Leadership Styles and Faculty Job Satisfaction, Moderators and Mediators, in STEM-related Fields

أساليب القيادة والرضا الوظيفي لأعضاء الهيئة التدريسية, المتغيرات المعدلة والمتغيرات الوسيطة في المجالات المرتبطة بالعلوم والتكنولوجيا والهندسة والرياضيات

by

FATEMEH MIRSHAHI

A thesis submitted in fulfilment

of the requirements for the degree of

DOCTOR OF PHILOSOPHY IN EDUCATION

at

The British University in Dubai

September 2017

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Thesis Supervisor
Professor Ashly H. Pinnington

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ABSTRACT

A number of studies on leadership styles and job satisfaction have been conducted in higher education, but there has been less research on leadership styles in relation to faculty job satisfaction. In particular, there is a need for more knowledge about these issues in science, technology, engineering, and mathematics (STEM) disciplines and in developing country contexts. The purpose of this study is to investigate leadership styles of Heads of Departments (HODs) for improving faculty job satisfaction, in STEM-related fields. The influences of moderators and mediators on the relationship between HOD's leadership styles and faculty job satisfaction are investigated and a new model is developed. Based on a predominantly post-positivist perspective, this study adopts an explanatory mixed methods approach. In the first stage, participants respond to a survey questionnaire on factors related to job satisfaction and HODs' leadership styles. In the second stage, using a nested sequential sampling design, participants are interviewed to explore these two issues. The results show that the most effective leadership styles practiced by HODs in improving faculty job satisfaction are transformational leadership and transactional contingent rewards. Practicing laissez-faire and transactional passive management-by-exception behaviours has a significant negative effect on faculty job satisfaction. In addition, leadership styles have significant impacts on faculty job satisfaction and its elements including work and collegiality, supervision, and to a lesser extent, promotion. Moreover, investigation of the indirect impacts of leadership styles on faculty job satisfaction identified one partial moderator including work-life balance and seven partial mediators including achievement, responsibility, advancement, relationships, institutional and administrative culture, feedback, and autonomy on the relationship between leadership styles and faculty job satisfaction. A new model is developed to explain the relationships between

leadership styles and faculty job satisfaction. Finally, recommendations are made for stakeholders and for future research.

Key words:

Leadership styles, Job satisfaction, HODs and Faculty, STEM-related Fields, Moderators, Mediators, United Arab Emirates (UAE)

ABSTRACT IN ARABIC

تم إجراء عدد من الدراسات على أساليب القيادة والرضا الوظيفي في مراحل التعليم العالي، ولكن الأبحاث التي تدرس أساليب القيادة وعلاقتها بالرضا الوظيفي للهيئة التدريسية أقل مقارنة بها. وهناك بالأخص حاجة لاكتساب معارف أكبر حول تلك المسائل في مجالات العلوم والتكنولوجيا والهندسة والرياضيات (STEM) وفي سياقات الدول النامية. وتهدف هذه الدراسة إلى التحقيق في أساليب قيادة رؤساء الأقسام في رفع مستوى الرضا الوظيفي للهيئة التدريسية في المجالات المرتبطة بالعلوم والتكنولوجيا والهندسة والرياضيات. وتتناول أيضاً التأثيرات التي تتركها المتغيرات المعدلة والمتغيرات الوسيطة على العلاقة بين أساليب القيادة لرؤساء الأقسام والرضا الوظيفي للهيئة التدريسية، لتطوير نموذج جديد. بناءً على منظور ما بعد وضعي بالغالب، تتبنى هذه الدراسة مقاربة بمنهجيات تفسيرية متنوعة. ففي المرحلة الأولى، يجيب المشاركون على استبيان حول العوامل المتعلقة بالرضا الوظيفي وأساليب القيادة لرؤساء الأقسام. أما في المرحلة الثانية، يتم إجراء المقابلات مع المشاركين باستخدام تصميم أخذ عينات متتالية متداخل لاستكشاف تلك المسألتين. وتظهر النتائج أن أكثر أساليب القيادة لرؤساء الأقسام فعالية في رفع مستوى الرضا الوظيفي هي القيادة التحويلية والمكافآت التعاملية العرضية. بينما يترك ممارسة سلوكيات سياسة عدم التدخل والإدارة الخاملة بالاستثناء أثراً سلبياً على الرضا الوظيفي للهيئة التدريسية. بالإضافة لذلك، تترك أساليب القيادة آثاراً هامة على الرضا الوظيفي للهيئة التدريسية وعناصرها مثل العمل وروح الزمالة والإشراف وإلى حد أقل، الترقية. وقد كشف التحقيق في الآثار غير المباشرة لأساليب القيادة على الرضا الوظيفي للهيئة التدريسية عن متغير معدل جزئي واحد يتضمن توازن ما بين العمل والحياة، وسبعة متغيرات وسيطة جزئية تتضمن الإنجاز والمسؤولية والتقدم والعلاقات والثقافة المؤسساتية والإدارية والتعقيبات والاستقلالية، في العلاقة بين أساليب القيادة والرضا الوظيفي للهيئة التدريسية. وتم تطوير نموذج جديد لتفسير العلاقات بين أساليب القيادة والرضا الوظيفي لأعضاء الهيئة التدريسية. وأخيراً، تم تقديم توصيات للجهات المعنية وللأبحاث المستقبلية.

الكلمات الرئيسية:

أساليب القيادة، الرضا الوظيفي، رؤساء الأقسام والهيئة التدريسية، المجالات المرتبطة بالعلوم والتكنولوجيا والهندسة والرياضيات، المتغيرات المعدلة، المتغيرات الوسطية، الإمارات العربية المتحدة

DEDICATION

THIS THESIS IS DEDICATED TO THE MEMORY OF MY FATHER AND

MY BELOVED FAMILY, FRIENDS AND COLLEAGUES.

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I would like to thank God Almighty for blessing me with the gift of life and the passion to pursue my dreams.

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LIST OF ABBREVIATIONS

HODs	Heads Of Departments
LS	Leadership Styles
FJS	Faculty Job Satisfaction
STEM	Science, Technology, Engineering, Mathematics

CHAPTER 1: INTRODUCTION

1.1 Background

An organisation's success depends on hiring and retaining satisfied employees (Corderio 2010). In higher education institutions, faculty job satisfaction plays an essential role in the accomplishments of organisations (Corderio 2010). High levels of faculty job satisfaction have been found to create more committed work efforts contributing to the quality and efficacy of teaching (Marsh & Hattie 2002). Successful interaction between faculty and students can improve the quality of student learning and increase student interest in their intellectual development (Endo & Harpel 1982). Many studies have emphasized job satisfaction as a decisive factor in various aspects of work life and organizational behaviour such as organisational performance, effectiveness, absenteeism, and turnover (e.g. Alhawary & Aborumman 2011; Bentley et al. 2015; Brayfield & Crockett 1955; Decker et al. 2009; Galaz-Fontes 2003; Thatcher et al. 2002). Faculty satisfaction is associated with increased productivity, (Blackburn & Lawrence 1995; Zey-Ferrell 1982) with benefits for research, innovation, and society.

In addition, universities can benefit from the positive association between faculty job satisfaction and retention rate in terms of business related issues; if retention grows by 5%, the costs would decline by 10% and the substantial productivity would grow by 65% (Wong & Heng 2009). Hence, faculty job satisfaction is considered vital for improving the productivity of generations of students, enhancing the quality of higher education and the effective functioning of academic institutions, and building up higher education institutions' public reputation and recognition. The

more university leaders understand and adopt policies to enhance faculty job satisfaction, the more likely it is for universities to maintain powerful and healthy education institutions (Bozeman & Gaughan 2011; Hagedorn 2000). Many researchers such as Al-Omari (2008), Bateh and Heyliger (2014), Stumpf (2003) and Sadeghi and Lope Pihie's (2013) reported that there is a significant relationship between academic leaders' leadership styles and faculty job satisfaction.

Several studies (e.g. Bolda & Nawaz 2010; Chen 2004; Greiman 2009) reported a positive significant relationship between transformational leadership and faculty job satisfaction. However, in the private sector, leaders may prefer more transactional than transformational leadership (Bolda & Nawaz 2010). According to Pinnington (2011), leadership is conceptualised differently in the public sector to the private sector and therefore, transformational leadership should not be treated as entirely context independent. In addition, male leaders may practice transactional leadership while female leaders practice transformational leadership (Al-Hourani 2013). As a result, academic leaders have to select and practice a suitable leadership style appropriate to their university's organizational culture to increase their faculty job satisfaction and improve the quality of their faculties, schools and departments (Shaw 2005). Since leadership styles are underpinned by context and culture, the preferred leadership styles in various cultural contexts are not similar (Shah 2006) and have a considerable influence on faculty members' job satisfaction in that particular context (Al-Omari 2008; Madlock 2008). Most studies on leadership styles and job satisfaction have been carried out in developed countries and less is known about developing countries; the results in developed countries cannot be applied in developing countries without modifications (Rodwell 1998; Shah 2010).

The impact of leadership on job satisfaction can be moderated or mediated by some variables. Till now, no study has investigated the mediating and moderating role of any variable on the relationship between HODs' leadership styles and faculty job satisfaction, in STEM-related fields. However, there is a limited number of related studies in education and other settings that show leadership can affect job satisfaction both directly and indirectly through appropriate mediators and moderators (Rokhman & Hassan 2012; Saleem 2015; Zhu et al. 2013).

1.2 Purpose and Research Questions

The aim of this study is to contribute to knowledge about the relationship between leadership styles and job satisfaction in higher education in a developing country context. It investigates the impact of full range leadership styles practiced by HODs as a predictor of faculty job satisfaction in STEM-related fields in higher education institutions in the UAE. Since job satisfaction is considered a multi-dimensional concept (Brief & Weiss 2002; Locke 1969), including multiple factors seems to be necessary. This study also investigates the moderating role of triggers (Hagedorn 2000 & Author) and the mediating role of demographic, (Hagedorn 2000 & Author), motivators and hygienes (Hagedorn 2000, Herzberg et al. 1959, Spector 1985 & Author), environmental conditions (Hagedorn 2000, Herzberg et al. 1959 & Author), identity (Author), and job design (Hackman & Oldham 1974 & Author) on the relationship between leadership styles and faculty professional job satisfaction. Measuring the effects of these factors is a unique characteristic of this study.

The purpose of this study is to investigate the relationship between HODs' leadership styles and faculty job satisfaction factors, in STEM-related fields, in the UAE. It also investigates the

impact of moderators and mediators on this relationship. The intention is to gain a better understanding of the leadership styles practiced by HODs, the most effective elements that satisfy faculty in their job, and the impacts of moderators and mediators on the relationship between HODs' leadership styles and faculty job satisfaction, in STEM-related fields.

Three main questions guide the research:

RQ1. What are the most effective leadership styles for HODs in relation to faculty job satisfaction, in STEM-related fields?

RQ2. What are the main job satisfaction elements for faculty in relation to HODs' leadership styles, in STEM-related fields?

RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?

The general approach of this study in addressing the main questions is socio-cultural using leadership theories primarily from Burns (1978) and Avolio and Bass's (1991) full range leadership. In addition, Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS) have been selected to be used in a complex multicultural environment (Table 1.1).

Leadership Theories	Job Satisfaction Theories
▪ Transformational Leadership Theory (Burns 1978)	▪ Conceptual Framework for Faculty Job Satisfaction (Hagedorn 2000)
▪ Full Range Leadership Theory (Avolio & Bass 1991)	▪ Two-Factor Theory (Herzberg 1959)
	▪ Job Characteristics Model (Hackman & Oldham 1974)
	▪ Job Satisfaction Survey (Spector 1985)

Table 1.1 Theories Used in This Study

Based on a predominantly post-positivist perspective, this study applies an explanatory mixed methods approach to better understand the research problem. This study aims to contribute to improving the quality of leadership in higher education by providing the stakeholders with relevant ideas and information when making decisions about hiring, retaining, transferring, supporting and satisfying faculty.

1.3 Research context

1.3.1 Background Information and Culture Characteristics

The United Arab Emirates (UAE) was formed in 1971 and includes the following emirates: Abu Dhabi, Dubai, Ajman, Fujairah, Ras al Khaimah, Sharjah and Umm al Qaiwain. It is one of the GCC (Gulf Co-operation Council) States and is located in the Middle East region of Asia. The UAE is governed by a Supreme Council of Rulers made up of the seven emirs, who appoint the prime minister and the cabinet. In the 1950s the UAE's economy was based on fishing and pearl industry, then in 1962 by exporting oil in Abu Dhabi, the country's economy and society began to change totally. The late Sheikh Zayed supervised the progression of all the seven emirates and led the oil incomes into education, healthcare, and the national foundation. In less than 40 years, the country has changed from a traditional to a modern country; from a tribal culture dependent on fishing and agriculture to a world-class foundation. Generally, the UAE is considered a traditional tribal Islamic society (Ali et al. 1995; Ali & Al-Kazemi 2005). It is an Arab and Muslim country in which social life is majorly affected by the rules and culture of Islam. The UAE society has its core values derived from the instructions of Islam and the local culture and customs. Religion is viewed as an integral part of life by all UAE nationals.

According to Suliman (2006) the six layers of culture in the UAE that affect work values are regional (religion, language, society), national (human resources, policies, practices), generation, social class, gender, and organisational culture. Among these, regional and national are the most powerful layers that affect work values in the UAE (Suliman 2006). The significance of four Arab principles, namely Honour, Hospitality, Group Welfare and Religion has been recorded. (Feghali 1997; Hesselgrave & Rommen 2003). Religion has a huge impact on Arab's every day behaviour, having a greater current influence than in many of the Western countries (Ali & Al-Owaihan 2008; Hesselgrave & Rommen 2003; Loosemore & Al-Muslmani 1999). Arabs live in compliance to Islam's standards and teachings. It is generally considered that Islam plays a very pervasive and influential role in Arab culture. In addition, families are close-knitted (Ali & Al-Owaihan 2008; Weisfeld 1990) as commitment to family highly matters in Arab countries (Feghali 1997; Hesselgrave & Rommen 2003; Nydell 2006). According to Kechichian (1999) the power and the role of ruling families of the seven emirates were of far greater importance than tribal differences and rivalries and the attitudes of the rulers were generally shaped by the principles of Islam. Yasin et al. (1997) states that the Arab culture shows affiliation due to the importance of family and religion factors.

According to Robbins and Coulter (2012), national culture is certainly an important situational variable in determining the most effective leadership style. What works in the US is not likely to be effective in the UAE or UK. National culture has an impact on leadership style due to its influences on the way that followers react. Effective leaders cannot practice their styles randomly because they are compelled by the cultural conditions of their followers. For example, based on some cross-cultural leadership studies (e.g., Elliott 2009, pp. 37), "In the United States, leaders

are expected to look great, sound great, and be inspiring. In other countries, not so much.".

Effective German leaders are characterized by high performance orientation, low compassion, low self-protection, low team-orientation, high autonomy, and high participation. Hofstede (1991) defined culture as a group's response to its social environment. "Culture shapes everything' (Hickson & Pugh 1995, p.90). Hofstede developed one of the most widely referenced frameworks for assessing cultures and assisting leaders to better understand dissimilarities in national cultures. He found that countries vary on five dimensions of national culture. The 5 dimensions of national culture are: Power Distance (PDI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS) Femininity, Uncertainty Avoidance (UAI), and Long-Term Orientation (LTO).

Since every single country has its own special cultural dimensions, the management practices also need to be special, relevant and applicable to that particular society (Hofstede 1980). According to Hofstede (1983), the UAE's culture is collectivist, masculine, and high in both power distance and uncertainty avoidance. Findings from Globe Middle East cluster (Kabasakul & Bodur 2002) reveal that it is a group-oriented, masculine, hierarchical, and low in future orientation. Since the UAE depends on expatriate workers (Enshassi & Burgess 1990; Yasin & Zimmerer 1995), issues related to national culture are prevalent. Therefore, expatriates who are interested in working in Arab countries must base their programmes on an in-depth understanding of cultural conditions to be successful (Cerimagic 2010). Rees-Caldwell and Pinnington (2013) discuss differences in national culture and their effects on British and Arab project managers and conclude that how a project manager comprehends the planning stage of a project is influenced by national culture. The cultural differences may also limit the universality of the new leadership paradigms, such as the theory of transactional and transformation

leadership developed by Bass and Avolio (1994), who stated that this theory has some degree of universality, as it holds up considerable universal potential (Randeree & Ghaudhry 2007). These cultural characteristics have played an important role in shaping business leadership styles as well as their effects and outcomes in Asian countries (Chhokar et al. 2007; House et al. 2013). Furthermore, the levels of individuals who are from different cultures' job satisfaction are reported fairly dissimilar by a number of researchers (Hom et al. 2012; Lincoln & Kalleberg, 1985; Yavas et al. 1990).

1.3.2 Higher Education

In terms of higher education in the UAE, a considerable development and progress in the last forty years has also been shown. The increasing number of established public and private institutes with a high quality of standards as well as the improvement of existing institutes by equipping them with modern technologies and offering new disciplines represents the progression as both quantitative and qualitative. The significant change in higher education started since 1976 by founding the United Arab Emirates University. At a later time in 1988, the Higher Colleges of Technology and then Zayed University were established. Although, the education system in the UAE was new, it has been rapidly expanding due to its educational policy for more private and prestigious campuses. Therefore, there are some federal and public higher education institutions along with many private foreign institutions. These private institutions follow different educational models such as American, Australian, British, and Canadian.

This international academic accreditation emphasizes the high quality of academic standards in the UAE. Universities in the UAE have also been qualified by employing expatriates' faculty.

There are literatures demonstrating that employing expatriate faculty not only fills vacant positions especially in science and math areas and brings international scholars and expertise but it also may improve scientific innovation and increase students' awareness regarding international perspectives and the workplace (Aguirre 2000; Altbach 2005; De Wit 2002; NAFSA 2006; Stromquist 2007). To improve the education level, the strategic state plan of higher education was also made (Master Plan for UAE 2007). According to HH Sheikh Hamdan bin Mubarak Al Nahayan, Minister of Higher Education and Scientific Research, the strategic plan aims to develop a distinct learning environment and create a globally competitive group, and intends to achieve a knowledge- based society and the sustainable development of the UAE. As higher education in the UAE aims to accelerate the economic growth and prepare nationals to compete effectively in the global market, the UAE government has been relying heavily on borrowing and implementing Western educational models, practices and expertise (Kirk 2010; Mullen et al. 2013). However, this does not provide an appropriate national role model for students (Al Farra 2011; Kirk 2010) and they need to be modified.

In spite of all the efforts and the increasing number of developed institutes and students enrolled, higher education in the UAE needs to be improved to get closer to the universal standards of quality. The problem needs to be considered more particularly when it comes to STEM-related fields. Effective education in STEM-related fields is a significant factor for the ongoing development of a global knowledge society. Everyone deserves the enjoyment of understanding and learning about the natural world. In addition, to have different kinds of jobs, people are required to have some advanced skills such as being able to think critically and solve expected and unexpected problems. STEM education can contribute to learners' intellectual

competencies such as independent learning, critical thinking, and decision making (National Research Council (NRC) 1996; Schraw et al. 2006). According to Hanushek and Kimko (2000), countries with higher mathematics and science test scores, have shown better quality in their education system and higher rate in economic growth. Therefore, it is necessary to make STEM interests and development in students from the early years of their education.

To reach those high skills, the UAE vision 2021(2009), seeks to make the UAE a leading economy based on knowledge and innovation by the year 2021 and he UAE is investigating in the development of science and increase the number of science graduate students. Data from EFA Global Monitoring Report (Education for all 2011) demonstrates that only 21% of Emirati students attending UAE universities are enrolled in science or engineering programs, with the large majority pursuing humanities, social sciences, or business degrees. Reports from secondary schools might present one of the major issues that leads to the low science student number in tertiary science education. According to Forawi's (2014) study, only 1.5% of Emirati students in middle school and high school think of being a scientist (of any kind of science). These results are a warning that in the near future due to the lack of interests and ability in science and math, there will be serious problems in higher education. This study aims to improve the quality of higher education in the UAE by identifying the most effective leadership styles to satisfy faculty members in STEM-related fields.

1.4 Significance of the Study

Many job satisfaction and leadership styles' studies have been conducted on faculty in higher education, but relatively much less has been done on the satisfaction of faculty in relation to HODs' leadership styles.

1. There are no published empirical studies on the impact of HODs' leadership styles on improving faculty job satisfaction, in STEM-related fields, in the UAE context and even throughout other countries. Also, there is no research in general, that has focused on HODs' leadership styles and little research that has focused on faculty, in STEM-related fields. Several studies have taken the leadership styles and job satisfaction of academic members in higher education in developed countries into account, but evidence from developing countries is majorly unavailable. This study can also contribute to fill the gap in the literature regarding the UAE and even other developing countries.

2. Studying faculty in STEM-related fields can help diversify the faculty pool, which enhances creativity, change, and competition (AAUW 2010). The diversity also expands the current resources required to boost organizational performance (Barinaga 2007). The quality of teaching and learning can only develop with the contentment of faculty members (Chen et al. 2006; Nigam & Jain 2014). Low satisfaction levels cause high turnover, low retention rates, and the loss of skillful, adept faculty in STEM-related fields. As a result, a slow-down in research, a loss of specialized faculty, faculty for chair committees, and faculty to mentor graduates appear. These concerns highlight the value of studying faculty job satisfaction and practicing appropriate leadership styles by HODs to keep their faculty satisfied as much as possible.

3. This study adds to current leadership styles and faculty job satisfaction literature by investigating the effects of mediators and moderators. The suggested potential mediators include Demographic (Gender, Ethnicity, Institutional type, Academic discipline), Motivators and Hygienes (Achievement, Recognition, Responsibility, Advancement, Working conditions, Job security), Environmental conditions (Student quality or relationships, Administration, Institutional climate or culture), Identity (Need to belong, Self-esteem, Religious and cultural

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values), and Job design (Skill variety, Autonomy, Feedback). The suggested potential moderators include Change in life stage, Change in family-related or personal circumstances, Transfer to a new institution, Change in perceived justice, Change in mood or emotional state. This is a unique characteristic of this study.

4. Although there are many studies on job satisfaction in higher education, existing measurements have been narrow and incomplete (Morgeson & Humphrey 2006) and a more comprehensive measure seems necessary. In terms of theoretical framework, the use of Burns (1978) and Avolio and Bass's (1991) full range leadership, Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS) allowed for a more holistic view as well as a more nuanced view of the complex processes and contexts that contribute to leadership styles and job satisfaction. For instance, in this manner, faculty job satisfaction cannot be understood solely by analysing national databases or looking at solitary variables such as salary or rank. Instead, it must be measured while considering the complexity of the many contexts at work. Furthermore, more data needs to be collected from developing countries, and the theories should be checked in different cultural contexts and unique professional, social and economic environments (Garrett 1999). For example, Hagedorn's framework has been applied in previous analyses of job satisfaction majorly in the USA, but, to the best of the author's knowledge, it has not been used in developing countries yet. There is no study employing all above theories to investigate the relationship between leadership styles and job satisfaction.

5. In terms of methodological approaches points of view, this study is an addition to the current

body of literature on leadership styles and job satisfaction through a mixed methods approach. The majority of the existing research incorporated qualitative methods, thus decreasing a fuller understanding of the personal opinions. This mixed methods approach provides a more holistic view of HODs, academic members of faculty and deans of colleges, in STEM-related fields, and a better understanding that may be extended to other universities.

1.5 General Assumptions and Implications

The findings provide some possible implications for the management of universities, departments, research programs, and teams to analyze job satisfaction of faculty in their universities and to make better decisions in sensitive situations such as university climate and culture, retaining, and supporting and satisfying faculty, to reflect upon and criticize existing leadership styles and to reform and improve existing leadership styles to increase faculty job satisfaction in universities, to contribute to reduce faculty turnover and the cost (financial, social, organizational), and to improve the overall performance of the universities in STEM-related fields.

The results of this study may assist administrators in making organisational or administrative changes that could elevate job satisfaction of faculty members in STEM-related fields. From a managerial perspective, university administrators would be advised to raise faculty job satisfaction by designing training programs for academic leaders in higher education to be prepared for their role as a leader since a majority of administrators in higher education have not attended any training programs to prepare for their roles as leaders (Land 2003). They also may provide their dissatisfied faculty with some training programs.

Understanding these job satisfaction factors is a key to solve the problems, develop a better workplace and improve the organisation's quality. Deans, HODs, and other university administrators aiming to foster faculty success, can focus on all of the identified factors, or if they need to assist a struggling professor in one area more than another, they might deliberately target the development of certain factors to increase the odds of success. It is hoped that the leadership styles and job satisfaction factors of academic members found in this study are useful for HODs to practice a more appropriate leadership style, for management to develop work environments in to enhance faculty job satisfaction levels, and generally lead to a great advancement in the level of academic members around the world, particularly in developing countries and the UAE higher education.

1.6 Organisation of the Chapters

The thesis is organised into six chapters. In Chapter one, a background review of the research problem is presented, in order to help clarify the purpose, rationale, research questions, and the cultural and higher educational background of the context of the study. The significance of the study is also identified, together with general assumptions and implications encountered. In Chapter two, the literature review provides an overview of the different areas of the research problem including HODs' leadership and faculty job satisfaction in STEM-related fields, leadership theories and constructions, job satisfaction theories, job satisfaction factors, the relationship between leadership style and job satisfaction, and the theoretical framework. The aim of this chapter is to provide the background for the proposed study of the leadership styles of HODs and its impact on their faculty job satisfaction in STEM-related fields. Chapter three describes the approach and methodology employed in this study together with relevant ethical

considerations and the design of the methods of data collection. In addition, the procedures provide a brief account of the pilot studies and the data collection procedures in each phase of the study. Chapter four includes the preliminary analysis from validity to reliability, factor analysis, as well as the descriptive analysis of the participants. This chapter also includes analysis of the collected data in the first quantitative phase of the study, employing a wide variety of statistical tests, as well as analysis of the collected data in the second qualitative phase of this study based on semi-structured in-depth interviews. All these results are discussed in Chapter five for the three main research questions and the related hypotheses. Chapter five also presents a summary of the results, the main findings related to each question and the final model of HODs leadership styles and faculty job satisfaction in STEM-related fields. The final chapter, Chapter 6, consists of theoretical, methodological, and practical conclusions and implications as well as the limitations of this study and directions for future research.

CHAPTER 2: LITERATURE REVIEW

This study investigates the relationship between HODs' leadership styles and faculty job satisfaction factors, in STEM-related fields, in the UAE. It also investigates the impact of moderators and mediators on this relationship. To understand the landscape of this research study, it is crucial to review the literatures that are relevant to the topic. The literature review consists of the following: HODs' leadership styles and faculty job satisfaction in STEM-related fields, leadership theories, Full Range Leadership Styles in current literature, job satisfaction in literature, job satisfaction theories, job satisfaction variables in this study, relationship between leadership styles and job satisfaction, and the theoretical framework.

To identify the number of studies on leadership styles and job satisfaction in higher education, 'Google Scholar' was searched for the related studies, published from 1997 to 2017. The search revealed that, 43,100 publications cited leadership styles in higher education and 209,000 publications cited job satisfaction in higher education. Similarly, the search revealed 25,200 publications that referenced relationships between leadership style and job satisfaction in higher education and 5,970 publications that referenced the impact of moderators and mediators on the relationship between leadership styles and job satisfaction in higher education for the years 1997 through 2017. Reviewing the most related studies on leadership styles and job satisfaction in higher education and subsequent meta-analyses such as Judge and Piccolo (2004), Kelali and Narula (2015), and Wang et al. (2011) showed that the social scientists typically based their conclusions on leadership styles and job satisfaction in which data were collected through survey questionnaires and then analysed quantitatively. This study employed a mixed methods approach

in which the conclusions are based on both survey questionnaire and in-person interviews analysed respectively quantitatively and qualitatively. Therefore, this study contributes to the literature in terms of its research design, as an explanatory mixed methods design.

2.1 HODs' Leadership Styles and Faculty Job Satisfaction, in STEM-related Fields

Department chairs/ Heads have a significant role in managing universities (Allen 2003; Bowman 2002; Hecht et al. 1999; Lucas & Associates 2000), they can be seen as the single most important administrative position in higher education institutions (Gmelch & Parkay 1999). Tucker (1992), catalogued 54 separate duties of HODs such as curriculum and budget manager, change agent, mentor, mediator, entrepreneur, recruiter, rule interpreter, planner, and department representative. In addition, the quality relationships between HODs and faculty greatly influences the socialization of new faculty, the ongoing motivation of long-term faculty, and the acceptance of departmental expectations concerning teaching and scholarly activity (Hecht et al. 1999). Therefore, it is crucial for HODs to adapt their own communication and relationships styles and skills to promote effective leadership in their department. Since, different disciplines have different expectations regarding leadership approaches (Bryman 2007), practicing an appropriate leadership style related to that particular discipline seems vital. Sapienza (2005, p. 476) stated that "effective science leaders are described as caring and compassionate, possessing managerial skills, technically accomplished to lead a scientific effort, and being a good role model".

Effective education in STEM-related fields is a significant factor for the ongoing development of a global knowledge society. It is widely accepted that STEM education aims to foster learners' intellectual competencies such as independent learning, critical thinking, and decision making

(National Research Council (NRC) 1996; Schraw et al. 2006). Given the importance of STEM to national economies and success (e.g. Rising Above the Gathering Storm, National Academy of Sciences, 2007 and Rising Above the Gathering Storm Revisited, National Academy of Sciences, 2010), all countries need to be promoting STEM and STEM education to everyone. The lack of research on leadership styles and job satisfaction in STEM-related fields are themselves a barrier to overcome in pursuit of the critically important goal of STEM education in science, technology, engineering, and mathematics in higher education. In this regard, this study investigated the most appropriate leadership style of HODs in STEM-related fields that includes science, technology, engineering and mathematics which have clearly delineated paradigms and well-established rules and standard for scientific practice (Kuhn 1962).

