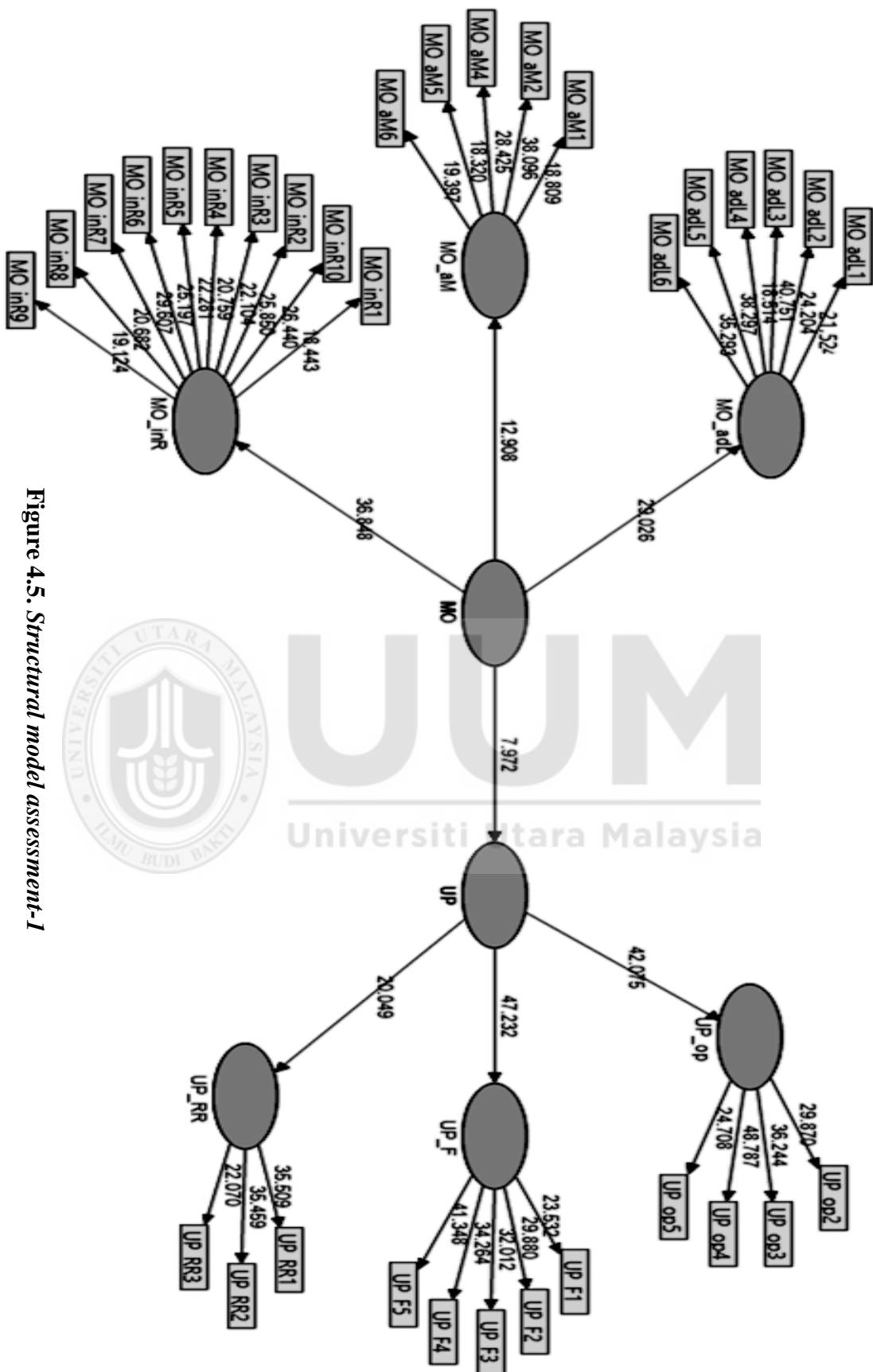
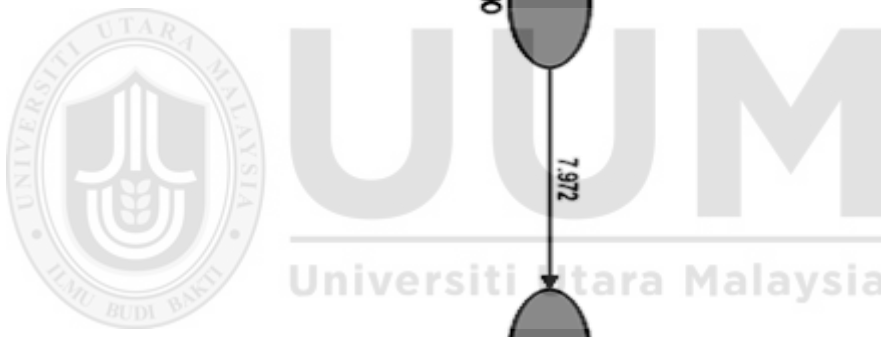


Figure 4.5. Structural model assessment-1





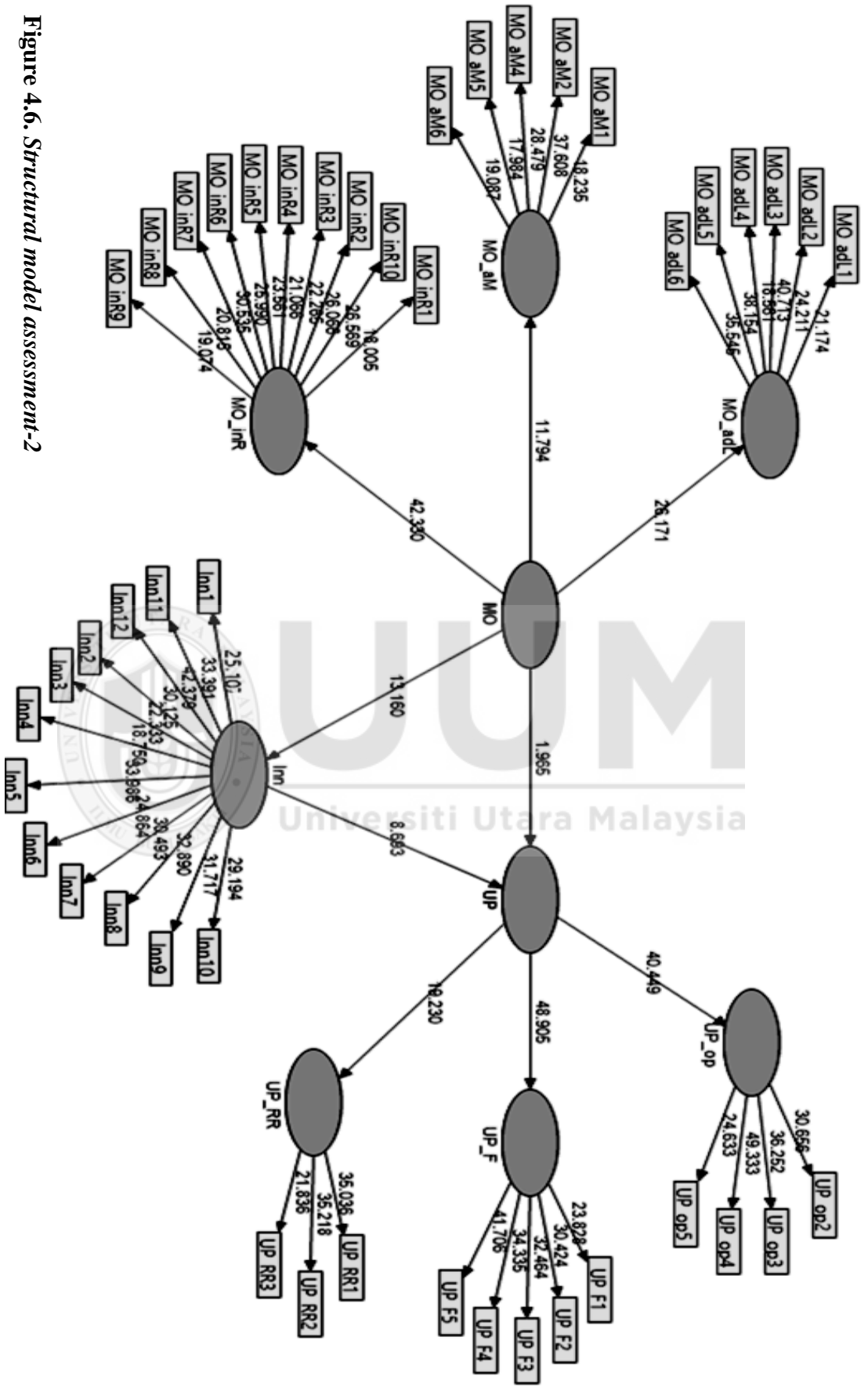


Figure 4.6. Structural model assessment-2

Furthermore, because in Smart-PLS the dimensions should not be drawn directly with the dependent variables, rather separate models should be drawn for testing the sub-hypothesis (Hair et al., 2014). Therefore, for further appraisal of sub-hypotheses about the direct as well as mediated relationship of the dimensions, two additional and separate models were drawn, one for assessment of a direct relationship of low order constructs which are the dimensions of market-orientation (see figure 4.7) as well as another for assessment of mediated relationship of low order constructs which are the dimensions of market-orientation (see Figure 4.8).

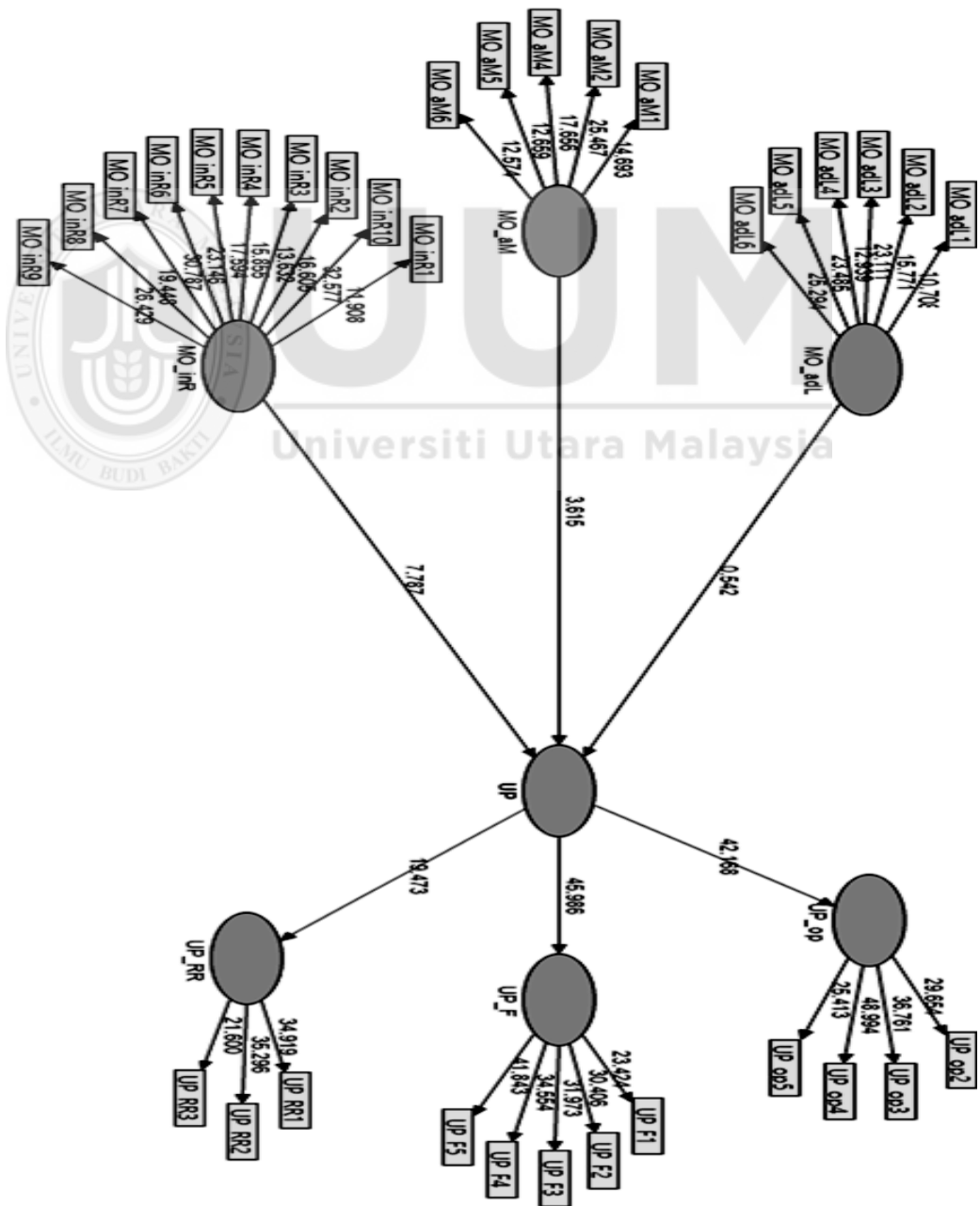


Figure 4.7. Structural model assessment-3

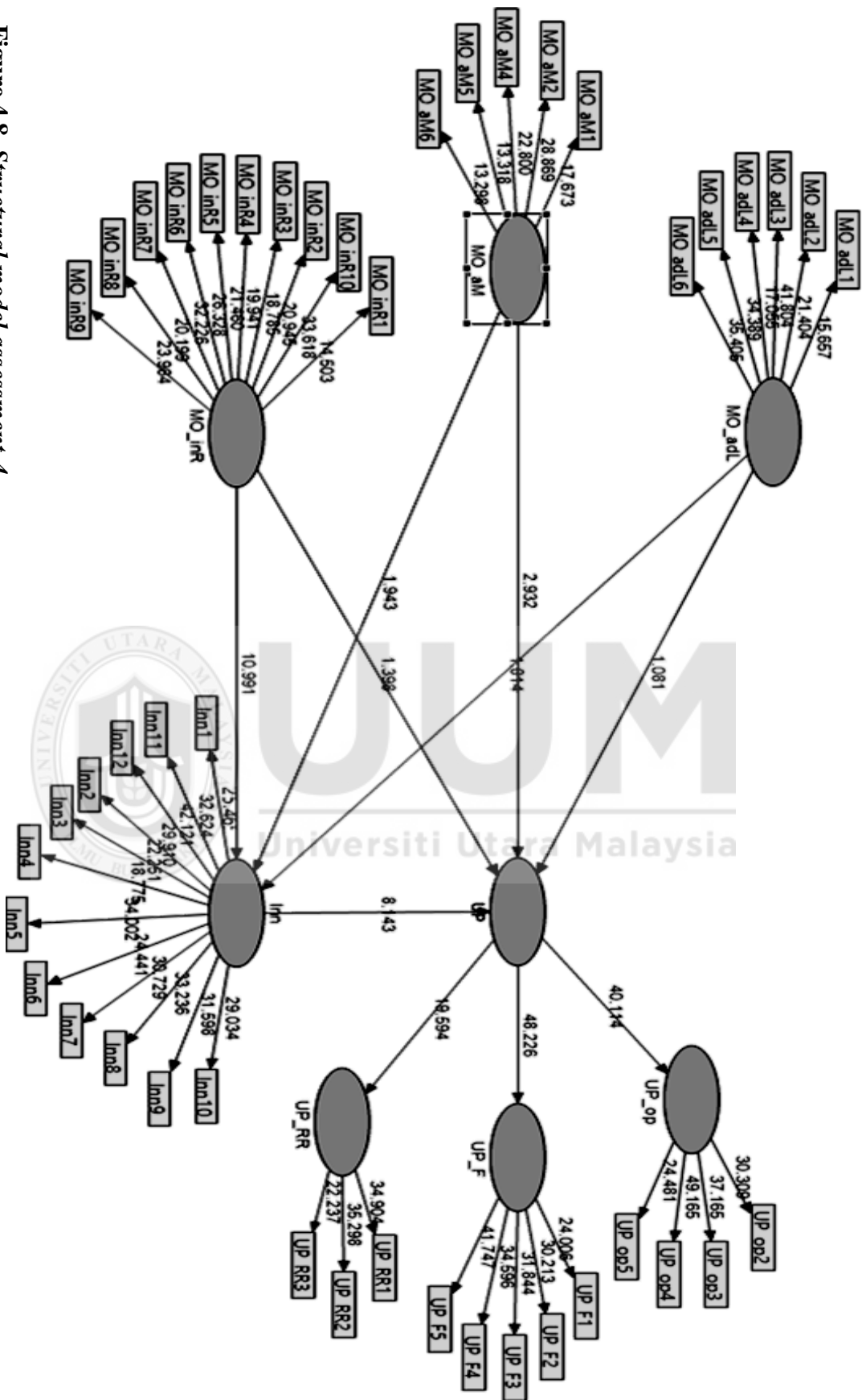


Figure 4.8. Structural model assessment-4

Figures 4.5 produces results for i) hypothesis  $H_1$  that is about the direct relationship between the constructs of market-orientation and the university-performance, while Figures 4.6 answers to hypothesis i)  $H_2$  that is about the direct relationship between the constructs of market-orientation and the innovation; ii)  $H_3$  that is about the direct relationship between the constructs of innovation and the university-performance; and iii)  $H_4$  that is about the mediated relationship between the constructs of market-orientation and the university-performance through the innovation construct.

Furthermore, Figure 4.7 corresponds for hypothesis i)  $H_{1a}$  that is about the direct relationship between the administration-leadership construct (a dimension of market-orientation) and the university-performance; ii)  $H_{1b}$  that is about the direct relationship between the advising and mentoring construct (another dimension of market-orientation) and the university-performance and iii)  $H_{1c}$  which is about the direct relationship between the intelligence-generation and responsiveness construct (third dimension of market-orientation) and the university-performance.

Figures 4.8 produces information about hypothesis i)  $H_{2a}$  that is about the direct relationship between administration-leadership construct (a dimension of market-orientation) and the innovation; ii)  $H_{2b}$  that is about the direct relationship between the advising and mentoring construct (another dimension of market-orientation) and the innovation; and iii)  $H_{2c}$  that is about the direct relationship between the intelligence-generation and responsiveness construct (third dimension of market-orientation) and the innovation.

Moreover, Figures 4.8 also corresponds for hypothesis iv)  $H_{4a}$  that is about the mediated relationship between the administration-leadership construct (i.e. a dimension of market-orientation) and the university-performance through innovation; v)  $H_{4b}$  that is

about the mediated relationship between the advising and mentoring construct (i.e. another dimension of market-orientation) and the university-performance through innovation; and vi) H<sub>4c</sub> that is about the mediated relationship between the intelligence-generation and responsiveness construct (i.e the third dimension of market-orientation) and the university-performance through the innovation construct.

Following subsections describe the results for the analysis of both direct and mediated relationships proposed through the research model for this study. Meanwhile an overall summary of the tested hypotheses is presented at the end of this section in Table 4.12.

#### **4.4.2.1 Findings for the Direct Relationships**

Results for the analysis of direct relationships proposed for this study, as determined from Figure 4.5 and Figure 4.7 are presented in Table 4.11. Hypothesis H<sub>1</sub> proposed that the market-orientation is positively and significantly related with the university-performance. Table 4.11 discloses a significantly positive relationship between market-orientation and university-performance ( $\beta=0.38$ ,  $t=7.97$ ,  $p<0.00$ ), hence, hypothesis H<sub>1</sub> is supported. However, the sub-hypothesis H<sub>1a</sub> that proposed the positive influence of the administration-leadership on the university-performance was not supported ( $\beta=-0.033$ ,  $t=0.544$ ,  $p=0.293$ ). Nevertheless, results supported the sub-hypothesis H<sub>1b</sub> ( $\beta=0.205$ ;  $t=3.728$ ,  $p<0.001$ ) which suggested a positive relationship between the advising and mentoring and the university-performance, meanwhile the sub-hypothesis H<sub>1c</sub> was also supported which predicted a positive relationship between the intelligence-generation and responsiveness and the university-performance ( $\beta=0.348$ ;  $t=7.790$ ,  $p<0.001$ ).

The results in Table 4.11 further revealed a positive relationship between the market-orientation and the innovation constructs, with  $\beta=0.438$ ,  $t=8.693$  and  $p<0.001$ ,

consequently supporting H<sub>2</sub>. The sub-hypothesis H<sub>2a</sub> about the relationship between the administration-leadership and the innovation construct was also supported in results ( $\beta=0.100$ ,  $t=1.814$ ,  $p<0.05$ ). Similarly, the sub-hypothesis H<sub>2b</sub> was also supported at the significance level of 0.95 ( $\beta=0.09$ ,  $t=1.943$ ,  $p<0.05$ ) which initially suggested the positive relationship between the advising and mentoring and the innovation construct. Likewise, the sub-hypothesis H<sub>2c</sub> which predicted a positive relationship between the intelligence-generation and responsiveness construct and the innovation construct was supported at the significance level of above 0.99 ( $\beta=0.572$ ,  $t=10.991$ ,  $p<0.001$ ).

Additionally, Table 4.11 also showed that there is a significant and positive relationship between the innovation and the university-performance, hence, the hypothesis H<sub>3</sub> is also supported with  $\beta=0.618$ ,  $t=13.160$ , and  $p<0.001$ .

#### **4.4.2.2 Findings for the Mediated Relationships**

Test of mediation is desirable when the direct cause-effect phenomenon might not depict a true picture. This is due to a certain other phenomenon in the form of a mediator that has to play certain role that must be accounted for before judging the so-called cause-effect incident (Hair et al., 2014). More simply mediation should be tested if a significant influence is carried out by a third variable i.e. mediator between an independent variable and a dependent variable (Ramayah et al., 2011). Hence, through mediation test one can judge the indirect effect of the predictor variable on the dependent variable intervened by a mediator variable.

On the basis of theory, logic and the evidence from previous studies, we know that a positive relationship exists between market-orientation and organizational-performance (Niculescu et al., 2013; Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Shoham, et al., 2006; Zhou et al., 2005; Narver & Slater, 1993; Jaworski & Kohly, 1990). But

sometimes researchers find that the market-orientation does not always translate into raised organizational-performance (Shoham, et al., 2006; Menguc & Auh 2006; Berthon, Hulbert, and Pitt, 1999; Christensen & Bower, 1996; Day, 1994; Hunt & Morgan, 1995) or even the raised organizational-performance is not always a result of market-orientation, rather it is innovation that boosts the organizational-performance (Laforet, 2008, 2009; Akman & Yilmaz, 2008; Avlonitis & Salavou, 2007; Low, Chapman & Sloan, 2007). These observations are confusing and leading to the question as to whether there is some other process (of mediation) going on that translates market-orientation into improved organizational-performance (Hair et al., 2014, 2016; Preacher & Hayes, 2004, 2008; Barron and Kenny, 1986). Therefore, in order to further ensure and explain how the given relationship of market-orientation actually translates into higher organizational-performance, this study needs to test the mediation phenomenon. (Hair et al., 2014, 2016; Preacher & Hayes, 2004, 2008; Barron and Kenny, 1986)

Hayes (2009) and Hayes and Preacher (2010) observe that among the other techniques used for testing mediation, the most popular techniques are the Sobel test (Sobel, 1982) as well as Bootstrapping method (Bollen & Stine, 1990; MacKinnon et al., 2004; Preacher & Hayes, 2004, 2008; Shrout & Bolger, 2002). During a study for comparing fourteen techniques of evaluating the mediation effects, the Sobel test was recognized as the most superior technique in terms of its power and intuitive appeal (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). Whilst another method that sought a momentous attention for testing mediation was suggested by Barron and Kenny (1986) but the later research finds this method with a number of shortcomings and hence, does not encourage to use it for testing mediation effect (Yong, 2016; Hair et al., 2014, Hayes, 2009; Preacher & Hayes, 2004, 2008; MacKinnon et al., 2002; Holmbeck, 2002).

A number of studies were found to test mediation through Sobel test (Yong, 2016; Berger, Sorensen & Rasmussen, 2010; Sen & Lerman, 2007; Sachs-Ericsson, Verona, Joiner & Preacher, 2006) as well as through bootstrapping technique (Kumar, 2015; Liew, Ramayah, Leap, 2014; Bambale, 2013; Nayyar, 2012; Schlosser, 2011; Raju, Lonial, Crum, 2011). Therefore, this study initially tested mediation using Sobel test as recommended in literature (Kock, 2014). The results can be viewed in Table 4.11 (p.213). For further details of mediation testing through Sobel test, refer Appendix 13.

The given results about the testing of mediation, as presented in Table 4.11(p.216) substantiated that in the higher education sector of Pakistan, the innovation construct has a very strong mediation on the relationship between market-orientation and university-performance, with  $\beta=0.271$ ,  $t=7.241$  and  $p<0.001$ , hence, these facts support the hypothesis H<sub>4</sub>. The sub-hypothesis H<sub>4a</sub> about the mediation of innovation on the relationship between the administration-leadership and the university-performance was also supported in results with  $\beta=0.043$ ,  $t=1.758$  and  $p<0.05$ . In the same manner, the sub-hypothesis H<sub>4b</sub> was also supported ( $\beta=0.38$ ,  $t=1.877$ ,  $p<0.05$ ), which actually suggests that the innovation mediates the relationship between the advising and mentoring and the university-performance. Finally, the sub-hypothesis H<sub>4c</sub>, which predicted the mediation of innovation on the relationship between the intelligence-generation and responsiveness construct and the university-performance was also supported at the significance level of above 0.99 ( $\beta=0.244$ ;  $t=6.527$ ,  $p<0.001$ ), suggesting a strong mediation as proposed earlier.

It is evident in the recent literature that besides the Sobel test for conducting mediation assessment; the bootstrapping technique is seeking growing attention (Hair et al., 2016; Bambale, 2013; Chin 2010). Rather the bootstrapping is preferred over the methods



suggested by Barron and Kenny (1986) and Sobel (1982) as per the evidence from literature (Preacher, Rucker & Hayes, 2007; Hair et al., 2014). Therefore, in order for the above mediation results to stay more robust, the bootstrapping procedure was also utilized to re-assess the mediation hypothesis with 5000 bootstrapped resamples and bias corrected. The study found that the bootstrapping results for mediation were highly consistent with the results of Sobel test. Results for mediation testing through bootstrapping procedure are presented in Appendix 14. For further details of the bootstrapping procedure, Appendix 15 can be visited.

Table 4.12  
*Summary of Tested Hypotheses*

<b>Hypothesis</b>	<b>Relationship</b>	<b>Decision</b>
H1	There is a positive and significant relationship between the market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance.	Supported
H <sub>1a</sub>	There is a positive and significant relationship between the administration-leadership and the university-performance.	Not Supported
H <sub>1b</sub>	There is a positive and significant relationship between the advising and mentoring and the university-performance.	Supported
H <sub>1c</sub>	There is a positive and significant relationship between the intelligence-generation and responsiveness and the university-performance.	Supported
H <sub>2</sub>	There is a positive and significant relationship between the market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the innovation.	Supported
H <sub>2a</sub>	There is a positive and significant relationship between the administration-leadership and the innovation.	Supported
H <sub>2b</sub>	There is a positive and significant relationship between the advising and mentoring and the innovation.	Supported
H <sub>2c</sub>	There is a positive and significant relationship between the intelligence-generation and responsiveness and the innovation.	Supported
H <sub>3</sub>	There is a positive and significant relationship between the innovation and the university-performance.	Supported
H <sub>4</sub>	Innovation mediates the relationship between the market-orientation (i.e. administration-leadership; advising and mentoring; and intelligence-generation and responsiveness) and the university-performance.	Supported
H <sub>4a</sub>	Innovation mediates the relationship between the administration-leadership and the university-performance.	Supported
H <sub>4b</sub>	Innovation mediates the relationship between the advising and mentoring and the university-performance.	Supported
H <sub>4c</sub>	Innovation mediates the relationship between the intelligence-generation and responsiveness and the university-performance.	Supported

#### 4.4.2.3 Assessment of Predictive Power of the Model

According to Hair et al. (2012) and Henseler et al. (2009) another important criterion to be fulfilled in the process of PLS-SEM structural model assessment is the calculation of R-squared value (coefficient of determination). The R-squared value represents the proportion of variation in the dependent variable(s) that could be explained by one or more predictor variables (Hair et al., 2010; Elliott & Woodward, 2007; Hair et al., 2006). Hair et al. (2010) suggest that the acceptable level of  $R^2$  value may vary as per the context of particular research, whereas Falk and Miller (1992), recommends the minimum acceptable level of R-square value to be 0.10. While, Chin (1998) advocates that in PLS-SEM, the R-squared value of 0.60, 0.33 and 0.19 may be taken as substantial, moderate and weak respectively. The R-squared values obtained for this study are reported in Table 4.13.

Table 4.13  
*R-squared Values of Endogenous Variables*

Endogenous variables	Predictive variables	$R^2$ Values	Level of Predictive Accuracy
University-Performance	Market-Orientation	.262	close to Moderate
Innovation	Market-Orientation	.381	Above Moderate

Table 4.13 reported that the research model explained the proportion of variation in the endogenous variable of university-performance is 26.2 percent of the total variance. Similarly, 38.1 percent variance is observed in the endogenous variable of Innovation. Hence, following Chin (1998), it could be concluded that the overall level of variance explained by the proposed model is moderate. Hence, the obtained R-squared value is acceptable for this study (Falk & Miller, 1992).

#### 4.4.2.4 Assessment for Effect Size of the Predictive Power ( $f^2$ )

For a particular study effect size ( $f^2$ ) is defined as the potential relative effect of a specific exogenous variable on the endogenous variable which ( $f^2$ ) is assessed by tracing the changes in R-squared value of the endogenous variable to which the path is connected. A formula commonly used to calculate the effect size is provided hereunder (Cohen, 1988; Callaghan, Wilson, Ringle & Henseler, 2007; Selya, Rose, Dierker, Hedeker & Mermelstein, 2012).

$$\text{Effect size, } f^2 = \frac{(R^2_{\text{included}} - R^2_{\text{excluded}})}{(1 - R^2_{\text{included}})}$$

Based on the threshold provided by Cohen (1988) the  $f$ -squared values of 0.02, 0.15, and 0.35 can be described as weak, moderate and strong effects respectively. For this study, Table 4.14 provides the results of effect size of the predictive variables ( $f^2$ ).

Table 4.14  
*Effect Size of Predictive Variables*

Endogenous Variables	Predictive variables	$R^2$ included	$R^2$ excluded	Effect size ( $f^2$ )	Effect size rating
<b>Uni. Performance</b>	MO	.262	.257	.01	small
	Innovation	.262	.140	.17	Above Medium
<b>Innovation</b>	MO	.381	.000	.62	Above Large

Table 4.14 indicates that in the given model the relative effect sizes for the two exogenous variables of market-orientation, and Innovation on the endogenous variable of university-performance turn out to be 0.01, and 0.17 which is very small and above medium respectively (Cohen, 1988). Whereas the effect size for the exogenous variable of market-orientation, on the endogenous variable of innovation appears to be 0.62 which is quite large (Cohen, 1988).

#### 4.4.2.5 Assessment of Predictive Relevance

For assessment of predictive relevance of the research model, the underlying study utilized Stone-Geisser test using a blindfolding process (Geisser, 1974; Stone, 1974). In the PLS-SEM, this test is normally applied as a supplementary appraisal of goodness-of-fit (Duarte & Raposo, 2010). “Blindfolding procedure is only applied to endogenous latent variables that have a reflective measurement model operationalization” (Sattler, Volckner, Riediger & Ringle, 2010, p. 320). The reflective measurement model stipulates that a latent (unobservable) conception of a model or a variable triggers variation in a set of observable indicators (McMillan & Conner, 2003, p. 1). As all the endogenous latent variables in this study are reflective, therefore, a blindfolding procedure was applied specifically to the endogenous latent variables.

In order to assess the predictive relevance of the model, the cross-validated redundancy measure ( $Q^2$ ) was also utilized (Hair et al., 2013; Ringle, Sarstedt & Straub, 2012b; Chin, 2010; Geisser, 1974). The  $Q^2$  is a criterion to measure how well a model predicts the data of omitted cases. Henseler et al. (2009) suggested that  $Q^2$  value(s) should be above zero for any research model to have a predictive relevance. The results for a ‘cross-validated redundancy  $Q^2$  test results’ are provided in Table 4.15.

Table 4.15

*Construct Cross-Validated Redundancy*

Total	SSO	SSE	$Q^2$ (1-SSE/SSO)
University-Performance	3984	3569.5334	0.104
Innovation	3984	3106.2689	0.220

As per the guidelines of Chin (2010) and Henseler et al. (2009) for the given two endogenous variables of this study, the cross-validated redundancy values or  $Q^2$  were found to be greater than zero which is 0.104 for university-performance and 0.220 for innovation. These findings suggest that the model has predictive relevance as presented in Table 4.15.

#### 4.4.2.6 Assessment of Effect Size for Predictive Relevance

Finally, the effect size for predictive relevance ( $q^2$ ) was also calculated using the criteria and the procedure similar to the calculation of effect size for predictive power ( $f^2$ ) (Hair et al. 2014). However, for calculating the effect size for predictive relevance ( $q^2$ ), researcher used the value of predictive relevance ( $Q^2$ ) instead of ( $R^2$ ) and thus substituted the values in the formula as under:

$$q^2 = \frac{(Q^2 \text{ Included} - Q^2 \text{ excluded})}{(1 - Q^2 \text{ included})}$$

The results of effect size calculated for predictive relevance ( $q^2$ ) are provided in Table 4.16.

Table 4.16  
*Effect Size of Predictive Relevance ( $q^2$ ) of Predecessors on Endogenous university-performance and innovation*

Endogeneous variable	Predictors	Q <sup>2</sup> included	Q <sup>2</sup> excluded	Q <sup>2</sup> included - Q <sup>2</sup> excluded	1-Q <sup>2</sup> included	Effect Size ( $q^2$ )	q <sup>2</sup> rating
<b>University-Performance</b>	MO	0.104	0.102	0.002	0.896	0.003	Very small
	Innovation	0.104	0.056	0.048	0.896	0.054	Above small
<b>Innovation</b>	MO	0.220	0.000	0.220	0.780	0.283	medium

Table 4.16 indicates that in the given model the relative effect sizes of predictive relevance for the two exogenous variables of market-orientation, and Innovation on the endogenous variable of university-performance turns out to be 0.003 which is very small, and 0.054 respectively (Cohen, 1988). Similarly, the effect size of predictive relevance for the exogenous variable of market-orientation on the endogenous variable of innovation is 0.283 which is medium (Cohen, 1988).

#### 4.7 Chapter Summary

This chapter initially gives the information about respondents from target population. Then it portrays details about preliminary analysis and initial data screening using SPSS, necessary to ascertain the goodness of data for further analysis using Smart-PLS. Later, the rationalization for selecting PLS-SEM path modeling is provided, which is followed by description and discussion about the appraisal of the significance for path coefficients. Next to that the chapter reports chief findings of this research. Self-report techniques used in this study appear to support the mediating effect of innovation on the relationship between the university-performance that is the dependent variable and predictor variable of market-orientation in general (as well as each of the dimensions of market-orientation). The results discovered significant path coefficients between: (1) market-orientation and university-performance; (2) the advising and mentoring dimension of market-orientation and the university-performance; (3) the intelligence-generation and responsiveness dimension of market-orientation and the university-performance; (4) the market-orientation and the innovation; (5) the administration-leadership dimension of market-orientation construct and the innovation; (6) the advising and mentoring dimension of market-orientation construct and the innovation (7) the intelligence-generation and responsiveness dimension of market-orientation construct and the innovation; (8) the innovation construct and the university-performance.

Importantly, with regards to mediating effects of innovation on i) the relationships between the market-orientation construct and the university-performance; as well as on ii) the relationships between the dimensions of market-orientation construct and the university-performance, the analysis revealed that all the four hypotheses regarding the mediated relationship were found statistically significant. In particular, innovation

mediates the relationship between (1) the market-orientation construct and the university-performance; (2) the administration-leadership dimension of market-orientation construct and the university-performance; (3) the advising and mentoring dimension of market-orientation construct and the university-performance; and (4) the intelligence-generation and responsiveness dimension of market-orientation construct and the university-performance.



## CHAPTER FIVE

### DISCUSSION AND CONCLUSIONS

#### 5.1 Introduction

Based on a detailed discussion on key findings, this chapter is going to conclude the current study by harmonizing key results from preceding chapter with previous studies on market-orientation, innovation, university-performance and their pertinent theoretical perspectives. Up-coming section is to recap the major findings, while the section after that corresponds theoretically the current findings with past studies. The theoretical, managerial, and methodological implications of this study are discussed in later sections. Finally after providing the limitations of this study and recommendations posed for the future research, the chapter concludes the overall study.

#### 5.2 Key Findings — The recap

This study aims to assess the mediating effect of innovation on the relationship between market-orientation (MO) and university-performance (UP) in Sind, Pakistan. Hence, the study attempts to answers to the following questions:

1. To what extent MO explains UP?
2. To what extent the dimensions of MO explain the UP directly?
3. To what extent MO explains innovation?
4. To what extent the dimensions of MO explain the innovation directly?
5. To what extent innovation explains the UP?
6. Does innovation mediate the relationship between MO and UP?
7. Does innovation mediate the relationship between dimensions of MO and the UP?



The analysis using PLS path modeling suggests that the generic construct of MO was empirically found significant and positively associated with UP both directly as well as indirectly (through mediation of innovation); whereby innovation is also empirically supported to have significant positive association with UP.

As for as the (empirical assessment of) relationship between dimensions of MO and UP is concerned, firstly the results also empirically support the positive relationships of each of the three dimensions of MO such as: (i) administration-leadership (ADML), (ii) the advising and mentoring (A&M) as well as (iii) the intelligence-generation and responsiveness (IG&R) with the innovation construct. Secondly the positive direct as well as mediated relationship between UP and two of the MO-dimensions including A&M as well as IG&R also secure enough statistical support. Thirdly however, the support for the direct positive relationship between the ADML dimension of MO and the UP was not statistically significant, despite a considerable statistical support for their mediated positive relationship.

### **5.3 Discussion**

This section provides arguments to theoretically substantiate the key findings of this study in relation to the evidence from pertinent prior studies. The discussion is arranged according to the given order of the given research objectives/questions. The initial series of research objectives/questions of the study try to examine the relationship between market-orientation (MO) and university-performance (UP). Next series of research objectives/questions is related to the assessment of relationship between MO and innovation construct, while the later research objective/question covers the test of relationship between innovation and UP and subsequently the study attempts to examine the impact of innovation as a mediator on MO—UP relationship.

### 5.3.1 Influence of Market-Orientation on University-Performance

Based on pertinent literature, the concept of MO in context of higher education can be defined as “process of generation and dissemination of integrated market intelligence by organizational leaders regarding customer needs and competitor’s capabilities” for relatively a greater market satisfaction” (Sheppard, 2011; Brettel, Engelen & Heinemann, 2009; Zatezalo & Gray, 2000; Gray, Matear, Boshoff & Matheson, 1998; Deng & Dart, 1994), as rooted in the basic models of MO (see Kohli & Jaworski, 1990; Narver & Slater, 1990). MO is an organizational-level resource to execute marketing-concept for a better relative organizational-performance followed by a competitive advantage (Modi, 2012; Menguc & Auh, 2006).

Despite an extensive previous support regarding a positive MO–performance relationship (Khuwaja et al., 2017; Huhtala, 2014; Algarni & Talib 2014; Young-Jones et al., 2013; Niculescu et al., 2013; Schroeder, 2012), some studies nevertheless had some discordant findings of either no relation or negative relationship between MO and performance (Haugland et al., 2007; Keskin, 2006; Shoham et al., 2006; Menguc & Auh 2006; Johnson & Huizenga, 2001; Hult & Ketchen, 2001; Heiens, 2000).