HODs in STEM-related fields have to attract and establish creative, enthusiastic, and gratified respectable scientists and supervise to exchange and apply the scientific information and data to the external environment (Siegel et al. 2004). In addition, an active collaboration of faculty in STEM-related fields is the vital key. Faculty members must take various roles of being a mentor, a consultant, an advisor, a friend, and/ or an editor. They can take those roles if they feel satisfied towards their career. A great deal of literature suggests that faculty dissatisfaction can influence productivity, work performance, retention, absenteeism, and turnover (Brayfield & Crockett 1955; Griffeth et al. 2000; Herzberg et al. 1959; Spector 1997; Tack & Patitu 1992). From the other point of view, job satisfaction can enhance productivity, creativity, and retention and reduce absenteeism and turnover (Brown & Mitchell 1993). Therefore, HODs in STEM-related fields should satisfy their faculty by considering their needs and practicing an effective leadership style to reach the goals of STEM education and improve the quality of higher education.

The satisfaction of academic faculty members contributes to the strength of the STEM enterprise in universities for at least three major reasons. First, satisfied faculty form a stronger connection with their organisation and have less tendency to leave (Daly & Dee 2006; Rosser 2004; Zhou & Volkwein 2004). The retention of faculty has significant economic impacts for the university and the cost of turnover is high (Ambrose et al. 2005; Daly & Dee 2006; Johnsrud & Rosser 2002). A university estimated that it could take 10 years for a new science or engineering faculty member to reach enough of a positive revenue stream from grants and to recoup start-up costs (Hopkins 2004). Second, satisfied faculty are more productive (Blackburn & Lawrence 1995; Zey-Ferrell 1982). If maximum job satisfaction is reached, faculty can contribute greatly to the workplace (Duong, 2014). Third, increased faculty satisfaction is also correlated with teaching quality and effectiveness (Marsh & Hattie 2002), and effective student-faculty communication yields better student outcomes, such as appeal to academic jobs and intellectual growth and learning (Endo & Harpel 1982). Hence, faculty satisfaction allows for effective functioning of academic organizations and has valuable influences on the knowledge and human capital output. The more university adminstrators and research leaders comprehend and target faculty satisfaction, the more likely it is for universities and research teams to retain strong, beneficial education and research activities (Bozeman & Gaughan 2011; Hagedorn 2000).

Many studies have found a strong link between perceptions of the faculty role and job satisfaction and academic discipline (Hemmasi 1992; Neal 1990; Neumann & Finaly 1991; Opp 1992; Terpstra & Honoree 2004). Xu (2008) investigated that the motivation factors for faculty of different disciplines are different; for example, faculty in pure sciences is influenced by some factors including salary, job autonomy, opportunities for advancement, and external funding. Also, faculty in hard, pure disciplines have less job satisfaction than those in soft, pure

disciplines (Mukhtar 2012). According to Welch and Jha (2015), rewards, reputation, and recognition have been the highlight of prior studies and portray fundamental intermediate outcomes in the academic science and engineering enterprise (August & Waltman 2004; Hagedorn 1994; Leahey 2007; Mamiseishvili 2011). Other aspects of satisfaction may be present. For instance, satisfaction with course load, satisfaction with benefits, and satisfaction with quality of students, (Smart 1990; Rosser 2004, 2005).

Since the STEM-related fields, particularly, are highly male-dominated and male-centric, the recruitment, retention, and advancement of women are more difficult (e.g., Etzkowitz et al. 2000; Fox 2001). A study by Ward and Sloane (2000) which was based on a sample of 900 academics at five Scottish universities, found major discrepancies in job satisfaction levels according to the gender and disciplinary affiliation of faculty members. Among female faculty members, the engineers were most satisfied, while social scientists were the least. Among male faculty members, social scientists were most satisfied, while the natural/physical scientists were the least. According to Shapira and Griffith (1990), engineers and scientists tend to differ in their educational antecedents, work practices, norms and cognitive styles. Liu (2001) found that academic members who mostly teach, express more dissatisfaction with their job; and faculty in the natural and engineering fields probably spend more time on research than teaching. Ward and Sloane (2000) observed that engineering faculty members are more satisfied with pay compared to scientists, social scientists, medical and arts faculty members. However, there is no strong theory suggesting that field affects job satisfaction and, moreover, the selection effects are likely too complex to accommodate in a study based on questionnaire data (Bozeman & Gaughan 2011). It is worthwhile mentioning that, Hagedorn did not recognize academic discipline as a vital predictor of job satisfaction.

2.2 Leadership

2.2.1 Leadership Theories

The interest towards leadership theory has rooted in 5000 B.C. The significance of the role of leaders has caused a wide range of leadership theories from the Great Man Theory of Leadership (Carlyle 1907; Galton 1870), to Trait Theory (Gray & Smeltzer 1989; Green 1994), Environmental Theory (Bogardus 1918; Hocking 1924), The "Situational Leadership" model (Hersey & Blanchard 1977), Blake and Mouton's Managerial Grid (1978), Transactional theory (Burns 1978), and to Avolio and Bass's (1991) full range leadership theory. Figure (2.1) represents the timeline of leadership theories.
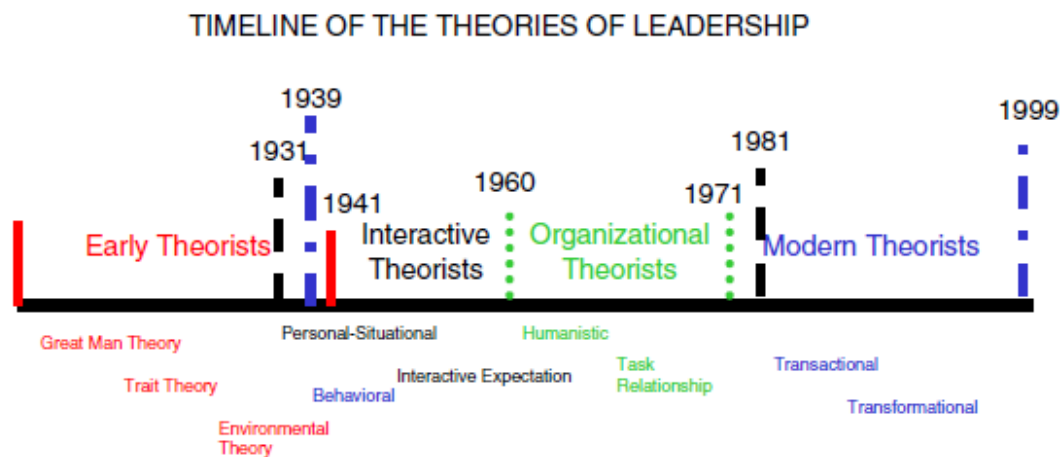
Figure 2.1 Timelines of Leadership Theories

Among all of the theories, full range leadership has been a favorite subject for research in literature and debates in scholarly communities and has become the most researched and validated leadership theory around the world (Kirkbride 2006). According to Robbins and

Coultar (2005), full range leadership theory has been called as cutting-edge leadership theory. It is demonstrated as the mainstream in leadership research by Stordeur et al. (2001). The transformational leadership theory was first proposed by Burns (1978) and then extended by Bass (1985). Bass modified and elaborated Burns's theory to establish his own transformational theory. In 1991, Avolio and Bass proposed the Full Range Leadership Theory (FRLT). The label, full range leadership, indicates the wide viewpoint of what comprises a large variety of leadership styles. These styles have been identified to capture a broad range of leadership behaviours from transformational leadership to transactional and laissez-faire, each of which have made distinctive contributions to effective and ineffective leadership (Avolio & Bass 2004).

Generally, transformational leadership constitutes of behavior that promotes subordinates' higher-order needs, targets their growth needs individually, leads to performance that exceeds expectations, suggests new resolutions, shares the leader's vision effectively, appreciates change, and is a source of satisfaction among followers. (Bass 1985; Bass & Avolio 2000).

Transformational leadership style can nurture followers' dedication to institutions and motivate them to exceed what is expected from them (Bass, 1985; Bass & Riggio 2006; Miia et al. 2006; Sivanathan & Fekken 2002). In contrast, transactional leadership can achieve validity through rewards, praises, and promises that would fulfill the immediate needs of followers (Northhouse 2010). It involves followers by rewarding them in exchange for achieving goals (Burns 1978). According to Bass (1985), transactional leadership is reinforced by exchange theory, where a leader and subordinates set the goals and the procedure of obtaining objectives by exchanging rewards, and using coercion to attain the subordinate's compliance to fulfill organizational performance. Laissez-faire leadership is described as the absence of leadership. A laissez-faire

leader discards his/her liability, procrastinates, does not give feedback, and is not very attentive to the subordinates' needs. Transformational, transactional and laissez-faire are represented by nine distinct features: five transformational (idealized influence attributed, idealized influence behaviour, inspirational motivation-charisma, intellectual stimulation, and individualized consideration), three transactional (contingent rewards, management-by-exception active, management-by-exception passive), and one laissez-faire. Figure (2.2) depicts the whole range of leadership styles from non-leadership (laissez-faire) to the more transformational styles.
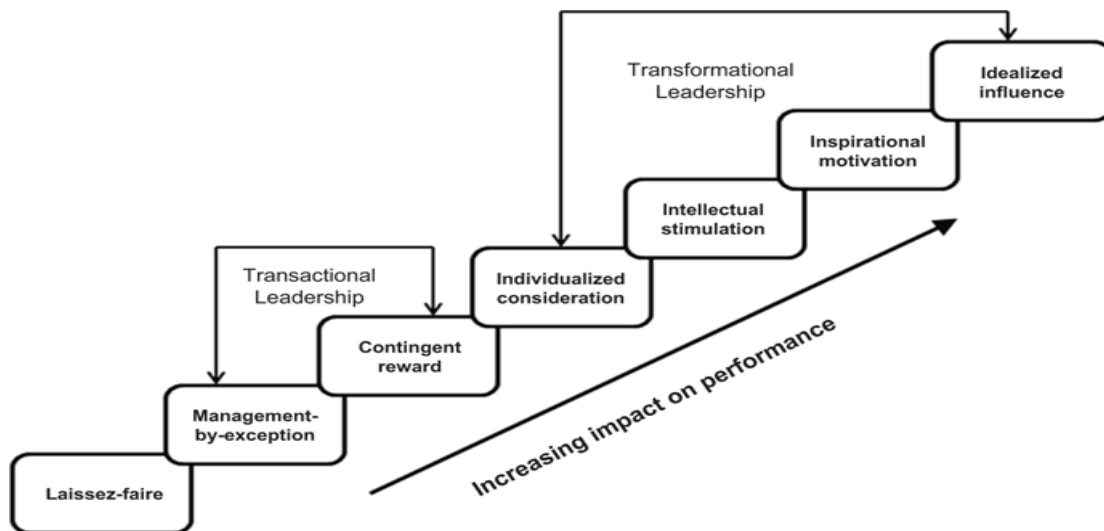
Source: Adapted from Kirkbride (2006)

Figure 2.2 The Full Range Leadership Styles (Avolio & Bass 1991)

The full range leadership construct has gained tremendous popularity among researchers and practitioners and it is one of the most broadly used comprehensive leadership theories. This is a popular construct that comprises a broad range of leadership behaviours.

2.2.2 Variables of the Full Range Leadership Theory in This Study

For the purposes of the research conducted and among all of the theories and models, all variables and components of the Full Range Leadership Theory (Avolio & Bass 1991) were included in the conceptual framework of this study.

Transformational leadership- The essence of transformational theories is that leaders transform their followers through their inspirational nature and charismatic personalities. Rules and regulations are flexible, guided by group norms. These attributes provide a sense of belonging for the followers as they can easily identify with the leader and his/her purpose. Transformational leadership is comprised of the following:

Idealized Influence (Attributed & Behaviour)- Leaders exhibit conviction, emphasize trust, act responsible, present their morals, and underscore the value of purpose, dedication, and ethics. Such leaders are liked role models who highlight pride, devotion, reliance, and alignment around a shared purpose.

Inspirational Motivation- Leaders set an inspiring vision, challenge followers to aim high, act enthusiastically, and offer encouragement and purpose for what needs to be accomplished.

Intellectual Stimulation- Leaders question old assumptions and beliefs, take interest in radical approaches, and appreciate the expression of ideas.

Individualized Consideration- Leaders treat others on an individual basis; they consider their needs, abilities, and dreams, listen attentively, and help them develop and rise.

Transactional leadership- It is the basis of most leadership models, which focus on exchanges between leaders and followers (Northouse 2010). It is an extrinsic-based motivation procedure that allows leaders to attain their goals, while followers attain external rewards for job performance. An example is a manager who gives rewards, such as promotions, extra pay, or holidays, to high-achieving employees. Transactional leadership constitutes the following components:

Contingent Rewards- Leaders utilize a constructive path-goal transaction of rewards for performance. They explain their expectations, trade promises and resources, set mutually satisfying agreements, discuss for resources, exchange assistance with effort and offer commendations for successful follower performance.

Management-by-Exception (Active & Passive)- Active leaders look over followers' performance and correct them in case of deviations from the standard. They set rules to prevent mistakes. Passive leaders fail to engage unless problems become major. They wait to take action until mistakes become too noticeable.

Laissez-faire- It is typical for managers who do not react systematically to situations and problems which arise. Passive leaders do not clarify misunderstandings, do not make their expectations clear, and do not set clear objectives and performance standards for their followers. This style has very often a serious negative effect upon individual, group and organisational

results. Outcomes are most of the time exactly opposed to the intended consequences. This is why this outlook on leadership is often called "no leadership".

2.2.3 Full Range Leadership Styles in Literature

Full range leadership styles is one of the most powerful contemporary theories of leadership and the positive effects of transformational leadership have been investigated in many studies. These studies often employed a quantitative research approach in their empirical investigations. For example, in Matzler et al.'s (2015) study, in which the data were collected from 411 entrepreneurs and managing directors of small and medium-sized Austrian companies, a quantitative approach was employed; in Chou et al's (2013) study, in which the data collected from 39 teams in Taiwan including 3-35 people per team, a quantitative approach was employed; and in Sakiru et al.'s (2014) study, in which the data were collected from 217 lecturers of Nigerian lecturers studying at three research universities, a quantitative approach was also employed.

According to Bodla and Nawaz (2010, p.210), "The full range leadership model is probably the most researched and validated leadership model in use worldwide today". It has been one of the most cited and powerful influential contemporary theories of leadership (Felfe & Schyns 2010; Judge & Bono 2000; Matzler et al. 2015; Van Knippenberg & Sitkin 2013). The transformational leadership model is at present arguably the dominant paradigm of leadership (Ashkanasy 2003). Many researchers have demonstrated that transformational leadership is the most influential leadership style (Al- Hourani 2013; Lopez-Zafra et al. 2012). It has been widely used in different fields such as educational, industrial, business, hospital, and military circumstances, supports a

wide range of thought of leadership than other theories, and focuses on followers' needs, values, and morals (Bass & Avolio 2000; Northouse 2004; Northouse 2010; Shamir et al. 1993; Yukl 1999). Full range leadership theory has also been employed in a number of countries. Transformational leadership has been found to be more acceptable and effective than transactional leadership in most empirical studies across multiple cultures including Canada, India, Japan, the Netherlands, and Singapore as well as the United States (Arvey et al. 2015). There is abundant literature on the positive effects of transformational leadership (e.g. Herrmann & Felfe 2014; Matzler et al. 2015; Wang et al. 2011).

In a recent meta-analysis, Wang et al. (2011) confirm a positive relationship between transformational leadership behaviour and the creative performance of the followers, arguing that leaders encourage and intellectually stimulate followers to challenge the status quo, question prevailing assumptions, take risks, suggest innovative ideas and engage in divergent thinking (Bass 1985). Followers are also encouraged to experiment among different options without the fear of failure (Wang et al. 2011). Transformational leaders influence followers through powerful emotions when describing their values and ideals, which leads followers to internalize these values and ideals (Ashkanasy 2003). The leaders' "idealized" values and ideals become relevant to the followers' own values and ideals (Ilies et al. 2012). Through these transformational leadership behaviours, followers are motivated to perform at higher levels (Matzler et al. 2015). By motivating followers to seek new approaches and identifying with their needs, transformational leaders can push their followers to be more indulged in work, which yields higher levels of dedication to the organization (Walumbwa et al. 2004). Bass (1990) stated that the ideal leaders for their followers are transformational leaders who are reported as most

effective and successful among other leaders. It can create valuable and positive change in the followers (Chou et al. 2013), it is very efficient regarding followers' development, performance, decision making skills, and can facilitate team performance (Bass & Avolio 1994; Dvir et al. 2002; Walumbwa et al. 2004; Wang & Howell 2012). However, Tourish and Pinnington (2002) claim that there are a large number of potential shortcomings with the application of transformational leadership style in organisations.

Chaudhry and Javed (2012) emphasize on the positive, strong and significant relationship between transformational leadership and the employee commitments. A study of Bolda and Nawaz (2010) showed that 265 faculty members in the public and private districts in Pakistan were using transformational and laissez- faire (passive) leadership styles similarly. However, the faculty in the private sector was using transactional leadership more than the public sector. Greiman's (2009) study of some American agricultural deans found that they prefer transformational leadership style and then transactional style. The same result has been achieved for American agricultural and life science leaders (Jones & Rudd 2008), as well as Taiwanese nursing deans (Chen 2004), and American university presidents (Levine 2000). There is a very limited number of studies in Arab countries about leadership styles in higher education. A study of three university deans in Egypt and Lebanon by Al-Hourani (2013) investigated that women leaders at the three universities practiced transformational leadership style while men leaders used transactional styles that academic science leadership is related with both academic reputation and network structure. The findings in Sakiru et al.'s (2014) study revealed that the most commonly used leadership styles among the HODs of Nigeria public university are transformational leadership styles, with the highest mean of 3.9032.

There is no study which focuses on HODs' leadership styles in STEM-related fields but it is obvious that to be a successful HOD, the required skills should be considered in their leadership style. Most of the studies on leadership styles are limited to developed countries (Foskett & Lumby 2003; Geijsel et al. 2003; Northouse 1997; Shah 2010) and less is known about developing countries (Shah 2010). The Globe study, as the most extensive and comprehensive cross-cultural study of leadership ever undertaken, found that leadership has some universal aspects. Particularly, a number of elements of transformational leadership appear to be associated with effective leadership regardless of what country the leader is in (McCrae et al. 2004). In spite of that, the results in Western countries cannot be applied in developing countries without modifications (Rodwell 1998); leadership styles are underpinned by context and culture, the preferred leadership styles in different cultural contexts are different (Shah 2006; Shahin & Wright 2004). Therefore, there is "no one leadership style" that can improve the productivity of institutions in all cultural contexts (Al-Omari 2007). By far the transformational leadership style is the most and laissez-faire is the least dominant styles that has been reported.

2.3 Job Satisfaction

Generally, job Satisfaction is "simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like [satisfaction], or dislike [dissatisfaction] their jobs" (Spector 1997, p.2). The most common definition of job satisfaction in organisational research is from Locke (1976), who explained job satisfaction as a satisfying, positive emotional state that stems from the praise received for one's job experience.

2.3.1 Job Satisfaction in Literature

Many research studies emphasized the vital role of job satisfaction in organisations and investigated the most effective factors for increasing job satisfaction. These studies often employed a quantitative approach in their empirical research. For example, in Tan and Waheed (2011) study in which conceptual framework utilized was Herzberg's two-factor theory, the data were collected from 152 sales personnel from ladies clothes stores in Malaysia and a quantitative approach was employed. In studies that have utilized Hagedorn's conceptual framework for faculty job satisfaction as their conceptual framework a quatitative approach was employed such as: August & Waltman (2004), the data were collected from 247 female tenured and tenure-track faculty in a research university located in the Midwest; Bentley et al. (2015), in which the data were collected across 19 countries with a total sample size of 24,194 academics; and Hesli and Lee (2013), in which data were collected from academic political scientists in the US. The only study that used a mixed methods approach was Gardner's (2012) study, in which the conceptual framework was based on Hagedorn's (2000) conceptual framework of faculty job satisfaction, the data were collected from 472 faculty members through a survey in the US, and among them 11 women were also interviewed. Many studies that investigated the effective factors for improving job satisfaction were also employed a quantitative research approach. For instance, Welch and Jha's (2015) study, in which the data were collected from the six fields in the 151 Carnegie Designated Research Extensive universities in the United States, and Bender and Heywood's (2006) study, in which the data were collected from 31,845 PhD-level scientists in the United States across academic and nonacademic sectors, both of these studies employed a quantitative approach.

Job satisfaction remains the most broadly researched topic in organizational behavior and human resource management (Spector 1997). Understanding job satisfaction is necessary to the health of the organization, as they are interdependent (Wood 1976), which leads to greater productivity and enthusiasm to accept new responsibilities (Robbins & Coulter 2012). Employee dissatisfaction can cause turnover, absenteeism, poor attitudes, low commitment, reduce employee morale, and low productivity (Herzberg et al. 1959; Smart 1990). In universities, faculty job satisfaction is crucial. It improves productivity and increases quality of work-life that humans desire naturally (Johnsrud et al. 2000). In addition, it affects different aspects of work-life attitudes such as job performance and absenteeism (Herzberg et al. 1957) which increase job quality. There is a positive strong relationship between job satisfaction and job performance (Judge et al. 2001). The literature demonstrating the positive relationship between job satisfaction and job performance goes back on the Hawthorne studies (Roethlisberger & Dickerson 1939) and continues to be studied till now (Decker et al. 2009; Parsons & Broadridge 2006).

Satisfied faculty are more committed and contribute quality inputs to teaching and research, thereby enhancing the quality of student output. On the other hand, dissatisfied faculty contributes negatively to the quality of education. Furthermore, faculty job satisfaction can decrease the turnover rate because if faculty's expectations are met they continue their academic success, if not, turn over will occur (Murray & Cunningham 2004). In terms of business-related issues, a 5% increase in retention may reduce the costs by almost 10% (Wong & Heng 2009). In the United States 77% of employees are dissatisfied with their jobs (Mardanov et al. 2008). The estimated salary for replacing an unsatisfied faculty member is $57000 (Finch et al. 2010).

Therefore, job satisfaction of faculty is considered to be crucial for enhancement of quality of higher education, thus shaping and determining significantly the productivity of generations of students. The public face of the institutions along with their recognition increase with satisfied faculty. Indeed, it is vital for administrators in higher education to understand the effective factors on enhancing job satisfaction among faculty.

Most of the research on job satisfaction has emphasized on organisational business and industrial setting (Platsidou & Dimantopoulo 2009), and there is a lower number of literature on job satisfaction levels of academic faculty members (Sabharwal & Corley 2009). Research on usual workplace environments is not generalizable to the academic profession as the qualifying standards of a professor are different from other professional positions: a professor must act as a teacher, friend, consultant, editor, advisor, and colleague. Therefore, more research needs to be conducted on faculty. Recently, there has been an evident increase in the number of studies related to job satisfaction of academics. Unfortunately, data from job satisfaction of academic members in higher education of STEM-related fields is scarce and this gap needs to be filled. Studying university faculty job satisfaction in STEM-related fields is significant because these faculty have a critical role in higher education, which includes researching new theories and concepts and bringing in grant dollars.

2.3.2 Job Satisfaction Theories

The basis of job satisfaction theory was first proposed by Maslow (1943, 1954). He declared that human motives can appear sequentially to gratify a hierarchy of five basic requirements including physiological, safety, self-esteem, love, and self-actualization. Some scholars have investigated job satisfaction based on Maslow's (1943) theory. However, most of them prefer to

work on cognitive processes of job satisfaction such as attitudinal viewpoints rather than the basic needs of Maslow's theory (Spector 1997). Herzberg's two-factor theory is compatible with the need hierarchy theory of Maslow; Maslow pertains to the needs, whereas, Herzberg deals with goals to satisfy those needs. For example, Herzberg's motivators are satisfied by self-esteem and self-actualization needs of Maslow, while Herzberg's hygiene is satisfied by physiological, safety and belongingness needs of Maslow. This is the reason Herzberg's two-factor theory is often believed to be an extension of Maslow's need hierarchy theory (Herzberg et al. 1959). Despite the similarities there are some major differences between the two theories. For example, Maslow's theory has a sequential arrangement of needs but Herzberg's theory does not, or Maslow believed that any irrespective need of its level can be a motivator, but Herzberg believed that only the higher order needs can be the motivators.

In the two-factor theory, there are two factors which can affect job satisfaction: hygienes and motivators. Hygiene factors encompass the doing of the job including supervision, interpersonal relations, physical working conditions, salary, company policy and administration, benefits, and job security. Motivation factors lead to positive job attitudes because they satisfy the need for self-actualization. They are achievement, recognition, the work itself, responsibility, advancement and growth. In Herzberg's theory, it is not possible to improve job satisfaction by improving any of the ten hygiene factors. The only way to improve job satisfaction is improving the six motivation factors. In addition, if there is not one of the motivators such as achievement, it would not lead to job dissatisfaction, just not job satisfaction. Therefore, the hygiene and motivation factors in Herzberg's theory work in two different realms when influencing on job attitudes. Table (2.1) shows the job satisfaction and dissatisfaction factors proposed by Herzberg.

Motivation Factors (JS)	Hygiene Factors (JDs)
Achievement	Supervision
Recognition	Interpersonal relationships (Peers & Subordinates & Supervisors)
Work itself	Salary
Responsibility	Physical working conditions
Advancement	Benefits
Growth	Job security
	Company policy & administration benefits
	Personal life

Table 2.1 Job Satisfaction and Dissatisfaction Factors (Herzberg et al. 1959)

Many research studies have utilised Herzberg's two-factor theory (e.g. Manisera 2005; Ssesanga & Garret 2005; Tan & Waheed 2011). Also, much of this theory has been confirmed by more exacting research (Diener 1985; Gawel 1997; Knight & Westbrook 1999). However, Herzberg was criticized by psychologists and researchers. For example, Ewen (1964) claimed that Herzberg's theory can examine only a very limited scope of jobs and used just one measure of job attitudes. Ewen had found only one factor, the work itself, in line with Herzberg's theory. Also, Vroom (1964) argued that Herzberg was uncovering people making themselves ''look good'' by ascribing liked occurrence to internal factors and disliked occurrence to external. Gaziel in 1986 questioned the core assumptions of Herzberg's theory and Lawler (1970) and Schwab et al (1971) believed that in their findings, there is not strong evidence related to the two-factor theory. It has been demonstrated that, despite its criticism, Herzberg's two-factor theory still has utility nearly 50 years after it was first developed (Basset-Jones & Lioyd 2005) and has been validated through different studies, and served as the basis for many job satisfaction evaluations.

Hagedorn's (2000) Conceptual Framework of Faculty Job Satisfaction is the basis of this study as it is a practical framework to apply to a community college study. Hagedorn theorises the

factors linked to job satisfaction within academia through her 'Conceptual Framework for Academic Job Satisfaction'. Hagedorn's framework and in particular the motivators and hygienes factors is being influenced by a predominant theory of job satisfaction developed by Herzberg et al. (1957, 1959); it builds upon Herzberg's two-factor theory. Hagedorn suggested a clear account for the application of Herzberg's two-factor theory to academic work by combining some factors to the motivator and hygiene factors. Hagedorn modified and expanded the two-factor theory to account for extra factors (such as demographics, environments, and life-changing events) by applying the 1993 National Survey of Postsecondary Faculty (NSOPF: 93) administered during the 1992-93 academic year (National Center for Education Statistics 1993). Hagedorn (2000) departs from Herzberg and colleagues' (1993) work by combining motivators and hygienes into a single category and separating the influence of workplace relationships and culture into 'environment' category. Hagedorn introduces demographic factors as mediators for job satisfaction and also theorises the importance of external events and introduces them as triggers.

Hagedorn's framework includes two types of constructs that work together to affect job satisfaction: mediators and triggers. Hagedorn (2000, p.6) defines a mediator as "A variable or situation that influences (moderates) the relationships between other variables or situations producing an interaction effect". She defines a trigger as "A significant life event that may be either related or unrelated to the job". According to Hagedorn (2000), there are three types of mediators: (1) motivators and hygienes such as work itself or recognition; (2) demographics such as ethnicity or academic discipline; and (3) environmental conditions such as collegial relationships or student quality or relationships. The framework contains six triggers: (1) change

in life state; (2) change in family-related or personal circumstances (3) change in rank or tenure (4) transfer to a new institution; (5) change in perceived justice; and (6) change in mood or emotional state (Hagedorn 2000). Hagedorn's model is shown in Figure (2.3). The curved arrow indicates the feedback complexity between the state of mediators and triggers which will influence the nature of job satisfaction.

Hagedorn (2000)

Mediators			Triggers
Motivators and Hygienes	Demographics	Environmental Conditions	Change or Transfer
Achievement Recognition Work itself Responsibility Advancement Salary	Gender Ethnicity Institutional type Academic discipline	Collegial relationships Student quality or relationships Administration Institutional climate or culture	Change in life stage Change in family-related or personal circumstances Change in rank or tenure Transfer to new institution Change in perceived justice Change in mood or emotional state

Job Satisfaction Continuum

Disengagement   Acceptance/ Tolerance   Appreciation of job
Actively engaged in work

Figure 2.3 Conceptual Framework for Faculty Job Satisfaction (Hagedorn 2000)

Hagedorn's (2000) variation of Herzberg's two-factor theory was reputable in research and is compatible with studying faculty members. Hagedorn's framework has been employed in previous studies in the USA (August & Waltman 2004; Bentley et al. 2015; Gardner 2012; Hesli

& Lee 2013). There are very limited studies as an international comparative research or in developing countries with the same framework of Hagedorn. Bentley et al. (2015) conducted a study on academic job satisfaction from an international comparative perspective including 19 countries.