However, in the context of universities in Pakistan, the present study hypothesized and statistically tested (using PLS path modeling) that the MO is positively associated with university-performance. Hence, the hypothesis H<sub>1</sub> was supported by PLS path modeling findings of ( $\beta=0.38$ ,  $t=7.97$ ,  $p<0.00$ ) which reveal MO–UP relationship to be positive and significant. This suggests that university teachers in Pakistan perceive that MO is a critical resource for enhancing university-performance. Hence, in correspondence with the resource-based theory (Penrose, 1959; Wernerfelt, 1984; Barney, 1991), which identifies MO as a valuable, rare, inimitable, and non-substitutable (VRIN) resource to

cultivate higher level of UP (Khuwaja et al. 2015; Algarni & Talib, 2014). Makadok (2001) asserts that RBT is a cornerstone theory to emphasize the role of resources in creating a sustainable competitive advantage. Universities in Pakistan therefore must develop and adopt the VRIN sort of resources similar to MO for a consistent performance improvement. These findings are also in accordance with previous studies that have already acknowledged the given MO—UP relationship in the existing literature (Khuwaja et al., 2017; Koris & Nokelainen, 2015; Algarni & Talib, 2014; Felgueira & Rodrigues, 2013; DiAConu & PANDEIICă, 2012; Hashim & Rahim, 2011; Akinyele, 2011; Rivera-Camino & Ayala, 2010; Pavičić, Alfirević & Mihanović, 2009; Voon, 2008; Deng & Hu, 2008; Narver et al., 2004; Caruana et al., 1998, 1999). The innovative nature of market-orientation in the knowledge-based culture of universities also gets it underpinned by organizational-learning theory (OLT) (Ozkaya et al., 2015; Aragón-Correa et al., 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986). This study has henceforth successfully added further value to the existing literature on RBT as well as OLT that MO as a critical organizational capability and a learning phenomenon that adds value to the university-performance.

Hence, in the contemporary turbulent environment, it is quite difficult for Pakistani universities to secure a self-sustainable survival and growth in the international markets without being innovatively market-oriented (Husnain 2014; Asgar, 2013; Akhtar & Kalsoon, 2012; Bilal & Imran, 2012; Kazmi, 2012; Haider, 2008). Therefore, the findings of this study can be forwarded as recommendations for the higher education regulatory authorities and policy makers in Pakistan (i.e. Higher Education Commission; Ministry of Higher Education; Rectors/Chancellors of universities) to incorporate MO as an indispensable tool for fostering organizational-performance.

### **5.3.2 Influence of Dimensions of Market-Orientation on University- Performance**

To ensure organizational sustainability, universities in Pakistan need to adopt market-orientation (MO) as signified in earlier section.

Certain studies however discern that no matter what level of significance regarding the relationships between the universal/generic variables has been reported, there may however be a deviation of given relationships when tested through individual dimensions in different points in time and area (Umrani, 2016; Cheng & Krumwiede, 2012). Meanwhile, the MO-studies like Ozkaya et al. (2015), Huhtala (2014), Niculescu et al. (2013) and Zaifuddin (2010) also signified for the contributory value of each MO-dimension. Hence, with the help of literature support, the following sections briefly discuss how the performance is related to the dimensions of MO.

This study has also endeavored to assess the individual impact of MO-dimensions on the UP as well as on innovation. For this study, the given MO-dimensions i.e. “administration-leadership; advising and mentoring; and intelligence-generation and responsiveness” were derived from the context-specific operationalization of MO in universities (Niculescu et al., 2013) (as explained in detailed earlier in chapter two). Through this operationalization of MO, the corresponding tool labeled as UNIVERSITY-MARKOR to measure MO in universities (Hampton, 2007) has also been further revalidated to be the most appropriate and reliable in the context of higher education sector due to the knowledge-based structure of universities i.e. unlike the business-enterprise sector (Hampton, 2007; Hampton et al., 2009; Nichelescu et al., 2013; Khuwaja et al., 2017).

Regarding assessment of the impact of MO (and its dimensions) on UP, the next research objective of this study was to examine the extent to which dimensions of MO explain the UP directly. Hence, the corresponding research hypotheses pertain to examining the direct relationship between three dimensions of MO and the UP, as portrayed in the pertinent formulated hypotheses ( $H_{1a}$ ,  $H_{1b}$ , and  $H_{1c}$ ).

Although the hypothesis  $H_{1b}$ , and  $H_{1c}$  secured a very strong support from PLS path modeling results (as discussed later), yet, despite enough support in literature for the significant role of administration-leadership as an important determinant of organizational-performance (Alexander & Yuriy, 2015; García-Morales et al., 2008; Bryman, 2007; Amey, 2006), the results of PLS path modeling for this study ( $\beta=-0.033$ ,  $t=0.544$ ,  $p=0.293$ ) in case of Hypothesis  $H_{1a}$  could not empirically support  $H_{1a}$  to materialize the significant positive relationship between the administration-leadership and the university-performance. It implies that the university teachers in Pakistan don't accentuate the present structure of administration-leadership for a truly market-oriented university there. One possible reason for this might be the argument by Aziz et al. (2014) which also discloses the lack of cognitive and political skills among the university leaders. Hoodbhoy (2011) also raises similar issue in terms of lack of enough training for teachers and administrators of the government educational institutions. Hoodbhoy further emphasized on the more effective transfer of administration to more experienced and professional administrators. More over Ghani (2013) holds the poor administrative leadership of universities in Pakistan, responsible for under-utilization of the allotted development funds. Usman (2014) also recognizes lack of effective university-leadership in Pakistan.

Hampton et al. (2009) attribute the effective application of MO in universities through the professionalism of the faculty and administration leaders. Thus the CEOs of universities (Rector, Vice-Chancellor or President) must be appointed through proper channel with an open-search process (Usman, 2014; Task Force report, 2002), but the recent exploratory sort of interviews (March & April 2016) (conducted from vice chancellors and institutional/faculty heads, for identification of practical problems in Pakistani universities) identified the issues of political appointments of university leaders who are not capable of driving universities with modern market-oriented attitude. This notion is also supported by the arguments by Jahangir (2008) and Usman (2014).

The factors mentioned above that may have caused the non-supporting results regarding  $H_{2a}$  may thus be overcome by the “Leadership-Excellence”. It requires that the appointment of Vice-Chancellors and heads of departments must be led by ‘Merit-Focussed-Search-Committees’ which must make such appointments apolitically i.e. based on excellence. This will ultimately support the fulfilment of Pakistan Higher Education Commission Vision 2025 (Taylor, 2017)

Moreover, the insignificant result regarding  $H_{1a}$  is also in line with the findings of Poortvliet, Anseel and Theuwis (2015); Menguc, Auh, Fisher and Haddad (2013); Karatepe and Olugbade (2009); Hengel, Blatter, Joling, van der Beek and Bongers (2012), and Wu, Chen, Huang and Cheng (2013) who reported insignificant relationship of administration-leaders on the employee performance resulting in poor organizational performance.

One important conceivable explanation appropriate for this phenomenon may be pertinent to the nature of job or job characteristics whereby in some professions, the

organizational members have specialist skills and experience pertaining to their particular assigned roles (Wu et al., 2013). Thus, in such instances, these professionals (teachers in case of universities) prefer working independently and recognize general administrators less appealing, rather a hindrance, affecting their overall productivity (Ahmed, 2016).

Similarly, one of the concepts from leadership theory and research that has had little impact of leadership in higher education is “Kerr and Jermier’s (1978) influential notion of substitutes for leadership”, whereby it is proposed that “there are certain features of organizations and the people, who work in them that can neutralize the impact of leadership” (Bryman, 2007, p.706). This is a potentially significant concept within a higher education institution context because Kerr and Jermier (1978) suggested that when ‘subordinates’ have a professional orientation and a need for independence—both of which are arguably characteristics of academic staff—the impact of leader behaviour will be neutralized.

This insightful finding is also in-line-with the Yerkes-Dodson Law (1908) of arousal and motivation (Teigen, 1994). The law suggests individuals can only take motivation and inspiration up to a certain level as it works on a bell curve strategy (Ahmed, 2016). Thus, at a certain level and stage, the significance of motivating prospects starts getting weaker and less appealing. Beehr, Bowling, and Bennett (2010) and Deelstra, Peeters, Schaufeli, Stroebe, Zijlstra & van Doornen (2003); reported that the imposed organizational-leadership affects the self-confidence and competence of organizational-members which as per the current study can be seen as elucidating negative reactions from university teachers.

Hypothesis H<sub>1b</sub> was nevertheless supported significantly with the empirical results ( $\beta=0.205$ ;  $t=3.728$ ,  $p<0.001$ ), showing a significant positive relationship between the advising and mentoring (A&M) and the university-performance (UP). These findings are compatible to Drake (2011) and Kuh, Kinzie, Schuh & Whitt (2005) who consider advising in universities as a strong lever in refining the college experience of student and in supporting an institution's performance regarding students' retention and timely graduation because it helps universities to direct students' behavior for the desirable activities. Campbell and Nutt (2008) also confirms current findings regarding H<sub>1b</sub> by asserting that academic-advising is fundamental to fulfill the higher-education-mission. It enables students to think critically about their academic as well as social roles and responsibilities as students ultimately converting them into responsible citizens as they enter, move through, and exit the institution (Campbell & Nutt, 2008).

As far as the students' mentoring in higher education is concerned, in pertinent literature, it has been linked to the students' personal growth and contentment (Schroeder, 2012; Ehrich, Hansford & Tennent, 2004), career progression (Higgins, 2000, 2001; Burke & McKeen, 1997) and boosted self-confidence (De Vries, 2005), mutual respect and lasting relationships (Salinitri, 2005; Wenger, 1998), higher rate of student success and retention (Lotkowski, Robbins & Noeth, 2004), higher level of students' engagement (Hughes, Walsh, Mayer, Bolay & Southard, 2010) greater organizational commitment (Payne & Huffman, 2005), elevated organizational-performance (Niculescu et al., 2013), and increased research funding (Gardiner, 2005). Darwin and Palmer (2009) emphasize on development of mentoring circles in the universities for a long-term group benefit. Hence, it concludes that the university management should organize the system of A&M in the universities of Pakistan that



may not only enhance the students' learning and satisfaction, but it may also entail a number of other benefits to the overall university also as few mentioned above.

The findings of this study regarding H<sub>1b</sub>, is also in congruence with the resource-based theory (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) because if utilized effectively, the A&M of students in universities (of Pakistan) seem to play a vital role as a unique marketing resource in fulfillment of university-mission through enhanced student-satisfaction and retention. The current finding is also in line with organizational-learning theory (OLT) as the phenomenon of advising and mentoring keeps the mentees as well as mentors upgraded by means of consistent learning phenomenon (Aragón-Correa et al., 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986)

Hypothesis H<sub>1c</sub> is also supported significantly by the results of PLS path modeling analysis ( $\beta=0.348$ ;  $t=7.790$ ,  $p<0.001$ ), whereby a significant positive relationship between intelligence-generation and responsiveness (IG&R) and university-performance (UP) was hypothesized. This signifies that distinguished as an organizational resource, the vital role of IG&R in uplifting the UP has been highly recognized and appreciated by university teachers in Pakistan.

The findings of this study regarding H<sub>1c</sub> are in line with previous literature because the significant role of intelligence has been acknowledged since late 1990s for better recognition and fulfillment of customer needs, leading to overall organizational growth (Kohli & Jaworski, 1990; Desphande, Farley & Webster, 1993). Even in higher education, the revolution of information technology has shaken the foundations of customer value delivery system, such as 24/7 communication services for prospect query response, e-portals, and virtual courses among other services (Young, 2004; Tierney, 1998).

In addition to that the harmony of H<sub>1c</sub> is also evident from Schlosser and McNaughton (2009) as well as Harris and Ogbonna (2001) who assert that in market-oriented organizations, the effective execution of IG&R also inculcates in employees (teachers) an increased sense of esprit de corps, which is the enhanced level of commitment and willingness to work for the organizational goals.

This notion of significant IG&R—UP relationship assessed in this study also corresponds to the resource-based theory (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) because in addition to previous literature, the current study has identified that IG&R is a significant organizational resource to supplement the UP. Whereas the organizational-learning theory (OLT) (Aragón-Correa et al., 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986) also supports the important role of IG&R in the universities because the knowledge based structure of higher education institutions is highly contingent to and integrated with the ability of universities to adopt new ways of teaching and learning process i.e. the primary goal of any university.

A number of other previous studies also confirm the given findings of this study regarding H<sub>1c</sub> (Fang, Chang, Ou & Chou, 2014; Niculescu et al., 2013; Altuntaş et al., 2013; Candemir & Zalluhoğlu, 2013; Liu, 2013; Urde et al., 2013; Felgueira & Rodrigues, 2013; Mahrous & Kortam, 2012; Cheng & Krumwiede, 2012)

The above discussion highlights that out of the four hypotheses (H<sub>1</sub>, H<sub>1a</sub>, H<sub>1b</sub> and H<sub>1c</sub>); three including (H<sub>1</sub>, H<sub>1b</sub> and H<sub>1c</sub>) were found to be statistically significant and congruent with previous literature as well as with the pertinent theories.

While in case of hypotheses H<sub>1a</sub>, on one hand, firstly the lack of leadership skills in the university leadership in Pakistan (as reported earlier in literature) and secondly the political involvement regarding the appointments of the heads of HEIs in in Pakistan

appear to hinder this study from sufficient statistical support sought regarding H<sub>1a</sub>, as justified earlier in detail. Thus, the ADML doesn't stand out to be the significant contributor to UP in Pakistan. Therefore, the higher-education regulatory authorities must take a serious notice of such state of affairs regarding appointment of eligible vice-chancellors/rectors based on open merit policy for the ultimate desirable level of UP in Pakistan. On the other hand, the professional capabilities and skilled nature of teachers to fulfill their assigned roles also deem the supervisory role of administration-leaders unnecessary (Wu et al., 2013), resulting in the perceived insignificance of ADML in the universities.

As far as the empirical support for H<sub>1b</sub> and H<sub>1c</sub> is concerned, the relevant discussion above signifies that, in the knowledge-based structure of higher-education-institutions, the university teachers perceive the two dimensions of market-orientation i.e. A&M as well as IG&R to be the vital organizational resources, having a direct impact on UP. This notion is also in congruence with the RBT and OLT theories as detailed earlier. Hence, these two elements of MO must be adopted in the universities in Pakistan, because the synergized effect of both the A&M and the IG&R would not only enhance the students' demeanor and retention but it would also augment the capability of the respective universities to learn consistently and stay proactive for a more innovative performance (Narver et al., 2004).

### **5.3.3 Influence of Market-Orientation on Innovation**

Innovation is considered as another strategic resource that nurtures creativity and exploitation of new ways to raise the level of organizational-performance (Ahmed & Othman, 2017; Naranjo-Valencia et al., 2016; Zaifuddin, 2010) even in the universities (Khuwaja et al., 2017; Algarni & Talib, 2014). In harmony with O'sullivan and Dooley

(2009) and Naranjo-Valencia et al. (2016) innovation can be described as “the process of making changes, large or small, radical or incremental, to the products, processes, and services that results in the introduction of something new for the organization that add value to customers and contributes to the knowledge store of the organization”.

Hence, for this study the next series of hypothesis (H<sub>2</sub>, H<sub>2a</sub>, H<sub>2b</sub>, and H<sub>2c</sub>) take into account the assessment of hypothesized relationship between the market-orientation (MO) and innovation as well as between the given dimensions of MO and innovation.

Regarding H<sub>2</sub>, which hypothesizes the positive relationship between the overall ‘MO and innovation’, the empirical results of this study ( $\beta=0.438$ ,  $t=8.693$ ,  $p<0.001$ ) appear to be significantly supporting the given hypothesis. This result is also supported by the previous studies, where by Ozkaya et al. (2015), Grinstein (2008a) and Zaifuddin (2010) who report a significant positive MO—innovation relationship to exist, particularly in the service industries. Similar expression has been extended by several studies (Aldas-Manzano et al., 2005; Kurtinaitiene, 2005; Verhees & Meulenberg, 2004; Hult et al., 2004; Agarwal et al., 2003; Sandvik & Sandvik, 2003; Matear et al., 2002; Lukas & Ferrell, 2000; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003). MO is said to boost innovation due to careful follow-up of and response to the changing market conditions by market-oriented organizations (Zaifuddin, 2010; Grinstein, 2008; Jaworski & Kohli, 1993), which allows them to stay more proactive (Carrillat et al., 2004) and come up with for more innovative launches in the market (Agarwal et al., 2003; Slater & Narver, 1995). Such innovative and proactive pursuit ultimately keeps such firms at a constant competitive advantage (Harris & Cai, 2002; Jaworski et al., 2000; Kumar et al., 2000).

As for as the support of given relationship from the pertinent underpinning theory is concerned, it has already been discussed in length in the previous sections that MO is considered as one of the unique organizational resources that enables organizations to fulfill their advanced level organizational goals in the light of resource-based theory (RBT) (Penrose, 1959; Wernerfelt, 1984; Barney, 1991). Hence, unlike the traditional business organizations, the knowledge base system of market-oriented universities allows them to stay more proactive by capitalizing on consistent learning process. This enables them for coming up with innovative solutions to the latent problems of the higher education as detailed earlier through the organizational-learning theory (OLT) (Aragón-Correa et al., 2007; Crossan et al., 1999). This is particularly true in case of the proactive MO (Atuahene-Gima, 2005) utilizing an effective system of market intelligence for fulfillment of latent market needs (Hunt, 2002; Narver et al., 2004).

#### **5.3.4 Influence of Dimensions of Market-Orientation on Innovation**

Earlier studies reveal that the individual dimensions of market-orientation (MO) may have varied prediction of any endogenous construct (Ozkaya et al., 2015; Huhtala, 2014; Niculescu et al., 2013; Zaifuddin, 2010). Therefore, with the help of pertinent hypotheses ( $H_{2a}$ ,  $H_{2b}$ , and  $H_{2c}$ ), this study analyzed the individual impact of all three dimensions of MO on innovation construct in the context of higher-education-institutions (HEIs) of Pakistan.

$H_{2a}$  hypothesizes that there is a significant positive relationship between the administration-leadership (ADML) and the innovation. Using PLS path modeling, the  $H_{2a}$  has also been supported by the empirical findings of this study ( $\beta=0.100$ ,  $t=1.814$ ,  $p<0.05$ ). De Jong & Den Hartog (2007) claims that “As a leader it seems impossible not to affect employees’ innovative behavior (p.57)”. While De Jong & Den Hartog

(2007) found that the leaders in knowledge-intensive services influence innovative behavior not only by means of formally planned actions for it but they also create inspiration for innovation among other employees through their “day-to-day” activities.

The current results regarding H<sub>2a</sub> are also incompatible to a number of other previous studies which highlight the organizational leaders as the indispensable catalysts for engendering innovation into the organizations (Yukl, 2009; Nemanich & Vera, 2009; Jung et al., 2008; Eisenbeiss et al., 2008; García-Morales et al., 2008; Menguc & Auh, 2006; Aldas-Manzano et al., 2005). In the context of higher education, Bryman (2007) and Hollenbeck, McCall and Silzer (2006) emphasize on the evidence-based identification of leaders with skills that are associated with superior performance of universities. Bryman (2007) further asserts that it is imperative for institutional/departmental heads in universities to be professionally sound not only in leading for new initiatives but in overall academic excellence and as well, in order to stay as a role model to the other members of the institution.

Rosing et al. (2011) recognizes an indirect positive relationship between organizational leadership and the innovation. Certain other studies emphasize that rather than one particular leadership style, a mutually supportive blend of diverse leadership behaviors is desirable in compatibility with the timing, complexity and velocity of innovation (Harbone & Johne, 2003; McDonough, 2000; Sethi, 2000).

Transformational leaders are particularly recognized to encourage their followers for new ways of thinking about different and better solutions to problems by inculcating in-depth discovery thought process that ultimately takes towards organizational innovation (García-Morales et al., 2008; Marks & Printy, 2003). The transformational leaders even in education sector are recognized to provide intellectual support for

innovation by nurturing teachers as decision making partners (Marks & Printy, 2003; Conley & Goldman, 1994).

Thus, based on the empirical results of this study it is concluded that in the context of higher education system of developing countries like Pakistan the ADML dimension of market-orientation is perceived to significantly affect the organizational-performance.

Similarly, PLS path modeling results regarding  $H_{2b}$  ( $\beta=0.09$ ,  $t=1.943$ ,  $p<0.05$ ) also support the given hypothesis which hypothesized a significant positive relationship between the advising and mentoring (A&M) and the innovation constructs.

Marshall and Sharp (2010) quotes that “A great mentor has a knack for making us think that we are better than we think we are”, p.19. This quotation is a very comprehensive explanation of the empirical results of this study. These results are also in accordance with previous studies (Charleston et al., 2014; Felgueira & Rodrigues, 2013; Menguc & Auh, 2006; Kurtinaitiene, 2005; Aldas-Manzano et al., 2005; Hult et al., 2004; Verhees & Meulenber, 2004; Narver et al., 2004; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003; Matear et al., 2002; Lukas & Ferrell, 2000; Atuahene-Gima, 1996).

A well-matched blend of mentor and mentee can synergize to accomplish much larger and advanced goals because while in process of newness exposition to the mentee, the mentor helps minimize the chance of trial errors and leads to more effective achievement of higher level mutual goals (Bozionelos, 2004; Wright, Trudel & Culver, 2007; Lentz & Allen, 2009; Marshall & Sharp, 2010). Atuahene-Gima, Slater & Olson (2005) emphasize that in the proactive market-orientated organizations, it is the mentors who synchronize the teams working on the innovative products/services for the new segments of emerging markets.

Hoidn and Kärkkäinen (2014) recognizes a positive impact of ‘instructional organizing and clarity by the teacher or a mentor’ on the innovation skills such as ability to consider diverse perspectives, critical thinking, and synthesizing diverse ideas. Salintri (2005) supports the idea that the formal mentoring of low achievement students enables them to learn more effective paradigms and patterns of handling their academic affairs from their mentors. Especially the mentoring circles synergize the mentoring and advising process from multiple perspectives by multiple minds for multiple information-generation and applications (Ambrose, 2003; Darwin and palmer; 2009).

Thus, with reference to the empirical results as well as the discussion above it can be concluded that the university teachers in Pakistan perceive the A&M aspect of MO to be substantially important resource for the enhancement of innovation in universities.

At the same time  $H_{2c}$  is also substantially supported by PLS path modeling results ( $\beta=0.572$ ,  $t=10.991$ ,  $p<0.001$ ).  $H_{2c}$  actually hypothesizes the significant positive relationship between the intelligence-generation and responsiveness (IG&R) and the innovation constructs.

Previous literature recognizes that through IG&R, the market-orientation (MO) initially offshoots innovation which ultimately boosts the organizational-performance emerging at higher levels (Ozkaya et al., 2015; Liu,2013; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012). Regarding its impact on innovation various other studies support the notion of generating and capitalizing on the information/intelligence as the core dimension of MO (Atuahene-Gima, 1996; Lukas & Ferrell, 2000; Matear et al., 2002; Agarwal et al., 2003; Leskiewicz & Sandvik, 2003; Hult et al., 2004; Verhees & Meulenberg, 2004; Aldas-Manzano et al., 2005; Kurtinaitiene, 2005). The implementation of innovations is actually facilitated through the formal communication



and mobilization of the market intelligence throughout the organization (Carrillat et al., 2004), which ultimately creates customers' value addition (Rust et al., 2004; Kennedy et al., 2003).

Through the intelligence system of proactive market-orientation which is anticipatory in nature, the organizations can not only recognize the latest market trends but it also enables the organizations to sense the prospect future trends of the emerging markets along with latent customer needs. This would ultimately allow the firms to come up with the radical new products, services, programs to serve these emerging markets better than competitors (Jaworski, et al., 2000; Kumar et al., 2000; Narver et al., 2004; Atuahene-Gima, Slater & Olson, 2005; Slater, Mohr & Sengupta, 1995). The phenomenon of intelligence system through proactive MO allows the organization to be market-driving rather than market-driven, as it enables the organization uplift and better match customer value proposition with its own innovative capabilities (Carrillat et al., 2004). With a capability to change the composition of market structure through their proactive intelligence and consistent innovation, the market-driving organizations can better secure a sustainable competitive advantage (Jaworski et al., 2000; Kumar et al., 2000). An innovative culture which is a prerequisite for a market-driving organization comes as a result of consistent pursuit of innovative market opportunities based on an effective intelligence system (Drucker, 2002; Jaworski et al., 2000; Gatignon & Xuereb, 1997).

Henceforth, the literature support sought for the above hypothesis (H<sub>2a</sub>, H<sub>2b</sub>, and H<sub>2c</sub>), is also evident from the given underpinning theories i.e. RBT as well as OLT. As discussed earlier in detail that the RBV (Penrose, 1959; Rubin, 1973; Mintzberg et al., 1976; Day & Wensley, 1983; Wernerfelt, 1984; Barney, 1991; Day, 1994) which

considers MO (including its dimensions) as the strategic organizational resources that bring about more innovative organizational behavior. Particularly through the proactive aspect of organizations' MO and the consistent learning that brings in more organizational innovation as in the light of OLT (Zaifuddin, 2010; Aragón-Correa et al., 2007; Crossan et al., 1999).

### **5.3.5 Influence of Innovation on University-Performance**

The primary goal of this study is to assess the mediating role of innovation between the relationship between market-orientation (MO) and university-performance. Hence, after assessing the first path of theoretical framework which is from MO to innovation, the assessment of next path is desirable (Kumar, 2015; Baron & Kenny, 1986) which leads from innovation to UP.

It has been expressed earlier that innovation is also one of the organizational strategic resource that fosters new ways to achieve the higher level organizational goals for an improved performance (Ahmed & Othman, 2017; Naranjo-Valencia et al., 2016) for universities as well (Khuwaja et al., 2015; Algarni & Talib, 2014).

Most facets of innovations have a positive link to organizational growth (Danneels & Kleinschmidt, 2001; Zaifuddin, 2010; Ozkaya et al., 2015). The more inimitable and unique are the innovations, the better is the impact on organizational-performance, and the better is the market response as well as the competitive advantage to the organization (Alexander & Yuriy, 2015; García-Morales, Lloréns-Montes & Verdú-Jover, 2008; Hurley & Hult, 1998).

The innovation even in higher education (as described earlier) refers to the new ways of undertaking things, or a change that increases administrative or educational

performance, or a transformational experience based on a new way of thinking (White & Glickman, 2007). But unluckily the public organizations are characterized by the features that hinder innovation, which must be overcome such as, lack of profit motive, risk aversion, obsolete technology and short-term delivery pressure and most importantly the mature-enterprises-malaise (i.e. unwillingness to accept change) (Spellings, 2006; Mulgan & Albury, 2003)

For higher education, the innovation can offer flexibility to enable institutions to adapt more readily in a constantly changing environment, as a means by which colleges and universities can address the concerns typically associated with mature-enterprises-malaise (i.e. unwillingness to accept change) (Spellings, 2006). Universities can also ease the increasing cost pressures and gain efficiencies through better operations and better matching of innovative resources and goals (Donofrio, Sanchez & Spohrer, 2010; Selwyn, Gorard & Williams, 2001).

White and Glickman (2007) assert that focusing on the new technology, the universities need to determine how they can capitalize on innovations in operational and service novelty. Information technology impacts not only the academic content delivery but also subsidiary operations. Institutions that are more prone to change will reap much greater benefits along with a consequent higher ranking and funding.

Today's higher education can also capitalize on the modern IT based innovative application to benefit in the form of "24/7 query response, online curricular programs, , e-portals, virtual courses, technology based delivery mechanisms, support services, synchronized administration and operations through IT packages" (Archibald & Feldman, 2008; Clark, 1996), in order to handle internal and external pressures produced by forces such as rankings and increased

competition for students and faculty as well as by the bodies for regulating and accrediting universities, who expect growing accountability, transparency, and tangible evidence of success (Hoidn & Kärkkäinen, 2014). Innovative institutions are more flexible to adapt more readily in a turbulent environment through better matching and capitalizing on their resources and opportunities from real time problems (Hoidn & Kärkkäinen, 2014).

Furthermore, Donofrio, Sanchez & Spohrer (2010) calls for diversified collaboration to break the pessimism and disciplinary barriers grown in mature institutions. Such a divergent organizational alliance increases the problem-solving and opportunity-hunting capacity of the innovative project (Levinthal & March, 1993).

Henceforth, the objective of next hypothesis (H<sub>3</sub>) is to assess the significant positive relationship between the innovation and the UP constructs in the higher education context of Pakistan. For H<sub>3</sub>, the PLS path modeling result ( $\beta=0.618$ ,  $t=13.16$ ,  $p<0.001$ ) makes it evident that the H<sub>3</sub> has secured a substantial empirical support. Based on above discussion as well as the given results for H<sub>3</sub>, this study signifies that innovation has been considered as a very important organizational resource for the more effective learning phenomenon needed in the universities of developing countries like Pakistan. The outcomes regarding H<sub>3</sub> also appear to be highly in line with the pertinent underpinning resource-based theory (RBT) (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) as well as organizational-learning theory (OLT) (Ozkaya et al., 2015; Aragón-Correa et al., 2007; Crossan et al., 1999).

These results are also significantly compatible to the previous studies from pertinent literature as the above discussion suggests (Alexander & Yuriy, 2015; Agarwal &

Ndubisi, 2014; Akilah, 2012; García-Morales et al., 2008; Grant, 1996; Barrett & Sexton, 2006). Hence, it is the organizational innovation and its implementation that determine the superior level of organizational-performance (Carrillat et al., 2004). Organizational innovation ultimately results in firm's ability to attract more demand for its innovative products/programs and enhance growth (Agarwal & Ndubisi, 2014; Danneels, 2002; Hurley & Hult, 1998). While the organizations that don't encourage proactive innovation in their products and processes, they will face with declining productivity and overall organizational-performance (Loof & Heshmati, 2002). Organizations can generate continued above-average returns resulting from stronger industry position if they can capitalize on innovation to set high level of entry barriers for competitors (Agarwal & Ndubisi, 2014; Porter, 2008; Han et al., 1998; Mitchell, 1990)

Similarly, in the field of education, the innovation brings in new ways of undertaking things that increases administrative or educational performance through a transformational scholastic experience (White & Glickman, 2007; Maglio et al., 2006).

White and Glickman (2007) emphasize that innovative ways of operations have enabled a number of universities to uplift their productivity. Innovative technology based learning can enhance the efficiency and effectiveness in the way students learn and the way professors teach (Culp et al., 2005; Saunders & Klemming, 2003; Poirier & Feldman, 2004; Maki, Maki, Patterson & Whittaker, 2000). For the teachers and learners in 21st century, proficiency in the innovative skills' such as: technical skills, thinking and creativity skills and social/behavioral skills among others is quite indispensable (Barrett & Moore, 2011; Strobel & Barneveld, 2009; Deem et al., 2008; Pascarella et al., 2008). Universities with more innovative approach are able to secure even more financial support from government as well as private sector (Australian

Literacy Testing Centre, 2015; Hoidn & Kärkkäinen, 2014; Hilt, 2012; Looney, 2009; Yonezawa & Kim, 2008).

Therefore, innovation turns out to be a very significant determinant of university-performance not only in developed countries, but the universities even in the developing countries like Pakistan must also develop innovative aptitude among the teaching and learning counterparts in the institutions of higher learning.

### **5.3.6 Mediating Effect of Innovation on Market-Orientation and University-Performance Relationship**

Mediation analysis may be approached in case of dubious or inconsistent direct path of a cause-effect phenomenon due to a certain other unknown occurrence interrupting in between in the form of a mediator that must be accounted for before judging the so-called cause-effect incident (Hair et al., 2014). More simply mediation should be tested if a significant influence is carried out by a third variable i.e. mediator between an independent variable and a dependent variable (Ramayah et al., 2011). Hence, through mediation test one can judge the indirect effect of the predictor variable on the dependent variable intervened by a mediator variable.

Thus based on earlier discussion, it is recognized that despite plenty of evidence for a significant positive relationship between market-orientation (MO) and organizational-performance (Algarni & Talib 2014; Young-Jones et al., 2013; Niculescu et al., 2013; Schroeder, 2012; Zebal & goodwin, 2012; Hashim & Rahim, 2011; Rosing et al., 2011; Morgan et al., 2009), yet a certain proportion of literature extends some sort of discordant findings of either no relationship or negative relationship between the

constructs of interest (Haugland et al., 2007; Shoham, et al., 2006; Menguc & Auh 2006; Johnson & Huizenga, 2001; Hult & Ketchen, 2001; Heiens, 2000).

For example, MO has been condemned for its responsive nature (Narver et al., 2004) which tends to create risk reluctant organizations, unenthusiastic for potential opportunities (Voola & O’Cass, 2010; Slater & Narver, 1995). For the small size or low competition organizations, allocating resources to MO might appear a wasteful spendthrift (Khuwaja et al., 2015; Jaworski & Kohli, 1993). Some of the objective performance indicators are said to accept no statistically significant impact of MO (Hult & Ketchen, 2001). Certain professionals particularly in health industry find themselves in conflict with MO due to their product orientated nature (Zebal & Goodwin, 2012; Hashim & Rahim, 2011; Heiens, 2000; Webb et al., 2000; Whittington & Whip, 1992; Morgan & Pierce, 1991). So, the MO is not always leading to a competitive advantage in all sorts of organizational setups (Menguc & Auh 2006; Johnson & Huizenga, 2001; Heiens, 2000; Day, 1994; Hunt & Morgan, 1995).

In such a case of discordant previous findings, some cornerstone studies by Baron and Kenney (1986), Ramayah et al. (2011) and Hair et al. (2014) propose adoption of some moderating/mediating variable particularly during the investigation of various studies assessing similar kind of relationship, but declaring inconsistent results. Hence, a number of studies suggest the relationship of market-orientation and organizational-performance may be revisited with the presence of innovation as a mediator between them (Khuwaja et al., 2015; Huhtala, 2014; Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010). However, the present empirical support for the MO—innovation—performance chain relationship especially in the context of HE is only a piecemeal (Khuwaja et al., 2015; Algarni & Talib, 2014).

Whereas in the enterprise-setup, the MO is reported to antecede innovation for a better organizational-performance (Huhtala, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010; Menguc & Auh, 2006; Kirca et al., 2005).

Therefore, based on the above summary of debate (as detailed in chapter two), the prime contribution of this study is to assess the mediating role of innovation between MO and university-performance (UP) (and also between the dimensions of MO and UP), in the context of higher education in the developing countries like Pakistan. Accordingly, the next hypothesis (H<sub>4</sub>) to be tested hereby is regarding the mediation of innovation between the MO—UP relationship. It is however important to notice that this analysis goes a step-ahead by separately taking into account the individual dimensions of MO too i.e. tested through the pertinent hypotheses (H<sub>4a</sub>, H<sub>4b</sub> and H<sub>4c</sub>).

Thus, starting further with H<sub>4</sub>, which hypothesizes that innovation mediates the relationship between MO and UP. Hereby the H<sub>4</sub> has been quite substantially supported by the results of PLS path modeling analysis ( $\beta=0.271$ ,  $t=7.241$ ,  $p<0.001$ ). It indicates that the innovation as a mediator provides the right fit in between and explanation of the MO—UP relationship.

These empirical findings are also well-suited to the notion of resource-based theory (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) as well as the organizational-learning theory (OLT) (Ozkaya et al., 2015; Aragón-Correa, García-Morales & Cordon-Pozo, 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986) whereby it has been identified that MO and innovation are significantly recognized by the university teachers as the valuable, rare, inimitable, and non-substitutable (VRIN) resources to cultivate higher level of synergy in UP by innovatively expediting the



organizational-learning phenomenon in the universities of Pakistan (Khuwaja et al. 2015; Algarni & Talib, 2014). The given findings also confirmed the claim by previous literature as detailed earlier that innovation has the potential mediating power between the MO—UP relationship (Huhanta et al., 2014; Algarni & Talib, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Zaifuddin, 2010; Menguc & Auh, 2006).

Zhou et al. (2005) claim that MO and innovation jointly create a progressive heading for any organization. Huhanta et al. (2014) attributes the role of innovation to be very significant supplement to MO particularly in a recessionary business cycle. While, Menguc and Auh (2006) assert that in the long-run, the MO alone may not stay as a VRIN resource for any organization unless it is supplemented/synergized through organizational innovation in order to strengthen the barrier to imitation.

Such notion is quite evident throughout the strategic marketing literature, whereby, even in the mid 80's, Michal Porter emphasized that for a sustainable competitive advantage, "an organization should be a moving target for its competitors by reinvesting in order to continually improve its position (Porter, 1985, p.20). Innovation is recognized as a complimentary transformational resource that takes the organizations away from being stagnant, and enables them for exploration and exploitation of new opportunities for a sustainable growth (Hult & Ketchen, 2001). Rust et al. (2002) infers that if conjoined with innovation, the MO becomes a "monovalent satisfier resource" which enables any organization to exceed customer satisfaction to the level of customer delightedness.

### 5.3.7 Mediating Effect of Innovation on the Relationship between Dimensions of Market-Orientation and University-Performance

Although the above discussion has confirmed the mediation of innovation between the market-orientation (MO) and university-performance (UP) relationship, yet keeping in view the argument presented earlier that separate dimension of any universally-operationalized latent-construct are capable of producing diverse results when tested independently (Umrani, 2016; Ozkaya et al., 2015; Cheng & Krumwiede, 2012; Zaifuddin, 2010; Zahra, 1993). Hence, regarding the construct of MO, similar assertion is extended by Huhalta et al. (2014) particularly in the context of in higher education, Niculescu et al. (2013) also emphasized on assessment of impact of separate dimensions of MO on UP. Thus, for testing the mediation of innovation between the MO–UP relationship, this study has given a particularized attention on the contributory value of each independent MO-dimension i.e. administration-leadership (ADML); advising and mentoring (A&M); and intelligence-generation and responsiveness (IG&R).

As highlighted earlier that in the university context, the given dimensions of MO have been operationalized and validated relatively recently (Hampton, 2007; Hampton et al., 2009; Nichelescu et al., 2013; Khuwaja et al., 2017), so, to the prime contribution of this study is the assessment of innovation as a mediator in the relationship between the given independent MO-dimensions and the UP. In connection to that the next formulated hypotheses are ‘H<sub>4a</sub>, H<sub>4b</sub> and H<sub>4c</sub>’, which hypothesize systematically the mediation of innovation between the separate dimensions of MO and the UP.

The hypothesis H<sub>4a</sub> states that innovation mediates the relationship between the ADML and the UP. The PLS path modeling analysis affirms the support of H<sub>4a</sub> through the established empirical results ( $\beta = 0.043$ ,  $t = 1.758$ ,  $p < 0.05$ ). It means that in the higher education of

Pakistan, innovation is perceived to synergize the impact of ADML dimension of MO significantly and positively on UP. Therefore, the university management must encourage innovation as an augmentation to the administration-leadership of the universities for a better ultimate performance (Rosing, Frese & Bausch, 2011; Marshal & Sharp, 2010; White & Glickman, 2007; Aragón-Correa, García-Morales & Cordón-Pozo, 2007).

This analysis signifies that besides the open-merit appointments of university vice-chancellors/rectors and department-heads in Pakistan, an effective system of skill development and exposure would augment the capabilities of administration-leaders in higher education (Bryman, 2007) that would ultimately impact the university performance positively. Hollenbeck et al. (2006) emphasize on the evidence-based identification of leaders with skills that are associated with superior innovative performance of universities.

The organizational leaders are the indispensable catalysts for engendering innovation into the organizations for a consistent organizational revival (Yukl, 2009; Nemanich & Vera, 2009; Jung et al., 2008; Eisenbeiss et al., 2008; García-Morales et al., 2008). Rather than one particular leadership style, a mutually supportive blend of diverse leadership behaviors is desirable to handle the complexity and velocity of organizational innovation (Harbone & John, 2003; McDonough, 2000; Sethi, 2000). Leaders in knowledge-intensive services (including universities) influence innovative behavior not only by means of formally planned actions, but they also create inspiration for innovation among other employees through their “day-to-day” activities (De Jong & Den Hartog, 2007).

In the same manner, the hypothesis H<sub>4b</sub> regarding the mediation of the innovation between the A&M construct and the UP was also supported with  $\beta=0.38$ ,  $t=1.877$  and  $p<0.05$ . These results also signify the importance of innovation in supplementing the relationship between the A&M and the UP. Thus, the university management does not only need to provide effective A&M to

their constituencies (Lentz & Allen, 2009; Darwin & Palmer, 2009) but it must also synergize the students' performance through innovative mentoring (Hughes, Walsh, Mayer, Bolay & Southard, 2010). Such an innovative mentoring and advising ultimately increases the student satisfaction and retention in the universities (Salinitri, 2005). For example, formulating the mentoring circles for a versatility (Darwin & Palmer, 2009). Moreover, the advising may also be extended not only for academic pursuit but for the personal development as well. As Schroeder (2012) declares that advising has two basic categories: academic advising and developmental advising. The academic (traditional/prescriptive) advisor bridges the university-student gap by sharing and facilitating the mutual expectations, roles and responsibilities by telling simple 'Do's and Don'ts', which seldom allows the formation of a relationship. Whereas the developmental advising is a form of mentorship beyond the university boundary which forms a lasting bond between advisor and advisee to clarify and facilitate the students' overall academic and career success (Salinitri, 2005; Crookston, 1972).