Another Job satisfaction theory applied to this study's theoretical framework is the Job Characteristic Model developed by Hackman and Oldham in 1974 (Figure 2.4). They propose that all types of jobs can be measured through five core job dimensions including skill variety (the extent to which an individual must use different skills to perform his or her job), task identity (the extent to which an individual can complete a whole piece of work), task significance (the extent to which a job impacts others' lives), autonomy (the freedom an individual has in carrying out work), and feedback (the extent to which a job imparts information about an individual's performance). These work characteristics were expected to increase positive behavioural (e.g., job performance) and attitudinal (e.g., job satisfaction) outcomes and decrease negative behavioural outcomes (e.g., absenteeism). In their meta-analytic examination, Fried and Ferris (1987) found that these five characteristics were strongly related to job satisfaction, growth satisfaction, and internal work motivation, with weaker relationships to job performance and absenteeism. Hackman and Oldham's model has been widely used in studies such as Astrauskaite et al. (2014).

Hackman and Oldham (1974)

| CORE JOB DIMENSIONS | → | CRITICAL PSYCHOLOGICAL STATES | → | PERSONAL AND WORK OUTCOMES |

Skill Variety
Task Identity
Task Significance → Experienced Meaningfulness of the Work — High Internal Work Motivation

Autonomy → Experienced Responsibility for Outcomes of the Work — High Quality Work Performance

High Satisfaction with the Work

Feedback → Knowledge of the Actual Results of the Work Activities — Low Absenteeism and Turnover

EMPLOYEE GROWTH NEED STRENGTH

Figure 2.4 The Job Characteristics Model of Work Motivation (Hackman & Oldham 1974)

This study also benefitted from Spector's (1985) job satisfaction model. Spector (1997) discusses that job satisfaction affects people's attitudes towards their jobs and its aspects. Spector (1997) explains that for researchers to comprehend these attitudes, they also need to apprehend the complicated and interrelated facets of job satisfaction. A facet of job satisfaction can be explained as any part of a job that produces feeling of satisfaction or dissatisfaction (Spector 1997). This view can be of use to organisations that aim to recognize employee retention areas that could be improved (Saari & Judge 2004). The JSS survey was developed by Spector (1985) to measure general reactions of employees to their job. The nine subscales in the instrument measure the following sub-constructs: satisfaction with pay, promotion, supervision, benefits, rewards, operating procedures, co-workers, work itself, and communication (Table 2.2). The Spector's Job Satisfaction Scale has been widely used (Giri & Kumar 2010; Hassan et al. 2008; Sierpe 1999) as a measure of nine dimensions of job satisfaction in human service and as well as

the measurement of global job satisfaction.

Job Satisfaction	Explanation
1. Pay	Satisfaction with pay and pay raises
2. Promotion	Satisfaction with promotion opportunities
3. Supervision	Satisfaction with person's immediate supervision
4. Benefits	Satisfaction with monetary and non-monetary fringe benefits
5. Contingent rewards	Satisfaction with appreciation, recognition and rewards for good work
6. Operating procedures	Satisfaction with operating policies and procedures
7. Co-workers	Satisfaction with co-workers
8. Nature of work	Satisfaction with type of work done
9. Communication	Satisfaction with communication within the organization

Table 2.2 Sub-scales of Job Satisfaction Survey (Spector 1985)

2.3.3 Job Satisfaction Variables in This Study

Studies of the higher education sector have used various factors to measure job satisfaction of academic members. Oshaghbemi (1997) used eight scales to measure satisfaction of faculty in the UK, namely teaching, research, administration and management, present pay, promotions, supervision/supervisor behavior, behavior of coworkers and physical/working conditions. Ssesanga and Garrett (2005) used nine general elements including teaching, research, governance, remuneration, opportunities for promotion, supervision, co-worker's behaviour, working environment and the job in general to measure the academic's job satisfaction in Uganda. A study of Chen et al. (2006) used six satisfaction factors, namely organization vision, respect, result feedback and motivation, management system, pay and benefits and work environment to measure academic's job satisfaction in China. August and Waltman (2004) found that the quantity of publications and presentations was not an important factor for the women faculty job satisfaction or in Gardner's (2012) study, the role of environmental conditions such as collegial relationship was emphasized. In addition, Xu (2008) investigated that the motivation

factors for faculty of different disciplines are different. For example, faculty in pure sciences is influenced by some factors including salary, job autonomy, opportunities for advancement, and external funding.

University academic staff is busy with complex work in an increasingly demanding environment. They have different assignments to do: to teach, to follow their students, to research etc. In this complex work environment, they are affected by lots of factors and these can increase or decrease their job satisfaction. Satisfaction of faculty is demonstrated to be greatly influenced by the institutional factors, such as leadership, collegial and student relationships, climate and culture of the institution (Grunwald & Peterson 2003; Hagedorn 2000; Zhou & Volkwein 2004). In addition, faculty job satisfaction is reported to be influenced significantly with teaching their subject area, working with students, and collegial relationships in Marston's (2010) study.

The job aspects that are typically linked to low satisfaction include pay (Oshagbemi 1997; Oshagbemi 2000), university policies, resource availability, work environment (August & Waltman 2004; Kelly 1989, Rosser 2004, 2005), and tenure and promotion processes (Bender & Heywood 2006; Oshagbemi 1997; Tack & Patitu 1992). Or particularly in academic science and engineering, the three fundamental factors are rewards, reputation and recognition (Welch & Jha 2015). Measuring satisfaction with various elements of the job as well as overall satisfaction, allows researchers and organizations to find out not only whether people are satisfied with their jobs but also, more importantly, which parts of the job are related to satisfaction or dissatisfaction (Hackman & Oldham 1975, Smith et al. 1969; Spector 1985).

According to the results from international comparative studies on factors related to job satisfaction in different countries such as Bentley et al. (2015), academic job satisfaction is highly contextual, it is problematic to apply the job satisfaction factors in one context to other

national contexts or to apply a model from a developed country to a developing country. As a result, based on the purpose of this study, the most related and appropriate factors/variables of job satisfaction for faculty in STEM-related fields were selected among all of the related well-known theories and models to investigate their effects as mediators or moderators on the relationship between leadership styles of HODs and faculty job satisfaction in STEM-related fields. Table (2.3) represents all job satisfaction variables following by introducing and describing each variable.

Initial Job Satisfaction Variables	**Faculty Job satisfaction (6 Variables)** These factors were selected based on Hagedorn (2000), Herzberg et al. (1959), Spector (1985) and Author's own origination including General job satisfaction (4 items).	**Variables** ▪ Work itself ▪ Salary ▪ Promotion ▪ Collegial relationship ▪ Supervision ▪ General job satisfaction
	Moderators (6 Variables) These factors were selected based on Hagedorn (2000) and Author's own origination including change in perceived justice (3 items).	**Variables** ▪ Change in life stage ▪ Change in family related/personal circumstances ▪ Transfer to a new institution ▪ Change in perceived justice ▪ Change in mood or emotional state ▪ Change in rank
	Mediators (20 Variables) These factors were selected based on Hagedorn (2000), Herzberg et al. (1959), Hackman & Oldham (1974), Spector (1985) and Author's own origination including responsibility (3 items), job security (1 item), self-esteem (1item), student quality or relationships (1item), institutional climate or culture (3 items), religious and cultural values (7items), feedback (1 item).	**Variables** ▪ Demographic (Gender, Ethnicity, Institutional type, Academic discipline) ▪ Motivators & Hygienes (Achievement, Recognition, Responsibility, Advancement, Working conditions, Job security) ▪ Environmental conditions (Student quality or relationships, Administration, Interpersonal relations, Institutional climate or culture ▪ Identity (Need to belong, Self-esteem, Religious and cultural values) ▪ Job design (Skill variety, Autonomy, Feedback)

Table 2.3 Job Satisfaction Variables in the Initial Conceptual Framework

2.3.3.1 Faculty Job Satisfaction Elements
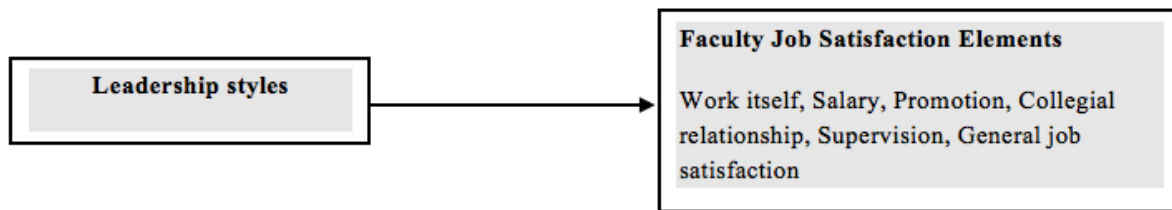
Work itself- A factor shaping faculty job satisfaction is the work itself, which is "*A derived measure comparing the actual proportions of time spent in research and teaching to the desired time spent in these activities*" (Hagedorn 2000). Almost all faculty members describe their work as involving research, teaching and service and, just as important, most evaluations of faculty work, whether for yearly performance evaluation, contract renewal or tenure and promotion, center on these three categories of activities. To measure work itself, this study asked about time spending on various activities including research, teaching, and internal and external services as well as feeling about the nature of job. In the last two decades, higher ranked universities require more research and publication activity of their faculty (Bozeman & Gaughan 2011). Olsen et al. (1995) found that greater time spent on research improved job satisfaction.

Salary- Hagedorn (2000) defines it as "*natural log of salary*". According to Herzberg (1966), this category includes all sequences of events in which compensation plays a role. Salary measures achievement and recognition and contributes to job satisfaction. Faculty's salary not only measures status and equity in the workplace but also affects faculty's morale positively or negatively (Laden & Hagedorn 2000). Salary has also been utilized as a tool to examine position

and justice as factors that affect job satisfaction (Bender & Heywood 2006; Hagedorn 1996, 2000). Similarly, one might assume that pay motivation is extrinsic and straightforward people want to be paid more. But in fact, research shows that the amount of pay often is less important to workers than perceptions in the fairness of pay and the expectation of relationship between pay and performance (Bozeman & Gaughan 2011; Erez & Isen 2002; Hagedorn 1996; Kalleberg 1977; Whitehouse 2001). This study measured salary through asking questions about the natural log of salary, feeling about the amount of salary, and feeling about benefits. Hagedorn (2000) found that job satisfaction levels of employees were greatly influenced by compensation. A positive relationship between salary and faculty job satisfaction has been proved in many studies (Ehrenberg et al. 1991; Zhou & Volkwein 2003).

Promotion- Hagedorn (2000) stated that advancement in academia relates to promotion of rank and achievement of tenure. This study measured promotion through asking questions about the duration of employment in the current position, satisfaction the chances for promotion and with the promotion process overall, and the opportunity for promotion (fairly distributed or not). In Ssesanga and Garret's (2005) study, the majority of respondents felt that undervaluing of teaching excellence in the reward system accounted for their misgivings with promotion. That promotion would lead to an increase in pay it is plausible to deduce that Ugandan deans' dissatisfaction with promotion is in part, explained by inadequate and erratic pay. In addition, the respondents' dissatisfaction with promotion arose inter alia from their being unappreciated and un-recognised for achievements made, where 58% of the sample felt unhappy.

Supervision-Supervision will be perceived by workers as a major constraint for their work (Spector 1997). This study measured supervision through asking questions about respondents'

satisfaction with the supervisor's competitiveness, willingness to delegate responsibility and technical ability of the supervisors. In Ssesanga and Garret's (2005) study, respondents strikingly were pleased with supervision, an extrinsic aspect of academic work. The data revealed that supervision satisfaction among Ugandan academics rose proportionately with rank. Many studies found that supervision has a significant and positive impact on the job satisfaction levels of faculty such as Cohen and Wills (1985), Pienaar et al. (2007), and Kula & Guler (2014).

Collegial relationships- "*Item(s) measuring collegial relationships not available in the data set*" (Hagedorn 2000). One's interactions and views about one's colleagues and the department play a significant role in faculty job satisfaction (August & Waltman 2004; Bozeman & Gaughan 2011; Hagedorn 1996, 2000; Rosser 2004). Faculty who spend less time working alone and who have a higher number of collaborators will tend to have higher job satisfaction (Bozeman & Corley 2004). This study measured this factor through asking about feeling of collegial relationships. According to Hesli and Lee (2013), a more collegial work setting is strongly accompanied by higher job and professional satisfaction. Such relationships can be sources of support and networking among faculty members (Hagedorn 1996).

General job satisfaction- This study measured general job satisfaction through asking questions about academic faculty members' overall feeling towards their satisfaction of their job including 4 items.

2.3.3.2 Variables Suggested as Potential Moderators
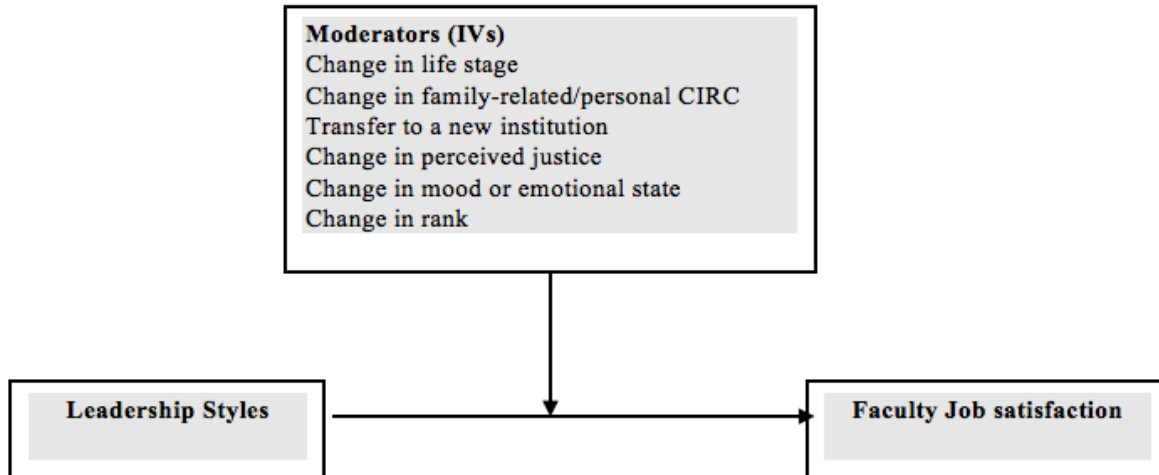
Change in life stage- Hagedorn (2000) defines it as a "*sample split into 3 age groups: Young-35 and younger Middle Aged-36 to 54 Senior-55 and over*". Because work and life are interdependent, the transitions into different life stages play a significant role in job-related outcomes. This study measured change in life when asking the respondents' age the way Hagedorn defines. According to Hagedorn (1994), faculty with twenty-five years or more until reported retirement (novices) attained satisfaction from the positive relations with the administration and communication with the students. Faculty between fifteen and twenty years from reported retirement (mid-careerists) attained satisfaction from appropriate compensation. Lastly, faculty who will retire in five years or less (disengagers) attained satisfaction from positive relationships with administration as well as appropriate compensation.

Change in family-related/personal circumstances- Hagedorn (2000) defines that as "*sample*

split by marital status: Single, never married Married   Separated or divorced". The birth of a

baby, the death of someone close, marriage, divorce, illness, or other significant events can

greatly change a faculty member's outlook on both life and work. This study measured the factor

through asking some questions about respondents' marital status and department supportiveness

of family. According to Sax et al. (2002) and Bozeman and Gaughan (2011), married faculty

expressed higher levels of job satisfaction than did their unmarried colleagues. Balancing work

and family is a known issue in academia and a major concern for faculty of all disciplines

(Mason & Goulden 2002; Rosser & Daniels 2004). It is a more serious concern for faculty in

STEM-related fields because of the nature of the field such as long work hours, and frequent

travel (Mason & Ekman 2007; Monroe et al. 2008). Rosser and Daniels (2004, p.144) state, "The

issue of balancing work with family responsibilities is the most pervasive and persistent

challenge facing female science and engineering faculty members, spanning the variables of

time, type of institution, and discipline".

Transfer to a new institution - "*Sample split between: At institution, less than 4 years, At

institution 10 years or longer*" (Hagedorn 2000*).* This study measured transfer to a new

institution through asking about the duration of employment in the current institution of each

respondent. According to Harrigan (1999, p.1): "If all faculty were hired and retained until

retirement after thirty years of service, we would expect an equilibrium turnover rate of about

one-third of the faculty every ten years or 3.3 percent per year. An alternative hypothetical

university, which hired all [of] its faculty on probation and which denied tenure to all of them in

their seventh year, would have an equilibrium turnover rate of one-seventh or 14.3 percent per

year. Thus, we would expect the 'normal' turnover rate to fall somewhere between these two

extremes". Single institution studies usually report migration levels that are consistent with

Harrigan's estimates. It is an unwritten but well-known truism among faculty that the most facilitated path to a promotion in rank or a substantial raise in pay may be an offer from another institution. Regardless of the reasons behind moving, the environment switch will always mean new surroundings, responsibilities, students, colleagues, and adapting. Faculty who come from other institutions may experience a sense of culture shock, particularly in regard to new colleagues, new students, new institutional missions, and new responsibilities (Hagedorn 2000). Thus, like the other triggers, a change in institutions results in movement on the continuum.

Change in perceived justice- "*Sample split by responses regarding observations of gender and ethnic prejudice: Low/High*" (Hagedorn 2000). This study measured change in perceived justice through asking questions of gender discrimination and the respondents' feeling towards that. In the two related studies of female college faculty (Hagedorn 1996), a highly significant relationship was found between gender-based wage differentials and multiple measures of satisfaction. There were significant relationships between job satisfaction and intent to remain in academia with gender-equitable salary structures than to level of salary. More dissatisfaction was felt when females recognized their salary to be less than their male colleagues compared to when all faculty were not paid much. Equity regarding salary levels is only one area of discrimination that can cause dissatisfaction. Promotion, hiring, awarding of tenure, and nomination for awards are other areas of discrimination (Hagedorn 2000). A sudden realization of inequity serves as a strong trigger and is likely to cause a strong reaction followed by a significant move on the satisfaction continuum. According to Hagedorn (1996), the findings indicates that as gender based wage differentials increased, global job satisfaction of female faculty decreased. Hesli & Lee (2013) states that although it is denied by many, discrimination does exist within the profession.

Change in mood or emotional state - "*Items measuring change in mood or emotional state not available*" (Hagedorn 2000). Change in mood or emotional state has been found to play a strong role in satisfaction (Hagedorn 2000). This study measured change in mood or emotional state through asking questions of the overall emotional well-being of the faculty members. This trigger is related to affective disposition, such as mood or a tendency towards a fixed emotional phase. Although baffling and complex, emotions are important in all personal and social endeavors in work attitudes (Izard et al. 1984; Young 1996). While the institution cannot majorly affect mood or character, a recent study of job applicants revealed that 20-30% of the variance in work performance and attitudes was directly influenced by preexisting personality factors (Furnham et al. 1999). Supporting this finding is another recent inquiry that reported a high level of association between job satisfaction and mood (Weiss et al.1999). Positive mood is associated with positive outcomes, including better job satisfaction (Connolly & Viswesvaran 2000), and improved performance (Cropanzano & Wright 2001). Thus, mood is a pivotal variable that is strongly responsible for one's location on the job satisfaction continuum.

Change in rank-Hagedorn (2000) defines change in rank as "*sample split between: Recently promoted In rank for more than 5 years*". Baldwin and Blackburn (1990, p. 20) wrote "Professors change as they progress through the faculty ranks and as their careers place different demands on them". A change in rank causes a change in perspective on the position, expectations, and responsibility. This study measured change in rank through asking questions about being promoted in the last 5 years. Many studies have been reported a positive relationship between rank and job satisfaction (Eyupoglu & Saner 2009; Hesli & Lee 2013; Okpara et al. 2005; Oshagbemi 1997; Tack & Patitu 1992).

2.3.3.3 Variables Suggested as Potential Mediators


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┌─────────────────────────┐                          ┌─────────────────────────┐
│    Leadership styles    │─────────────────────────→│  Faculty Job satisfaction │
└─────────────────────────┘                          └─────────────────────────┘
              \                                          /
               \                                        /
                ↓                                      ↓
┌──────────────────────────────────────────────────────────────────────────┐
│                              Mediators                                      │
│ Demographic (Gender, Ethnicity, Institutional type, Academic discipline)   │
│ Motivators & Hygienes (Achievement, Recognition, Contingent rewards,       │
│ Responsibility, Advancement, Working conditions, Job security)             │
│ Environmental conditions (Student quality or relationships,                │
│ Administration, Interpersonal relations, Institutional climate or culture) │
│ Identity (Need to belong, Self-esteem, Religious and cultural values)      │
│ Job design (Skill variety, Autonomy, Feedback)                             │
└──────────────────────────────────────────────────────────────────────────┘
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2.3.3.3.1 Demographic

Ample evidence in the literature supports the important role of demographics in job satisfaction (Bullers 1999; Hagedorn 1994, 1996; Olsen et al. 1995; Smart 1990). Demographics, unlike the other hypothesized mediators, are stable and constant during the career. However, in some studies (Bentley et al. 2015) most of the results for the demographic variables were weak and insignificant. The weakness of these variables suggest that demographics play only a minor role in predicting job satisfaction when compared to the other clusters of variables in Hagedorn's framework (Bozeman & Gaugham 2011; Bentley et al. 2015). Demographic includes the following 4 variables:

Gender- Hagedorn (2000) defines gender as a "*Dichotomous variable indicating male or*

female". Although gender is one of the most commonly researched demographics, the evidence remains mixed and inconclusive with regard to the effects of gender on job satisfaction (Hagedorn 2000). The effects of gender on job satisfaction cannot be understood without considering the effects of rank, tenure status, salary, family status and work-family conflict. This study measured the effect of gender on job satisfaction by asking respondents' of being male or female. The majority of studies that focus on faculty satisfaction have examined the relationship between satisfaction and gender (August & Waltman 2004; Bilimoria et al. 2006; Callister 2006; Hagedorn 2000; Sax et al. 2002). Most of these studies have reported that male faculty are more satisfied than females in overall levels of job satisfaction (e.g., Bilimoria et al. 2006; Callister 2006; Hult et al. 2005; Hagedorn 1996; Seifert & Umbach 2008). However, other studies (e.g., Hesli & Lee 2013; Okpara et al. 2005; Oshagbemi 1997; Sabharwal & Corley 2009; Ward & Sloane 2000) did not report any noticeable systematic discrepancies between male and female faculty members in overall levels of job satisfaction.

Ethnicity- Hagedorn (2000) defines ethnicity as "*Two dichotomous variables indicating if African American or Hispanic*". This study measured ethnicity by asking the country(ies) of citizenship. Although relatively few studies of academic faculty have focused on race (Bender & Heywood 2006), the very few studies available have found that white faculty members tend to feel more satisfied (Seifert & Umbach 2008). In addition, literature suggest that both intrinsic and extrinsic dimensions of job satisfaction (financial and career, convenience, and relationships with co-workers), are lower for females and faculty of color than for their male and White colleagues. Some studies have noted that faculty members of color are more involved in teaching and service activities than research, which can cause a decrease in productivity and opportunities to obtain tenure (Toutkoushian 1999).

Institutional type- Hagedorn (2000) defines it as "*Carnegie designation*". Faculty who work at Carnegie Research I or II universities have higher levels of satisfaction than those who work at other types of universities (Sabharwal & Corley 2009). Institutional type, as a variable, defines institutional control (public vs. private), mission (teaching focused vs. research focused), organizational structures, and goals (Gardner 2012). This study considered kind of university based on being as a private, federal, or other. Previous studies reported that those who work in top ranked departments and/or in private organisations normally have higher levels of job and professional satisfaction (Ethington et al. 1989; Sabharwal & Corley 2009).

Academic discipline- This factor is "*Categorized by Biglan type (hard/soft, pure/applied, life/nonlife)*" (Hagedorn 2000). The Biglan (1973) classification is one of the more widely accepted models of disciplinary classification because of the number of studies done to empirically validate it; Biglan's clustering of academic disciplines in three dimensions. There has been limited literature on how academic discipline affects faculty job satisfaction. Xu (2008, p.56) stated, "Academic specialties of university faculty determine their professional values and concerns, which in turn exert direct and distinctive impact on their turnover intentions". This study measured the role of academic discipline through asking the main teaching disciplines, the field of specialization, and the degrees. The classification of all 13 disciplines were based on Biglan (1973) and all categorized as being in Hard disciplines. There are many studies emphasized the important role of disciplines in job satisfaction such as Etzkowitz et al. (2000), Fox (2001), Shapira and Griffith (1990) and Ward and Sloane (2000). However, there is no strong theory suggesting that field affects job satisfaction and, moreover, the selection effects are likely too complex to accommodate in a study based on questionnaire data (Bozeman & Gaugham 2011). It is worthwhile mentioning that, Hagedorn did not find academic discipline as

an essential factor of job satisfaction.

2.3.3.3.2 Motivators and Hygienes

Motivators and hygienes include the following 6 variables:

Achievement- Hagedorn (2000) defines achievement as the "*number of publications and presentations*". In Hagedorn's framework, publications represent achievement, which leads to increase job satisfaction. Herzberg et al. (1959) identified achievement, as the "*opposite of failure and the absence of achievement*". Researchers can recognize job achievement through accomplishments, resolutions, work evidence, and the results of one's work (Herzberg et al. 1959). This study measured achievement through factors including number of publications (e.g., articles, books, presentations) in the last 5 years and respondents' feeling of accomplishment. Productivity, in terms of research and publication, is reported as a predictor of faculty job satisfaction (August & Waltman 2004; Blackburn & Lawrence 1995; Hagedorn 2000; Lahey & Vihtelic 2000; Olsen et al. 1995; Sabharwal & Corley 2009).

Faculty in the disciplines of natural sciences, engineering and the health sciences have higher expectations for publications (Parveen 2009). Faculty members who spend more time teaching than researching are more likely to be less satisfied (Bender & Heywood 2006; Liu 2001; Olsen et al. 1995; Sabharwal & Corley 2009). On the other side, the findings in August and Waltman's (2004) investigated achievement by examining professional productivity for female faculty, they found that there is not a significant relationship between the number of publications and presentations and faculty job satisfaction.

Recognition- Hagedorn (2000) defines recognition as "*Measure indicating chairperson status*

and engagement in funded or creative endeavors". According to Herzberg, et al. (1959), recognition at work is an intrinsic factor that positively impacts job satisfaction. The source of the recognition can be almost anyone from the supervisor to the general public, and the act can involve any type of notice: praise and blame can both be categorized as recognition. This study measured the recognition based on the leader status and rewards toward a good job. Faculty who are satisfied with recognition and rewards are more motivated which results in higher productivity (Appelbaum et al. 2005). Herzberg et al. (1959) and Hagedorn (2000) claimed that recognition and achievement have the strongest relationships with positive job attitudes. On the other hand, Bentley et al. (2015) found that additional research publications had no significant relationship with faculty job satisfaction.

In STEM-related fields, recognition from colleagues is the basic form of success (Welch & Jha 2015). All other forms of success such as monetary compensation, advancement in hierarchy and rank, and enlarged access to human and material scientific capital derive from recognition (Stephan 2004). Therefore, scientists share their knowledge with colleagues and in turn receive recognition. Previous studies have found that recognition and rewards are primary sources of satisfaction among academic faculty (Hagedorn 1994; Mamiseishvili 2011). Leahey (2007) argues that recognition and research visibility are obtained when others are familiar with a faculty member's research and think highly of his or her intellectual contribution. Alternatively, perceived lack of recognition may lead to lower levels of satisfaction.

Responsibility- It is defined as the "*number of committees served and chaired*" by Hagedorn (2000). Herzberg et al. (1959) discuss that responsibility is the group of events from which a person derives satisfaction, such as the responsibility of one's work or the work of others. This study measured the responsibility asking about the number of committees chaired or served in

the last five years, feeling about responsibilities, and attitude regarding the main responsibilities. Several studies have reported that responsibility and job satisfaction have a positive effect on each other (Bowen 1980; Bowen & Radhakrisha 1991; Herzberg et al. 1959; Padilla-Velez 1993). On the other hand, Moxley (1977) reported that responsibility is related to job dissatisfaction and other studies found that responsibility and job satisfaction have no effect on each other (Cano & Miller 1992; Castillo et al. 1998). According to August and Waltman (2004), there are some limitations for women; they tend to be excluded from important committees and decision-making.

Advancement- Hagedorn (2000) defines advancement as "*Derived measure calculated from time in rank*". Advancement in academia includes a promotion of rank or the accomplishment of tenure (Hagedorn 2000). Eyupoglu and Saner (2009) reported that there were significant relationships between the facets of advancement including compensation, co-workers, and variety with academic rank suggesting that extrinsic satisfaction is dependent on rank. Herzberg defines the advancement factor as an actual change in the status or position of a faculty member. This study measured advancement through asking questions about academic position and chances for advancement. Previous studies have reported that faculty members who are of color, female, and foreign-born have struggled and labored to move forward within the ranks of academia (Corley & Sabharwal 2007; Hagedorn 1996; Laden & Hagedorn 2000; Perna 2003; Turner & Myers 2000).

Working conditions-Knowing how to use a positive work environment to increase employee satisfaction and reduce turnover is a key to developing a high-performance workforce. A number of scholars, such as Herzberg (1968) and Spector (2008), have stated that the work environment has a significant effect on the level of (dis)satisfaction of employees. This study measured

working conditions through asking questions of working as a full-time or part-time employer and the first job in higher education. In Parsons and Broadbride's (2006) study, the main findings support Herzberg's theory in that the managers exhibit high levels of satisfaction with intrinsic factors (e.g., variety and challenge of the job, high degree of control) and lower levels of satisfaction with extrinsic factors (e.g., pay, job status, working conditions). In fact, the primary determinants of job dissatisfaction are extrinsic factors (hygienes) including working conditions (Herzberg, 1959). However, Pinder (1998) claims that hygiene factors, like salary, interpersonal relations and working conditions may also act as motivators; the two-factor theory has been criticized for not considering the individual difference of needs and values when describing work motivation (Parsons & Broadbride 2006; Tietjen & Myers 1998).

Job security-Job security is also an essential facet for academicians in institutions of higher learning. The more secure the job is, the more satisfied the academicians are with their job. Dhanapal et al. (2013), Khalid and Irshad (2010) as well as Khalid et al. (2012) stated that employees of public sector are more satisfied with their job security as compared to private sector. It is natural for an employee to seek a new job when he is unsatisfied with his current job due to lack of security. This study measured job security through asking questions of faculty members' beliefs and feeling about their job security. If people do not feel secure in terms of their job, they pay a great deal of attention to remunerations such as salary, fringe benefits, allowances, recognition, and financial rewards. The findings of a study in the UAE found that the employees have a strong emphasis on salary and incentives in which one of the main reason is about a very low job security (Aksu & Aktas 2005), particularly for non-UAE nationals (Budhwar & Mellahi 2007).

2.3.3.3.3 Environmental Conditions

Environmental conditions include the following 4 variables:

Student quality or relationships (students)- Hagedorn (2000) defines it as "*Satisfaction with student quality*". This study measured this factor through asking about satisfaction about quality of students and relationship with them. August and Waltman (2004) found that the quality of relations with students is among the best predictors of overall satisfaction. However, some studies, for example studies in Australia, present that that the quality of academic-student relations has arguably decreased since the massification of Australian higher education has increased student numbers and diversity, and declined student funding (McInnis 2003; Moodie 2008). The general view that student preparation is reducing can be back-traced to at least the late 1970s in Australia. (Harman & Meek 2007). Many academics find it difficult to teach a larger, more diverse, and less academically prepared student group (Bentley et al. 2015). One of the main dimensions of job satisfaction is satisfaction with quality of students (Smart 1990; Rosser 2005).

Administration- Hagedorn (2000) defines administration as the "*measure of satisfaction with administrative decisions*". This study measured the administration factor through asking questions about policies and communications between management and academics. These policies should include all academics equally, however, in Aguirre et al.'s (1994) study, women faculty felt excluded from important decision making at the administrative level of academia. This can act as an obstacle to women and other underrepresented faculty members (Aguirre

2000; Jayakumar et al. 2009). Gardner (2012) noted the lack of support from the administration that was a recurring theme could be problematic.

Interpersonal Relations-This is a hygiene factor that is defined by Herzberg (1959) as the relationship between peers, subordinates and superiors. Relationships with colleagues, students and administrators can significantly impact faculty job satisfaction (Hagedorn 2000). This study measured interpersonal relationships through asking questions of faculty members' feeling of their relationships with administrators and the ways that administrators supports them. This relationship is significant to job (dis)satisfaction. Gross and Napior (1967) found relationships with superiors, relationships with subordinates, and relationships with peers as the significant job dissatisfiers. According to Tsitmideli et al. (2017), the main factor that impacts on job satisfaction and employee performance is the developed relationship between the supervisor and subordinates.

Institutional climate or culture- Hagedorn (2000) defines it as "*measures of perceived improvement in various aspects of the college*". Perceptions on the culture and climate of the organisation can greatly impact job satisfaction of faculty members (Hagedorn 2000). In higher education, culture is defined as "the collective, mutually shaping patterns of norms, values, practices, beliefs, and assumptions that guide the behaviour of individuals and groups" (Kuh & Whitt 1988, p. 12). These norms, values, practices, beliefs, and assumptions can serve a development for faculty members or serve as obstacles to them. This study asked the respondents some questions about their satisfaction in various aspects of the institute to measure institutional climate or culture variable. Several studies reported that faculty job satisfaction can be greatly

influenced by institutional factors such as leadership, collegial and student relationships, climate and culture of the university (Grunwald & Peterson 2003; Hagedorn 2000; Zhou & Volkwein 2004). August and Waltman (2004) found that one of the best predictors of overall satisfaction was departmental climate.

2.3.3.3.4 Identity

Identity includes the following 3 variables:

Need to belong- The need to belong is the motivation to have positive, constant, and meaningful interactions and relationships with other people (Baumeister & Leary 1995). This study measured need to belong through asking questions about faculty members' need and feeling towards the belongingness motivation regarding their job. The need to belong is a significant predictor of women's intention to leave STEM-related fields jobs, and it has been emphasized as an important factor of success and retention in STEM-related fields (Dasgupta 2011; Good et al. 2012; Walton & Cohen 2011). People ask themselves "do I belong?" in deciding whether to enter, continue, or abandon relationships, for socially stigmatized individuals, certainly, this question may be visited and revisited (Walton & Cohen 2007).

Strong reactions may occur when others threaten one's need to belong through rejection, ostracism, stigmatization, and other signs, which indicate that others do not have interest in building relationships (Leary & Allen 2011). Moreover, individuals who belong to disadvantaged groups find themselves in situations where their abilities are in doubt, for instance, in high-stakes academic or professional environments, the need to belong is likely to play an important role (Dasgupta 2011). The need to belong might influence behaviours and career choices (Baumeister & Leary 1995; MacDonald & Leary 2005). For example, Richman et

al. (2011) argued that the need to belong was an important indicator of prosperous careers among female professors who successfully pursued their STEM careers.

Self-esteem- self-esteem is defined as "*the degree to which an individual believes him/herself to be capable, significant, and worthy as an organizational member*" and is labeled organization-based self-esteem (OBSE) (Pierce et al. 1989, p. 625). Self-esteem refers to a feeling of personal self-worth (Crocker & Major 1989). This study measured self-esteem through asking questions about faculty members' feeling of personal self-worth. Self-esteem has been one of the most studied individual characteristics in personality psychology over the past several decades (Baumeister 1999). Low self-esteem is associated with a broad assortment of personal and social problems; high self-esteem is associated with dramatic improvements in many aspects of human life (Baumeister 1999).

In fact, previous researchers found that individuals with high self-esteem had a greater persistence in spite of failure, suggesting that self-esteem facilitated resilience (Shrauger & Rosenberg 1970). Self-esteem related to turnover intentions, job satisfaction, organizational commitment, motivation, and performances (Greenhaus & Badin 1974; Pierce & Gardner 2004). Similarly, Gardner and Pierce (2001) found a negative relationship between self-esteem and turnover intentions. Specifically, employees who believed that their companies view them as important had a tendency to report low levels of turnover intentions. Lee (2013) found self-esteem as one of the critical predictors for men and women in STEM-related fields.

Religious and Cultural Values- The UAE society is strongly influenced by religion and culture so this study measured the probable impact of religious and cultural values on faculty job satisfaction in higher education through asking some questions. Those cultural values questions

were designed to fit the particular culture of the UAE. Religion has a huge impact on Arab's every day behaviour (Ali & Al-Owaihan 2008; Hesselgrave & Rommen 2003; Loosemore & Al-Muslmani 1999). In addition, families are very close in the Arab countries and family loyalty is extremely important (Feghali 1997; Hesselgrave & Rommen 2003; Nydell 2006). Therefore, religion and family are some of the core values in the UAE which can influence the faculty job satisfaction. Many studies confirmed that the levels of individuals' job satisfaction who are from different cultures are fairly dissimilar (Jain et al. 1979; Lincoln & Kalleberg 1985; Yavas et al. 1990).

2.3.3.3.5 Job Design

Job design includes the following 3 variables:

Skill variety- "*The degree to which a job requires a variety   of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.*" (Hackman & Oldham 1974). When a task requires a person to engage in activities that challenge or stretch his skills and abilities, that task almost invariably is experienced as meaningful by the individual and that individual may find the job of great significance even it is not in any absolute sense (Hackman & Oldham 1976). This study measured skill variety through asking questions of the requested skills. Fried and Ferries (1987) discussed the consistence of the relationship between skill variety and job satisfaction. If organisations select to develop skill variety, autonomy, and job feedback the performance in the organisations will be increased, the absenteeism may be reduced. In addition, attitudinal or psychological outcomes could be improved by focusing primarily on skill variety, task significance, autonomy, and job feedback

(Fried & Ferries 1987).

Autonomy- **"*The degree to which the job provides substantial* *freedom, independence, and* *discretion of the employee in scheduling the work and in determining the procedures to be used* *in carrying it out.*"** (Hackman & Oldham, 1974). Job autonomy is an important job resource that is characterized by the extent to which the job allows individuals to decide and choose how to plan their assignments and accomplish them (Hackman & Oldham 1975; Parker et al. 2001). The individual should feel strong personal responsibility for the success and failures that occur on the job. The outcomes greatly depend on the individual's efforts, initiatives, and decisions rather than on the exactness of given instructions from the boss or a manual of job procedures (Hackman & Oldham 1976). This study measured autonomy through asking questions about faculty members' satisfaction of freedom they have.

Across a wide range of studies, job satisfaction has been shown to significantly correlate with job performance, with the highest correlation found in jobs requiring complexity and autonomy (Judge et al. 2001). The findings in Gozukara & Colakoglu's (2016) study, showed that autonomy at workplace enhances the satisfaction levels of employees. In addition, many researchers such as Blegen (1993), Hackman and Oldham (1980), Fried and Ferris (1987), Lee (1998), and Pousette and Hansen (2002) reported that there is a positive relationship between job autonomy and job satisfaction. Siddique et al. (2011) found that leadership styles which provide higher autonomy and involvement in the decision making are the preferred leadership styles of the faculty.

Feedback- The job characteristic that fosters knowledge of results is feedback which is defined as follows "*The degree to which carrying out the work activities required by the job results in*

the employee obtaining direct and clear information about the effectiveness of his or her performance" or *"The degree to which the employee receives clear information about his or her performance from supervisors or from co-workers"*. (Hackman & Oldham 1974). This study measured feedback through asking questions about faculty members' satisfaction of the provided feedback from supervisors. The relation between these job characteristics and job satisfaction is consistent as summarized by a meta-analysis conducted by Fried and Ferris (1987). In addition, because job feedback is associated with all of the psychological and behavioural measures investigated, the development of this task dimension potentially could benefit the organization more than the development of any one of the remaining task dimensions. Church (2000) found that managers who received more favorable multisource feedback had lower turnover and higher service quality in their workgroups.

2.4 Relationship between Leadership Styles and Job Satisfaction

The spirit of leadership is shown by followers; without followers, there is no leadership. So, it is crucial for leaders to undertake a suitable leadership style that would enhance the job satisfaction of their followers. In universities, the administrators who aim to increase their university's effectiveness and validity wisely look for the factors for satisfying their faculty as a vital approach to assist in their overall functioning. Two fundamental factors for organisational success are effective leadership and employee job satisfaction (Kelali & Narula 2015). Since leadership styles may cause faculty satisfaction or dissatisfaction (Al-Omari 2008; Amin et al. 2013) and different leadership styles have different impact on job satisfaction (Chen & Silverthorne 2005), the adoption of an appropriate leadership style is critical.

Many studies in the business context show a significant relationship between leadership styles and employee job satisfaction. These studies have often employed a quantitative research approach in for their investigations, for example, Frooman et al.'s (2012) study, in which the data were collected from 120 employees of a national mail delivery company in the US. A number of studies in higher education have focused that the satisfaction of faculty is generally greatly influenced by the leadership of the university. These studies have often employed a quantitative approach for their research investigations. For example, Leary et al.'s (1999) study, in which the data were collected from 165 full-time faculty members at 11 public institutions of higher education in the state of West Virginia; Sadeghi and Lope Pihie's (2013) study, in which the data were collected from lecturers from three of the leading Research Universities in Malaysia; and Bateh and Heyliger (2014), in which data were collected from 104 full-time faculty members who taught at a single institution in the State University System of Florida. Only Duong's (2014) study employed a mixed methods approach in which the data were collected through a survey from 200 faculty members and an e-mail interview with 10 out of 200 of the academics working full-time in the five member universities of Vietnam National Universities. In terms of the studies that have found a significant relationship between transformational leadership and transactional leadership with faculty job satisfaction, they also have utilized a quantitative approach. For instance, Chen's (2004) study, in which the data were collected from 286 nursing faculty members on Taiwan; Webb's (2009) study, in which the data were collected from 223 vice-presidents and chief officers from 104 member CCCU institutions; and Hamidifar's study (2009), in which the data were collected from 386 non-teaching employees at IAU branches in Iran who have worked for at least one year or more either as administrators, human resources staff or librarians.

2.4.1 Relationship between Leadership Styles and Job satisfaction: Literatures in Business, Industry, and Health Care System

There is a number of studies that have examined the relationship between leadership styles and job satisfaction; however, most of them have been studies extensively in business, industry or the health care system. For example, Awamleh et al. (2005) investigated the transformational leadership style and its direct effect on job satisfaction and employees' performance in UAE banking. The results of this study show that leadership styles of transactional and transformational have a significantly positive effect on employees' job satisfaction and performance. Cetin et al. (2012) investigated the different leadership styles and communicative skills of top Turkish bank employees and the effect their leadership has on the lower-level employees' work ethic and motivation. The empirical findings of this study show that there is a strong relationship between transactional leadership style and communicative skills with job satisfaction. However, there is not any clear influence of individualized and transformational leadership styles on bank employees' job satisfaction.

In addition, Long et al. (2014) investigated different aspects of transformational leadership on job satisfaction in a governmental company in Malaysia. Findings of this study show that among the transformational leadership criteria only the individualized consideration has a significant effect on job satisfaction. Baysaka and Yener (2015) studied leadership styles and job satisfaction among hospital employees in Istanbul. Results of this study show that there is a weak relationship between leadership style and perceived satisfaction. Furthermore, Frooman and his colleagues (2012) examined transformational and passive avoidant leadership as determinants of absenteeism. They noticed that transformational leadership decreases illegitimate absenteeism,

while passive avoidant leadership elevates it, and transformational leadership positively predicts job satisfaction, while passive avoidant leadership negatively does so.

2.4.2 Relationship between Leadership Styles and Job satisfaction: Literatures in Higher Education

In an educational setting, the satisfaction of faculty is generally greatly influenced by leadership of the university (Chen et al. 2006; Duong 2014; Grunwald & Peterson 2003; Hagedorn 2000; Leary et al. 1999; Sadeghi et al. 2012; Zhou & Volkwein 2004). In a review, Kelali and Narula (2015) synthesized studies for the link between leadership styles and faculty job satisfaction. They found a strong and significant relationship between leadership styles and faculty job satisfaction. Furthermore, transformational leadership is the dominant leadership style among transactional and laissez-faire.

Most of the research on leadership styles of academic administrators and how they affect employees' job satisfaction in higher education has been conducted in Western countries. These studies mostly emphasize that there is a positive significant relationship between transformational leadership styles and faculty job satisfaction, whereas, there is a negative relationship between laissez-faire and job satisfaction. However, transactional leadership showed a different relationship in those contexts. For example, Bateh and Heyliger (2014) investigated the influence of three leadership styles as a predictor of job satisfaction in a state university in Florida. The results yielded that faculty members who recognized either transformational leadership or transactional leadership as the dominant leadership style had increased job satisfaction. However, faculty members who found passive leadership dominant had reduced job satisfaction.

Stumpf (2003) also studied this relationship in North Carolina and stated that transformational leadership along with the first two components of transactional leadership including contingent rewards and management by exception active were positively linked to overall job satisfaction, whereas the third component of transactional leadership, management by exception passive and laissez-faire were negatively related to the work attitude mentioned above. In addition, Web (2009) investigated the leadership behaviours of presidents of Christian colleges and universities in North America and the he combination of transformational, transactional, and laissez-faire leadership behaviours that are significant predictors of job satisfaction among followers. Web found that attributed charisma, individual consideration, and contingent reward were significant predictors of followers' job satisfaction. However, management-by-exception (active) was a significant negative predictor of job satisfaction. Brown and Moshavi (2002) investigated the faculty reactions to transformational and contingent reward leadership by department chairs in the US. Findings indicated that the idealized influence (charisma) component of transformational leadership was significantly more predictive of desired organizational outcomes than has been reported in other setting. Surprisingly, contingent reward was not predictive in this setting.

Although many studies have investigated faculty job satisfaction and dissatisfaction in developed countries, little is investigated it in developing countries. Because both the leadership styles and job satisfaction factors are highly contextual, the achieved results in western countries cannot be applied in developing countries without modifications (Little 1996; Rodwell 1998; Welch & Jha 2015). The findings in Sadeghi and Lope Pihie's (2013) study in in Malaysian RUs revealed that inspirational motivation and idealized influence are the most used practices of transformational leadership by HODs and realized that transformational leadership enhances lecturers' job satisfaction more than other styles. The HOD exhibit transformational leadership fairly often,

transactional leadership sometimes and laissez-faire every once in a while, as perceived by lecturers. A study from Taiwan (Chen 2004) showed a moderate job satisfaction through nursing faculty. They were more satisfied with their dean who practiced the transformational leadership style of individual consideration and the transactional style of contingent reward.

Hamidifar (2009) examined this relationship in Iran and claimed that active leadership including transformational and transactional was significantly correlated with job satisfaction, while passive leadership styles were highly and negatively correlated with job satisfaction. In Dastoor et al.'s (2003) study from a Thai context results showed that the transformational leadership has a more positive relationship with faculty job satisfaction than transactional, and laissez-faire has the least effects on faculty job satisfaction of faculty. In addition, contingent rewards and active management by exception of the transactional leadership styles showed a significant positive relationship with job satisfaction and the passive management by exception showed a significant negative relationship. Sakiru et al. (2014) investigated the relationship between leadership styles (transformational, transactional, laissez-faire) and job satisfaction, determined the common leadership style that is commonly used by the Head of the Department, and determined the level of job satisfaction among the lecturers. The result obtained in Sakiru et al.'s (2014) study revealed that the lecturers' job satisfaction in a public university in Nogeria is significantly dependent on HODs' leadership styles.

Amin et al. (2013) investigated the interaction between leadership styles (transformational, transactional and laissez-faire) and faculty job satisfaction (intrinsic, extrinsic, and overall) in a public university in Pakistan. The findings underscore an important link between the group of independent variables and the faculty's intrinsic, extrinsic, and overall job satisfaction. There

was a strong positive relationship between transformational leadership and the faculty's intrinsic, extrinsic and overall job satisfaction. However, this relationship was weak positive and insignificant between laissez-faire and faculty's intrinsic, extrinsic and overall job satisfaction and this relationship was weak, negative and insignificant between transactional leadership and faculty's intrinsic, extrinsic and overall job satisfaction. There are some more studies that confirm the positive association between department chair's transformational leadership behaviours with faculty satisfaction with the department chair and perceptions of organizational effectiveness (Brown & Moshavi 2002; Czech & Forward 2010).

Reviewing the studies examining the effectiveness of different leadership styles and its impact on job satisfaction in higher education affirmed that the most prominent leadership style was transformational, followed by transactional. A number of the studies have concluded that a combination of the two leadership styles is ideal for maintaining employees' or faculty members' job satisfaction. Yukl and Van Fleet (1992, p.176) noted "Bass views transformational and transactional leadership as distinct but not mutually exclusive processes". Judge and Piccolo (2004) in their meta-analysis study found that transformational and transactional leadership had positive effects on job satisfaction, and that the profound connection between these styles makes distinguishing their effects difficult. As a result, the most effective leaders use both transformational and transactional leadership and transactional leadership can serve as a foundation for building transformational leadership (Bass & Riggio 2006). There are no research studies on HODs' leadership styles in relation to faculty satisfaction globally and in the UAE in STEM-related fields.

2.4.3 Indirect Relationship between Leadership Styles and Job satisfaction: Literatures including Moderators and Mediators' Impacts on this Relationship

In terms of the indirect effects of leadership styles on faculty job satisfaction through moderators and mediators, all of the reviewed studies employed a quantitative approach for their research investigations. For example, Rokhman and Hassan's (2012) study, in which the data collected from 370 employees in 60 institutions of Islamic microfinance in Indonesia; Tsaia et al.'s (2009) study, in which the data were collected from 282 employees and their immediate supervisors in 10 insurance companies in Taiwan; Saleem's (2015) study, in which the data were collected from 217 teachers teaching in public sector universities of Lahore, Pakistan; Braun et al.'s (2013) study, in which the data were collected from 360 employees from 39 academic teams at a large German research university; Yousef's (2000) study, in which the data were collected from 430 employees at major organisations in the UAE; Kimura's (2012) study, in which the data were collected from a sample of 200 employees working in Japanese companies; and in Zhu et al.'s (2013) study, in which the data collected from 318 supervisor–subordinate dyads from a manufacturing organization located in mainland China.

The research shows the impact of leadership on job satisfaction whether directly or through moderating and mediating factors. There is no research study that has until now been conducted to investigate the moderating and mediating roles of any factor between HODs leadership styles and job satisfaction in STEM-related fields. Therefore, in this section, some of the more related studies were reviewed. Most of them have been studied in business, and industry setting and few studies following studied in higher education setting.

Yousef's (2000) study was conducted to investigate the potential mediating role of

organizational commitment in the relationships of leadership behaviour with the work outcomes of job satisfaction and job performance in the UAE. He also examined the moderating effects of national culture on the relationships of leadership behaviour with organizational commitment, job satisfaction and job performance in such a setting. The findings showed that those who perceive their superiors as adopting consultative or participative leadership behaviour are more committed to their organizations, more satisfied with their jobs, and their performance is high. Also, national culture can moderate the relationship of leadership behaviour with job satisfaction. Tsai et al. (2009) examined the mediating role played by employee positive mood on the relationship between transformational leadership and employee work outcomes in Taiwan. Results showed that transformational leadership both directly influenced employee task performance and helping coworker behaviour and had an indirect effect through employee positive moods. Yang (2014) evaluated the influence of leadership style and employee trust in their leaders on job satisfaction in large insurance companies in Taiwan. The results revealed that the effect of transformational leadership on job satisfaction was mediated by leadership trust and highlighted the importance of leadership trust in leadership-satisfaction relationships.

Zhu et al.'s (2013) study looked into the mediating effects of cognitive and affective trust on the link between follower ideas about transformational leadership behavior and their work outcomes in a Chinese manufacturing company. The results showed that affective trust fully mediated the relationships between transformational leadership and the work outcomes of followers, including their affective organizational dedication, organizational citizenship behaviours (OCBs), and job performance. In contrast, cognitive trust negatively mediated the relationship between transformational leadership and follower job performance, and had trivial effects on their affective organizational commitment and organisational citizenship behaviours. These findings

underscore the significance of affective trust as a mechanism that translates transformational leadership into positive work outcomes for the organisation.

Walumbwa and Lawler (2003) examined the moderating effect of collectivism on the relationships between transformational leadership, work-related attitudes and perceptions of withdrawal behaviours for employees from banking and financial sectors in China, India and Kenya. The results found support for the moderating effect of collectivism on the relationship between transformational leadership and work-related outcomes, such as facets of job satisfaction, organizational commitment and perceptions of organizational withdrawal behaviours.

Kimura's (2012) study was conducted to explore the causal relationship among transformational leadership, perceptions of organizational politics, market orientation, and work-related outcome in Japanese companies. It was assumed that organization-level perceptions of organizational politics and market orientation mediate the relationship between top management's transformational leadership and employees' work-related outcomes and that perceptions of organizational politics diminish market orientation. The findings revealed that both perceptions of politics and market orientation mediated the relationship between transformational leadership and employees' job satisfaction. However, perceptions of organizational politics were not significantly correlated with market orientation. A study by Rokhman and Hassan (2012) was conducted to explore the relationship of transformational leadership with organizational justice and work outcomes. Specifically, the study examined the potential role of procedural justice as mediator of transformational leadership and work outcomes, namely, job satisfaction, organizational commitment, and turnover intention in Indonesia. The findings indicated that transformational leadership contributed significantly to procedural justice perceptions as well as

to the three work outcomes. Also, procedural justice had significant effect on all the three work outcomes. The test of mediation effect of procedural justice on transformational leadership and work outcome relationship indicated no significant mediating effect on job satisfaction and turnover intention, though it was partially significant with organizational commitment.

In higher education, there are few related studies. Saleem (2015) investigated the impact of leadership styles on job satisfaction and to see if perceived organizational politics has a mediating role or not. The results revealed that transformational leadership has a positive impact on job satisfaction and transactional leadership has a negative impact on job satisfaction of faculty in Pakistan. In addition, perceived organizational politics partially mediate the relationship between both leadership styles and job satisfaction. Braun et al.'s (2013) study was analyzed the relationships between transformational leadership, job satisfaction, trust in supervisor, and team performance in a German university. The findings revealed that there was a positive relationship between transformational and job satisfaction at individual and team levels of analysis and to objective team performance. The relation between individual perceptions of supervisors' transformational leadership and job satisfaction was mediated by trust in the supervisor as well as trust in the team. Yet, trust in the team did not mediate the relationship between team perceptions of supervisors' transformational leadership and team performance.

According to the literature, culture can moderate this relationship. In addition, the important factors that can mediate the effect of different leadership styles on job satisfaction are organizational commitment, employee positive mood, organizational politics, and particularly justice and trust. All of the above studies were employed a quantitative approach (similar to many of the job satisfaction and leadership style studies) and there is a lack of employing a qualitative approach.

2.5 Theoretical Framework

The theoretical framework of this study uses Avolio and Bass's (1991) full range leadership styles (FRLT) as well as Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS). The theoretical framework is informed by the purpose of the study and relevant literature, and it addresses the research questions and the selected design and instruments. To address the first research question related to HODs' leadership styles in STEM-related fields, the full range leadership theory (FRLT) developed by Avolio and Bass (1991) provides the theoretical framework for this study. The transformational leadership theory was first proposed by Burns (1978) and then extended by Bass (1985). Bass modified and elaborated Burns's theory to establish his own transformational theory. In 1991, Avolio and Bass proposed the full range leadership including transformational, transactional and non- transactional laissez-faire represented by nine distinct features: five transformational (idealized influence attributed, idealized influence behaviour, inspirational motivation – charisma, intellectual stimulation, individualized consideration), three transactional (contingent reward, management-by-exception active, management-by-exception passive), and one laissez-faire. According to Bass and Avolio (2000), laissez-faire (passive leadership/non-leadership) is usually correlated with effectiveness negatively.

Many researchers have demonstrated transformational leadership as the most powerful leadership style (Al- Hourani 2013; Bass 1990; Eagly et al. 2003; Lopez-Zafra et al. 2012, Matzler et al. 2015). Transformational leadership has been widely used in different fields such as educational, industrial, business, hospital, and military circumstances, supports a wide range of

thought of leadership than other theories, and focuses on followers' needs, values, and morals (Bass & Avolio 2000; Northouse 2004, 2010; Shamir et al. 1993; Yukl 1999). Bass (1990) stated that the ideal leaders for their followers are transformational leaders who are reported as most effective and successful among other leaders. It can create valuable and positive change in the followers (Chou et al. 2013), it is very efficient regarding followers' improvement, performance, decision making skills, and can facilitate team performance (Bass & Avolio 1994; Dvir et al. 2002; Walumbwa et al. 2004; Wang & Howell 2012).

To address the second and third research questions related to faculty job satisfaction, Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS) were employed to provide the theoretical framework for this study with an emphasis on Hagedorn's model. Hagedorn's conceptual framework for academic job satisfaction (2000) is based on Herzberg et al.'s (1959) two-factor theory Herzberg considered job satisfaction to be derived from two sources: motivators (intrinsic factors) and hygienes (contextual and extrinsic factors). The two-factor theory considers factors promoting job satisfaction to be different to those which prevent dissatisfaction. Motivators (intrinsic factors), such as challenging and interesting work, help promote job satisfaction but do not prevent dissatisfaction if certain hygiene factors are left unmet, such as satisfactory salary or workplace policies. By contrast, satisfactory salary and hygiene factors, whilst effective at preventing dissatisfaction, do not lead one to be satisfied, as job satisfaction is believed to be an outcome of motivator factors and the intrinsically rewarding elements of one's work. Many studies of academic job satisfaction have offered support to Herzberg and colleagues' two-factor theory, including Hill (1987, in Lacy & Sheehan 1997, p. 307) who concluded that job satisfaction is

related to intrinsic factors (the work itself), while dissatisfaction arises from factors external to the job.

Hagedorn (2000) offers a clear account for how the two-factor theory may be applied to academic work. The conceptual framework of Hagedorn (2000) consists of two types of constructs that act on each other and affect job satisfaction including mediators and triggers. There are three types of mediators: 1) motivators and hygienes; 2) demographics; and 3) environmental conditions. The second type of construct in Hagedorn's model is trigger which is Hagedorn's main departure from Herzberg's theory and considered as a significant life event related or unrelated to the job. Hagedorn's conceptual framework consists of six unique triggers including: 1) change in life stage; 2) change in family-related or personal circumstances (for example, birth, death, divorce, illness of self or significant other); 3) change in rank or tenure; 4) transfer to a new institution; 5) change in perceived justice; and 6) change in mood or emotional state. This study was selected Hagedorn's model as the main academic job satisfaction theoretical framework because it is a very conductive model to examine faculty job satisfaction. A great deal of studies has emphasized that Hagedorn's model is reputable for research and compatible for faculty member subjects (August & Waltman 2004; Castillo & Cano 2004; Corley & Sabharwal 2007; Grunwald & Peterson 2003; Reybold 2005). Hagedorn's conceptual framework has been the basis for some job satisfaction studies in higher education (e.g. August & Waltman 2004; Bentley et al. 2013; Bentley et al. 2015; Gardner 2012; Markus 2011).

Another theory that employed as part of the theoretical framework of this study is Hackman and Oldham's Job Diagnostic Survey (1974) which measures perceived characteristics of jobs. Six

sub-scales were used including skill variety, task identity, task significance, autonomy, feedback from the job, feedback from the agent, and the composite motivation potential score. High scores on each of these sub-scales presents high level of that characteristics. It shows the relationship among the core job dimensions, the critical psychological states, and on the job outcomes.

The model suggests that positive personal and work outcomes (high internal motivation, high work satisfaction, high quality performance, and low absenteeism and turnover) are obtained when three "critical psychological states" are available (experienced meaningfulness of the work, experienced responsibility for the outcomes of the work, and knowledge of the results of the work activities). The theory proposes that the three Critical Psychological States are created by the presence of five "core" job dimensions. Experienced Meaningfulness of the work is enhanced primarily by three of the core dimensions: skill variety, task Identity, and task significance. Experienced Responsibility for work outcomes is increased when a job has high autonomy. Knowledge of Results is increased when a job is high on feedback. This model has been used in different research studies such as Buys et al. (2007), Harvey et al. (1985), and Kulik et al. (1988). This study was included skill variety, autonomy and feedback from Hackman and Oldham's theory.