Finally, the hypothesis H<sub>4c</sub>, which predicted the mediation of the innovation between the intelligence-generation & responsiveness (IG&R) construct and the university-performance was also supported by the PLS path modeling results ( $\beta = 0.244$ ;  $t = 6.527$ ,  $p < 0.001$ ), suggesting a strong mediation as proposed earlier. Jimenez-Jimenez, Sanz Valle and Hernandez-Espallardo (2008) however emphasize that although the relationship between MO (as composed of IG&R components) is strongly mediated by innovation, yet the market-oriented organizations must expedite their organizational learning process to further strengthen the impact of MO and innovation on the organizational performance. Hence, the universities in Pakistan could further synergize the IG&R component of MO and the innovation through better organizational learning in order to fulfill the advanced organizational goals. That is exactly in line with the underpinning theories of this study (i.e. RBT and OLT).

These results regarding  $H_{4c}$  are also found to be in line with previous literature because using IG&R component, the MO is said to be complimented by the innovation to synergize for generating a dynamic organizational capability towards enhanced organizational performance (Ndesaulwa & Kikula, 2017; Huhtala, 2014; Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Menguc & Auh, 2006), even in the universities (Algarni & Talib, 2014; Khuwaja et al., 2017).

Hence, the empirical support for, and the supplementing discussion regarding the given hypotheses ' $H_{4a}$ ,  $H_{4b}$  and  $H_{4c}$ ', (pertaining to the mediation of innovation between the separate MO-dimensions and the UP) makes it evident that not only the universal construct of MO but all of its dimensions too are the unique organizational resources/capabilities which generate a synergized effect on UP when complimented by innovation which is another unique organizational resource/capability as detailed and justified in the previous sections.

These empirical findings regarding hypotheses ' $H_{4a}$ ,  $H_{4b}$  and  $H_{4c}$ ' and their support from previous literature also endorse the conformance of results of this study with the pertinent underpinning theories i.e. the resource-based theory (Penrose, 1959; Rubin, 1973; Wernerfelt, 1984) as well as the organizational-learning theory (OLT) (Ozkaya et al., 2015; Aragón-Correa, García-Morales & Cordon-Pozo, 2007), whereby it has been recognized (and justified in detail in the previous discussion) that MO and innovation are the valuable, rare, inimitable, and non-substitutable (VRIN) resources/capabilities that bring in higher level of synergy in teaching and learning phenomenon in universities that are grounded in their knowledge based structure (Liu, 2013; Khuwaja et al. 2015; Algarni & Talib, 2014). Similar notion is extended by Li-Hua, Wilson, Aouad and Li (2011) regarding the improved organizational-learning leading to the improved UP.

## **5.4 Contribution of Study**

In the light of above discussion, a number of theoretical/empirical as well as practical implications can be recognized in this study which are presented ahead.

### **5.4.1 Theoretical contribution**

The theoretical framework of the current study was laid down on the basis of empirical evidences and theoretical gaps identified in the literature. The support and explanation for the given framework was drawn from two theoretical perspectives that is firstly the resource-based theory (RBT) and secondly the organizational-learning theory (OLT). In this study, the innovation was included as a mediating variable to better comprehend and explain the relationship between the market-orientation (MO) and the university-performance (UP).

The theoretical implications of this study come-up in the form of additional empirical evidence established on RBT (Penrose, 1959; Wernerfelt, 1984; Barney, 1991) as well as OLT (Aragón-Correa et al., 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986). The RBT posits that success of an organization is mainly determined by its internal “valuable, rare, inimitable, and non-substitutable” (VRIN) resources in the form of assets or capabilities, whereby these resources/capabilities could be tangible or intangible assets (Kozlenkova et al., 2014; Fang et al., 2014; Collis, 1994), while the capabilities are the accumulated intangible skill-sets or knowledge resources (Teece, Pisano & Shuen, 1997; Umrani, 2016). Such knowledge resources are developed and refined by means of internal-innovative-mechanism for organizational-learning (Jimenez-Jimenez et al., 2008).

Hence, in accordance with the OLT (Aragón-Correa et al., 2007; Crossan et al., 1999; Nonaka & Takeuchi, 1995; Sullivan & Nonaka, 1986) the process of organizational-learning enables the organizations including universities to gradually learn about and develop VRIN sort of resources and capabilities like MO and innovation for a competitive advantage (Khuwaja et al. 2017; Jimenez-Jimenez et al., 2008; Menguc & Auh, 2006). Thus, the empirical findings of this study extend the pertinent literature of RBT as well as OLT by further establishing that the ‘MO, its dimensions and innovation’ are the VRIN organizational resource/capabilities that bring in more organizational competence and competitive advantage for higher-education-institutions (HEIs) (Menguc & Auh, 2006; Jimenez-Jimenez et al., 2008; Algarny & Talib, 2014).

The present study also attempted to test the mediating role of innovation on the MO—UP relationship because some previous studies reported the conflicting findings regarding MO—UP relationship (Voola & O’Cass, 2010; Haugland et al., 2007; Shoham et al., 2006; Menguc & Auh 2006; Narver et al., 2004; Johnson & Huizenga, 2001; Hult & Ketchen, 2001; Heiens, 2000). The present study therefore secured enough justification towards incorporating a mediating variable.

Hence, the prime theoretical contribution of the present study is the attempts to fill the recognized literature gaps by incorporating innovation as a mediating variable for enhancing the comprehension about the impact of not only context-specific MO but its dimensions as well on the UP in Pakistan. In the light of resource-based theory (RBT), the research findings suggested that the MO and its dimensions are mediated significantly by innovation for a more positive influence on UP, thus lending enough empirical evidence in support of the theory. Based on these findings it can be asserted that it is not only MO that explains UP but the mediation of innovation as well plays a substantial role in explaining university-performance.

This study has further extended the theoretical implications by providing additional empirical evidence in the domain of organizational-learning theory (OLT). The OLT postulates that organizations are the learning and adjusting structure, through incremental goals as ambitions, and through ongoing adaptation of conventions and standard operating procedures for making decisions (Hirschman & Lindblom, 1962; Cyert & March 1963; Cangelosi, 1965). Hence, the market-orientated organizations are said to have a gradual learning system that cultivates in the innovative endeavors for incremental value propositions by the organizations (universities) (Altuntaş et al., 2013; Cheng & Krumwiede, 2012; Modi, 2012; Algarni & Talib 2014; Jimenez-Jimenez et al., 2008). Marke-oriented organizations can further enhance innovation by emphasizing on and expediting the use of information/intelligence as well as their consistent learning phenominon, after they find the latent needs of the customer (Narver et al., 2004; Atuahene-Gima, 1995), because customers have difficulties articulating their latent needs beyond current consumption experiences (Christensen et al., 2005). Organizational-learning based on market intelligence is the basis for organizational innovation (Ozkaya et al., 2015; Hunt, 2002). Hunt (2002) and Hurley and Hult (1998) emphasize that the communication networks equipped with effective intelligence system offshoot the organizational-learning and innovation capacity resulting into the attainment of differential advantage.

Henceforth, the present study extends enough knowledge contribution to the RBT as well as OLT by adding-on with the more context-specific aspects of MO (and its dimensions), empirically tested with mediation of innovation for a better organizational-performance in the context of HEIs of Pakistan. So, this study could potentially serve as the basis for future researchers in the pertinent areas on market-orientation, university-performance as well as innovation.



#### 5.4.2 Practical contribution

This study draws attention of managers and offers practical implications by highlighting the overall perception and attitude of the university teachers with regard to market-orientation (MO) practices of universities. Hence, numerous practical understandings for the higher education practitioners and the pertinent regulatory authorities in Pakistan as well as in other developing countries may be inferred from the underlying study.

One of the top-most objectives of the national education policies (NEP) since 1998 and Education for All (EFA) is “increasing enrolment and retention as well as enhancing education budget” (Government of Pakistan, 2015, p.7), which is quite compatible to the results of this study which advocates the “innovation and the various aspects of MO” to be the important resources for universities in fulfilment of the given objective/s. The findings of this study are very much in line with “Pakistan Higher Education Commission Vision (PHECV)-2025” (Taylor, 2017; GOP, 2017), which suggests that the modern market-based research and innovation practices are the indispensable considerations for universities in Pakistan to achieve the PHECV-2025 goals, as the previous studies also support the same notion (Algarny & Talib, 2014). Hence, the federal ministry of education may incorporate the findings of this study to synchronize the objectives of next “EFA-plan” (Government of Pakistan, 2015) in order to further facilitate “Pakistan Higher Education Commission Vision 2025” for better results (Taylor, 2017).

Additionally, this study has also recognized that, as the previous literature supports the relationship between the administration-leadership (ADML) and the organizational-performance (Alexander & Yuriy, 2015; García-Morales et al., 2008)

but the current study had the discordant findings regarding the pertinent hypothesis (H<sub>2a</sub>), which may also be turned-around by adopting the “Leadership-Excellence” in the universities (Hoodbhoy, 2011; Taylor, 2017). It requires that the appointment of Vice-Chancellors and departmental-heads must be made by ‘Merit based Search Committees’ that must make such appointments apolitically i.e. based on excellence only (Taylor, 2017). This will ultimately support the fulfilment of Pakistan Higher Education Commission Vision 2025 (Government of Pakistan, 2017).

Furthermore, to stay more proactive, using the pertinent results of this study supporting H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>2c</sub>, and H<sub>4c</sub>, the universities must adopt an updated communication mechanism of organizational-learning for a proactive-recognition and effective-fulfillment of expressed market-needs (Fang et al., 2014; Niculescu et al., 2013; Altuntaş et al., 2013), as well as the latent market needs (Narver et al., 2004). Thus, it is not only the students (basic customers), rather the multiple constituencies of universities that are going to benefit with innovative market-oriented universities (Mainaides et al., 2014; DiAConu & PANDEIICă, 2012). The proactive nature of MO allows universities to stay ahead, corresponding with the future market dynamics (Narver et al., 2004). In the contemporary arena of resource scarcity, the adoption of MO and innovation also help universities reveal variety of sources for attracting tangible as well as intangible resources (Mainardes et al., 2014; Olavarrieta & Friedmann, 2008; Padanyi & Gainer, 2004)

Besides that, the results of this study also support the notion that innovation is a critical component that could potentially enhance the university-performance particularly when blended with market-orientation (MO) as a mediator. Hence, matching with the arguments by the resource-based theory (Penrose, 1959;

Wernerfelt, 1984; Barney, 1991), which assumes that MO and innovation have turned out to be very productive and unique organizational resources/capabilities to be capitalized on by the universities (Huhtala, 2014; Algarny & Talib, 2014).

Universities particularly in Pakistan therefore need to put considerable efforts to maximize their performance by fostering the overall MO and innovation at all levels of organization (Taylor, 2017; Khuwaja et al., 2015; Neculescu et al., 2013; Algarney & Talib, 2014).

Although the prime focus of this study is the service sector particularly the public universities of Pakistan, yet the socio-cultural and economical similarities also allow the generalization of current findings to the other developing countries, private universities as well as to the enterprise context.

Based on the PLS path modeling results, and the detailed literature review, the list of beneficiaries of this study can be extended not only to the higher education administrating authorities and policy makers (i.e. Ministry of Education - government of Pakistan, HEC Pakistan, Chancellors, Vice Chancellors, Rectors & concerned Deans of the universities); rather a number of other constituencies including i) internal/external stake holders (i.e. students' parents, legislators, donors, employers/corporations and the overall public); ii) university staff and Students; iii) researchers and scholars among others may also capitalize on the pertinent results of this study for better deciding on the choice of a particular university to coordinate and the level of necessary coordination by the respective stake holders.

## 5.5 Limitations and Future Research Directions

Beside support of a good number of hypotheses with the robust results in the present study, it is yet essential to interpret those findings in-line with the limitations of the study.

This study focuses on the teachers as the sampling unit on the basis of previous literature (Hampton, 2007; Flavian & Lozano, 2007; Mitra, 2009; Hampton et al., 2009; Hampton et al. 2009; Rivera-Camino & Ayala, 2010; Zebal & Goodwin, 2012; Niculescu et al., 2013; Felgueira & Rodrigues, 2013; Mokoena & Dhurup, 2016) whereas, a number of other stakeholders (Mainaides, Raposo & Alves, 2014; DiAConu & PANDEIICă, 2012; Pavičić et al., 2009) may also be taken into account by the future researchers for the same purpose.

For this study, a cross-sectional mechanism has been adopted which inhibited this research to draw casual inferences from the given population cohort over a long time. Thus, such issue may be resolved through a longitudinal design of any pertinent future study to test the theoretical body of the constructs over a longer period of time for responsive confirmation of the postulated relationships of the current study.

Moreover, this study has tried to assess the application of given variables (MO and innovation) for the performance of only public-sector universities of Pakistan which may leave space for a similar study in private HEIs as well as in other commercial sectors, even in production of goods and other services besides higher education.

Besides that, based on literature support, only few academic and administrative aspects of university-performance (comprising three major elements such as overall university-performance, funding and the student retention and recruitment) are taken into account

for this study, whereas the analysis of a number of other components of university-performance by future researchers such as Spin offs, Corporate trainings/workshops/conferences, accreditation/indexing, academic/industrial research, graduates' employability, and any other relevant products/services may add further value to it.

Finally, this study is purely quantitative in nature, therefore a triangulation or a pure qualitative study by future researchers may also be designed to examine the determinants of university-performance.

## **5.6 Conclusion**

By supporting key theoretical propositions through its findings, the current study provides an additional evidence towards the expanding consortium pertaining to the mediating function of innovation on the market-orientation (MO) and university-performance (UP) relationship.

Despite some of its limitations, the current study has gone to the level best to answer all the research questions and achieve all the pertinent objectives successfully. Whilst, several studies have examined the MO—UP relationship, the current study tried to tackle the theoretical gap in the context of higher education of Pakistan by recognizing innovation as a significantly mediating variable through enough theoretical and empirical support provided successfully.

The theoretical framework of the present study has potentially added to the pertinent theories such as resource-based theory (RBT) and organizational-learning theory (OLT) by theoretically and empirically examining the influence of innovation on the relationships between MO, its dimension and university-performance. Additionally, the

present study also provides some of the crucial practical implications to the university management and their regulatory authorities. Furthermore, drawing upon the limitations of current study, several avenues for future research have been pointed out. In conclusion, the present study adds on several valuable theoretical, practical, and methodological outputs to the emerging body of knowledge in the field of marketing, entrepreneurship, strategic management, and higher education.



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## Appendix 1: The Questionnaire



### SURVEY OF HIGHER EDUCATION INSTITUTIONS (HEIs) IN PAKISTAN

Please take 15-20 minutes for your valuable contribution to fill this PhD Survey Study form (with anticipatory Thanks). **Your honest responses** are highly desirable and appreciated. All responses will be surely kept confidential.

  
**Faiz Muhammad Khawaja,**

College of Business, UUM

email: [faiz@iba-suk.edu.pk](mailto:faiz@iba-suk.edu.pk)

Cell No: +923332186819

#### SECTION A: Some necessary demographic information of the respondents.

Please fill in or put a tick mark (✓) in the appropriate boxes

##### I. Job title

- Teacher
- Teacher and Administrator

##### II. Gender

- Male
- Female

##### III. Age groups

- 30 years and below
- 31-40
- 41-50
- 51-60
- Above 60

##### IV. Academic qualification

- Bachelors
- Masters
- PhD

##### V. Work experience in higher education

- 10 years and below
- 11-20
- 21-30
- 31-40
- 41-50
- Above 50

##### VI. Age of your institution

- 10 years and below
- 11-20
- 21-30
- 31-40
- 41-50
- Above 50

## SECTION B: MARKET ORIENTATION

**NOTE:** This Section is **related to student services** at your university. Using the 1 to 5 point scale below [1= strongly disagree to 5=strongly agree], please indicate your agreement with each item by pointing out the appropriate number that reflects how you feel.

S.N	Statement	Str. Agree	Agree	Neutral	Disagree	Str. Disagree
<b>Factor B1: Students' Advising and Mentoring</b>						
1.	In my interaction with students, I always try to determine their academic needs.	5	4	3	2	1
2.	I try to help students get an accurate expectation of what our programs will do for them.	5	4	3	2	1
3.	I am open to disagree with students' arguments if necessary, in order to help them make a better decision.	5	4	3	2	1
4.	I try to match student's educational needs with given course contents that best suit them.	5	4	3	2	1
5.	I always try to answer students' questions about our courses /services as correct as I can.	5	4	3	2	1
6.	I suggest a program composed of the courses that best suit the students' needs.	5	4	3	2	1
<b>Factor B2: Administration-leadership</b>						
7.	My department head asks for, and considers, my ideas about improving the quality of our services for students.	5	4	3	2	1
8.	My department head frequently gives me honest and direct feedback about how well I am serving students.	5	4	3	2	1
9.	My department head seeks opportunities to try new ways of doing things to serve students better.	5	4	3	2	1
10.	I know what my department head expects of me in serving students.	5	4	3	2	1
11.	My boss makes efforts to remove obstacles that hinder serving students well.	5	4	3	2	1
12.	My department head helps me learn from experiences with students (both good or bad).	5	4	3	2	1
<b>Factor B 3: Intelligence-Generation and Responsiveness</b>						
13.	We regularly ask our students about their needs, wants, and expectations.	5	4	3	2	1
14.	We survey our students regularly to assess their academic needs.	5	4	3	2	1
15.	Information from student surveys are regularly used to improve our services.	5	4	3	2	1
16.	We meet with employers of our students at least once a year to find out what courses or services they think students will need in future.	5	4	3	2	1
17.	We survey industry at least once a year to assess quality of our courses and services.	5	4	3	2	1
18.	Data on student satisfaction are regularly disseminated at all levels in this university.	5	4	3	2	1
19.	Data on industry satisfaction with our graduates are disseminated at all levels in this university on a regular basis.	5	4	3	2	1
20.	We periodically review our course development phenomenon to ensure that the courses are in line with what the industry wants.	5	4	3	2	1
21.	Our university actively searches for the information on potential fundraising opportunities for the consistent and sustainable delivery of quality services.	5	4	3	2	1
22.	Our university seeks a regular feedback to gauge and improve funders' satisfaction level	5	4	3	2	1

## SECTION C: INNOVATION

**INSTRUCTIONS:** In this section, we want you to gauge “how innovative your university is in serving its clients”, by pointing out the appropriate number in the given scale below [1= strongly disagree to 5=strongly agree] that reflects exactly how you feel.

S.N	Statement	Str. Agree	Agree	Neutral	Disagre	Str. Disagree
1.	Our university has adequate means for gaining access to the new/updated technologies in order to facilitate the teaching/learning process	5	4	3	2	1
2.	Our university has an adequate capacity to bring in new knowledge (through faculty training and development), for offering new programs and improved services.	5	4	3	2	1
3.	Our university has made major changes to courses/programs offered in last few years	5	4	3	2	1
4.	Our university has made major changes to the overall curriculum in last few years	5	4	3	2	1
5.	Our university has a high capability to identify the innovative strategy of competitors	5	4	3	2	1
6.	Our university has an adequate capability to identify students’ needs/wants and to respond them accordingly (with popular courses/programs and facilities offered).	5	4	3	2	1
7.	Our university has an adequate capability to identify industry/employers’ needs and to respond them accordingly (with real-time, case based education services).	5	4	3	2	1
8.	Our university has an adequate capability to identify funders’ needs/wants and to respond them accordingly (through more desirable courses/programs and projects).	5	4	3	2	1
9.	Our university has a tendency to engage in strategic planning activities.	5	4	3	2	1
10.	Our university/Department has an adequate capability to make our vision a reality.	5	4	3	2	1
11.	Our university has an adequate capability to identify new opportunities.	5	4	3	2	1
12.	Our university has an adequate level of overall innovation.	5	4	3	2	1

## SECTION D: UNIVERSITY PERFORMANCE

**INSTRUCTIONS:** In this section, we want you to gauge the performance of your university/Department on the given scale of 1 to 5 points [1=very poor to 5=very good] in the last five years. We appreciate your honest answers.