The last theory of job satisfaction which was selected as part of the conceptual framework of this study is Spector's job satisfaction survey. To fill the need for an instrument for human services, a new job satisfaction instrument, the Job Satisfaction Survey (JSS) was developed by Spector in 1985. This scale measures nine aspects of job satisfaction, which were chosen from a review of the literature on job satisfaction dimensions. It was designed specifically for human service, public, and nonprofit sector organizations, although it may be applicable to others as well. Those

nine aspects include pay, promotion, supervision, benefits, contingent rewards, operating procedures, co-workers, nature of work, and communication. This survey has been used in different research studies such as Nigam and Jain (2014).

Some factors were added to the conceptual framework of this study by Author. For example, some cultural values items were designed to fit the particular culture of the UAE; according to Fox et al. (2006) religion and family are some of the core values in the UAE which can influence the faculty job satisfaction as motivators. Or some items were added to cover the motivation factors for faculty in STEM-related fields; Xu (2008) investigated that the motivation factors for faculty from various disciplines and concluded that their motivations are, to some extent, different. In addition, some factors/items unique to the academic faculty occupational type (e.g. time spent teaching higher education students) and other factors that, although not unique, are not commonly associated with other professions (e.g. laboratory equipment).

The theoretical framework of this study uses Avolio and Bass's (1991) Full Range Leadership Styles (FRLT) as well as Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS). For the purposes of the research conducted and among all of the discussed theories and models, the following initial variables were included in the conceptual framework of this study. To investigate the most appropriate HODs' leadership styles in improving faculty job satisfaction, in STEM-related fields, a conceptual framework was proposed (Figure 2.5) and the following main hypotheses were examined:

H1. There is a significant relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

H2. Faculty job satisfaction is best represented as a composite of 5 or less elements.

H3-1. Hagedorn's (2000) triggers moderate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

H3-2. Hagedorn's (2000) mediators, identity, and job design mediate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.
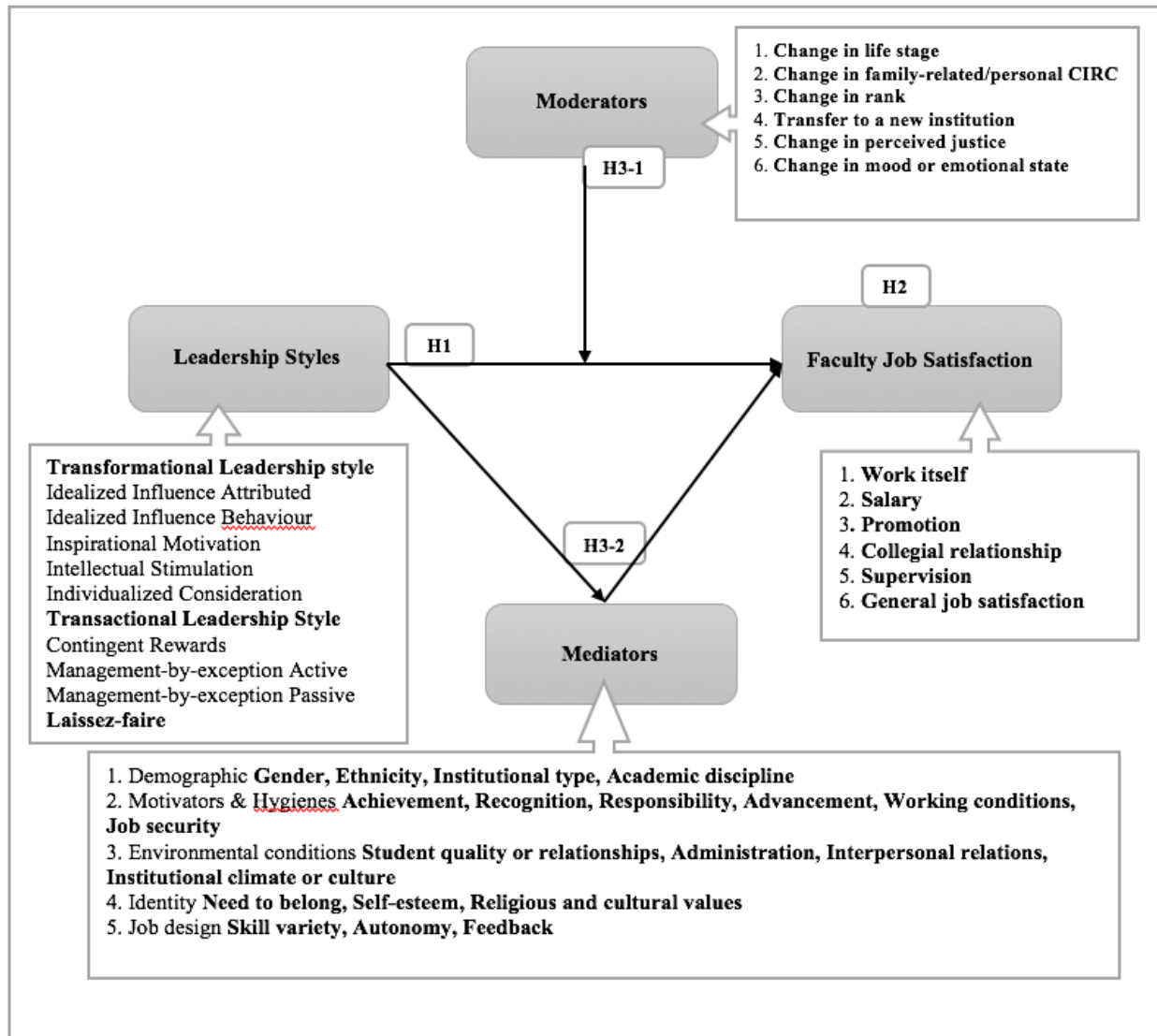
Figure 2.5 Initial Model of HODs' Leadership Styles and Faculty Job Satisfaction, in STEM-related Fields

The diagram shows a model connecting Leadership Styles and Faculty Job Satisfaction with Moderators and Mediators.

Moderators:
1. Change in life stage
2. Change in family-related/personal CIRC
3. Change in rank
4. Transfer to a new institution
5. Change in perceived justice
6. Change in mood or emotional state

Leadership Styles (H1 connects to Faculty Job Satisfaction, H3-1 from Moderators, H3-2 to Mediators):

Transformational Leadership style
Idealized Influence Attributed
Idealized Influence Behaviour
Inspirational Motivation
Intellectual Stimulation
Individualized Consideration
Transactional Leadership Style
Contingent Rewards
Management-by-exception Active
Management-by-exception Passive
Laissez-faire

Faculty Job Satisfaction (H2):
1. Work itself
2. Salary
3. Promotion
4. Collegial relationship
5. Supervision
6. General job satisfaction

Mediators:
1. Demographic **Gender, Ethnicity, Institutional type, Academic discipline**
2. Motivators & Hygienes **Achievement, Recognition, Responsibility, Advancement, Working conditions, Job security**
3. Environmental conditions **Student quality or relationships, Administration, Interpersonal relations, Institutional climate or culture**
4. Identity **Need to belong, Self-esteem, Religious and cultural values**
5. Job design **Skill variety, Autonomy, Feedback**

CHAPTER 3: METHODOLOGY

This study investigates the relationship between HODs' leadership styles and faculty job satisfaction factors, in STEM-related fields. It also investigates the impact of moderators and mediators on this relationship. An explanatory mixed methods approach was employed with participants including deans, HODs, and academic members of faculty, in STEM-related fields. The following sections explain the research philosophy and research approach, site selection and participants, ethical considerations, data collection methods, procedures, and trustworthiness.

3.1 Research Philosophy and Approach

This section discusses the research philosophy and research approach selected for investigating HODs' leadership styles in relation to faculty job satisfaction, in STEM-related fields. Since, the philosophical ideas influence the practice of research, they need to be identified. Based on a predominantly post-positivist perspective, this study adopts an explanatory mixed methods approach. The first phase of this study uses a quantitative empirical research approach in which the investigation is primarily based on post-positive claims for developing knowledge, and uses a survey questionnaire to collect statistical data as its mode of inquiry. According to Philips and Burbules (2000), post-positivists challenge the traditional belief about the certainty and truth of knowledge. It acknowledges an objective reality but convinces it as incompletely apprehensible (Lincoln & Guba 2000). Therefore, it is impossible for individuals to capture completely a true representation of reality.

One strength of post-positivism as a research philosophy and methodology is its capacity for generating explanations of research phenomena which guide methods of forecasting and control. Post-positivism is amenable to the scientific investigation of cause-effect interrelationships of

phenomena which can be learned, determined, and generalized (Lincoln & Guba 2000). Post-positivism as a worldview is seen as the primary basis and anchor for quantitative research approaches (Ponterotto 2005). According to Creswell (2014), post-positivism consists of four main elements. First, determination, in which causes determine outcomes. Second, reductionism, in which the intention is to reduce the ideas and separate them into a manageable set for systematic, rational investigation, for instance, the variables and variable relationships and their analysis and interpretation through hypotheses. Third, empirical observation and measurement, in which constructing numeric measures of observations and studying the behaviour of individuals are of central important for post-positivist researchers. The last element is theory verification, in which a researcher starts with a theory, tests the theory and then makes necessary revisions, and conducts additional investigations.

The second phase of this study uses a qualitative approach, in which the inquirer makes knowledge claims based primarily on constructivist perspectives. The constructivist or social constructivist worldview, is one particular epistemological, ontological and axiological approach to qualitative research. According to Creswell (2014), constructivism as a worldview and choice of methodology consists of four main elements. First, understanding, in which individuals construct meanings of their experiences about specific objects. These meanings are numerous and varied so the qualitative researcher can look for the complexity of views. Second, multiple participant meanings, in which qualitative researchers ask general and open-ended questions so that the participants can develop the meaning of a situation and share their views. Third, social and historical construction, in which these meanings are based on participants' social, cultural and historical experiences and perspectives. The last element, is theory generation, in which

qualitative researchers interpret the meanings that participants have about the world and develop a theory or pattern of meaning.

According to Hansen (2004), in constructivism, reality is built in the mind of the participants. Fundamentally, the constructivist paradigm adopts a hermeneutical approach in which meaning is covered and has to be uncovered through processes of deep reflection (Schwandt 2000). The interactive dialogue between the investigator and the object of investigation can stimulate research involving deep reflection. According to Lincoln & Guba (1985), constructivists emphasize the central role of intense interactions between researcher and participants in which the researcher is involved and immersed for significant periods of time in the community and the participants' world, following a naturalistic research design. This study employed semi-structured, in-depth face-to-face interviews, as its method of naturalistic inquiry. Hence, this phase of the research adopts a qualitative research design and approach.

The overall study is therefore based on post-positivism and constructivism with the predominant emphasis on the former paradigm. Considering the theoretical framework and research questions of this study, neither quantitative nor qualitative designs alone are able to achieve the purpose of the study. When the two designs are mixed they strengthen each other and provide a deeper insight on the topic (Creswell 2008, 2014; Tashakkori & Teddlie 2010), which seems most appropriate for this thesis. This study uses explanatory mixed methods with strong emphasis placed on quantitative problem formulation. In the first quantitative research phase, the researcher collects and analyses data and the results and interpretations are elaborated and explained further through the qualitative data. The quantitative results inform the kinds of

participants to be involved in the qualitative phase as well as the kinds of questions which will be asked of the participants. According to Creswell (2014), the overall purpose of an explanatory mixed methods design is that the qualitative data assist with elaboration of the quantitative results. The procedure adopted in this study includes collecting survey questionnaire data in the quantitative phase and analyzing them, and then following this up with qualitative, semi-structured, in-depth interviews with participants who were selected purposefully to elaborate on the survey results. The completion of the multi-part survey questionnaires by HODs and faculty members in the quantitative phase renders it plausible to generalize from these results to the population, and interviewing deans of colleges, HODs and faculty members in the qualitative phase, using detailed qualitative, mostly open-ended interviews, facilitates data collection and analysis of more detailed viewpoints and ideas from the interviewees.

This study is drawn from a variety of literatures in education, leadership and management, job satisfaction, STEM-related fields in higher education, and the research context. Specifically, the research for this thesis seeks to build on existing knowledge of transformational and transactional leadership styles and their relevance to the job satisfaction of academics employed in faculties in STEM-related fields in higher education institutions. According to Greene et al. (1989), mixed methods studies provide five major purposes: triangulation to seek convergence of outcomes; complementarity to investigate overlapping or different aspects of a phenomenon; initiation to find out conflicts; development to apply quantitative and qualitative strategies sequentially; and expansion to add breadth or scope to a project. A large number of educational psychology studies such as Pintrich and DeGroot (1990), Paris et al. (2001), Perry et al. (2002),

and Johnson and Turner (2003) all suggest that a mixed methods design helps researchers apply multiple methods of collecting data and can illuminate divergent views.

A quantitative survey questionnaire usually asks participants to average their answers across situations that relate to the stability and generalizability of their view (Maxwell & Loomis 2002). In contrast, a qualitative open- ended interview usually provides rich descriptions that present the underlying complexities of particular situations (Perry et al. 2002). Qualitative research can add meaning to the numbers, provide deeper answers, and cover the weaknesses such as measurement problems in quantitative approaches (Hanson et al. 2005; Johnson & Christensen 2014). Therefore, applying both quantitative and qualitative approaches enriches the findings and increases their validity and reliability. Besides all of these benefits, researchers usually face some difficulties related to mixed methods designs, such as learning multiple methods and approaches and how to mix them, interpreting conflicting results, and allocating more time.

To address the research questions of the study, quantitative and qualitative research approaches were combined in a sequential explanatory mixed method design that included two phases (Figure 3.1). In the first phase, quantitative data was collected and analysed and, in the second phase, qualitative data (Creswell 2014; Creswell & Clark 2007). In this research study, the data was collected through a survey questionnaire first, then follow-up interviews were applied to complete the data collection process of the empirical study.
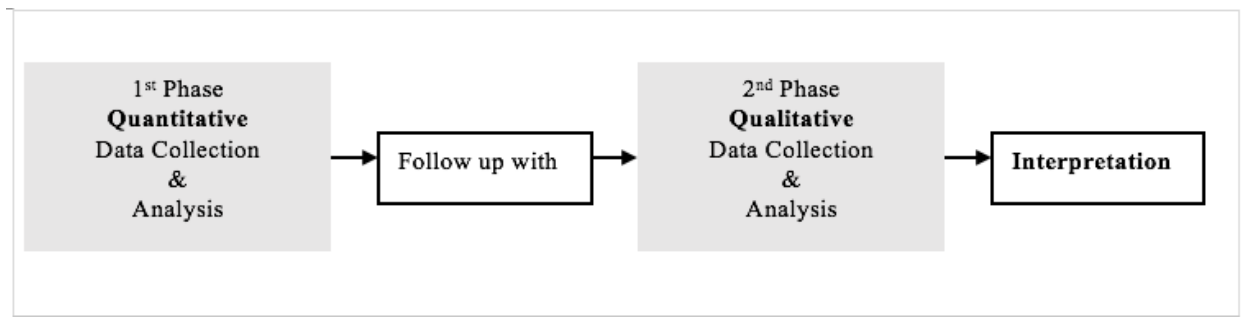
Figure 3.1 Sequential Explanatory Mixed Methods Design (Creswell 2014)

Later, it was decided to interview 5 deans of colleges prior to the quantitative phase of the study, however, all interviews are reported together and the only difference is the time of interviews due to the research study access to the deans. Therefore, the overall study employs an explanatory mixed methods design including quantitative and qualitative approaches with an emphasis on the former approach (Figure 3.2).
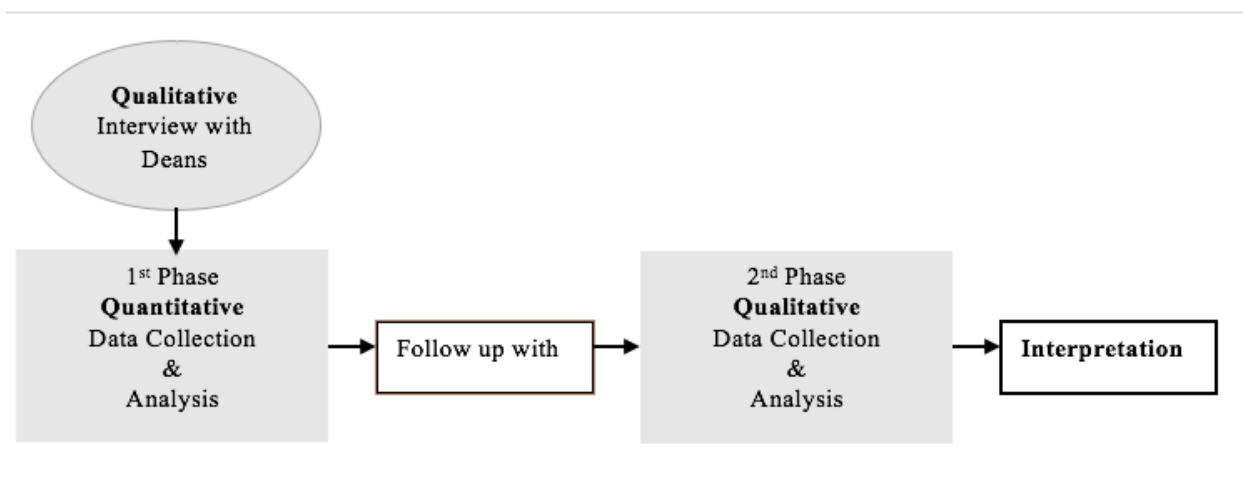
Figure 3.2 Mixed Methods Design of This Study

Most of the studies in academic leadership in relation to faculty job satisfaction are based on a quantitative approach to research (e.g., Amin et al. 2013; Bateh & Heyliger 2014; Braun et al. 2013; Chen 2004; Saleem 2015; Waters 2013). Applying a qualitative design besides the quantitative design has been suggested in a number of the related studies to obtain more exact

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results. This study therefore may add valuable results to the related literature since it employs both quantitative and qualitative approaches.

3.2 Site Selection and Participants

This empirical study was planned to be carried out in 5 universities, 4 of which are in 3 emirates of the UAE and 1 in the UK. These universities offer degrees in science, technology, engineering and mathematics. The target population was considered to consist of 1558 deans, HODs and faculty members in STEM-related fields. Two universities in the UAE did not provide approval letters to conduct the study due to their special rules and the researcher was only able to interview with two deans of their colleges in STEM-related fields. In addition, the number of responses from the university in the UK was not enough to be included and represent the population. Therefore, only two universities in the UAE were open to run the study with a limited access to some of the Departments in one of the two universities. As a result, a total number of 193 deans, HODs, and faculty members from 13 departments in STEM-related fields were accessible to be invited. The above limitations decreased the number of potential participants from 1558 to 193 including 5 deans, 14 HODs, and 174 faculty members. STEM-related fields were selected due to the researchers' background in physical chemistry, the importance of STEM-related fields to improve life quality particularly in transition from a developing country to a developed country, and the big gap in the related literatures on this topic. The departments were selected in relation to the National Science Foundation definition of STEM-related fields and all are categorized as Hard disciplines (Biglan 1973). These departments included Applied Biology, Applied Physics and Astronomy, Chemistry, Computer Science, Mathematics, Civil and Environmental Engineering, Electrical and Computer

Engineering, Architectural Engineering, Industrial Engineering and Engineering Management, Sustainable and Renewable Energy Engineering, Mechanical Engineering, Nuclear Engineering and Engineering Management. The target population included deans of colleges, HODs, and all academics including lecturers, assistants, associates and full Professors, in STEM-related fields.

The study includes two phases of data collection. In the first phase of quantitative research, all 188 HODs and faculty members were invited to fill a survey questionnaire. In the second phase of qualitative research, several (total of 11) of the participants were invited to individual face-to-face interviews (5 deans were invited and interviewed prior to the first phase). Selecting participants in this phase was based on a purposeful sampling and related to the results of the first phase. This study followed Onwuegbuzie and Collins's (2007) framework of sampling in mixed research, which is a sequential sampling design regarding the time orientation criteria, and a nested sequential sampling design regarding the sample relationship criteria. In this study, the sequential sampling was the application of the data from the quantitative phase to form the sample selection in the qualitative phase. The nested sampling was the selection of a small number of participants from the original larger set of survey respondents of the quantitative phase to participate in the next qualitative phase.

3.3 Ethical Consideration

An ethical approach was adopted throughout the study and was guided by the British University in Dubai, (BUID) ethical code of conduct. Following the acceptance of the study proposal and prior to data collection, the application was submitted to the BUID Review Board to gain ethical approval to conduct the study as it involves human subjects. Informed consent forms were obtained from every single participant both who filled the online survey questionnaire and /or

being interviewed in-person. An invitation letter outlining the purpose of the study, the data required and the procedures to be followed, as well as the rights of the participants were sent.

Throughout the data collection period, before carrying out interviews and through in-person meetings, a formal introduction of the researcher and the objective of the study was made. Participants were also reassured that their participation would not incur any harm, especially to their job security or position in their university. Moreover, they were informed of the voluntary nature of their participation: they could refuse or withdraw at any time without any repercussions. Anonymity was ensured by the use of pseudonyms of universities and participants if needed, and the participants' awareness that their responses are highly confidential, and the only person who access to them is the researcher. The researcher informed all respondents about the survey questionnaire in three ways; through the first invitation email for filling the online questionnaire, through the in-person invitation to participate in the study to fill the survey in their office, and the last time, in the first page of the survey and prior to filling the survey questionnaire (Appendix 3.1& 3.2). In addition, the researcher informed all interviewees about the above information in three ways; through the first invitation email for interviewing, through the in-person invitation to participate in an interview in their office, and the last time prior to interviewing (Appendix 3.3).

3.4 Data Collection Methods

Since this research study employed a mixed methods strategy, data were collected and analysed in two separate phases including quantitative and qualitative phases. In the first, quantitative phase, the data was collected through a multi-part survey questionnaire. In the second, qualitative phase, data was collected through semi- structured in-depth interviews.

3.4.1 First Phase: Employing Survey Questionnaires

The instrumentation for the first phase of data collection in this study consisted of two survey questionnaires: a three-part survey questionnaire for academic members of faculty and a two-part survey questionnaire for HODs both hosted by Survey Monkey (http://www.surveymonkey.com). The survey questionnaires were designed for both the UAE and the UK Contexts. There are few differences among them related to their cultural and contextual differences. These surveys were designed as tools, to recognize the most effective leadership styles of UAE and UK's Heads of Departments/Schools in STEM-related fields for maximizing the satisfaction of academic members of faculty throughout their careers. The allocated time for filling the survey questionnaire was about 25 minutes for academic members of faculty and 15 minutes for HODs. The research surveys can be found in Appendix (3.1) and Appendix (3.2) for the UAE context. To design the survey questionnaires, the conceptual framework of this study was considered for every single item.

3.4.1.1 First Part of Survey Questionnaire- Demographic (Self-designed)

The first part of the survey for both academics and HODs consisted of 26 similar personal and demographic questions developed by the researcher to assist the researcher in gathering data about particular attributes of the participants. It sought demographic information including gender, age, ethnicity, marital type, change in family, job title, income level, institutional type and academic discipline, qualifications, activities, responsibilities and recognition. Regarding the conceptual framework of this study, the demographic questions were based on the constructs in

Hagedorn's (2000) conceptual framework, Herzberg's (1959) two-factor theory and Author's consideration of the context of this study.

3.4.1.2 Second Part of Survey Questionnaire-Leadership Style

The second part of the survey for both academics and HODs consisted of Bass and Avolio's (1995) 45-item Leadership Questionnaire. The only difference between academics' and HODs' leadership questionnaires was that the academics answered leadership style questions about HODs, whereas HODs filled a self-report questionnaire about their own leadership styles.

3.4.1.2.1 The Multifactor Leadership Questionnaire

MLQ5X is the most widely used instrument in the study of transformational leadership behaviours (Kirkbride 2006) and "is considered the best validated measure of transformational and transactional leadership" (Ozaralli 2003, p. 338). MLQ was originally designed in 1985 by Bass, then underwent some revisions since its inception, most notably in 1995 when Avolio, Bass and Jung developed a revised version, MLQ Form 5X, which is used in the present research study. The internal constructs of the MLQ have been studied, reported, and confirmed by the academic community numerous times since it was first introduced. The MLQ has proven to be highly consistent across academic disciplines (Bragg 2008).

The questionnaire is the latest version of Multifactor Leadership Questionnaire form 5X (MLQ-5X) developed by Bass and Avolio (1995). It contains 45 descriptive items to be answered on a 0-4 rating scale. In this scale zero to four represent "not at all", "once in a while", "sometimes", "fairly often", and "frequently if not often", respectively. This questionnaire is designed to collect data on the faculty members' perceptions and attitudes about HODs' leadership styles.

Full range leadership styles are categorized into three leadership styles: transformational leadership, transactional leadership and laissez-faire. Transformational leadership is comprised of the factors of idealized influence (attributed), idealized influence (behaviour), inspirational motivation, intellectual stimulation, and individualized consideration. Transactional leadership is comprised of the factors of contingent reward, management-by-exception (active) and management-by-exception (passive). Laissez- faire leadership has only one particularized factor, laissez-faire leadership.

MLQ5X evaluates all nine factors of full range leadership theory. Four items on the survey measure each leadership factor, so there are twenty items on the survey for transformational leadership factors, twelve items for the transactional factors, and four items for the laissez-faire factor. In addition, there are four, three, and two items, respectively, for the three factors including extra effort, effectiveness, and satisfaction with the leader. Since its inception, MLQ5X has been consistently used in academic research to distinguish between effective and ineffective leaders in studies involving leadership in academic institutions, financial institutions, military organizations, and many other professional settings (Avolio & Bass 2004; Bass & Riggio 2006; Walumbwa et al. 2008). It has been translated into different languages such as French, Chinese, and Spanish to be used in research project trainings and other assessments. MLQ5X, used in this study, was previously used in approximately 200 research programs, doctoral dissertations, and masters' theses globally between 1991 and 1995, when the authors originally published their data on reliability and validity (Avolio et al. 1999; Bass & Avolio 2000).

3.4.1.2.2 Reliability and Validity of Leadership Questionnaire

The aim of using MLQ is to show the important factors that distinguish between effective and ineffective leadership (Avolio & Bass 2004). It is a proven instrument that is used for measuring transactional and transformational leadership (Avolio & Bass 2004). The coefficient alpha of reliability for the nine leadership factors in MLQ5X range from .74 to .94 (Avolio et al. 1999). In addition, an existing positive and significant correlation among the five transformational subscales (average $r = .83$) and between the five transformational subscales and the contingent reward subscale (average $r = .71$) shows a high validity of this test (Bass & Avolio 2000). It appears to be an adequate test, which has good construct validity and adequate reliability (Bass & Avolio 1993).

MLQ5X has gone through repeated revisions and refinements over the years in order to strengthen its reliability and validity and has proven to be both a valid and a reliable tool to measure the leadership dimensions of transformational leadership (Bass & Riggo 2006). In 1995, Avolio, Bass, and Jung confirmed the validity of the MLQ using a Confirmatory Factor Analysis with LISREL VII, utilizing the maximum likeliness estimation method and adjusted modification indices. The analysis tested the convergent and discriminate of the leadership styles to determine which statements did not fit the model parameters. The results confirmed the nine-factor leadership model with five factors of transformational leadership, three factors of transactional leadership, and one factor of laissez-faire leadership. The validity testing was based on more than 2,000 subjects collected from nine independent sample groups ranging from 66 to 475 participants (Avolio et al. 1995).

In 1999, Avolio, Bass and Jung investigated the best-fit model for the MLQ along with its validity and reliability; they found the nine factors model as the best model for the MLQ and

confirmed the validity and reliability of the MLQ (Avolio & Bass 2004; Avolio et al. 1999). In 2004, Avolio and Bass analysed two independent sets of data consisted of 23 samples that were used to validate and cross-validate the MLQ. The reliabilities for all of the leadership practices examined by the MLQ and for each individual leadership factor ranged from .74 to .94, signifying a very high degree of internal consistency. The reliabilities within each independent data set signaled that the MLQ reliably measured each leadership practice throughout the analyzed data sets. In addition, in 2006, Bass and Riggio, researched the internal consistency of the MLQ and reported that they found excellent internal consistency for the MLQ with alpha coefficients above .80. These researchers found correlations of the MLQ rate-rerate follower ratings ranged from .66 to .79 for the transformational leadership practices.

Therefore, there is considerable evidence that the MLQ is both a valid and reliable instrument to measure the four factors of transformational leadership (Bass & Riggio 2006). Researchers regard the MLQ as the best validated measure of transformational leadership (Avolio & Bass 2004; Bass & Riggio 2006; Walumbwa et al. 2008). This should provide researchers with confidence, to some certain extent, in using the MLQ5X version to measure the nine leadership factors representing transformational, transactional, and non-leadership behaviours.

3.4.1.3 Third Part of Survey Questionnaire- Job Satisfaction (Self-designed)

The third part of the academics' survey questionnaire consisted of 27 job satisfaction questions (including 92 item questions) developed by the researcher to be answered on a five Likert scale from (1) strongly disagree to (5) strongly agree. It was designed based on the theoretical framework of the study and the purpose of the study. This is the first job satisfaction survey questionnaire which is based on 4 well-known theories and models of job satisfaction to the best

of the researchers' knowledge. There are different ready-made job satisfaction questionnaires available such as Job Satisfaction/ Dissatisfaction Scale (JS/DS) (Wood 1973); Job Descriptive Index (JDI) (Smith et al. 1969); Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al. 1966); Global Job Satisfaction (GJS) (Pond & Geyer 1991); and Job Satisfaction Survey (JSS) (Spector 1985). However, the researcher decided to develop a set of items and constructs more appropriate to the job satisfaction of members of academic faculties because the existing questionnaires are mostly intended for people employed in business sectors, which are often different cultural, organisational and work contexts.