S. N	Statements	Very good	Good	Neutral	Poor	Very poor
<b>Factor D1: Overall Performance</b>						
1.	The overall performance of this university in the last five years has been:	5	4	3	2	1
2.	Performance of this university in creating student satisfaction in last five years has been:	5	4	3	2	1
3.	The level of student services provided by this university in the last five years has been:	5	4	3	2	1
4.	Progress of this university regarding resource commitment, in the last five years has been:	5	4	3	2	1
5.	The level of cost effectiveness achieved by this university in the last five years has been:	5	4	3	2	1
<b>Factor D 2: Funding</b>						
1.	The overall ability of this university to raise funds in last five years has been:	5	4	3	2	1
2.	The overall ability of this university to obtain research grants in last five years has been:	5	4	3	2	1
3	The overall ability of this university to obtain development grants in last five years has been:	5	4	3	2	1
4	Overall ability of this university to obtain grants for poor students in last five years has been:	5	4	3	2	1
5	The overall ability of this university to obtain community development grants in last five years has been:	5	4	3	2	1
<b>Factor D 3: Retention and recruitment</b>						
1.	The performance of this university to retain students as majors over last five years has been:	5	4	3	2	1
2.	The performance of this university to recruit students as majors in last five years has been:	5	4	3	2	1
3.	The ability of this university to increase graduation rates in last five years has been:	5	4	3	2	1

**Thank you very much for your valuable contribution .....**

## Appendix 2: HEC Recognized Universities/Degree Awarding Institutions in Pakistan

### A) PUBLIC SECTOR UNIVERSITIES/DEGREE AWARDING INSTITUTIONS

#### i) Universities/DAIs chartered by the Central Government of Pakistan

S. No	University/DAI Name	Main Campus Location	Website Address
1	Air University, Islamabad	Islamabad	www.au.edu.pk
2	Allama Iqbal Open University, Islamabad (AIOU)	Islamabad	www.aiou.edu.pk
3	Bahria University, Islamabad	Islamabad	www.bahria.edu.pk
4	COMSATS Institute of Information Technology, Islamabad	Islamabad	www.ciit.edu.pk
5	Dawood University of Engineering & Technology, Karachi	Karachi	www.dcet.edu.pk
6	Federal Urdu University of Arts, Sciences & Technology, Islamabad	Islamabad	www.fuuast.edu.pk
7	Institute of Space Technology, Islamabad (IST)	Islamabad	www.ist.edu.pk
8	International Islamic University, Islamabad	Islamabad	www.iiu.edu.pk
9	Karakorum International University, Gilgit, Gilgit Baltistan	Gilgit	www.kiu.edu.pk
10	National College of Arts, Lahore (NCA)	Lahore	www.nca.edu.pk
11	National Defense University, Islamabad (NDU)	Islamabad	www.ndu.edu.pk
12	National Textile University, Faisalabad	Faisalabad	www.ntu.edu.pk
13	National University of Modern Languages, Islamabad (NUML)	Islamabad	www.numl.edu.pk
14	National University of Sciences & Tech, Rawalpindi/ Islamabad (NUST)	Islamabad	www.nust.edu.pk
15	NFC Institute of Engineering & Technology, Multan	Multan	www.nfciet.edu.pk
16	Pakistan Institute of Development Economics (PIDE), Islamabad	Islamabad	www.pide.org.pk
17	Pakistan Institute of Engineering & Applied Sciences, Islamabad (PIEAS)	Islamabad	www.pieas.edu.pk
18	Pakistan Institute of Fashion and Design, Lahore	Lahore	www.pifd.edu.pk
19	Pakistan Military Academy, Abbottabad	Abbottabad	Not Available
20	Pakistan Naval Academy, Karachi	Karachi	www.paknavy.gov.pk
21	Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad	Islamabad	www.szabmu.edu.pk
22	Quaid-i-Azam University, Islamabad	Islamabad	www.qau.edu.pk
23	University of FATA, Kohat	Kohat	under construction
24	Virtual University of Pakistan, Lahore	Lahore	www.vu.edu.pk

**ii) Universities/DAIs chartered by Government of the Punjab**

S. No	University/DAI Name	Main Campus Location	Website Address
1	Bahauddin Zakariya University, Multan	Multan	www.bzu.edu.pk
2	Fatima Jinnah Women University, Rawalpindi	Rawalpindi	www.fjwu.edu.pk
3	Government College University, Faisalabad	Faisalabad	www.gcuf.edu.pk
4	Government College University, Lahore	Lahore	www.gcu.edu.pk
5	Government College for Women University, Faisalabad	Faisalabad	www.gcuf.edu.pk
6	Government College Women University, Sialkot	Sialkot	www.gcwus.edu.pk
7	Ghazi University, Dera Ghazi Khan	Dera Ghazi Khan	www.ghaziuniversity.edu.pk
8	Government Sadiq College Women University, Bahawalpur	Bahawalpur	www.gscwu.edu.pk
9	Islamia University, Bahawalpur	Bahawalpur	www.iub.edu.pk
10	Information Technology University of the Punjab, Lahore	Lahore	www.itu.edu.pk
11	King Edward Medical University, Lahore	Lahore	www.kemu.edu.pk
12	Kinnaird College for Women, Lahore	Lahore	www.kinnaird.edu.pk
13	Lahore College for Women University, Lahore	Lahore	www.lcwu.edu.pk
14	Muhammad Nawaz Shareef University of Agriculture, Multan	Multan	www.mnsuam.edu.pk
15	Pir Mehr Ali Shah Arid Agriculture, University Rawalpindi	Rawalpindi	www.uaar.edu.pk
16	University of Agriculture, Faisalabad	Faisalabad	www.uaf.edu.pk
17	University of Education, Lahore	Lahore	www.ue.edu.pk
18	University of Engineering & Technology, Lahore	Lahore	www.uet.edu.pk
19	University of Engineering & Technology, Taxila	Taxila	www.uettaxila.edu.pk
20	University of Gujrat, Gujrat	Gujrat	www.uog.edu.pk
21	University of Health Sciences, Lahore	Lahore	www.uhs.edu.pk
22	University of Sargodha, Sargodha	Sargodha	www.uos.edu.pk
23	University of the Punjab, Lahore	Lahore	www.pu.edu.pk
24	University of Veterinary & Animal Sciences, Lahore	Lahore	www.uvas.edu.pk
25	The Women University, Multan	Multan	www.wum.edu.pk

**iii) Universities/DAIs chartered by Government of Sindh**

S. No	University/DAI Name	Main Campus Location	Website Address
1	Benazir Bhutto Shaheed University Lyari, Karachi	Karachi	www.bbsul.edu.pk
2	DOW University of Health Sciences, Karachi	Karachi	www.duhs.edu.pk

3	Gambat Institute of Medical Sciences, Khairpur	Khairpur	under construction
4	Institute of Business Administration, Karachi	Karachi	www.iba.edu.pk
5	Jinnah Sindh Medical University	Karachi	www.jsmu.edu.pk
6	Liaquat University of Medical and Health Sciences, Jamshoro Sindh.	Jamshoro	www.lumhs.edu.pk
7	Mehran University of Engineering & Technology, Jamshoro	Jamshoro	www.muett.edu.pk
8	NED University of Engineering & Technology, Karachi	Karachi	www.neduet.edu.pk
9	Peoples University of Medical and Health Sciences for Women, Nawabshah (Shaheed Benazirabad)	Nawabshah	www.pumhs.edu.pk
10	Quaid-e-Awam University of Engineering, Sciences & Technology, Nawabshah	Nawabshah	www.quest.edu.pk
11	Shah Abdul Latif University, Khairpur	Khairpur	www.salu.edu.pk
12	Shahaeed Mohtarma Benazir Bhutto Medical University, Larkana	Larkana	www.smbbmue.edu.pk
13	Sindh Agriculture University, Tandojam	Tandojam	www.sau.edu.pk
14	Sukkur Institute of Business Administration, Sukkur	Sukkur	www.iba-suk.edu.pk
15	Sindh Madresatul Islam University, Karachi	Karachi	www.smiu.edu.pk
16	Shaheed Benazir Bhutto University Shaheed Benazirabad	Nawabshah	www.sbbusba.edu.pk
17	Shaheed Zulfiqar Ali Bhutto University of Law, Karachi	Karachi	www.szabl.edu.pk
18	University of Karachi, Karachi	Karachi	www.uok.edu.pk
19	University of Sindh, Jamshoro	Jamshoro	www.usindh.edu.pk
20	Pakistan Naval Academy, Karachi	Karachi	www.paknavy.gov.pk
21	Dawood University of Engineering & Technology, Karachi	Karachi	www.dcet.edu.pk

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**iv) Universities/DAIs chartered by Government of Khyber Pakhtoonkhwa**

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S. No	University/DAI Name	Main Campus Location	Website Address
1	Abdul Wali Khan University, Mardan	Mardan	www.awkum.edu.pk
2	Bacha Khan University, Charsadda	Charsadda	www.bkuc.edu.pk/
3	Shaheed Benazir Bhutto Women University, Peshawar	Peshawar	www.fwu.edu.pk
4	Gomal University, D.I. Khan	D.I.Khan	www.gu.edu.pk/
5	Hazara University, Dodhial, Mansehra	Manshera	www.hu.edu.pk/
6	Institute of Management Science, Peshawar (IMS)	Peshawar	www.imsciences.edu.pk
7	Islamia College, Peshawar	Peshawar	www.icp.edu.pk
8	Khyber Medical University, Peshawar	Peshawar	www.kmu.edu.pk

9	Kohat University of Science and Technology, Kohat	Kohat	www.kust.edu.pk
10	Khushal Khan Khattak University, Karak	Karak	Under construction
11	Khyber Pakhtunkhwa Agricultural University, Peshawar	Peshawar	www.aup.edu.pk
12	University of Engineering & Technology, Peshawar	Peshawar	www.uetpeshawar.edu.pk
13	Shaheed Benazir Bhutto University, Sheringal, Dir	Dir	www.sbbu.edu.pk
14	University of Malakand, Chakdara, Dir, Malakand	Malakand	www.uom.edu.pk
15	University of Peshawar, Peshawar	Peshawar	www.upesh.edu.pk
16	University of Science & Technology, Bannu	Bannu	www.ustb.edu.pk
17	University of Swat, Swat	Swat	www.swatuniversity.edu.pk
18	University of Haripur, Haripur	Haripur	www.uoh.edu.pk
19	University of Swabi	Swabi	www.uoswabi.edu.pk/

#### v) Universities/DAIs chartered by Government of Balochistan

S. No	University/DAI Name	Main Campus Location	Website Address
1	Balochistan University of Engineering & Technology, Khuzdar	Khuzdar	buetk.edu.pk
2	Balochistan University of Information Technology & Management Sciences, Quetta	Quetta	www.buitms.edu.pk
3	Lasbela University of Agriculture, Water and Marine Sciences	Lasbela	www.luawms.edu.pk
4	Sardar Bahadur Khan Women University, Quetta	Quetta	www.sbkwu.edu.pk
5	University of Balochistan, Quetta	Quetta	www.uob.edu.pk
6	University of Turbat, Turbat	Turbat	www.uot.edu.pk

#### vi) Universities/DAIs chartered by Government of Azad Jammu & Kashmir

S. No	University/DAI Name	Main Campus Location	Website Address
1	Mirpur University of Science and Technology (MUST), AJ&K	Mirpur	www.must.edu.pk
2	University of Azad Jammu & Kashmir, Muzaffarabad, Azad Kashmir, Muzaffarabad	Muzaffarabad	www.ajku.edu.pk
3	University of Poonch, Rawalakot	Rawalakot	www.upr.edu.pk
4	Women University of Azad Jammu and Kashmir Bagh	Bagh	under construction
5	University of Management Sciences and Information Technology, Kotli	Kotli	under construction



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**B) PRIVATE SECTOR UNIVERSITIES/DEGREE AWARDING INSTITUTIONS****i) Universities/DAIs chartered by the Central Government of Pakistan**

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S. No	University/DAI Name	Main Campus Location	Website Address
1	Aga Khan University, Karachi	Karachi	www.aku.edu
2	Foundation University, Islamabad	Islamabad	www.fui.edu.pk
3	Lahore University of Management Sciences (LUMS), Lahore	Lahore	www.lums.edu.pk
4	National University of Computer and Emerging Sciences, Islamabad	Islamabad	www.nu.edu.pk
5	Riphah International University, Islamabad	Islamabad	www.riphah.edu.pk
6	Shifa Tameer-e-Millat University, Islamabad	Islamabad	www.stmu.edu.pk

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**ii) Universities/DAIs chartered by Government of the Punjab**

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S. No	University/DAI Name	Main Campus Location	Website Address
1	Ali Institute of Education	Lahore	www.aie.edu.pk
2	Beaconhouse National University, Lahore	Lahore	www.bnu.edu.pk
3	Forman Christian College, Lahore (university status)	Lahore	www.fccollege.edu.pk
4	Global Institute, Lahore	Lahore	www.global.edu.pk
5	Hajvery University, Lahore	Lahore	www.hajvery.edu.pk
6	HITEC University, Taxila	Taxila	www.hitecuni.edu.pk
7	Imperial College of Business Studies, Lahore	Lahore	www.imperial.edu.pk
8	Institute of Management Sciences, Lahore	Lahore	www.pakaims.edu.pk
9	Institute of Southern Punjab, Multan	Multan	www.usp.edu.pk
10	Lahore Leads University, Lahore	Lahore	www.leads.edu.pk
11	Lahore School of Economics, Lahore	Lahore	www.lahoreschoolofeconomics.edu.pk
12	Lahore Garrison University, Lahore	Lahore	www.lgu.edu.pk
13	Minhaj University, Lahore	Lahore	www.mul.edu.pk
14	National College of Business Administration & Economics, Lahore	Lahore	www.ncbae.edu.pk
15	Nur International University, Lahore	Lahore	Under construction
16	Qarshi University	Lahore	www.qu.edu.pk
17	The GIFT University, Gujranwala	Gujranwala	www.gift.edu.pk
18	The Superior College, Lahore	Lahore	www.superior.edu.pk
19	The University of Faisalabad, Faisalabad	Faisalabad	www.tuf.edu.pk
20	University of Central Punjab, Lahore	Lahore	www.ucp.edu.pk
21	University of Lahore, Lahore	Lahore	www.uol.edu.pk
22	University of Management & Technology, Lahore	Lahore	www.umt.edu.pk
23	University of South Asia, Lahore	Lahore	www.usa.edu.pk
24	University of Wah, Wah	Wah	www.uw.edu.pk

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**iii) Universities/DAIs chartered by Government of Sindh**

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S. No	University/DAI Name	Main Campus Location	Website Address
1	Baqai Medical University, Karachi	Karachi	<a href="http://www.baqai.edu.pk">www.baqai.edu.pk</a>
2	Commecs Institute of Business & Emerging Sciences, Karachi	Karachi	<a href="http://www.commecsintstitute.edu.pk">www.commecsintstitute.edu.pk</a>
3	Dadabhoy Institute of Higher Education, Karachi	Karachi	<a href="http://www.dadabhoy.edu.pk">www.dadabhoy.edu.pk</a>
4	DHA Suffa University, Karachi	Karachi	<a href="http://www.dsu.edu.pk">www.dsu.edu.pk</a>
5	Greenwich University, Karachi	Karachi	<a href="http://www.greenwichuniversity.edu.pk">www.greenwichuniversity.edu.pk</a>
6	Hamdard University, Karachi	Karachi	<a href="http://www.hamdard.edu.pk">www.hamdard.edu.pk</a>
7	Habib University, Karachi	Karachi	<a href="http://www.habib.edu.pk">www.habib.edu.pk</a>
8	Indus University, Karachi	Karachi	<a href="http://www.indus.edu.pk">www.indus.edu.pk</a>
9	Indus Valley School of Art and Architecture, Karachi	Karachi	<a href="http://www.indusvalley.edu.pk">www.indusvalley.edu.pk</a>
10	Institute of Business Management, Karachi	Karachi	<a href="http://www.iobm.edu.pk">www.iobm.edu.pk</a>
11	Institute of Business and Technology, Karachi	Karachi	<a href="http://www.biztek.edu.pk">www.biztek.edu.pk</a>
12	Iqra University, Karachi	Karachi	<a href="http://www.iqra.edu.pk">www.iqra.edu.pk</a>
13	Isra University, Hyderabad	Hyderabad	<a href="http://www.isra.edu.pk">www.isra.edu.pk</a>
14	Jinnah University for Women, Karachi	Karachi	<a href="http://www.juw.edu.pk">www.juw.edu.pk</a>
15	Karachi Institute of Economics & Technology, Karachi	Karachi	<a href="http://www.pafkiet.edu.pk">www.pafkiet.edu.pk</a>
16	KASB Institute of Technology, Karachi	Karachi	<a href="http://www.kasbit.edu.pk">www.kasbit.edu.pk</a>
17	Karachi School for Business & Leadership	Karachi	<a href="http://www.ksbl.edu.pk">www.ksbl.edu.pk</a>
18	Muhammad Ali Jinnah University, Karachi	Karachi	<a href="http://www.jinnah.edu">www.jinnah.edu</a>
19	Newport Institute of Communications & Economics, Karachi	Karachi	<a href="http://www.newports.edu.pk">www.newports.edu.pk</a>
20	Preston Institute of Management, Science and Technology, Karachi	Karachi	<a href="http://pimsat-khi.edu.pk">pimsat-khi.edu.pk</a>
21	Preston University, Karachi	Karachi	<a href="http://www.preston.edu.pk">www.preston.edu.pk</a>
22	Shaheed Zulfikar Ali Bhutto Institute of Sc. & Technology (SZABIST), Karachi	Karachi	<a href="http://www.szabist.edu.pk">www.szabist.edu.pk</a>
23	Shaheed Benazir Bhutto City University, Karachi	Karachi	<a href="http://www.sbbcu.edu.pk">www.sbbcu.edu.pk</a>
24	Sir Syed University of Engg. & Technology, Karachi	Karachi	<a href="http://www.ssuet.edu.pk">www.ssuet.edu.pk</a>
25	Sindh Institute of Medical Sciences, Karachi	Karachi	<a href="http://www.siut.org">www.siut.org</a>
26	Textile Institute of Pakistan, Karachi	Karachi	<a href="http://www.tip.edu.pk">www.tip.edu.pk</a>
27	Nazeer Hussain University, Karachi	Karachi	<a href="http://www.nhu.edu.pk">www.nhu.edu.pk</a>
28	Zia-ud-Din University, Karachi	Karachi	<a href="http://www.zu.edu.pk">www.zu.edu.pk</a>
29	Shaheed Benazir Bhutto Dewan University, Karachi	Karachi	

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**iv) Universities/DAIs chartered by Government of Khyber Pakhtoonkhwa**

S. No	University/DAI Name	Main Campus Location	Website Address
1	Abasyn University, Peshawar	Peshawar	www.abasyn.edu.pk
2	CECOS University of Information Technology and Emerging Sciences, Peshawar	Peshawar	www.cecos.edu.pk
3	City University of Science and Information Technology, Peshawar	Peshawar	www.cityuniversity.edu.pk
4	Gandhara University, Peshawar	Peshawar	www.gandhara.edu.pk
5	Ghulam Ishaq Khan Institute of Engineering Sciences & Technology, Topi	Topi	www.giki.edu.pk
6	Iqra National University, Peshawar	Peshawar	www.iqrapsh.edu.pk
7	Northern University, Nowshera	Nowshera	www.northern.edu.pk
8	Preston University, Kohat	Kohat	www.preston.edu.pk
9	Qurtaba University of Science and Information Technology, D.I. Khan	D.I.Khan	www.qurtaba.edu.pk
10	Sarhad University of Science and Information Technology, Peshawar	Peshawar	www.suit.edu.pk

**v) Universities/DAIs chartered by Government of Baluchistan**

S. No	University/DAI Name	Main Campus Location	Website Address
1	Al-Hamd Islamic University, Quetta	Quetta	http://www.aiu.edu.pk

**vi) Universities/DAIs chartered by Government of Azad Jammu & Kashmir**

S. No	University/DAI Name	Main Campus Location	Website Address
1	Al-Khair University, AJ&K	Bhimber	www.alkhair.edu.pk
2	Mohi-ud-Din Islamic University, AJK	Nerain Sharif	http://www.miu.edu.pk

### Appendix 3: Missing Value Detection

Items	N		Mean	Std. Deviation	Minimum	Maximum
	Valid	Missing				
MO_aM1	369	0	4.27	.753	1	5
MO_aM2	367	2	4.25	.779	1	5
MO_aM3	363	6	4.00	.813	1	5
MO_aM4	368	1	4.19	.777	1	5
MO_aM5	368	1	4.40	.760	1	5
MO_aM6	362	7	4.13	.822	1	5
MO_adL1	367	2	4.00	.899	1	5
MO_adL2	369	0	3.88	.912	1	5
MO_adL3	369	0	3.91	.931	1	5
MO_adL4	368	1	4.07	.866	1	5
MO_adL5	365	4	3.97	.916	1	5
MO_adL6	364	5	3.94	.874	1	5
MO_inR1	368	1	3.84	.882	1	5
MO_inR2	367	2	3.55	.996	1	5
MO_inR3	361	8	3.49	.952	1	5
MO_inR4	366	3	3.36	1.123	1	12
MO_inR5	368	1	3.22	1.063	1	5
MO_inR6	363	6	3.34	.971	1	5
MO_inR7	367	2	3.16	.957	1	5
MO_inR8	368	1	3.63	.934	1	5
MO_inR9	366	3	3.56	.962	1	5
MO_inR10	368	1	3.47	1.012	1	5
Inn1	369	0	3.73	1.005	1	5
Inn2	368	1	3.77	.913	1	5
Inn3	365	4	3.66	.975	1	5
Inn4	359	10	3.55	1.020	1	5
Inn5	363	6	3.61	.955	1	5
Inn6	363	6	3.60	.942	1	5
Inn7	368	1	3.49	.942	1	5
Inn8	367	2	3.50	.905	1	5
Inn9	364	5	3.66	.941	1	5
Inn10	361	8	3.70	.968	1	5
Inn11	367	2	3.67	.993	1	5
Inn12	365	4	3.61	.950	1	5
UP_op1	369	0	3.90	.905	1	5
UP_op2	368	1	3.73	.847	1	5
UP_op3	362	7	3.75	.846	1	5
UP_op4	367	2	3.60	.871	1	5
UP_op5	364	5	3.59	.942	1	5
UP_F1	368	1	3.48	1.023	1	5
UP_F2	367	2	3.58	.971	1	5
UP_F3	366	3	3.51	.959	1	5
UP_F4	368	1	3.64	.985	1	5
UP_F5	366	3	3.39	.961	1	5
UP_RR1	366	3	3.67	.835	1	5
UP_RR2	366	3	3.59	.815	1	5
UP_RR3	366	3	3.83	.795	1	5

**Note:** INN denotes Innovation; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

#### Appendix 4: MAH values for Multivariate outlier detection

S.No	idNo	MAH	S.No	idNo	MAH	S.No	idNo	MAH	S.No	idNo	MAH	S.No	idNo	MAH
1	423	82.56945	69	379	60.77461	137	325	47.48716	205	271	40.56586	273	306	34.06016
2	395	82.23499	70	298	60.42872	138	408	47.46466	206	39	40.2827	274	317	34.05532
3	410	81.8625	71	547	59.91618	139	351	47.45674	207	140	40.21516	275	595	34.03476
4	7	81.83854	72	799	59.78945	140	561	47.45245	208	287	40.11439	276	272	33.59971
5	222	81.41808	73	249	59.34102	141	384	47.39728	209	787	39.97869	277	833	33.46143
6	806	79.71675	74	489	59.14505	142	819	47.33621	210	18	39.92515	278	37	33.42899
7	766	79.18428	75	324	59.13005	143	725	47.31954	211	841	39.91453	279	335	33.29957
8	488	79.11224	76	456	58.65789	144	244	47.15363	212	631	39.85479	280	553	33.23458
9	625	78.63654	77	191	58.45803	145	44	47.14332	213	779	39.69607	281	238	33.13485
10	836	78.42181	78	243	58.44371	146	88	46.96923	214	490	39.5533	282	30	32.59873
11	24	78.1493	79	329	58.09382	147	316	46.87167	215	79	39.5371	283	508	32.53093
12	805	78.11802	80	358	58.07872	148	92	46.53454	216	530	39.41325	284	29	32.35469
13	264	77.58527	81	826	57.95842	149	424	46.51625	217	60	39.31589	285	768	32.28636
14	772	76.93157	82	557	57.33921	150	291	46.47803	218	385	39.18148	286	43	32.14191
15	506	76.79096	83	601	57.27033	151	622	46.457	219	53	38.91076	287	757	31.95885
16	619	76.53789	84	611	57.156	152	767	46.40426	220	285	38.7965	288	504	31.7593
17	718	76.14435	85	415	57.07474	153	760	46.26428	221	425	38.70362	289	327	31.5037
18	177	75.32634	86	284	57.03717	154	41	46.09285	222	796	38.54851	290	224	31.41657
19	90	75.07033	87	331	57.01219	155	71	45.97903	223	429	38.40537	291	347	31.3362
20	572	74.85315	88	320	56.68008	156	482	45.94252	224	617	38.2528	292	35	31.32538
21	626	74.33102	89	381	55.53327	157	632	45.84999	225	176	38.24344	293	606	31.16016
22	355	74.14612	90	615	55.379	158	466	45.84818	226	13	38.22077	294	594	30.84735
23	577	74.0546	91	36	55.33487	159	48	45.63757	227	434	38.17036	295	627	30.6904
24	791	72.41017	92	475	55.20287	160	314	45.25304	228	786	38.13537	296	32	30.58554
25	349	72.3364	93	607	55.16124	161	218	45.10516	229	695	38.13514	297	809	30.43507
26	800	72.3234	94	63	54.90653	162	472	45.07232	230	80	38.13396	298	689	30.42621
27	683	71.07247	95	583	54.80875	163	45	45.06932	231	56	38.01655	299	304	30.41324
28	330	70.84837	96	550	54.61071	164	776	44.8307	232	727	37.98349	300	693	30.04928
29	635	70.63991	97	732	54.4264	165	125	44.75317	233	609	37.97119	301	831	29.66183
30	544	70.26002	98	534	54.29472	166	756	44.56463	234	27	37.79172	302	763	29.06011
31	728	69.99085	99	365	54.25226	167	26	44.46739	235	268	37.73791	303	283	28.58838
32	562	69.95647	100	499	54.06285	168	540	44.41818	236	46	37.56478	304	593	28.25955
33	487	69.79645	101	23	53.65692	169	15	44.3939	237	391	37.49677	305	560	28.0595
34	585	69.77243	102	443	53.43765	170	478	44.33314	238	837	37.21854	306	359	27.32365
35	64	69.61965	103	574	52.90701	171	590	44.14516	239	624	37.04264	307	691	27.26131
36	792	69.46729	104	442	52.84536	172	369	44.13675	240	452	37.02559	308	554	27.17987
37	228	69.27758	105	212	52.83292	173	183	44.08689	241	198	36.90744	309	661	27.05778
38	502	68.95902	106	778	52.72368	174	621	43.96864	242	815	36.8912	310	646	26.95823
39	390	68.7585	107	149	52.64648	175	77	43.91003	243	16	36.75796	311	299	26.93234
40	829	68.52582	108	50	52.22513	176	405	43.83468	244	802	36.63434	312	360	26.91255
41	252	68.20779	109	599	51.82102	177	318	43.76644	245	19	36.36572	313	673	26.62721
42	633	67.88934	110	761	51.79164	178	477	43.66383	246	517	36.32841	314	400	26.36392
43	565	66.58696	111	409	51.31618	179	648	43.62289	247	464	36.26154	315	370	25.96104
44	361	66.33505	112	468	51.28829	180	586	43.34556	248	598	36.23291	316	119	25.90206
45	579	65.78619	113	263	51.06612	181	804	43.26948	249	655	36.21436	317	509	25.14305
46	462	65.75423	114	801	51.01991	182	501	43.09468	250	276	36.11616	318	162	24.72902
47	258	65.73493	115	438	50.5866	183	20	43.0537	251	566	36.02063	319	363	24.67446
48	396	65.63749	116	670	50.48522	184	21	42.84439	252	793	35.97938	320	217	24.50369
49	315	65.60945	117	348	50.47358	185	660	42.79035	253	765	35.85231	321	68	24.26225
50	57	65.04385	118	808	50.23873	186	773	42.75635	254	539	35.77943	322	822	24.26107
51	275	64.7061	119	439	49.79227	187	460	42.75319	255	759	35.54335	323	744	24.15688
52	186	64.63647	120	389	49.74664	188	8	42.71969	256	484	35.45018	324	834	23.03925
53	608	64.41136	121	206	49.69234	189	603	42.57752	257	769	35.44558	325	451	22.72829
54	795	64.31857	122	541	49.36031	190	55	42.51279	258	823	35.43337	326	373	22.3523
55	10	64.13404	123	404	49.26552	191	147	42.48075	259	810	35.42762	327	376	21.94337
56	700	64.11033	124	278	49.03564	192	40	42.47829	260	522	35.42329	328	832	21.76114
57	332	64.0363	125	545	48.97079	193	33	42.20733	261	102	35.27641	329	47	21.104
58	486	64.0219	126	73	48.92596	194	814	41.69894	262	742	35.24993	330	812	20.9098
59	780	63.86387	127	339	48.4609	195	785	41.60969	263	132	35.20599	331	636	20.84217
60	70	63.63383	128	353	48.38543	196	392	41.41373	264	532	35.10201	332	762	20.81166
61	630	62.90869	129	775	48.32834	197	25	41.27833	265	14	34.87347	333	138	20.75273
62	465	62.89695	130	237	48.14525	198	22	41.27147	266	289	34.79934	334	312	20.30849
63	470	62.87563	131	605	47.88607	199	52	41.23994	267	207	34.78314	335	100	19.02156
64	582	62.46496	132	17	47.72521	200	234	41.09215	268	741	34.72073	336	124	13.18223
65	51	62.23388	133	600	47.70474	201	59	41.06045	269	231	34.66204			
66	260	61.36018	134	143	47.62742	202	720	41.05305	270	91	34.48921			
67	510	60.96136	135	156	47.55642	203	505	40.98752	271	236	34.38488			
68	827	60.94875	136	774	47.54862	204	597	40.75936	272	523	34.3697			

**Appendix 5: Univariate outlier detection, with Standard Z score of  $> \pm 4$**

S No	idNo	ZMO_aM1	ZMO_aM2	ZMO_aM3	ZMO_aM4	ZMO_aM5	ZMO_aM6	ZMO_ad1	.	.	ZUP_PR1	ZUP_PR2	ZUP_PR3
1	423	-0.581	-0.460	-0.015	-3.174	-0.663	-2.806	-2.406	.	.	-1.305	-1.193	-0.111
2	395	1.073	1.038	1.285	1.097	0.828	1.092	1.135	.	.	0.057	0.211	-0.111
3	410	-2.234	-0.460	1.285	-0.327	-0.663	1.092	-2.406	.	.	0.057	0.211	-0.111
4	7	1.073	1.038	-0.015	1.097	0.828	-0.207	-1.226	.	.	-1.305	1.615	-1.510
5	222	1.073	-0.460	-1.316	1.097	0.828	-0.207	-0.046	.	.	0.057	0.211	-0.111
6	806	-0.581	1.038	-0.015	-0.327	0.828	-0.207	1.135	.	.	-1.305	-1.193	-1.510
7	766	-0.581	1.038	1.285	1.097	-2.154	-0.207	-0.046	.	.	0.057	0.211	-0.111
8	488	1.073	1.038	1.285	-0.327	0.828	1.092	1.135	.	.	-1.305	-1.193	-1.510
9	625	1.073	-0.460	-0.015	-0.327	-0.663	-2.806	-2.406	.	.	0.057	-1.193	1.289
10	836	-0.581	-0.460	-0.015	-1.751	-0.663	-1.507	-1.226	.	.	-1.305	-1.193	1.289
11	24	-0.581	-0.460	-1.316	-0.327	-2.154	-0.207	-1.226	.	.	1.418	0.211	1.289
12	805	1.073	-0.460	-0.015	1.097	-0.663	-2.806	-1.226	.	.	0.057	-1.193	1.289
13	264	1.073	1.038	-1.316	1.097	-0.663	-0.035	-3.586	.	.	0.057	0.211	-0.111
14	772	-0.581	-0.460	1.285	1.097	-0.663	1.092	-1.226	.	.	1.418	1.615	1.289
15	506	-0.581	1.038	1.285	-0.327	0.828	1.092	-1.226	.	.	0.057	-1.193	-1.510
16	619	1.073	-0.093	-2.617	1.097	-0.663	-0.207	-1.226	.	.	0.057	-1.193	-0.111
17	718	-0.581	-3.456	-1.316	-0.327	-0.663	-0.207	-3.586	.	.	-1.305	-1.193	-0.111
18	177	-0.581	-0.460	-1.316	1.097	-0.663	-0.207	1.135	.	.	0.057	0.211	-0.111
19	90	-0.581	1.038	-0.015	-0.327	0.828	1.092	-1.226	.	.	0.057	0.211	-0.111
20	572	<b>-5.540</b>	-1.958	-1.316	-1.751	-3.644	-2.806	-1.226	.	.	-1.305	1.615	-1.510
21	626	1.073	-0.460	1.285	1.097	0.828	1.092	1.135	.	.	0.057	0.211	-0.111
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
41	252	1.073	-0.460	-0.015	-1.751	0.828	-1.507	-0.046	.	.	<b>-4.027</b>	-1.193	1.289
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
50	57	-0.581	-0.460	-0.015	-0.327	0.828	-0.207	-0.046	.	.	0.057	<b>-4.001</b>	-0.111
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
66	260	-0.581	-0.460	-0.019	-0.327	0.828	-0.207	-1.226	.	.	-2.666	-2.597	<b>-4.310</b>
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
332	762	1.0726	1.0375	-0.0154	1.09653	0.8279	1.0915	1.1345	.	.	1.41838	0.21141	1.28898
333	138	-0.5806	-0.4602	-0.0154	-0.32705	-0.6628	-0.2074	1.1345	.	.	0.05694	0.21141	-0.11071
334	312	-0.5806	-0.4602	-0.0154	1.09653	0.8279	1.0915	-0.0456	.	.	0.05694	0.21141	-0.11071
335	100	-0.5806	-0.4602	-0.0154	-0.32705	-0.6628	-0.2074	-0.0456	.	.	1.41838	0.21141	1.28898
336	124	1.0726	1.0375	-0.015	1.09653	0.8279	1.0915	1.1345	.	.	1.41838	0.21141	1.28898

**Appendix 6: Total outliers detected (Multivariate and Univariate)**

S. No	Multivariate outlier idNo	Univariate outliers		Grand total
		idNo	Frequency (No of times, > standard z-value)	
1	824	572	1	
2	461	252	1	
3	131	57	1	
4	9	260	1	
5	129			
6	265			
7	160			
8	5			
9	638			
10	476			
11	109			
12	406			
13	161			
14	93			
15	497			
16	664			
17	436			
18	575			
19	592			
20	340			
21	82			
22	559			
23	383			
24	69			
25	11			
26	771			
27	825			
28	266			
29	267			
30	797			
31	467			
32	83			
33	86			
<b>Total</b>	<b>33</b>	<b>4</b>		<b>37</b>

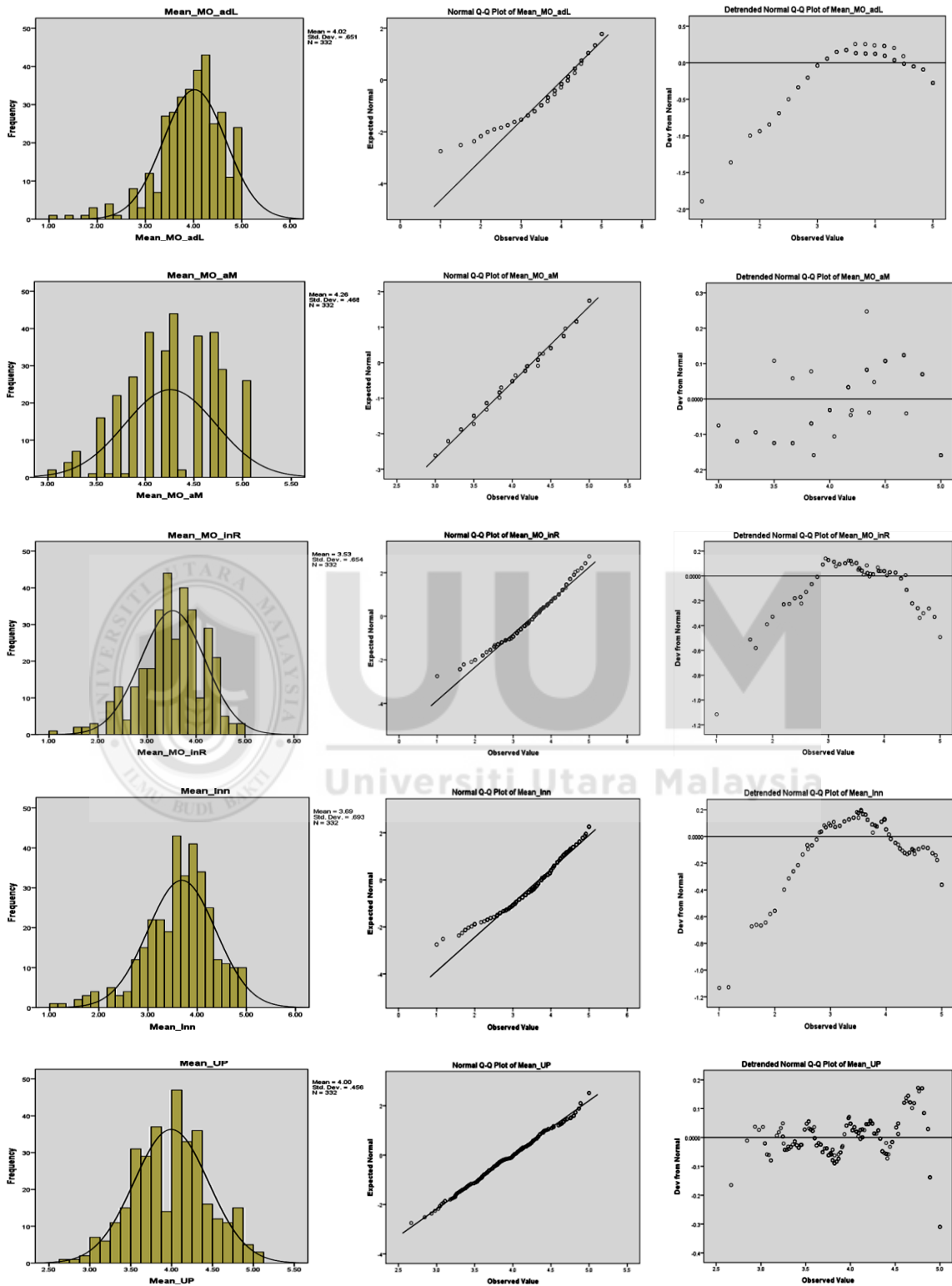
**Appendix 7: Normality test results by means of Skewness and Kurtosis**