Morgeson and Humphrey (2006) discuss that although there are a number of studies on job satisfaction in higher education, existing measures are incomplete, narrow, and problematic. For example, Parker, Wall, and Cordery (2001), criticized one of the most commonly employed measures, the Job Diagnostic Survey (JDS; Hackman & Oldham, 1980) and claimed that there is a narrow set of motivational job characteristics and numerous other work characteristics have been neglected. In addition, Taber and Taylor's (1990) meta-analytic review questioned the low internal consistency with the JDS survey. If scholars solely use the JDS without the larger work design literature, their research could be flawed (Moregeson & Humphrey 2006). In addition, most ready-made of job satisfaction questionnaires are designed primarily for western cultures that needs to be modified for the especial context of each study. The theoretical framework behind this study's survey questionnaire includes the main theories and criteria on job satisfaction in the literature to form a new model, and there is no similar framework in the related literature so far. The job satisfaction questions were mostly based on Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory,

Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS).

Hagedorn's (2000) conceptual framework for faculty job satisfaction consists of different constructs including Motivators and Hygienes (Achievement, Recognition, Work itself, Responsibility, Advancement, Salary), Demographics (Gender, Ethnicity, Institutional type, Academic discipline), Environmental Conditions (Collegial relationships, Student quality or relationships, Administration Institutional climate or culture) and Change or Transfer (Change in life stage, Change in family-related or personal circumstances, Change in rank or tenure, Transfer to new institution, Change in perceived justice, Change in mood or emotional state. All constructs in Hagedorn's conceptual framework were considered in designing the survey questionnaire as Hagedorn's model is the only particular developed model for academics. Among 92 item questions of this study's job satisfaction survey (Part III), 17 items were based on Hagedorn's (2000) conceptual framework that were designed either by the author (9 items) and the remainder were selected from Gardner (2012) and Bentley et al. (2015).

Herzberg's (1959) two-factor theory consists of two main factors that can affect job satisfaction: Hygiene factors (supervision, interpersonal relations, physical working conditions, salary, company policy and administration, benefits, job security) and Motivation factors (achievement, recognition, work itself, responsibility, advancement and growth). All of the components in Herzberg's theory were also considered in designing this survey questionnaire. Among 92 item questions of this study's job satisfaction survey, 17 items were based on Herzberg's (1959) two-

factor theory that were designed either by the author (2 items) and the remainder were selected from Moxley (1977), Hoyt (2007), Boeve (2007), and Tan and Waheed (2011).

Hackman and Oldham's (1974) job characteristics model (JCM) consists of five core job dimensions including skill variety, task identity, task significance, autonomy, and feedback. The three job core dimensions including skill variety, autonomy, and feedback were considered in designing this survey questionnaire. Among 92 item questions of this study's job satisfaction survey, 8 items were based on Hackman and Oldham's (1974) job characteristics model.

Spector's (1985) job satisfaction survey (JSS) investigates employees' general reaction to their job through the following 9 subscales: satisfaction with pay, promotion, supervision, benefits, contingent rewards, operating procedures, co-workers, nature of work and communication. All subscales except the operating procedures were considered in designing this survey questionnaire. Among 92 item questions of this study's job satisfaction survey, 20 items were employed from Spector's (1985) job satisfaction survey.

The selection of items from each theory and model were based on the purpose and research questions of this study as well as the previous related literatures. The need to belong items were selected from Leary et al.' (2007) scale and 3 items of the self-esteem variable were selected from Rosenberg's (1965) scale. The remaining 24 question items of this study's job satisfaction survey were developed by the author and based on the conceptual framework, contextual and cultural points of view.

3.4.1.3.1 Dependent and Independent Variables

A dependent variable is a criterion or variable that is to be predicted or explained (Zikmund 2003). Faculty job satisfaction is the dependent variable in this study as it is influenced by other variables. It consists of six elements namely work itself, salary, promotion, supervision, collegial relationship and general job satisfaction. Faculty members rated their level of satisfaction on a five-point Likert scale ranging from strongly disagree to strongly agree. According to Zikmund (2003), an independent variable is a variable that is expected to influence the dependent variable. In this study, leadership styles as well as all mediators and moderators are considered as independent variables. They can cause faculty satisfaction or dissatisfaction. Table (3.1) shows all the variables.

DEPENDENT VARIABLES

- ➢ **Job Satisfaction**
  Work itself
  Salary
  Promotion
  Supervision
  Collegial relationship
  General job satisfaction

INDEPENDENT VARIABLES

- ➢ **Leadership Styles**
- ▪ Transformational leadership styles (Idealized influence attributed, Idealized influence behaviour, Inspirational motivation, Intellectual stimulation, Individualized consideration)
- ▪ Transactional leadership styles (Contingent reward, Management-by-exception active, Management-by-exception passive)
- ▪ Laissez-faire

- ➢ **Mediators**
- ▪ Demographic (gender, ethnicity, institutional type, academic discipline)
- ▪ Motivators & Hygienes (achievement, recognition, responsibility, advancement, working conditions, job security)
- ▪ Environmental conditions (student quality or relationships, administration, interpersonal relations, institutional climate or culture)
- ▪ Identity (need to belong, self-esteem, religious and cultural values)
- ▪ Job design (skill variety, autonomy, feedback)

- ➢ **Moderators**
- ▪ Triggers (change in life stage, change in family related or personal circumstances, transfer to a new institution, change in perceived justice, change in mood or emotional state, change in rank)

Table 3.1 Dependent and Independent Variables

3.4.2 Second Phase: Employing a Semi-Structured In-depth Interview

Due to the lack of literature on HODs' leadership styles in relation to faculty job satisfaction in STEM-related fields, it was crucial to develop the second phase of this study with a qualitative approach to answer the research questions posed. Qualitative approaches have the capacity to obtain data that often cannot be easily obtained through quantitative approaches. Qualitative research enables the researcher to employ various methods of inquiry and forms of data collection that cannot be employed in a quantitative approach. Researchers can explore numerous research problems holistically through interviews. Interviews can be complex, unsure, time consuming practices that provide the researchers with a complex set of matters to address and consider (Kvale & Brinkman 2009). So, distinguishing the questions need to be asked, the order and structure of these questions, the required time, and the culture of the environment should be considered.

The researcher employed a follow-up study of semi-structured in-depth interviews in the second phase of data collection with 2 HODs and 4 faculty members, and 5 deans were interviewed prior to the first phase of the study. Implementing the questionnaire research combined with the interviews, the sources of qualitative data assisted with evaluating similarities and differences in the identified leadership styles of HODs in STEM-related fields, and determined which were more effective in improving faculty job satisfaction. In addition, the qualitative research assisted the researcher with exploring the cultural points of views arising in a diverse sample of participants.

The required information was gathered by face-to-face, semi-structured in-depth interviews

designed by the researcher. Semi-structured and in-depth questions are flexible and exploratory and can help researchers in finding out new ideas on the topic (Merriam 2009).

To focus on special topics, semi-structured interviews can be utilized, which simultaneously allow the researcher the freedom to formulate questions and sequences to be used in each unique interview. The researchers can modify questions according to the participants' responses in the first stage and follow up the raised concerns. Since semi-structured interviews are a more open and adjustable research tool, they can take into account organic issues or thoughts that would normally remain unknown to the researcher.

Therefore, interviewing is a flexible and valuable research tool within the qualitative paradigm. An interviewer should use a variety of probes and strategies to attain the target depth, in terms of discovery and description. The main abilities include listening, empathisizng, possessing clarity, thinking and processing quickly without judgment, and having good memory to avoid unnecessary recurrences. Building rapport with the participants is also of paramount importance to the success of the interviews. This would require respect, genuine interest, and portraying empathy (Kvale & Brinkman 2009; Thompson 2000).

The interview guide of this study consisted of 7 main questions which were open-ended and mostly brief and simple (Appendix 3.4). There were also some probes and follow-up questions based on Kvale and Brinkman (2009) and Creswell (2012). The questions were designed based on the conceptual framework of the study as well as the achieved results from the first quantitative part. The questions were related to HODs leadership styles and faculty job satisfaction. The leadership questions were based on the full range leadership theory (Avolio & Bass 1991), and integrated all nine components. These components were idealized influence

(attributed and behaviour), inspirational motivation, intellectual stimulation, individualized consideration, contingent reward, management-by-exception (active and passive), and laissez faire leadership. This part was designed to understand the most appropriate leadership styles for improving job satisfaction of faculty in STEM-related fields. The job satisfaction questions were based on Hagedorn's (2000) conceptual framework for faculty job satisfaction, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), and Spector's (1985) job satisfaction survey (JSS) with emphasized on the factors resulted from the first phase of the study including the key factors of faculty job satisfaction, mediators and moderators. This part was designed to understand the most important job satisfaction factors for faculty in relation to HODs leadership styles.

The survey questionnaire was piloted to ensure appropriateness, validity, and reliability by some deans, HODs and faculty members in STEM-related fields who were not target participants of the study. The questionnaire was revised based on the comments from the pilot surveys and prior to the beginning of the research study. The results from the first phase guided the second phase effectively and modified expectations sufficiently. The participants were interviewed by appointment and through all ethical considerations. The researcher recorded the interviews using a voice recorder and written notes and stored them appropriately to prepare for analysis.

3.5 Procedures

3.5.1 Pilot Study

It is a cardinal rule in research to pilot test data collection instruments. This study adopted this sensible method to fine-tune the procedure and to detect any issues in the survey questionnaire so

that they can be resolved before the actual research is carried out. Pilot testing empowers researchers to understand their role as experimenters, provides researchers with a unique opportunity to improve the design and prevent wasting a lot of time and effort, and reveals the level of task difficulty (Harris 2010). The pilot testing is very important to build the content validity of scores on an instrument and to upgrade questionnaire items, style, and scales (Creswell 2014). Although the body of the instrument is the foundation for researchers to obtain the required information from participants, some other parts of a questionnaire, such as cover page, instructions, page design, ordering and grouping of questions, navigational path, and the length of questionnaire, are also important to facilitate participants' answers (Bradburn et al. 2004; Dillman 2000), such as cover page, instructions, page design, ordering and grouping of questions, navigational path, and the length of questionnaire.

3.5.1.1 Piloting Survey Questionnaire

In this regard, a simple pilot feedback form was developed by the researcher to report the points and problems about different aspects of the questionnaire such as its length and the required time to fill it out, the ordering of questions and their consistency, and any left-out factors or questions. The feedback forms were completed while the participants filled out the questionnaires and through discussions. The think-aloud technique (Johnson & Christenson 2014) was used for some of the participants during the pilot test. Based on this technique, the researcher asked the participants to verbalize their thoughts and ideas while they were filling out the questionnaire. For example, the reason behind their response choice, the clarity of each question in terms of its similarity and precision, and their perceptions of questions and items. Other participants filled

out the questionnaire similarly to the actual research study. After each pilot testing, the required changes were carried out and the modified version was used for the next participant.

These strategies were very helpful in determining whether the questionnaire's items can measure what they are expected to measure. A total of 5 participants: one dean, two HODs and three faculty members were selected from one university in the UAE in order to test the instrument and incorporate their perceptions and comments into the final version of the instrument. The pilot survey consisted of filling a three-part survey questionnaire for faculty members and a two-part survey questionnaire for HODs by the participants, along with some discussions about the questionnaire related issues. The HODs' questionnaire included 68 questions in two parts; the first part consisted of 26 demographic questions and the second part consisted of 45 leadership style questions as a self-report. The faculty member questionnaire included 85 questions in three parts; the first part consisted of 26 demographic questions, the second part consisted of 45 leadership style questions about HODs, and the third part consisted of 27 job satisfaction questions.

All comments were noted and the required adjustments were conducted. For example, one item was added to question number 92. The item stated 'I feel satisfied with the work published together with my students'. In question number 11, one more set of boxes was added to each item in order to indicate the time participants prefer to spend on different activities; this modification could make the question easier to answer.

3.5.1.2 Piloting Interview Questions

In the second phase of the study, one dean, one Head of Department and one faculty participated in the pilot face to face interview who were not part of the target participants. The pilot interviewing guide consisted of 11 questions in almost 45 minutes. The participants were received the invitation emails in advance and interviewed in their offices. All ethical considerations were shared in the invitation emails, all comments were noted and the required adjustments were conducted. For example: the number of questions was reduced from 11 to 7 main questions that are more in-depth questions as well as some probes follow-up questions if required.

To sum up, the pilot study demonstrated to be a valuable approach, not only for enhancing the precision, productivity, and proficiency of the instruments, but also for providing a firm empirical understanding of the existing leadership styles of HODs and their effects on faculty job satisfaction as well as the most effective factors that satisfy faculty. The interaction with deans, HODs, and faculty was a great opportunity to understand their concerns and challenges regarding their jobs and through a wide range of activities. Therefore, a pilot study was conducted in two universities in the UAE.

3.5.2 Data Collection Procedures

This study was planned to collect data from 5 universities; 4 in the UAE including 714 potential participants, and 1 in the UK including 844 potential participants. Two of the UAE universities did not provide the required approval due to their special rules for conducting research studies from outside, although a great effort and time was spent to follow-up the approvals. Regarding the UK university, after receiving the approval for running the study, the invitation emails to

participate in the first phase of the study were sent to 844 HODs and faculty members in STEM-related fields. They received the first invitation email along with the two follow-up reminder emails personally from the author. A total number of 2455 emails were sent to 844 potential participants, 80 responses were received, from which 43 were complete. However, due to the low percentage of the response rate (.05%), the UK university was excluded from the study. These limitations/ exclusions caused a reduction in the number of sites from 5 universities in two counties to two universities in one country as well as a reduction in the number of potential participants from 1558 to 193 deans, HODs, and faculty members in STEM-related fields. The data almost took 14 months to be collected. The first invitation email was sent on 3rd April 2016 and the last thanks for participation in an interview email were sent on 31st May 2017. A great time was spent and a great effort was exerted; however, due to the universities' rules and policies, and also the full schedule of the academics, the researcher had to exclude the three potential universities. Therefore, the data collection in the first and second phases relate to the remaining two universities in two emirates in the UAE.

3.5.2.1 First Phase Quantitative Data Collection

After taking the approval from the two remaining universities, to conduct the first phase of the study, a personal invitation letter was sent to all 188 HODs and academic members of faculty, in STEM-related fields by the author. The invitation contained a brief explanation of the study, the ethical considerations, a survey link to the survey hosted by Survey Monkey, and the required time to fill the survey questionnaire. The first round of invitations and reminders to the HODs and academics resulted in a response rate of .04% as only 2 HODs and 7 faculty members completed the surveys. So, due to the cultural points of view, it was decided to travel to meet the

potential participants in-person. The response rate revealed a considerable increase. However, the researcher was required to visit the sites and spend full-working days to meet in-person all 188 potential respondents in-person, each for 2 to 3 times to receive the acceptable response rate. Along with that, each person in the target population received 3 reminder emails. Some of them asked for more reminders and some asked for a reminder email in an exact day and time that they expected to be free to fill in the survey. It was pleasing that many of the faculty members and HODs were very interested in the topic area and discussed their considerations through long discussions in-person or through emails; they completed the surveys very carefully. On the whole for the first phase of this study and through 25 full-day visits, and 1128 emails, from 188 potential respondents a total number of 173 responses was received (92%) from which 58 were incomplete. As a result, 115 complete responses (61%) were included to be analysed. These complete responses were related to 101 faculty members in STEM-related fields and 14 HODs.

3.5.2.2 Second Phase Qualitative Data Collection

Based on the responses from the first phase of the study, a few number of participants from HODs and faculty were selected to be interviewed. In addition, to have an integrate perspectives on the appropriate leadership styles of HODs in relation to their faculty job satisfaction directly or indirectly and through mediation or moderation effects, the college deans were also invited to an interview. An invitation email was sent to 5 deans (who were interviewed prior to the first phase), 2 HODs and 4 faculty members for a face-to-face semi-structured in-depth interview. The HODs and faculty members were selected based on a criterion considering different aspects. The main two aspects were the responses of the interviewees from the first quantitative phase and including interviewees from different departments in STEM-related fields. The invitation

emails contained a brief explanation of the study, the ethical considerations, and the required time for interviewing. The interviewees were interviewed by appointment at their office through all ethical considerations; consent forms were signed, and the interviews were recorded and some notes were taken by their permission. The recordings and notes were kept in a secure place to be analysed.

3.6 Trustworthiness

The trustworthiness and validity of the data collected and subsequent analysis was obtained based on five different strategies discussed by Creswell (2009), Maxwell (1996), Glesne (2011), and Stake (1995). First, peer debriefing (Maxwell 1996), wherein another colleague was given access to the transcripts to receive external reflection and feedback on research procedures and results through all ethical considerations. Second, member checking, wherein the HODs and faculty members were asked to review the themes that emerged from their interviews. Third, through methodological triangulation by employing two different research methods; the data was collected from different resources including deans of colleges, HODs, and faculty members. Fourth, through a cross-checking process where all the data collected by the two research methods were cross-checked with each other, and finally, through triangulation of data sources with the survey, the interviews with two deans who were from two other universities with the three deans who were from the main two participating universities as well as the interviews with two HODs, who were new in their position, with the two who were replaced during the period of this study's data collection; the researcher received the completed responses through the changes of their position. All the above strategies were employed to overcome any probable bias and reduce the occurrence of unfounded personal assumptions by the researcher

CHAPTER 4: RESULTS

The purpose of this study is to investigate the relationship between HODs' leadership styles and faculty job satisfaction factors, in STEM-related fields, in the UAE. It also investigates the impact of moderators and mediators on this relationship. The intention is to gain a better understanding of the leadership styles practiced by HODs, the most effective elements that satisfy faculty in their jobs, and the impacts of moderators and mediators on the relationship between HODs' leadership styles and faculty job satisfaction, in STEM-related fields. Deans of colleges, HODs, and faculty members, in STEM-related fields participated in this study. This chapter consists of the preliminary analysis of from validity to reliability, factor analysis, and the descriptive analysis of the participants. It also includes analysis of the collected data in the first quantitative phase of the study; employing a wide variety of statistical tests, as well as analysis of the collected data in the second qualitative phase of this study and through semi-structured in-depth interviews.

4.1 Preliminary Analyses

Prior to analysis, some preliminary analyses were conducted including validity, reliability, factor analyses, descriptive statistics for personal characteristics, descriptive statistics for professional characteristics, and inter-correlations between variables.

4.1.1 Validity and Reliability

One way to ensure that the measurement error is kept minimized is to determine properties of the measure to prove that it is performing properly. The first property is validity and the second is reliability. Validity and reliability are vital in survey-based research.

4.1.1.1 Validity- Testing for Normality using SPSS Statistics

Validity is "whether an instrument actually measures what it sets out to measure" (Field 2009, p. 11). In order to determine normality, two well-known tests are used: the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. The Shapiro-Wilk does the same but it has more power to detect differences from normality, so the test might be reported significant when the Kolmogorov-Smirnov test is not. The Kolmogorov-Smirnov Test and the Shapiro-Wilk test results are reported for every single variable (Appendix 4.1). Table (4.1) presents the degree of freedom, and the significance value of the Kolmogorov-Smirnov tests for all specified variables. A significant value of less than 0.05 indicates a deviation from normality. In other words, if the significance value of the Kolmogorov-Smirnov Test or Shapiro-Wilk Test is greater than 0.05, the data is normal. If it is below 0.05, the data significantly deviate from a normal distribution. According to Table (4.1), the Kolmogorov-Smirnov Test is non-significant (p>0.05) for all of the variables as a group including leadership styles, transformational leadership styles, transactional leadership styles, faculty job satisfaction, moderators, and all mediators; demographic, motivators and hygienes, environmental conditions, job design, and identity.

Therefore, the distribution of the sample is not significantly different from a normal distribution and it is normal. Laissez-faire is the only variable that has probabilities less than .005 in the both tests and so it is significantly different from normal. In addition, the probabilities were measured for all variables' components (see Appendix 4.1). In order to determine normality graphically, the output of a normal Q-Q Plot was used. If the data are normally distributed, the data points will be close to the diagonal line. If the data points stray from the line in an obvious non-linear

fashion, the data are not normally distributed. Based on the normal Q-Q plots (Appendix 4.2), the data are also normally distributed.

Variable	Kolmogorov-Smirnov Test
Leadership Styles (including 6 variables: Transformational, Transactional, Laissez-faire Extra Effort, Satisfaction, Effectiveness)	D (80) = 0.077, *p*>**.05** (0.200*)
Leadership Styles (including 3 variables Transformational, Transactional, Laissez-faire)	D (82) = 0.070, *p*>**.05** (0.200*)
Transformational Leadership Style (including 5 components: Idealized Influence Attributed, Idealized Influence Behaviour, Inspirational Motivation, Intellectual Stimulation, Individualized Consideration)	D (85) = 0.091, *p*>**.05** (.080)
Transactional Leadership Style (including 3 components: Contingent Rewards, Management by Exception Active, Management by Exception Passive)	D (85) = 0.083, *p*>**.05** (0.200*)
Laissez-faire	D (94) = 0.169, *p*<.05 (.000)
Faculty Job Satisfaction (including 6 variables: Work Itself, Salary, Promotion, Supervision, Collegial Relationship, General Job Satisfaction)	D (72) = 0.102, *p*>**.05** (0.063)
Moderators (including 5 variables: Change in Life Stage, Change in Family-related or Personal Circumstances, Transfer to a New Institution, Change in Perceived Justice, Change in Mood or Emotional State)	D (66) = 0.105, *p*>**.05** (0.067)
Mediators (including 4 variables) Demographic (including 4 components) Motivators and Hygienes (including 5 components) Environmental Conditions (including 3 components) Job design (including 3 components) Identity (including 3 components)	D (80) = 0.091, *p*>**.05** (0.099) D (100) = 0.083, *p*>**.05** (0.088) D (41) = 0128, *p*>**.05** (0.090) D (89) = 0.061, *p*>**.05** (0.200*) D (89) = 0.119, *p*>**.05** (0.061) D (85) = 0.078, *p*>**.05** (0.200*)

This is a lower bound of the true significance.

Table 4.1 Test of Normality

4.1.1.2 Reliability and Factor Analysis (PCFA)

4.1.1.2.1 Reliability of Leadership Styles

Reliability is "whether an instrument can be interpreted consistently across different situations" (Field 2009, p. 11). Reliability refers to the standard that the instrument will "provide consistent scores upon repeated administration by alternate forms" and over time (O'Rourke et al. 2005, p.

158). One of the common classes of reliability estimates is internal consistency reliability. Cronbach's alpha is the most common measure of internal consistency. It is often used to determine the reliability of groups of multiple Likert item/questions in a survey questionnaire. A group of items considered to be indicative of a specific variable should have a minimum Cronbach's alpha (coefficient alpha) value of 0.7 according to Brace et al. (2009) and Nunnally (1970).

Leadership styles was the second part of the survey questionnaire of this study and consisted of 45 question items including transformational leadership (20 items), transactional leadership (12 items), laissez-faire (4 items), extra effort (4 items), satisfaction (4 items), and effectiveness (4 items). The reliability test for leadership styles was reported with an overall reliability coefficient .934 for 45 leadership style question items (Mean=110.207, SD=28.795), which is very close to 1 (Appendix 4.3). This indicates a very high reliability score. For individual item questions under leadership, all variables reported a very high reliability score greater than 0.929. The coefficient Since the focus of this study was transformational leadership style, transactional leadership style, and laissez-faire, the reliability test was measured for 36 questions related to these three main types of leadership including transformational leadership (20 items), transactional leadership (12 items), Laissez-faire (4 items). The reliability test for leadership styles was reported with an overall reliability coefficient; Cronbach's alpha as .883 for 36 leadership style questions (Mean=83.690, SD=19.872), which is very close to 1 (Appendix 4.4). This also indicates a very high reliability score. For individual item questions under leadership, all variables reported a very high reliability score greater than .872.

4.1.1.2.2 Reliability of Faculty Job Satisfaction

The reliability test for job satisfaction was reported with an overall reliability coefficient Cronbach's alpha .846 for 92 job satisfaction question items (Mean=303.465, SD=22.377), which indicates a high level of internal consistency in the scale for this specific sample. For individual item questions under job satisfaction, the reliability score was found to be greater than 0.837.

Generally, the statistics reveal very high reliability scores throughout the leadership styles and job satisfaction question item groups of the survey questionnaire.

4.1.1.3 Reliability and Validity of Dependent and Independent Variables

The dependent variable of this study is faculty job satisfaction and the independent variables are leadership styles, moderators, and mediators. Each variable consisted of different factors.

4.1.1.3.1 Reliability and Validity of Dependent Variable-Faculty Job Satisfaction

For the faculty job satisfaction which included 6 variables/elements (Table 4.2), Cronbach's alpha was measured.

Initial Elements	No. items	Cronbach's alpha	Mean	SD
Faculty Job Satisfaction	**24**	**.685**	**82.329**	**8.024**
Work itself	3	-1.248	10.333	1.116
Salary	6	.225	19.340	2.841
Promotion	4	.152	12.233	2.499
Supervision	3	.878	11.204	2.214
Collegial relationships	4	.204	13.053	1.635
General job satisfaction	4	.919	16.378	2.829

Table 4.2 Cronbach's Alpha for Faculty Job Satisfaction

Due to the low Cronbach's alpha of some of the variables, some items were deleted (Table 4.3).

Deleting 1 item from work itself, 2 items from promotion, and 2 items from collegial

relationships could increase their Cronbach's alpha to .885. The salary variable discarded due to

low reliability even by deleting some of its items. Therefore, faculty job satisfaction with a very

high Cronbach's alpha score of (.885) for 13 items consisted of 5 elements: work itself,

promotion, supervision, collegial relationships, and general job satisfaction. Then, an exploratory

principal components factor analysis (PCFA) was performed to investigate the structure of the

data (Appendix 4.5). This analysis resulted in 3 factor groups explaining 69.055% of total

variance (KMO= .820, $p<.001$). The high KMO score, high percentages of variance, and the

meaningfulness of these 3 factors were the main reasons to retain the factor analysis test results

for faculty job satisfaction.

Initial Variables	No. items	Cronbach's alpha	Mean	SD
Faculty Job Satisfaction (includes all items for the 5 variables below)	**13**	**.885**	**50.897**	**7.263**
Work itself (3items to 2 items, 72-1 deleted)	2	.729	8.670	1.417
Promotion (4 items to 2 items, 81& 82-1deleted)	2	.793	6.527	2.078
Supervision	3	.875	11.204	2.214
Collegial relationships (4 items to 2 items, 88-2 &88-3 deleted)	2	.751	8.284	1.293
General job satisfaction	4	.919	16.378	2.829
Factor groups (KMO=.820, *p<.001*)	**No. items**	**% of Variance**	**Eigenvalues**	
Work and collegiality General job satisfaction (97:1,2,3,4), Collegial relationships (88:1,4), Work itself (72: 2,3)	8	32.740	4.256	
Supervision Supervision (87: 1,2,3)	3	19.679	2.558	
Promotion Promotion (82: 2,3)	2	16.636	2.163	
Comment				
Three new factor groups were identified (components 1,2,3) and selected as dependent variables.				

Table 4.3 Cronbach's Alpha and PCFA for Faculty Job Satisfaction

4.1.1.3.1 Reliability and Validity of Independent Variables

4.1.1.3.1.1 Reliability and Validity of Independent Variables- Leadership Styles

For the leadership style which consisted of three main variables and their components (Table 4.4), Cronbach's alpha was measured. The Cronbach's alpha score for leadership style (36 items) was .883 (Mean=83.690, SD=19.872), and was almost very high for all of the variables and their own components excluding the transactional and one of its components: management by exception active. An exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data. This analysis resulted in 9 components explaining 70.276% of total variance (KMO= .835, $p<.001$). Distribution of the initial factors in a different number of the new constructed factors (e.g., the transactional leadership items distributed across 6 different factor groups) and very low percentage of the variances (except the first one) were the main reasons to reject the factor analysis test results for the leadership style variable (Appendix 4.4). Indeed, the factor groups could not explain the theoretical framework of the study; full range leadership styles. The initial variables including transformational leadership (20 items), transactional leadership (12 items) and laissez-faire (4 items) were selected for further analysis.

Initial Variables	No. items	Cronbach's alpha	Mean	SD
Leadership styles (includes all items for the 3 main variables below)	**36**	**.883**	**83.690**	**19.872**
Transformational leadership	**20**	**.932**	**56.551**	**16.945**
Idealized Influence Attributed	4	.781	11.718	4.261
Idealized Influence Behaviour	4	.730	11.818	3.444
Inspirational Motivation	4	.787	12.256	4.076
Intellectual Stimulation	4	.832	10.234	3.914
Individualized Consideration	4	.654	9.663	4.028
Transactional Leadership	**12**	**.459**	**24.216**	**5.688**
Contingent Rewards	4	.755	11.645	4.042
Management-by-exception Active	4	.495	8.311	3.280
Management-by-exception Passive	4	.682	4.043	3.103
Laissez-faire	**4**	**.740**	**2.969**	**3.070**

Factor groups (KMO= .835, $p<.001$)	No. items	% of Variance	Eigenvalues
Transformational and Transactional leadership TF (IIA:47,51,44-IIB:49,60,40-IM:52,62,35-IS:58,56–IC:57,41), TA (CR:61,42,37- MEA:53)	17	24.501	8.821
Transactional leadership and Laissez-faire TA (MEP:38,29,46), LF (31,33,54)	6	11.533	4.152
Transformational and Transactional leadership TF (IA:36 – IS:28- IC:45), TA (CR:27)	4	7.888	2.840
Transactional leadership TA (MEA:50,48)	2	5.101	1.836
Transformational leadership TF (IS:34- IM:39)	2	4.931	1.775
Transformational leadership TF (IC:55), LF (59)	2	4.317	1.554
Transactional leadership TA (MEP:43)	1	4.270	1.537
Transactional leadership TA (MEA:30)	1	3.968	1.428
Transformational leadership TF (IIB:32)	1	3.767	1.356
Comment			
The initial variables including transformational leadership, transactional leadership and laissez-faire were selected for further analysis.			