Items	N	Min	Max	Mean	S.Dev.	Skewness >±1	Kurtosis >±3		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	S. Error		
MO_aM1	332	2	5	4.36	.578	-.340	.134	-.138	.267
MO_aM2	332	2	5	4.31	.667	-.584	.134	-.150	.267
MO_aM3	332	1	5	4.02	.771	-.701	.134	.928	.267
MO_aM4	332	2	5	4.24	.700	-.581	.134	-.013	.267
MO_aM5	332	3	5	4.45	.659	-.790	.134	-.462	.267
MO_aM6	332	2	5	4.17	.762	-.550	.134	-.344	.267
MO_adL1	332	1	5	4.05	.849	-.922	.134	1.278	.267
MO_adL2	332	1	5	3.93	.841	-.628	.134	.443	.267
MO_adL3	332	1	5	3.98	.871	-.816	.134	.740	.267
MO_adL4	332	1	5	4.14	.787	-.843	.134	1.192	.267
MO_adL5	332	1	5	4.06	.833	-.863	.134	.951	.267
MO_adL6	332	1	5	3.98	.810	-.553	.134	.113	.267
MO_inR1	332	1	5	3.89	.814	-.614	.134	.463	.267
MO_inR2	332	1	5	3.63	.931	-.340	.134	-.233	.267
MO_inR3	332	1	5	3.56	.873	-.331	.134	-.067	.267
MO_inR4	332	1	5	3.39	.971	-.251	.134	-.383	.267
MO_inR5	332	1	5	3.30	.995	-.284	.134	-.508	.267
MO_inR6	332	1	5	3.40	.924	-.304	.134	-.284	.267
MO_inR7	332	1	5	3.21	.920	-.326	.134	-.229	.267
MO_inR8	332	1	5	3.70	.858	-.682	.134	.420	.267
MO_inR9	332	1	5	3.62	.916	-.337	.134	-.363	.267
MO_inR10	332	1	5	3.56	.949	-.422	.134	-.179	.267
Inn1	332	1	5	3.79	.927	-.627	.134	.033	.267
Inn2	332	1	5	3.80	.871	-.955	.134	1.484	.267
Inn3	332	1	5	3.72	.931	-.623	.134	.058	.267
Inn4	332	1	5	3.61	.939	-.473	.134	-.118	.267
Inn5	332	1	5	3.67	.900	-.490	.134	.192	.267
Inn6	332	1	5	3.68	.850	-.518	.134	.165	.267
Inn7	332	1	5	3.55	.910	-.428	.134	-.052	.267
Inn8	332	1	5	3.55	.879	-.502	.134	.046	.267
Inn9	332	1	5	3.71	.883	-.525	.134	.251	.267
Inn10	332	1	5	3.75	.895	-.491	.134	-.068	.267
Inn11	332	1	5	3.75	.910	-.594	.134	.067	.267
Inn12	332	1	5	3.68	.897	-.650	.134	.340	.267
UP_op1	332	1	5	3.92	.846	-.819	.134	.796	.267
UP_op2	332	2	5	4.07	.677	-.434	.134	.391	.267
UP_op3	332	2	5	4.08	.646	-.403	.134	.613	.267
UP_op4	332	2	5	3.98	.691	-.298	.134	.031	.267
UP_op5	332	1	5	4.02	.800	-.526	.134	.236	.267
UP_F1	332	3	5	4.12	.727	-.178	.134	-1.09	.267
UP_F2	332	2	5	4.02	.758	-.413	.134	-.200	.267
UP_F3	332	2	5	4.00	.714	-.184	.134	-.473	.267
UP_F4	332	1	5	4.03	.862	-.795	.134	.721	.267
UP_F5	332	1	5	3.81	.886	-.325	.134	-.497	.267
UP_RR1	332	2	5	3.97	.712	-.410	.134	.200	.267
UP_RR2	332	2	5	3.87	.690	-.138	.134	-.178	.267
UP_RR3	332	2	5	4.09	.694	-.281	.134	-.358	.267

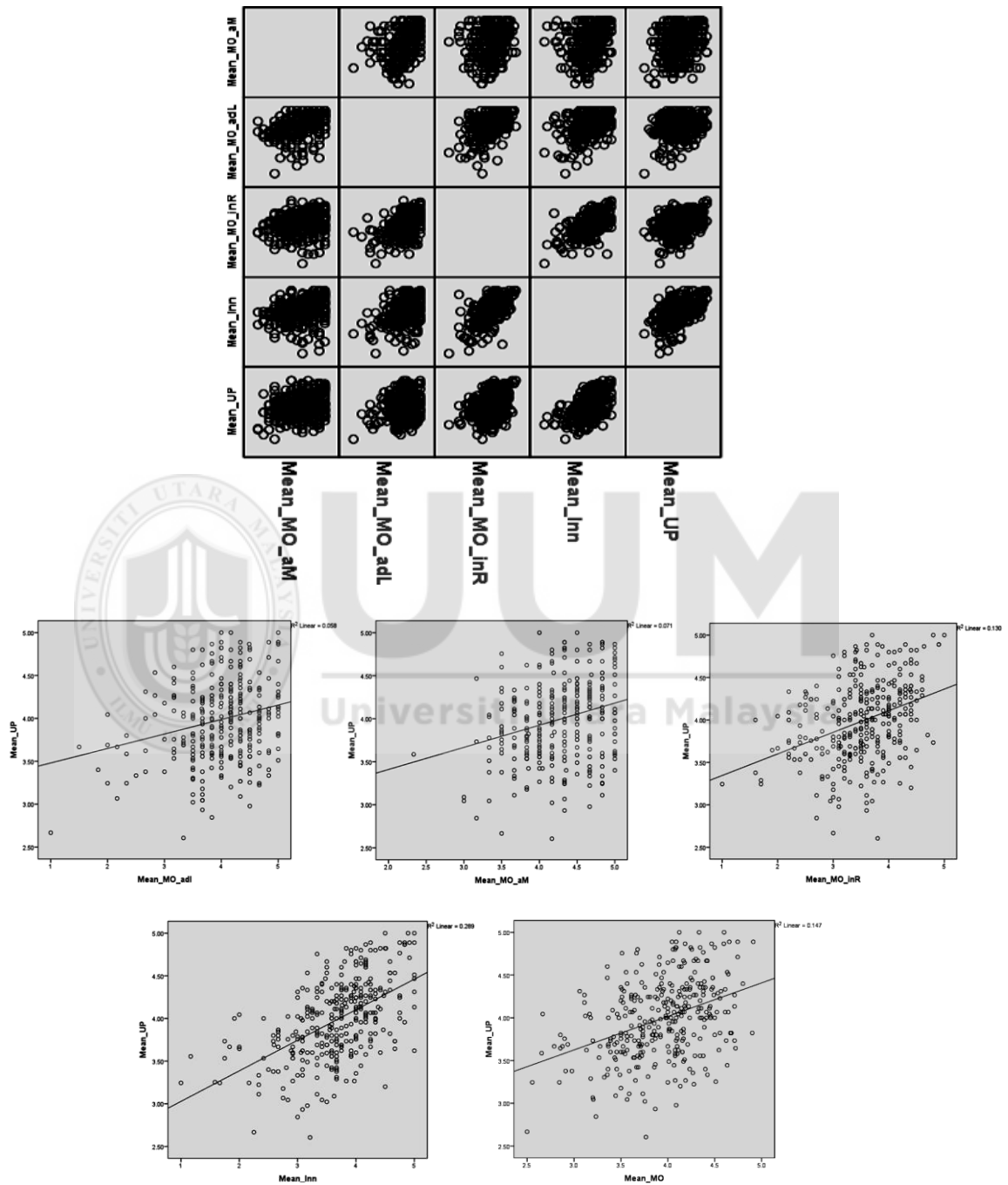
**Note:** INN denotes Innovation; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.



## Appendix 8: Individual graphs for normality, for testing the model



**Appendix 9: Comprehensive view of linearity (Matrix view & Simple view)**



**Note:** INN denotes Innovation; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

## Appendix 10: Pearson Correlation for linearity

		Correlations				
		MO_aM	MO_adL	MO_inR	Inn	UP
MO_aM	Pearson Correlation	1				
	Sig. (1-tailed)					
	N	332				
MO_adL	Pearson Correlation	.407**	1			
	Sig. (1-tailed)	.000				
	N	332	332			
MO_inR	Pearson Correlation	.218**	.415**	1		
	Sig. (1-tailed)	.000	.000			
	N	332	332	332		
Inn	Pearson Correlation	.242**	.377**	.623**	1	
	Sig. (1-tailed)	.000	.000	.000		
	N	332	332	332	332	
UP	Pearson Correlation	.264**	.230**	.370**	.537**	1
	Sig. (1-tailed)	.000	.000	.000	.000	
	N	332	332	332	332	332

**\*\*.** Correlation is significant at the 0.01 level (1-tailed).

**Note:** INN denotes Innovation; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

## Appendix 11: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Sq. Loadings		
	Total	% Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.507	28.739	28.739	13.507	28.739	28.739
2	3.772	8.025	36.764	3.772	8.025	36.764
3	3.481	7.407	44.171	3.481	7.407	44.171
4	2.286	4.863	49.034	2.286	4.863	49.034
5	2.005	4.266	53.300	2.005	4.266	53.300
6	1.448	3.081	56.381	1.448	3.081	56.381
7	1.314	2.796	59.177	1.314	2.796	59.177
8	1.247	2.652	61.829	1.247	2.652	61.829
9	.999	2.125	63.954			
10	.974	2.072	66.026			
11	.923	1.964	67.989			
12	.816	1.737	69.726			
13	.776	1.652	71.378			
14	.751	1.597	72.975			
15	.701	1.492	74.468			
16	.678	1.443	75.910			
17	.614	1.305	77.216			
18	.602	1.281	78.497			
19	.585	1.245	79.742			
20	.560	1.191	80.933			
21	.542	1.153	82.086			
22	.514	1.094	83.180			
23	.493	1.049	84.228			
24	.471	1.002	85.230			
25	.448	.953	86.183			
26	.441	.939	87.123			
27	.425	.904	88.026			
28	.397	.845	88.871			
29	.394	.838	89.710			
30	.372	.792	90.502			
31	.362	.770	91.272			
32	.352	.749	92.021			
33	.336	.715	92.736			
34	.318	.676	93.412			
35	.308	.655	94.066			
36	.299	.635	94.702			
37	.286	.609	95.310			
38	.273	.581	95.892			
39	.270	.574	96.466			
40	.259	.551	97.016			
41	.234	.497	97.513			
42	.223	.474	97.988			
43	.214	.454	98.442			
44	.200	.426	98.868			
45	.192	.408	99.276			
46	.176	.375	99.651			
47	.164	.349	100.000			

Extraction Method: Principal Component Analysis.

## Appendix 12: Cross loadings

	<b>Inn</b>	<b>MO_aM</b>	<b>MO_adL</b>	<b>MO_inR</b>	<b>UP_F</b>	<b>UP_RR</b>	<b>UP_op</b>
<b>Inn1</b>	<b>0.74165</b>	0.23157	0.27134	0.55380	0.40120	0.22992	0.28998
<b>Inn2</b>	<b>0.78089</b>	0.25758	0.26722	0.47338	0.41849	0.24184	0.34496
<b>Inn3</b>	<b>0.72554</b>	0.14735	0.28680	0.42624	0.37137	0.20002	0.27522
<b>Inn4</b>	<b>0.68220</b>	0.20493	0.22875	0.36932	0.31824	0.18086	0.22441
<b>Inn5</b>	<b>0.79719</b>	0.19888	0.32697	0.53787	0.34384	0.24874	0.27553
<b>Inn6</b>	<b>0.74857</b>	0.12265	0.30666	0.48951	0.29867	0.20393	0.19304
<b>Inn7</b>	<b>0.77910</b>	0.15628	0.23786	0.51242	0.33934	0.14508	0.27702
<b>Inn8</b>	<b>0.79202</b>	0.18586	0.24158	0.51421	0.38634	0.24806	0.32616
<b>Inn9</b>	<b>0.79340</b>	0.22698	0.25996	0.46697	0.37428	0.19843	0.35336
<b>Inn10</b>	<b>0.77938</b>	0.25863	0.41803	0.48012	0.35205	0.22324	0.30478
<b>Inn11</b>	<b>0.79929</b>	0.29228	0.32295	0.45437	0.40508	0.30349	0.32140
<b>Inn12</b>	<b>0.82280</b>	0.27393	0.34001	0.51028	0.40773	0.29374	0.35880
<b>MO_aM1</b>	0.23587	<b>0.69657</b>	0.28742	0.17231	0.14475	0.12812	0.21419
<b>MO_aM2</b>	0.25246	<b>0.79857</b>	0.39257	0.26851	0.16766	0.25125	0.26819
<b>MO_aM4</b>	0.24499	<b>0.76460</b>	0.30330	0.25914	0.12646	0.17729	0.23232
<b>MO_aM5</b>	0.11216	<b>0.68768</b>	0.28167	0.06937	0.06141	0.11630	0.16225
<b>MO_aM6</b>	0.14785	<b>0.70729</b>	0.23292	0.19738	0.03733	0.13273	0.22646
<b>MO_adL1</b>	0.22631	0.27494	<b>0.73612</b>	0.29574	0.07089	0.12738	0.11116
<b>MO_adL2</b>	0.28213	0.32446	<b>0.76057</b>	0.33884	0.17548	0.14117	0.09123
<b>MO_adL3</b>	0.35118	0.32199	<b>0.83357</b>	0.38916	0.14080	0.11440	0.13392
<b>MO_adL4</b>	0.29966	0.39900	<b>0.72542</b>	0.29469	0.11123	0.11426	0.14941
<b>MO_adL5</b>	0.29228	0.30148	<b>0.83154</b>	0.30853	0.12278	0.15016	0.11754
<b>MO_adL6</b>	0.33047	0.32878	<b>0.80380</b>	0.35846	0.14353	0.11610	0.16868
<b>MO_inR1</b>	0.37737	0.38419	0.32687	<b>0.65284</b>	0.14295	0.09784	0.18804
<b>MO_inR2</b>	0.42495	0.28745	0.30971	<b>0.72540</b>	0.21802	0.09962	0.19572
<b>MO_inR3</b>	0.37286	0.18532	0.20970	<b>0.72294</b>	0.15480	0.00406	0.13801
<b>MO_inR4</b>	0.41477	0.15245	0.25703	<b>0.70000</b>	0.11291	0.10257	0.15726
<b>MO_inR5</b>	0.39211	0.16608	0.21577	<b>0.71318</b>	0.15141	0.11397	0.21371
<b>MO_inR6</b>	0.44613	0.06111	0.23443	<b>0.73808</b>	0.19878	0.12485	0.19489
<b>MO_inR7</b>	0.46087	0.10673	0.27348	<b>0.77194</b>	0.26132	0.17153	0.28992
<b>MO_inR8</b>	0.45364	0.23836	0.42326	<b>0.68934</b>	0.22261	0.19559	0.25188
<b>MO_inR9</b>	0.54625	0.23833	0.36851	<b>0.69125</b>	0.40140	0.25915	0.28605
<b>MO_inR10</b>	0.56717	0.12640	0.37094	<b>0.72834</b>	0.39170	0.19426	0.26360
<b>UP_F1</b>	0.54523	0.10195	0.17599	0.39929	<b>0.72105</b>	0.23409	0.28571
<b>UP_F2</b>	0.30308	0.08292	0.08730	0.24449	<b>0.76846</b>	0.29097	0.32621
<b>UP_F3</b>	0.35848	0.14729	0.14693	0.26000	<b>0.77882</b>	0.33982	0.34552
<b>UP_F4</b>	0.28034	0.09709	0.08455	0.16383	<b>0.77859</b>	0.35175	0.43321
<b>UP_F5</b>	0.39055	0.15898	0.14513	0.20475	<b>0.81281</b>	0.33977	0.51553
<b>UP_RR1</b>	0.27759	0.18807	0.16803	0.21261	0.31345	<b>0.81655</b>	0.37440
<b>UP_RR2</b>	0.22999	0.21984	0.13691	0.14385	0.35008	<b>0.82406</b>	0.37843
<b>UP_RR3</b>	0.19545	0.12998	0.07525	0.10179	0.30044	<b>0.73288</b>	0.320724
<b>UP_op2</b>	0.24678	0.26377	0.07134	0.14702	0.36072	0.36138	<b>0.776106</b>
<b>UP_op3</b>	0.27923	0.21273	0.16323	0.24705	0.39077	0.33826	<b>0.80709</b>
<b>UP_op4</b>	0.33714	0.22529	0.10431	0.25913	0.44616	0.37721	<b>0.839392</b>
<b>UP_op5</b>	0.36123	0.27345	0.18598	0.32258	0.38922	0.35978	<b>0.747172</b>

**Note:** INN denotes Innovation; MO\_adL denotes Administration-leadership; MO\_aM denotes Advising and mentoring; MO\_inR denotes Intelligence-generation and responsiveness; UP\_F denotes Funding; UP\_RR denotes Recruitment and Retention; UP\_op denotes Overall Performance.

### Appendix 13: Testing Mediation Hypothesis using Sobel Test.

	H4c	H4	H4a	H4b
<b>Inputs</b>	<i>N</i> (Sample size)	332	332	332
	<i>a</i> (Path coefficient calculated by Warp-PLS)	0.6176	0.0996	0.0896
	<i>b</i> (Path coefficient calculated by Warp-PLS)	0.4382	0.4275	0.4275
	<i>Sa</i> (Standard error calculated by Warp-PLS)	0.0469	0.0549	0.0461
	<i>Sb</i> (Standard error calculated by Warp-PLS)	0.0504	0.0525	0.0525
<b>Outputs</b>	<i>Sab</i> (Sobel's standard error for mediating effect)	0.0374	0.024217	0.0204
	<i>ab</i> (Product path coefficient for mediating effect)	0.2706	0.042579	0.0383
	<i>Tab</i> (T value for mediating effect)	7.2411	1.758204	1.8771
	<i>Pab</i> (P value for mediating effect, one-tailed)	0.0000	0.03982	0.0307

### Appendix 14: Results of Testing Mediation Hypothesis using Bootstrapping Method

Hypothesis	Path a	Path b	Indirect Effect	SE	<i>t</i> -value	95% LL	95% UL	<i>p</i> -value
H4	0.618	0.438	0.271	0.036	7.433	0.211	0.331	0.000
H4a	0.100	0.427	0.043	0.024	1.798	0.004	0.082	0.037
H4b	0.090	0.427	0.038	0.020	1.968	0.006	0.071	0.025
H4c	0.572	0.427	0.244	0.040	6.128	0.178	0.310	0.000

## Appendix 15: Details of Bootstrapping Procedure for Mediation

	H4 - Path b	H4 - Path a	H4 - a*b	H4-SE (a*b)	H4a - Path b	H4a - Path a	H4a - 2b*2a	H4a-SE (2b*2a)	H4b - Path b	H4b - Path a	H4b - 2b*3a	H4b-SE (2b*3a)	H4c - Path b	H4c - Path a	H4c - 2b*4a	H4c-SE (4b*3a)
<b>Sample 0</b>	0.467	0.673	0.314	0.036	0.440	0.111	0.049	0.024	0.440	0.119	0.052	0.020	0.440	0.568	0.250	0.040
<b>Sample 1</b>	0.446	0.629	0.280		0.468	0.131	0.061		0.468	0.026	0.012		0.468	0.530	0.248	
<b>Sample 2</b>	0.411	0.611	0.251		0.391	0.146	0.057		0.391	0.002	0.001		0.391	0.528	0.207	
<b>Sample 3</b>	0.493	0.621	0.306		0.291	0.134	0.039		0.291	0.067	0.019		0.291	0.548	0.159	
<b>Sample 4</b>	0.457	0.635	0.291		0.437	0.170	0.074		0.437	0.075	0.033		0.437	0.456	0.199	
<b>Sample 5</b>	0.487	0.736	0.359		0.526	0.066	0.035		0.526	0.021	0.011		0.526	0.625	0.329	
<b>Sample 6</b>	0.510	0.595	0.303		0.499	0.018	0.009		0.499	0.080	0.040		0.499	0.638	0.318	
<b>Sample 7</b>	0.396	0.635	0.252		0.343	0.003	0.001		0.343	0.165	0.057		0.343	0.629	0.216	
<b>Sample 8</b>	0.438	0.524	0.229		0.428	0.104	0.045		0.428	0.087	0.037		0.428	0.604	0.259	
<b>Sample 9</b>	0.476	0.676	0.321		0.400	0.099	0.039		0.400	0.062	0.025		0.400	0.579	0.232	
<b>Sample 10</b>	0.448	0.658	0.295		0.383	0.129	0.050		0.383	0.114	0.043		0.383	0.588	0.225	
<b>Sample 11</b>	0.501	0.621	0.311		0.513	0.071	0.037		0.513	0.069	0.035		0.513	0.601	0.308	
<b>Sample 12</b>	0.449	0.556	0.250		0.411	0.155	0.064		0.411	0.135	0.055		0.411	0.522	0.214	
<b>Sample 13</b>	0.416	0.640	0.266		0.442	0.091	0.040		0.442	0.048	0.021		0.442	0.513	0.227	
<b>Sample 14</b>	0.459	0.609	0.280		0.434	0.206	0.089		0.434	0.029	0.012		0.434	0.519	0.225	
<b>Sample 15</b>	0.524	0.666	0.349		0.429	0.132	0.056		0.429	0.048	0.021		0.429	0.558	0.240	
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<b>Sample 4998</b>	0.491	0.553	0.271		0.433	0.045	0.020		0.433	0.098	0.042		0.433	0.572	0.248	
<b>Sample 4999</b>	0.429	0.661	0.284		0.427	0.075	0.032		0.427	0.121	0.051		0.427	0.564	0.241	
<b>Sample 5000</b>	0.452	0.649	0.293		0.470	0.140	0.066		0.470	0.016	0.007		0.470	0.580	0.272	