Table 4.4 Cronbach's Alpha and PCFA for Leadership

4.1.1.3.1.2 Reliability and Validity of Independent Variables-Moderators

For moderators which included 6 variables, Cronbach's alpha was measured (Table 4.5):

Initial Variables	No. items	Cronbach's alpha	Mean	SD
Moderators	**15**	**.132**	**43.966**	**6.025**
Change in life stage	1	-	-	-
Change in family or personal circumstances	5	.391	13.775	1.839
Transfer to a new institution	1	-	-	-
Change in perceived justice	6	.500	15.447	3.029
Change in mood or emotional state	1	-	-	-
Change in rank	1	-	-	-

Table 4.5 Cronbach's Alpha for Moderators

Due to the low Cronbach's alpha of some of the variables, some changes were applied (Table 4.6). Three items were deleted from change in family or personal circumstances and formed a new variable named as work life balance. Dividing the variable change in family or personal circumstances into two variables including family or personal circumstances and work life balance made the items more meaningful. Then one item was deleted from work balance to reach a higher reliability. In addition, 2 items from change in perceived justice were deleted due to the same reason and then the 4 remaining items formed two variables including perceived injustice and low ethnic prejudice. Table (4.6) represents the Cronbach's alpha for the initial variables and the resulted variables. Then, an exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data (Appendix 4.6). This analysis resulted in 2 factor groups explaining 66.562% of total variance (KMO= .595, $p<.001$). The very high percentages of variance, and the meaningfulness of these 2 factors were the main reasons to retain the factor analysis test results for moderators.

Initial Variables	No. items	Cronbach's alpha	Mean	SD
Moderators (includes all items for the 7 variables below)	**15**	**.132**	**43.966**	**6.025**
Change in life stage	1	-	-	-
Change in family or personal circumstances (5 items to 2 items, 95 deleted)	2	.391	13.775	1.839
Work life balance (3rejected items from change in family or personal circumstances created work life balance variable then these 3 items 2 items, 95-1 deleted)	2	**.698**	7.011	1.402
Transfer to a new institution (months)	1	-	-	-
Change in perceived justice (6 items to 5 items, 90-1 deleted)	5	**.723**	11.308	3.366
Change in mood or emotional state	1	-	-	-
Change in rank (months)	1	-	-	-
Resulted Variables (items deleted)	**No. items**	**Cronbach's alpha**	**Mean**	**SD**
Moderators (includes all items for the 3 variables below)	**6**	**.559**	**15.633**	**3.092**
Work life balance	2	.698	7.011	1.402
Change in perceived justice (5 items to 4 items, 90-2 deleted) - Change in perceived justice divided into two variables: Perceived injustice (90: 4,5,6)	3	.811	5.936	2.395
Low ethnic prejudice (90:3)	1	-	-	-

Factor groups (KMO= .595, *p*<.001)	No. items	% of Variance	Eigenvalues
Change in perceived justice Perceived injustice (90: 4,5,6), Low ethnic prejudice (90:3)	4	40.269	2.416
Work life balance Work life balance (95: 2,3)	2	26.293	1.578
Comment			
Two factor groups were identified (components 1,2) and selected for further analysis.			

Table 4.6 Cronbach's Alpha and PCFA for Moderators

4.1.1.3.1.3 Reliability and Validity of Independent Variables-Mediators

4.1.1.3.1.3.1 Mediators-Demographic

Demographic included 4 variables: gender (1 item), ethnicity (1 item), institutional type (1 item), and academic discipline (11 items). Due to the types of items for demographic variable, it was not possible to measure the Cronbach's alpha or factor analysis. The results of analysis for demographic presented in the next section.

4.1.1.3.1.3.2 Mediators-Motivators and Hygienes

For motivators and hygienes which included 6 variables, Cronbach's alpha was measured. The Cronbach's alpha score for all selected 26 items was .792 with Mean=90.876 and SD=10.291. Then, an exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data (Appendix 4.7). This analysis resulted in 8 factor groups explaining 70.152% of total variance (KMO= .702, *p*<.001). Distribution of the initial factors in a different number of the new constructed factors (e.g., the working condition items distributed across 4 different factor groups) and so the lack of meaningfulness of these 8 factors as well as the low percentage of the variances were the main reasons to reject the factor analysis test results for the

motivators and hygienes. Therefore, the initial variables were selected for further analysis (Table 4.7).

Initial Variables	No. items	Cronbach's Alpha	Mean	SD
Motivators and Hygienes (includes all items for the 6 variables below)	**26**	**.792**	**90.876**	**10.291**
Achievement	3	.780	12.358	2.151
Recognition-Informal	3	.611	9.108	2.778
Responsibility	6	.789	20.304	4.407
Advancement	3	.872	10.266	2.802
Working conditions	8	.618	27.521	3.904
Job security	3	.808	10.304	2.675
Factor groups (KMO= .702, $p<.001$)	No. items	% of Variance	Eigenvalues	
Achievement, Recognition-Informal, Advancement Achievement (73: 1,2), Recognition-Informal (75:1) Advancement (80:1,2,3)	6	14.307	3.720	
Responsibility Responsibility (77: 1,2,3,5,6)	5	13.571	3.529	
Recognition-Informal, Job security, Working conditions Recognition-Informal (75:3), Job security (85: 1,2) Working conditions (11:2)	4	9.930	2.582	
Working conditions, Responsibility Working conditions (11:5,6,7,8), Responsibility (77: 4)	5	9.260	2.408	
Achievement, Job security Achievement (73: 3), Job security (85: 3)	2	6.334	1.647	
Working conditions Working conditions (11:1)	1	5.861	1.524	
Working conditions Working conditions (11: 3,4)	2	5.788	1.505	
Recognition-Informal Recognition-Informal (75:2)	1	5.101	1.326	
Comment				
6 initial variables were selected for further analysis.				

Table 4.7 Cronbach's Alpha and PCFA for Mediators- Motivators and Hygienes

4.1.1.3.1.3.3 Mediators- Environmental Conditions

For environmental conditions that included 4 variables, Cronbach's alpha was measured (Table 4.8):

Initial Variables	No. items	Cronbach's Alpha	Mean	SD
Environmental conditions	**17**	**.695**	**58.662**	**6.622**
Student quality or relationships (Students)	4	.100	13.434	2.055
Administration	4	.205	12.526	2.088
Institutional climate or culture	6	.875	21.608	4.571
Interpersonal relations	3	.829	11.355	1.998

Table 4.8 Cronbach's Alpha for Environmental Conditions

Due to the low Cronbach's alpha of some of the variables, some items were deleted. Deleting 1 item from student quality or relationships and 1 item from administration caused a considerable increase in these two variables as well as the whole reliability of environmental conditions. In addition, the student quality or relationships divided into two separate variables including student quality and relationships with students. Then, an exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data (Appendix 4.8). This analysis resulted in 3 factor groups (Table 4.9) explaining 69.633% of total variance (KMO= .760, $p<.001$). The high KMO score, high percentages of variance, and the meaningfulness of these 4 factors were the main reasons to retain the factor analysis test results for environmental conditions.

Initial Variables	No. items	Cronbach's alpha	Mean	SD
Environmental conditions (includes all items for the 5 variables below)	**15**	**.871**	**52.977**	**8.521**
Student quality or relationships (Students) (4 items to 3 items, 92-4 deleted, the remaining items considered as two single items) Student quality (2 items-reverse coded) Relationships with students (1 item)	2 1	.737 -	5.989 -	2.087 -
Administration (4 items to 3 items, 91-4 deleted)	3	.809	10.150	2.845
Institutional climate or culture	6	.875	21.608	4.571
Interpersonal relations	3	.829	11.355	1.998
Factor groups (KMO= .760, $p<.001$)	**No. items**	**% of Variance**	**Eigenvalues**	

Institutional climate or culture Institutional climate or culture (93: 1,2,3,5,6)	5	24.477	3.672
Relationships Interpersonal relations (89: 1,2,3), Relationships with students (92:2)	4	17.700	2.655
Institutional and administrative culture Administration (91: 1,2,3), Institutional climate or culture (93: 4)	4	16.535	2.480
Student quality Students quality (92:1,3 reverse coded)	2	10.922	1.638
Comment			
Four factor groups were identified (components 1,2,3,4) and selected for further analysis.			

Table 4.9 Cronbach's Alpha and PCFA for Environmental Conditions

4.1.1.3.1.3.4 Mediators- Job Design

For job design variables that included 3 variables, Cronbach's alpha was measured (Table 4.10):

Initial Variables	No. items	Cronbach's Alpha	Mean	SD
Job Design (includes all items for the 3 variables below)	**9**	**.370**	**30.786**	**3.502**
Feedback	3	.132	9.322	1.490
Autonomy	3	.012	10.717	1.762
Skill variety	3	.384	10.623	2.063

Table 4.10 Cronbach's Alpha for Job Design

Due to the low Cronbach's alpha of the variables, 3 items (1 item from each variable) were deleted. It could increase the reliability of each variable and the job design as a group considerably. Then, an exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data (Appendix 4.9). This analysis resulted in 2 factor groups explaining 66.024% of total variance (KMO= .584, $p<.001$). A meaningless combination of the two variables (feedback and autonomy) as the first component, and the low KMO score were the

main reasons to reject the factor analysis test results for job design. Therefore, the initial variables were selected for further analysis (Table 4.11).

Initial Factors	No. items	Cronbach's alpha	Mean	SD
Job Design (includes all items for the 3 variables below)	**6**	**.716**	**22.433**	**3.515**
Feedback (3 items to 2 items, 86-1 deleted)	2	.816	6.912	1.495
Autonomy (3 items to 2 items, 79-2 deleted)	2	.741	7.580	1.670
Skill variety (3 items to 2 items, 78-3 deleted)	2	.729	7.926	1.727
Factor groups (KMO= .584, *p*<.001)	**No. items**	**% of Variance**	**Eigenvalues**	
Feedback and Autonomy Feedback (86: 2,3), Autonomy (79:1,3)	4	37.493	2.250	
Skill variety Skill variety (78: 1,2)	2	28.532	1.712	
Comment				
2 initial variables were selected for further analysis.				

Table 4.11 Cronbach's Alpha and PCFA for Job Design

4.1.1.3.1.3.5 Mediators- Identity

For identity, independent variables that included 3 variables, Cronbach's alpha was measured (Table 4.12):

Initial Variables	No. items	Cronbach's Alpha	Mean	SD
Identity (includes all items for the 6 variables below)	**14**	**.518**	**40.057**	**4.849**
Need to belong	3	.601	10.527	2.019
Self-esteem	4	.307	12.659	2.325
Religious and cultural values	8	.644	16.988	3.562

   Table 4.12 Cronbach's Alpha for Identity

Due to the low Cronbach's alpha of the variables, 6 items were deleted; 1 item from need to belong, 2 items from self-esteem, and 3 items from religious and cultural values. So, the

Cronbach's alpha increased for each variable. The Cronbach's alpha for the whole 8 items was .630 (Mean= 22.797, SD= 3.461). Then, an exploratory principal components factor analysis (PCFA) was performed to investigate the structure of the data (Appendix 4.10). This analysis resulted in 3 factor groups explaining 83.570% of total variance (KMO= .742, $p<.001$). The high KMO score, the very high percentages of variance (particularly the first one), and the meaningfulness of these 2 factors were the main reasons to retain the factor analysis test results for faculty job satisfaction (Table 4.13). The factor analysis grouped the variables as they had been the designed based on the literature.

Initial items	No. items	Cronbach's alpha	Mean	SD
Identity	**8**	**.630**	**22.797**	**3.461**
Need to belong (3 items to 2 items, 74-3 deleted)	2	.643	7.361	1.390
Self-esteem (4 items to 2 items, 76-2, 76-4 deleted)	2	.679	8.305	1.502
Religious and cultural values (7items to 4items, 94-1, 94-2, 94-3 deleted)	4	.966	7.244	3.084
Factor groups (KMO= .742, $p<.001$)	**No. items**	**% of Variance**	**Eigenvalues**	
Religious and cultural values Religious and cultural values (94:4,5,6,7)	4	45.497	3.640	
Self-esteem Self-esteem (76: 1,3)	2	19.383	1.551	
Need to belong Need to belong (74: 1,2)	2	18.691	1.495	
Comment				
3 factor groups were selected for further analysis.				

Table 4.13 Cronbach's Alpha and PCFA for Identity

4.1.1.2 A Summary of the Selected Variables

Based on the reliability scores and factor analysis results (PCFA), the following variables were selected for further analysis. Table (4.14) represents a summary of the variables, their reliability scores, KMO scores, the number of items in the survey questionnaire.

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Final Leadership styles & Job Satisfaction Variables		
	Leadership Styles **(45 items: alpha= .934)** **(36 items: alpha= .883, KMO=.835, p<.001)**	**Transformational Leadership Style** Idealized Influence Attributed (Qs: 36, 44, 47, 51) Idealized Influence Behaviour (Qs:32, 40, 49, 60) Inspirational Motivation (Qs:35, 39, 52, 62) Intellectual Stimulation (Qs:28, 34, 56, 58) Individualized Consideration (Qs:41, 45, 55, 57) **Transactional Leadership Style** Contingent Rewards (Qs:27, 37, 42, 61) Management-by-exception Active (Qs:30, 48, 50, 53) Management-by-exception Passive (Qs:29, 38, 43, 46) **Laissez-faire (Qs:31, 33, 54, 59)**
	Faculty Job Satisfaction **(13 items: alpha= .885, KMO=.820, p<.001)**	**Work and collegiality** General job satisfaction(Q97:1,2,3,4) Collegial relationships (Q88:1,4) Work itself (Q72: 2,3) **Supervision** Supervision (Q87: 1,2,3) **Promotion** Promotion (Q82: 2,3)
	Moderators **(6 items: alpha= .559, KMO=.595, p<.001)**	**Change in perceived justice** Perceived injustice (Q90: 4,5,6) Low ethnic prejudice (Q90:3) **Work life balance** Work life balance (Q95: 2,3)
	Mediators **Motivators and Hygienes** **(26 items: alpha= .792, KMO=.702, p<.001)**	**Achievement** (Q73: 1,2,3) **Recognition-Informal** (Q75: 1,2,3) **Responsibility** (Q77: 1,2,3,4,5,6) **Advancement** (Q80: 1,2,3) **Working conditions** (Q11: 1,2,3,4,5,6,7,8) **Job security** (Q85:1,2,3)
	Environmental conditions **(15 items: alpha= .871, KMO=.760, p<.001)**	**Institutional climate or culture** Institutional climate or culture (Q93: 1,2,3,5,6) **Relationships** Interpersonal relations (Q89: 1,2,3) Relationships with students (Q92:2) **Institutional and administrative culture** Administration (Q91: 1,2,3) Institutional climate or culture (Q93: 4) **Student quality** Students quality (Q92:1,3 reverse coded)
	Job Design **(6 items: alpha= .716, KMO=.584, p<.001)**	**Feedback** (Q86: 2,3) **Autonomy** (Q79: 1,3) **Skill variety** (Q78: 1,2)
	Identity **(8 items: alpha= .630, KMO=.742, p<.001)**	**Religious and cultural values** Religious and cultural values (Q94: 4,5,6,7) **Self-esteem** Self-esteem (Q76: 1,3) **Need to belong** Need to belong (Q74: 1,2)

Table 4.14 A Summary of the Selected Variables

4.1.2 Descriptive for Personal and Professional

A total number of 115 participants including 101 members of faculty and 14 HODs, in STEM-related fields responded completely to the survey questionnaire of this study.

4.1.2.1 Descriptive for Personal Characteristics (Faculty)

Detailed descriptive statistics was conducted on the collected data with N = 101, which was related to the members of faculty (Table 4.15). Amongst the 101 respondents, a majority of 82% were recorded as males where females were 18%. In terms of ethnicity, it is observed that a maximum number of respondents belong to the ethnicity of Canada (15%) followed by Jordan (14%) and Pakistan (10%). These are the top three ethnicities observed among 34 different ethnicities of the citizens. When asked about the type of university the respondents worked in, a majority was observed for private for profit (79%) followed by private for non-profit (20%). 75% of respondents indicated that they have a doctoral degree and, when asked to share details about employment, a total of 96 % of respondents had a full-time employment. With regard to monthly salary, a majority of the respondents (51.5%) reported a monthly salary of AED 20,000 – 29,999, followed by 22% with AED 10,000 – 19,999, 14.4% with AED 30,000 to 39,999, and only 2% of faculty members with a salary of more than AED 50,000 (Mean = 2.958, SD = .923). In terms of age, a total of 70% respondents reported to be middle aged (i.e. 36 - 54 years old), followed by 19% as young aged (35 years and lower) and 10% as senior aged (55+ years). When asked about their religion, a majority of the respondents considered themselves as Muslim (86%). Regarding their marital status, a total of 84% indicated as married, and the rest indicated as being single (9%), separated (3%) or living with a partner or significant other (1%). And, for

whether the marital or non-marital circumstances have existed for the past 12 months, 89% of the

respondents indicates in affirmative.

Research Variable	n (Faculty)	% (Faculty)	Research Variable	n (Faculty)	% (Faculty)
Gender			**Ethnicity**		
Male	83	82	Canada	15	15
Female	18	18	Jordan	14	14
Total	101	100	Pakistan	10	10
Missing	0	0	Other*	59	59
			Total	98	97
			Missing	3	3
			*Only top 3 countries listed		
Type of University			**Degrees**		
Private for profit	80	79	PhD-holders	76	75
Private for non-profit	20	20	Non-PhD-holders	25	25
Total	100	99	Total	101	100
Missing	1	1			
Employment			**Age**		
Full-time	97	96	Young-35 years and	19	19
Part-time	3	3	younger		
Total	100	99	Middle aged-36-54	71	70
Missing	1	1	years Senior- 55 years	10	10
			and over Total	100	99
			Missing	1	1
Monthly Salary			**Religion**		
1-9,999 AED	4	4	Muslim	87	86
10,000-19,999 AED	22	22	Non-Muslim	12	12
20,000-29,999 AED	52	51.5	Total	99	98
30,000-39,999 AED	14	14	Missing	2	2
40,000-49,999 AED	3	3			
More than 50,000 AED	2	2			
Total	97	96			
Missing	4	4			
Mean: 2.958					
SD: 0.923					
Change in family			**Are the above circumstances (Change in family) the same as 12 months ago?**		
Single and never married	9	9			
Married	85	84			
Living with partner or significant other	1	1	Yes	90	89
Separated, divorced, widowed	3	3	No	10	10
Total	98	97	Total	100	99
Missing	3	3	Missing	1	1

Table 4.15 Personal Characteristics- Faculty

4.1.2.2 Descriptive for Personal Characteristics (HODs)

Detailed descriptive statistics was conducted on the collected data, with N = 14, which was related to the HODs in STEM-related fields (Table 4.16). All 14 respondents were males who belonged to the ethnicity USA (29%) followed by UK (14%). These are the top two ethnicities observed among 9 different ethnicities which they are a citizen to. When asked about the type of university the respondents worked in, a majority was observed for private for non-profit (86%) followed by Federal (7%). All respondents indicated that they have a doctoral degree and work as a full-time employment. With regard to monthly salary, a majority of the respondents (57%) reported a monthly salary of AED 30,000 – 39,999, followed by 21% with salary AED 20,000 – 29,999, and only 7% with a salary of more than AED 50,000 (Mean = 3.91, SD = 0.71). In terms of age, a total of 71% respondents reported to be of middle age (i.e. 36 - 54 years old), followed by the same percentage of 7% as young aged (35 years and lower) and senior aged (55+ years). When asked about their religion, the 12 HODs considered themselves as Muslim (88%). Regarding their marital status, a total of 97% indicated as married, and for whether the marital or non-marital circumstances have existed for the past 12 months, 79% of the respondents indicates in affirmative.

Research Variable	n (HODs)	% (HODs)	Research Variable	n (HODs)	% (HODs)
Gender			**Ethnicity**		
Male	14	100	USA	4	29
Female	0	0	UK	2	14
Total	14	100	Other*	7	50
Missing	0	0	Total	13	93
			Missing	1	7
			*Only top 2 countries listed		
Type of University			**Degrees**		
Private for non-profit	12	86	PhD-holders	14	100
Federal	1	7	Non-PhD-holders	0	0
Total	13	93	Total	14	100
Missing	1	7			
Employment			**Age**		
Full-time	14	100	Young-35 years and younger	1	7
Part-time	0	0			
Total	14	100	Middle aged-36-54 years	10	71
Missing	0	0	Senior- 55 years and over	1	7
			Total	12	86
			Missing	2	14
Monthly Salary			**Religion**		
1-9,999 AED	0	0	Muslim	12	86
10,000-19,999 AED	0	0	Non-Muslim	0	0
20,000-29,999 AED	3	21	Total	12	86
30,000-39,999 AED	8	57	Missing	2	14
40,000-49,999 AED	0	0			
More than 50,000 AED	1	7			
Total	12	86			
Missing	2	14			
Mean: 3.91					
SD: 0.79					
Change in family			**Are the above circumstances (Change in family) the same as 12 months ago?**		
Single and never married	0	0			
Married	13	93			
Living with partner or significant other	0	0			
			Yes	11	79
Separated, divorced, or widowed	0	0	No	0	0
			Total	11	79
Total	13	93	Missing	3	21
Missing	1	7			

Table 4.16 Personal Characteristics-HODs

4.1.2.3 Descriptive for Professional Characteristics (Faculty)

Detailed descriptive statistics for professional characteristics was conducted on the collected data with N = 101, which was related to the members of faculty (Table 4.17). Faculty members who participated in this study were in the 17 different teaching disciplines; 17% were in physics, 14% in civil engineering, 9% in chemistry and the same percentage of the faculty were in mathematics and statistics discipline. Respondents indicated 93 different fields of specialization with the top three being structural engineering (3%), statistics (3%), and chemistry (2%). A majority of respondents were assistant professor (32%) followed by associate professor (30%) and lecturer (26%). 28 of them started their first job in higher education before 2000 and 64 after 2000 (Mean=2.63, SD=1.97), mostly as assistant professor (5) and lecturer (4) (Mean=4.02, SD=4.08). In their first job in higher education, 75 worked full-time and 25 part-time (Mean=1.08, SD=0.50) in a number of different universities including the University of Sharjah (18), Jordan Science and Technology University (7), and Dulhousie University (2) with mean=2.63 and SD=1.97.

Regarding time spent on teaching, research, administration and internal service, and external service, among101 faculty members, 85 spend 30%+ on teaching and only 3 spend 1%-9% on teaching. Among 101 faculty members, only 33 prefer spending 30%+ of their time on teaching and 35 prefer 20%-29% (Mean Ta=4.78, SD=0.61; Mean Tp=3.98, SD=0.91). Regarding research, only 16 faculty members spend 30%+ on research and 27 of them spend only 1%-9%, while 62 faculty members prefer spending their time on research 30%+ and only 1 faculty prefer 1%-9% (Mean Ra=3.14, SD=1.19; Mean Rp=4.43, SD=0.90). So, the willingness for research is very high. Among 101 faculty members, 39 spend 20%-29% on administration and internal

service, only 4 do not spend any time on this, however, only 8 prefer to spend 20%-29% of their time on administration and internal service, and 43 prefer 10%-19% (Mean Aa=3.14, SD=1.04; Mean Ap=2.42, SD=0.91). Regarding external service, only 17 faculty members spend 30%+ on external service and 39 spend 10%-19% on this kind of service, while only 2 prefer spending time on external service and 42 prefer 1%-9% (Mean Ea=2.62, SD=0.96; Mean Ep=2.71, SD=0.88).

During 2009 to 2015, these respondents published a number of journal articles (Max=96, Min=0; Mean= 13.14, SD=15.96), edited books (Max=2, Min=0; Mean=0.21, SD=0.49), authored books (Max=5, Min=0; Mean=0.30, SD=0.85), and chapter(s) in books (Max=4, Min=0; Mean=0.68, SD=0.08). They also presented a number of presentations outside the UAE (Max=60, Min=0; Mean=8.73, SD=10.21) and inside the UAE (Max=20, Min=0; Mean= 2.18, SD=3.15). During 2011-2016 they were member of national/international scientific board (31 out of 101), elected leader of association or union (5 out of 101), elected leader of an external professional/ academic organization (5 out of 101), chairperson in an external professional organization (11 out of 101), and engaged in funded or creative research or consultancy (43 out of 101). In the last 5 years, a number of committees has been served (Max=25, Min=0; Mean= 6.98, SD=5.84) and chaired (Max=10, Min=0; Mean= 1.10, SD=2.26) by these faculty members. In the last 5 years, 43 of the faculty were promoted to a higher rank, while 47 stayed in the same rank. They have worked in their current institution for a max of 18 years and a minimum of less than a year, and in their current position, for a max of 23 years and a minimum of less than a year.

Variable	n (Faculty)	% (Faculty)	Variable	n (Faculty)	% (Faculty)
Teaching Discipline			**Field of specialization**		
Physics	17	17			
Civil Engineering	14	14	Structural Engineering	3	3
Chemistry	9	9	Statistics	3	3
Mathematics,	9	9	Organic Chemistry	2	2
Statistics Other*	42	41	Other*		
Total	91	90	Total	89	88
Missing	10	10	Missing	97	96
Min 0, Max 20			Min 0, Max 87	4	4
*Only 3 first highest numbers listed			*Only top 3 field of specialization listed		
Academic title			**Change in rank:**		
Assistant professor	32	32	Promoted a higher rank	43	43
Associate professor	30	30			
Lecturer	26	26	In the same rank	47	47
Other*	13	12	Total	90	89
Total	101	100	Missing	11	11
Missing	0	0			
*Only top 3 academic title listed					
First Job in HE			**First Job in HE**		
Title			**Year**		
Assistant Professor	31	31	Before 2000	28	28
Lecturer	28	28	After 2000	64	64
Teaching Assistant	11	11	Total	92	91
Other*	31	30	Missing	9	9
Total	101	100	Mean: 2.63		
Missing	0	0	SD: 1.97		
Mean: 4.02					
SD: 4.08					
*Only top 3 academic title listed					
University			**Full/ Part-time**		
University of Sharjah	18	18	Full-time	75	75
Jordan Sci & Tech Uni Dalhousie Uni	7	7	Part-time	17	17
	2	2	Total	92	92
Other*	64	64	Missing	9	9
Total	91	90	Mean: 1.08		
Missing	10	10	SD: 0.50		
Mean: 22.78					
SD: 21.50					
*Only top 3 universities listed					

Time spending on:	Teaching		Research		Teaching		Research	
	Actual (Ta)	Pref (Tp)	Actual (Ra)	Pref (Rp)	Actual (Ta)	Pref (Tp)	Actual (Ra)	Pref (Rp)
0%	0	0	7	2	0	0	7	2
1%-9%	3	6	27	1	3	6	27	1
10%-19%	1	22	26	12	1	22	26	12

	Admin&Int Service Actual (Aa)	Pref (Ap)	Admin&Int Service Actual (Ea)	Pref (Ep)	External Service Actual (Aa)	Pref (Ap)	External Service Actual (Ea)	Pref (Ep)
20%-29%	10	35	23	20	10	35	23	20
30%+	85	33	16	62	84	33	16	61
Total	92	96	99	97	98	95	98	96
Missing	2	5	2	4	2	5	2	4

Mean:
Ta= 4.787 Tp=3.989
Ra= 3.141 Rp= 4.433
SD:
Ta= 0.610 Tp=0.911
Ra= 1.195 Rp= 0.900

	Admin&Int Service Actual (Aa)	Pref (Ap)	Admin&Int Service Actual (Ea)	Pref (Ep)	External Service Actual (Aa)	Pref (Ap)	External Service Actual (Ea)	Pref (Ep)
0%	4	13	7	5	4	13	7	5
1%-9%	12	42	46	36	12	42	45.5	36
10%-19%	39	30	27	43	39	30	27	43
20%-29%	27	9	15	8	27	9	15	8
30%+	17	2	4	5	17	2	4	5
Total	99	96	99	97	98	95	98	96
Missing	2	5	2	4	2	5	2	4

Mean:
Aa= 3.414 Ap= 2.427
Ea= 2.626 Ep= 2.711
S D:
Aa= 1.040 Ap= 0.914
Ea= 0.964 Ep= 0.889

Estimate the # of:						
Journal articles	Max 96	Min 0	Total 93	Max 1	Min 6	Total 92
	Missing 8	Mean 13.14	SD 15.96	Missing 8		
Edited books	Max 2	Min 0	Total 56	Max 2	Min 45.5	Total 55.5
	Missing 45	Mean 0.21	SD 0.49	Missing 44.5		
Authored books	Max 5	Min 0	Total 56	Max 1	Min 45.5	Total 55.5
	Missing 45	Mean 0.30	SD 0.85	Missing 44.5		
Chapter(s) in books	Max 4	Min 0	Total 65	Max 1	Min 34	Total 64.5
	Missing 36	Mean 0.68	SD 0.08	Missing 36		
Conference presentations outside UAE	Max 60	Min 0	Total 90	Max 1	Min 1	Total 89
	Missing 11	Mean 8.73	SD 10.21	Missing 11		

Conference presentations inside UAE	Max 20 Missing 22	Min 0 Mean 2.18	Total 79 SD 3.15	Max 1 Missing 22	Min 26	Total 78
A member of:	Member	Missing	Total	Member	Missing	Total
National/International scientific board	31	70	101	31	70	100
Elected leader of association or union	5	96	101	5	95	100
Elected leader external association	5	96	101	5	95	100
Chairperson in an external professional organisation	11	90	101	11	90	100
Engagement in funded or creative research/consultancy	43	58	101	43	57	100
Responsibility at work						
Number of committees served	Max 25 Missing 4	Min 0 Mean 6.98	Total 97 SD 5.84	Max 4 Missing 4	Min 8	Total 96
Number of committees chaired	Max 10 Missing 8	Min 0 Mean 1.10	Total 93 SD 2.26	Max 1 Missing 8	Min 30	Total 92
Transfer to new institution: Years	Max 18 Missing 6	Min 0 Mean 4.46	Total 95 SD 5.18	Max 5 Missing 6	Min 13	Total 94
Months	Max 10 Missing 23	Min 0 Mean 4.15	Total 78 SD 2.93	Max 7 Missing 23	Min 4	Total 77
Promotion in your current position: Years	Max 23 Missing 9	Min 0 Mean 3.83	Total 92 SD 4.70	Max 1 Missing 9	Min 17	Total 91
Months	Max 11 Missing 30	Min 0 Mean 4.34	Total 71 SD 3.00	Max 1 Missing 30	Min 3	Total 70

Table 4.17 Professional Characteristics-Faculty

4.1.2.4 Descriptive for Professional Characteristics (HODs)

Detailed descriptive statistics for professional characteristics was conducted on the collected data with N = 14, which was related to the HODs in STEM-related fields (Table 4.18). HODs, who participated in this study were in the 14 different teaching disciplines, and 13 different field of specializations. A majority of respondents were professor (57%) followed by associate professors (36%) and only one Head of Department (7%) was assistant professor. 7 of them started their first job in higher education before 2000 and 5 after 2000 (Mean= 3.21, SD=1.57), mostly as assistant professor (5) and lecturer (4) (Mean= 1.78, SD=1.42), 7 worked full-time and 4 part-time (Mean=1.07, SD=0.73) in 12 different universities (Mean=5.57, SD=4.07). Regarding time spending on teaching, research, administration and internal service, and external service, among 14 HODs, 7 spend 30%+ on teaching and only 1 spends 1%-9% on teaching. Among 14 HODs only 3 prefer spending 30%+ of their time on teaching and 7 prefer 10%-19% (Mean Ta=4.21, SD=0.97; Mean Tp=3.57, SD=0.93). 3 HODs spend 30%+ on research and 3 only 1%-9%, while 11 HODs prefer spending their time on research 30%+ and the remaining 3 HODs prefer 20%-29% (Mean Ra=3.50, SD=1.09; Mean Rp=4.78, SD=0.42). So, the willingness for research is very high.

Among 14 HODs , 11 spend 30% and more on administration and internal service, and 3, 20%-29%, while only 2 prefer to spend 30%+ of their time on administration and internal service and the majority of them (7) prefer 20%-29% (Mean Aa=4.78, SD=0.42; Mean Ap=3.71, SD=0.82). Regarding external service, only 1 Head spends 30% and more of his time on external service and 6 HODs spend 10%-19% on this kind of service, while only 1 HOD prefer spending 30% and more of his time on external service and 9 prefer 10%-19% on this service (Mean Ea=3.21,

SD=0.89; Mean Ep=3.07, SD=0.61). During 2009 to 2015, they published a number of journal articles (Max=100, Min=6; Mean= 26.38, SD=27.62), edited books (Max=3, Min=0; Mean= 1.00, SD=1.41), authored books (Max=1, Min=0; Mean= 1.00, SD=0.51), and chapter(s) in books (Max=10, Min=0; Mean=2.91, SD=3.47). They also presented a number of presentations outside the UAE (Max=100, Min=4; Mean= 23.38, SD=25.11) and inside the UAE (Max=15, Min=0; Mean= 4.54, SD=4.27). During 2011-2016 they were members of the national/ international scientific board (9 out of 14), elected leader of association or union (1 out of 14), elected leader of an external professional/ academic organization (4 out of 14), chairperson in an external professional organization (6 out of 14), and engaged in funded or creative research or consultancy (10 out of 14). In the last 5 years, a number of committees had been served (Max=52, Min=3; Mean= 20.08, SD=15.72) and chaired (Max=25, Min=1; Mean= 9.16, SD=7.93) by these HODs. In the last 5 years, 10 of the HODs were promoted to a higher rank, while others stayed in the same rank. They have worked in their current institution for a max of 17 years and a minimum of less than a year and in their current position, for a max of 9 years and a minimum of less than a year.

Variable	n (HODs)	% (HODs)	Variable	n (HODs)	% (HODs)
Teaching Discipline 14 different disciplines	14	100	**Field of specialization** 13 different field of specialization	13	93
Total	14	100	Total	13	93
Missing	0	0	Missing	1	7
Academic title Professor & Chair	8	57	**Change in rank:** Promoted a higher rank	10	71
Associate Prof & Chair	5	36	In the same rank	4	29
Assistant Prof & Chair	1	7	Total	14	100
Total	14	100	Missing	0	0
Missing	0	0			
13.First Job in HE Title Assistant Professor	5	36	**Year** Before 2000	7	50
Lecturer	4	29	After 2000	5	36
Other*	3	21	Total	12	86
Total	12	86	Missing	2	14
Missing	2	14	Mean: 3.21		
Mean: 1.78 SD: 1.42 *Only top 2 academic title listed			SD: 1.57		
University 12 different universities mentioned			**Full/ Part-time** Full-time	7	50
			Part-time	4	29
Total	12	86	Total	11	79
Missing	2	14	Missing	3	21
Mean: 5.57 SD: 4.07			Mean: 1.07 SD: 0.73		

Time spending on:	Teaching Actual (Ta)	Teaching Pref (Tp)	Research Actual (Ra)	Research Pref (Rp)	Teaching Actual (Ta)	Teaching Pref (Tp)	Research Actual (Ra)	Research Pref (Rp)
0%	0	0	0	0	0	0	0	0
1%-9%	1	1	3	0	7	7	21	0
10%-19%	2	7	4	0	14	50	29	0
20%-29%	4	3	4	3	29	21	29	21
30%+	7	3	3	11	50	22	21	79
Total	14	14	14	14	100	100	100	100
Missing	0	0	0	0	0	0	0	0
Mean: Ta= 4.21 Tp=3.57 Ra= 3.50 Rp= 4.78 SD: Ta= 0.97 Tp=0.93 Ra= 1.09 Rp= 0.42								

	Admin&Int Service Actual (Aa)	Admin&Int Service Pref (Ap)	Admin&Int Service Actual (Ea)	Admin&Int Service Pref (Ep)	External Service Actual (Aa)	External Service Pref (Ap)	External Service Actual Pref (Ep)	External Service Actual (Ea)
0%	0	0	0	0	0	0	0	0
1%-9%	0	1	3	2	0	7	21	14
10%-19%	0	4	6	9	0	29	43	64
20%-29%	3	7	4	3	21	50	29	22
30%+	11	2	1	0	79	14	7	0
Total	14	14	14	14	100	100	100	100
Missing	0	0	0	0	0	0	0	0

Mean:
Aa= 4.78   Ap= 3.71
Ea= 3.21   Ep= 3.07
SD:
Aa= 0.42   Ap= 0.82
Ea= 0.89   Ep= 0.61

Estimate the # of:						
Journal articles	Max 100	Min 6	Total 13	Max 7	Min 7	Total 93
	Missing 1	Mean 26.38	SD 27.62	Missing 7		
Edited books	Max 3	Min 0	Total 8	Max 14	Min 36	Total 57
	Missing 6	Mean 1.00	SD 1.41	Missing 43		
Authored books	Max 1	Min 0	Total 8	Max 21	Min 36	Total 57
	Missing 6	Mean 0.38	SD 0.51	Missing 43		
Chapter (s) in books	Max 10	Min 0	Total 11	Max 7	Min 0	Total 79
	Missing 3	Mean 2.91	SD 3.47	Missing 21		
Conference presentations outside UAE	Max 100	Min 4	Total 13	Max 7	Min 14	Total 93
	Missing 1	Mean 23.38	SD 25.11	Missing 7		
Conference presentations inside UAE	Max 15	Min 0	Total 13	Max 7	Min 14	Total 93
	Missing 1	Mean 4.54	SD 4.27	Missing 7		
you have been a member of: National/International scientific board	Member 9	Missing 5	Total 14	Member 64	Missing 36	Total 100

Elected leader of association or union	1	13	14	7	93	100
Elected leader external association	4	10	14	29	71	100
Chairperson in an external professional organisation	6	8	14	43	57	100
Engagement in funded or creative research/consultancy	10	4	14	71	29	100
Responsibility at work						
Number of committees served	Max 52	Min 3	Total 12	Max 7	Min 7	Total 86
	Missing 2	Mean 20.08	SD 15.72	Missing 14		
Number of committees chaired	Max 25	Min 1	Total 12	Max 7	Min 7	Total 86
	Missing 2	Mean 9.16	SD 7.93	Missing 14		
Transfer to new institution:						
Years	Max 17	Min 0	Total 11	Max 7	Min 14	Total 79
	Missing 3	Mean 7.09	SD 6.04	Missing 21		
Months	Max 8	Min 1	Total 10	Max 14	Min 14	Total 71
	Missing 4	Mean 3.60	SD 2.71	Missing 29		
Promotion in your current position:						
Years	Max 9	Min 0	Total 11	Max 7	Min 14	Total 79
	Missing 3	Mean 3.27	SD 2.79	Missing 21		
Months	Max 8	Min 2	Total 10	Max 21	Min 21	Total 71
	Missing 4	Mean 5.20	SD 2.65	Missing 29		

Table 4.18 Professional Characteristics- HODs

4.2 Quantitative Data Analysis Results

4.2.1 Inter-correlations among Variables

According to Heppner and Heppner (2004), analyzing and reporting inter-correlations among variables is important for several reasons. Firstly, it may provide an opportunity to detect any potential error through the unusual correlations between variables. Secondly, it may provide an opportunity for further investigation. And thirdly, it may be as part of the main analysis and provide answers to a special research question. The first table (4.19), represents the inter-correlations among faculty job satisfaction, leadership styles and all personal characteristics variables. Table (4.20.1) and Table (4.20.2) represent the inter-correlations among faculty job satisfaction, leadership styles and all professional characteristics variables. The *Note* at the bottom of the tables explains full names for the variables when acronyms are use in the tables. According to the Table (4.19) of correlations, there is only one significant relationship between salary and laissez-faire (*r*= .304, *p*<.01), but there is not any significant relationship between salary and faculty job satisfaction. Therefore, further analysis to investigate salary as an independent variable, moderator, or mediator is meaningless. Other personal characteristics variables do not show any significant correlation with job satisfaction or leadership styles.

ICs	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.FJS	1.00													
2.LS	.442**	1.00												
3.TL	.549**	.951**	1.00											
4.TA	.174	.764**	.550**	1.00										
5.LF	-.584**	-.305**	-.512**	-.027	1.00									
6.Ge	.157	.041	.035	.078	-.165	1.00								
7.Et	-.019	.064	.000	.087	.148	-.013	1.00							
8.InT	.021	.046	.019	.111	-.107	.848**	.093	1.00						
9.De	.144	.084	.118	.058	-.133	.100	-.095	.094	1.00					
10.F/P	.112	-.153	-.116	-.156	-.084	.215*	-.131	.195	-.049	1.00				
11.Sa	-.130	-.097	-.078	-.179	.304**	-.452**	.007	-.467**	-.115	-.251*	1.00			
12.Ag	.037	-.025	-.062	.020	.149	-.264**	.144	-.239*	-.125	.030	.374**	1.00		
13.Rel	-.110	-.080	-.066	-.081	.004	-.015	.123	-.022	.045	-.066	.219*	.005	1.00	
14.Mar	.007	-.158	-.141	-.084	.033	-.112	.051	.029	.069	-.024	.077	.287**	-.102	1.00

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

Note. FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; Ge= Gender; Et= Ethnicity; InT= Institutional Type; De= Degree; F/P= Full-time/ Part-time; Sa= Salary; Ag= Age; Rel= Religion; Mar= Marriage

Table 4.19 Inter-correlations among Faculty Job Satisfaction, Leadership Styles and Personal Characteristics Variables

According to the Table (4.20.1) of correlations, there are some significant relationships between professional characteristics variables with job satisfaction and leadership styles including teaching disciplines with faulty job satisfaction (*r*= .292, *p*<.01), committees served or chaired with laissez-faire (*r*= .297, *p*<.01) and transfer to new institutions with transformational leadership (*r*= -.284, *p*<.01) and laissez-faire (*r*= .265, *p*<.01).

ICs	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.FJS	1.00													
2.LS	.442**	1.00												
3.TL	.549**	.951**	1.00											
4.TA	.174	.764**	.550**	1.00										
5.LF	-.584**	-.305**	-.512**	-.027	1.00									
6.TD	.292**	.146	.153	.086	-.128	1.00								
7.FS	.139	.128	.094	.144	-.015	.707**	1.00							
8.AP	.155	.038	.050	.074	-.191	-.119	-.205*	1.00						
9.Ps	-.045	-.063	-.117	-.013	.190	-.018	.168	-.413**	1.00					
10.CSC	-.189	.102	.010	.172	.297**	.103	.299**	-.358**	.253	1.00				
11.AR	.105	.064	.068	.021	.017	.468**	.493**	-.064	.245	.104	1.00			
12.Re	-.082	.090	.027	.164	.071	-.135	-.060	-.298**	.354*	.246*	.200*	1.00		
13.TNL	-.147	-.226	-.284*	-.080	.265*	-.002	-.127	.119	-.167	.007	-.028	.008	1.00	
14.CiR	.105	.031	.005	.089	.139	.313*	.293*	.165	-.246	.443**	.014	-.188	.056	1.00

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

Note. FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; TD= Teaching Disciplines; FS= Field of Specialization; AP= Academic Position; Ps= Publications; CSC= Committees Served or Chaired; AR= Attitudes towards Responsibilities; Re= Recognition; TNL= Transfer to New Institution; CiR= Change in Rank

Table 4.20.1 Inter-correlations among Faculty Job Satisfaction, Leadership Styles and Professional Characteristics Variables

ICs	1	2	3	4	5	6	7	8	9	10	11	12	13
1.FJS	1.00												
2.LS	.442**	1.00											
3.TL	.549**	.951**	1.00										
4.TA	.174	.764**	.550**	1.00									
5.LF	-.584**	-.305**	-.512**	-.027	1.00								
6.TeA	-.069	.003	.017	-.012	.087	1.00							
7.TeP	.176	-.048	-.042	-.094	.119	.332**	1.00						
8.RA	.086	.043	.025	.036	.120	.111	.155	1.00					
9.RP	-.066	-.056	-.043	-.092	.124	.208*	-.032	.437**	1.00				
10.AISA	-.168	.095	.070	.104	.128	.140	-.074	.026	.068	1.00			
11.AISP	-.018	.078	.007	.164	.193	.130	.138	.207*	.027	.389**	1.00		
12.AESA	-.037	.011	-.043	.126	-.002	.020	-.040	.135	-.163	.380**	.401**	1.00	
13.AESP	-.080	.127	.136	.039	.001	.075	-.004	.157	.065	.361**	.291**	.490**	1.00

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

Note. FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; TeA= Teaching Actual time spending; TeP= Teaching Preferred time spending; RA= Research Actual time spending; RP= Research Preferred time spending; AISA= Administration Internal Service Actual time spending; AISP= Administration Internal Service Preferred time spending; AESA= Administration External Service Actual time spending; AESP= Administration External Service Preferred time spending.

Table 4.20.2 Inter-correlations among Faculty Job Satisfaction, Leadership Styles and Professional Characteristics Variables

According to the above table (4.20.2) of correlations, there is not any significant correlation between the professional characteristics variables with job satisfaction or leadership styles that needs to be further analysed. Only, there is a need of one more test for the significant relationship between teaching disciplines ($r= .292$, $p<.01$) and faculty job satisfaction. Table (4.21) shows the regression result test for teaching discipline. There is not any indirect impact of teaching disciplines on the relationship between leadership styles and faculty job satisfaction. However, teaching disciplines has a significant impact on faculty job satisfaction as the correlation test and the multiple linear regression test shows (Table 4.21).

Variables	*B*	*SE B*	β	Adj R^2	ΔR^2	*F* Change
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Teaching Disciplines	.436	.330	.146	.009	.021	1.748
Path b & c' Leadership styles Teaching Disciplines Faculty job satisfaction Sobel's test statistic = 2.447, *p*<.05	.149 .220	.038 .111	.411*** .208	.216	.238	11.070***
Teaching Disciplines (IV) **Faculty Job Satisfaction (DV)**	.310	.110	.292**	.074	.085	7.993**

Table 4.21 Multiple Regression Test Analysis for Teaching Disciplines

4.2.2 Results Related to the First Research Question

RQ1. What are the most effective leadership styles for HODs in relation to faculty job satisfaction, in STEM-related fields?

H1. There is a significant relationship between leadership styles of HODs and job satisfaction of

faculty members, in STEM-related fields.

To examine the first research question and hypothesis, the inter-correlations between leadership styles and faculty job satisfaction were measured and the descriptive statistics for different types of leadership and their components were calculated. In addition, the linear regressions were conducted to determine if selected HODs' leadership styles explain the variance in the job satisfaction of faculty, in STEM-related fields.

4.2.2.1 Inter-correlations Results

According to Table (4.22) that presents the inter-correlations between different styles of leadership practiced by HODs and job satisfaction of faculty in STEM-related fields, generally there were significant correlations between leadership styles and job satisfaction. Leadership styles as a group, transformational leadership and all its components including idealized influence attributed; idealized influence behaviour; inspirational motivation; intellectual stimulation and individualized consideration as well as contingent rewards were correlated to faculty job satisfaction at .01 level. In addition, management by exception passive and laissez-faire were correlated to faculty job satisfaction at .01 level but negatively. There is no significant relationship between transactional leadership as a group, and one of its components; management by exception passive with faculty job satisfaction.

ICs	1	2	3	4	5	6	7	8	9	10	11	12	13
1.FJS	1.00												
2.LS	.442**	1.00											
3.TL	.549**	.951**	1.00										
4.IIA	.532**	.833**	.878**	1.00									
5.IIB	.516**	.854**	.884**	.729**	1.00								
6.IM	.576**	.831**	.913**	.796**	.804**	1.00							
7.IS	.500**	.889**	.909**	.733**	.788**	.792**	1.00						
8.IC	.446**	.800**	.831**	.665**	.614**	.664**	.733**	1.00					
9.TA	.174	.764**	.550**	.494**	.529**	.430**	.596**	.434**	1.00				
10.CR	.589**	.830**	.866**	.849**	.753**	.827**	.799**	.665**	.558**	1.00			
11.MbEA	.108	.501**	.300**	.223*	.322**	.197	.366**	.249*	.800**	.204	1.00		
12.MbEP	-.498**	-.175	-.412**	-.420**	-.315**	-.495**	-.319**	-.301**	.282**	-.490**	.139	1.00	
13.LF	-.584**	-.305**	-.512**	-.546**	-.477**	-.600**	-.507**	-.352**	-.027	-.596**	.001	.690**	1.00

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

Note. FJS= Faculty Job Satisfaction, LS= Leadership Styles; TL= Transformational Leadership; IIA= Idealized Influence Attributed; IIB= Idealized Influence Behaviour; IM= Inspirational Motivation; IS= Intellectual Stimulation; IC= Individualized Consideration; TA= Transactional Leadership; CR= Contingent Rewards; MbEA= Management by Exception Active; MbEP= Management by Exception Passive; LF= Laissez-faire

Table 4.22 Inter-correlations between Leadership Styles and Faculty Job Satisfaction

4.2.2.2 Descriptive Analysis

The Multifactor Leadership Questionnaire (MLQ-5X) is the standard instrument for assessing transformational and transactional leadership behaviour (Bass & Avolio 2000; Avolio & Bass 2004). It has been used widely around the world. It includes 9 scales: five transformational leadership, three transactional leadership, one laissez-faire (non-leadership), and three outcome scales (extra effort, satisfaction, effectiveness). A total number of 115 faculty members and HODs answered the 45 leadership styles questions and shared their perspectives on the HODs' leadership styles in relation to faculty job satisfaction. Tables (4.23 & 4.24) represent the mean, standard deviation of the responses of 101 faculty members and 14 HODs about HODs' leadership styles (transformational leadership, transactional leadership, and laissez-faire). The standard deviation and range are both measures of the spread of a data set. Small standard deviations (relative to the value of the mean itself) indicate that data points are close to the mean

A large standard deviation (relative to the mean) indicates that the data points are distant from the mean. The standard deviations and range and the applied rule between them for all of the leadership styles and their components related to both faculty and HODs' perspectives represent the accuracy of the mean. Recall the probabilities from a standard normal distribution: approximately 68% of the data is within one standard deviation (higher or lower) from the mean, 95% of the data is within two standard deviations (higher or lower) from the mean and 99% is within three standard deviations (higher or lower) from the mean.

Based on the perspectives of the faculty members (Table 4.23), the mean score for transformational leadership styles was much higher (*M*= 56.57, *SD*= 17.14) than the mean score for transactional leadership (*M*= 24.24, *SD*= 5.78) and laissez-faire (*M*= 3.00, *SD*= 3.10). Similarly, based on the perspectives of the HODs (Table 4.24) regarding their own leadership styles, the mean score for transformational leadership styles was much higher (*M*= 81.09, *SD*= 7.36) than the mean score for transactional leadership (*M*= 35.53, *SD*= 5.22) and laissez-faire (*M*= 6.14, *SD*= 2.28). In addition, in this study, faculty perceived that inspirational motivation (*M*= 12.50, *SD*= 4.13), idealized influence behaviour (*M*= 11.82, *SD*= 3.46), and idealized influence attributed (*M*= 11.72, *SD*= 4.30) as well as contingent rewards (*M*= 11.63, *SD*= 4.08) were more practiced by the HODs respectively among all type of behaviours related to transformational and transactional leadership. Almost similarly, HODs perceived inspirational motivation (*M*= 17.07, *SD*= 1.54), individualized consideration (*M*= 16.64, *SD*= 2.20) idealized influence behaviour (*M*= 16.42, *SD*= 2.02), idealized influence attributed (*M*= 16.27, *SD*= 2.28) as well as contingent rewards (*M*= 16.76, *SD*= 1.58) were the most leadership behaviours practiced by HODs themselves. Based on the faculty perceptions, the least three leadership behaviour were related to management by exception active (*M*= 8.39, *SD*= 3.30), management

by exception passive (*M*= 4.08, *SD*= 3.13) and laissez-faire (*M*= 3.00, *SD*= 3.10). Similarly, HODs perceived the least three leadership behaviour as management by exception active (*M*= 11.64, *SD*= 2.76), management by exception passive (*M*= 6.92, *SD*= 2.58) and laissez-faire (*M*= 6.14, *SD*= 2.28).

Leadership Styles	Mean	SD	Range	
			Min	Max
Leadership Styles (36 items)	83.71	20.11	36.00	135.00
Transformational Leadership Styles	56.57	17.14	17.00	100.00
Transactional Leadership Styles	24.24	5.78	13.00 .00	37.00
Laissez-faire	3.00	3.10		11.00
Transformational Leadership Styles	56.57	17.14	17.00	100.00
Idealized Influence Attributed	11.72	4.30	2.00	20.00
Idealized Influence Bahavior	11.82	3.46	4.00	20.00
Inspirational Motivation	12.50	4.13	3.00	20.00
Intellectual Stimulation	10.25	3.95	1.00	20.00
Individualized Consideration	9.58	4.05	1.00	20.00
Transactional Leadership Styles	24.27	5.78	13.00	37.00
Contingent Rewards	11.63	4.08	2.00	20.00
Management-by-exception Active	8.39	3.30	.00	18.00
Management-by-exception Passive	4.08	3.13	.00	14.00
Laissez-faire	3.00	3.10	.00	11.00

Table 4.23 HODs Leadership Styles- Faculty Perspectives

Leadership Styles	Mean	SD	Range	
			Min	Max
Leadership Styles (36 items)	122.40	10.36	106.00	140.00
Transformational Leadership Styles	81.09	7.36	73.00	93.00
Transactional Leadership Styles	35.53	5.22	28.00	44.00
Laissez-faire	6.14	2.28	4.00	13.00
Transformational Leadership Styles	81.09	7.36	73.00	93.00
Idealized Influence Attributed	16.27	2.28	12.00	19.00
Idealized Influence Bahavior	16.42	2.02	13.00	20.00
Inspirational Motivation	17.07	1.54	14.00	19.00
Intellectual Stimulation	15.85	1.56	12.00	18.00
Individualized Consideration	16.64	2.20	13.00	20.00
Transactional Leadership Styles	35.53	5.22	28.00	44.00
Contingent Rewards	16.76	1.58	13.00	19.00
Management-by-exception Active	11.64	2.76	8.00	17.00
Management-by-exception Passive	6.92	2.58	4.00	12.00
Laissez-faire	6.14	2.28	4.00	13.00

Table 4.24 HODs Leadership Styles- HODs Perspectives

4.2.2.3 Stepwise Multiple Regression Results

The researcher also conducted a multiple stepwise regression analysis on the three main leadership styles measured by the MLQ including transformational, transactional, and laissez-faire to determine what are the variables that explain the distribution best. The results from the stepwise regression analysis, shown in Table (4.25), showed that the combination of transformational leadership and laissez-faire were significantly correlated with the dependent variable of faculty job satisfaction. As shown in the table, the transformational leadership practices accounted for approximately 41% of the variance in faculty job satisfaction, and laissez-faire practices accounted for approximately 32% of the variance, but it was a negative correlation.

Faculty job satisfaction (DV) Leadership styles (IV)	B	$SE\ B$	β	R^2	Adj R^2	F Change
Transformational Leadership	.151	.044	.361***	.422	.406	11.946***
Laissez-faire	-1.435	.244	-.570***	.325	.316	34.660***

Table 4.25 Step-wise Regression Analysis

As a result, the first hypothesis is confirmed and there is a highly significant relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields. According to the results of all three test results, there are highly positive significant relationship between transformational leadership and transactional contingent rewards with faculty job satisfaction. In addition, there is a highly negative significant relationship between transactional management by exception passive and laissez-faire with faculty job satisfaction.

4.2.3 Results Related to the Second Research Question

RQ2. What are the main job satisfaction elements for faculty in STEM-related fields in relation to HODs leadership styles?

H2. Faculty job satisfaction is best represented as a composite of 5 or less elements.

In order to examine the second research question and hypothesis, the correlation test and regression test were applied to faculty job satisfaction and its elements as outcome variables (including faculty job satisfaction, work and collegiality, supervision, and promotion) and to leadership styles variables as predictors. The initial elements of faculty job satisfaction were work itself, promotion, supervision, collegial relationship, and general job satisfaction. The factor analysis resulted in three meaningful factor groups including work and collegiality (work itself, collegial relationship, general job satisfaction), supervision, and promotion (Cronbach's alpha= .885). In addition, leadership styles variables consisted of leadership styles, transformational leadership and its 5 components, transactional leadership and its 3 components, and laissez-faire (Cronbach's alpha of .835).

4.2.3.1 Inter-correlations Results

Table (4.26) represents the inter-correlations among faculty job satisfaction dependent variables and leadership style independent variables. It exhibits a positive significant r value between faculty job satisfaction and leadership styles a s a group (r= .44, p<.01), faculty job satisfaction and transformational leadership style (r= .55, p<.01), and also faculty job satisfaction and all transformational components. Faculty job satisfaction was not significantly correlated to transactional leadership style (r= .17, p>.05), however, it was correlated significantly with contingent rewards (r= .59, p<.01) and management by exception passive (r= -.50, p<.01). With

regards to laissez-faire, there was a negative significant correlation between faculty job satisfaction and laissez-faire (r= -.58, p<.01).

In terms of work and collegiality as outcome (dependent variable), the same Table (4.26) represents a positive significant relationship between work and collegiality and leadership styles (r= .39, p<.01), work and collegiality and transformational leadership style (r= .51, p<.01), and work and collegiality and all of the transformational leadership components. Work and collegiality was not related to transactional leadership style significantly (r= .13, p>.05), however, it was significantly correlated with contingent rewards (r= .54, p<.01) and management by exception passive (r= -.47, p<.01). With regards to laissez-faire, there was a negative significant correlation between faculty job satisfaction and laissez-faire (r= -.55, p<.01). All the above trends are shown in the same table for supervision as another outcome variable. In addition to that, there was a significant correlation between supervision and management by exception active at .05 level (r= .23). In terms of the last outcome variable; promotion, there was no significant relationship between promotion and leadership styles, transformational leadership, transactional leadership, individualized consideration, management by exception active, and management by exception passive. However, there were correlations at p<.05 level between promotion with idealized influence attributed, idealized influence behaviour, inspirational motivation, intellectual stimulation positively and with management by exception passive and laissez-faire negatively.

ICs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.FJS	1.00															
2.W&C	.92**	1.00														
3.Sup	.72**	.49**	1.00													
4.Pro	.63**	.40**	.31**	1.00												
5.LS	.44**	.39**	.37**	.20	1.00											
6.TL	.55**	.51**	.43**	.22	.95**	1.00										
7.IIA	.53**	.48**	.42**	.25*	.83**	.88**	1.00									
8.IIB	.52**	.46**	.41**	.23*	.85**	.88**	.73**	1.00								
9.IM	.58**	.53**	.46**	.26*	.83**	.91**	.80**	.80**	1.00							
10.IS	.50**	.46**	.43**	.21*	.89**	.91**	.73**	.79**	.79**	1.00						
11.IC	.45**	.44**	.33**	.17	.80**	.83**	.67**	.61**	.66**	.73**	1.00					
12.TA	.17	.13	.21	.07	.76**	.55**	.49**	.53**	.43**	.60**	.43**	1.00				
13.CR	.59**	.54**	.45**	.26*	.83**	.87**	.85**	.75**	.83**	.80**	.67**	.56**	1.00			
14.MbEA	.11	.05	.23*	.00	.50**	.30**	.22**	.32**	.20	.37**	.25*	.80**	.20	1.00		
15.MbEP	-.50**	-.47**	-.46**	-.15	-.18	-.41**	-.42**	-.32**	-.50**	-.32**	-.30**	.28**	-.49**	.14	1.00	
16.LF	-.58**	-.55**	-.53**	-.22*	-.31**	-.51**	-.55**	-.48**	-.60**	-.51**	-.35**	-.03	-.60**	.00	.69**	1.00

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

Notes. FJS= Faculty Job Satisfaction; W&C= Work and Collegiality; Supervision= Sup; Promotion= Pro; Leadership Styles= LS; Transformational Leadership= TL; Idealized Influence Attributed=IIA; Idealized Influence Behaviour= IIB; Inspirational Motivation=IM; Intellectual Stimulation= IS; Individualized Consideration= IC; Transactional Leadership=TA; Contingent Rewards= CR; Management by Exception Active= MbEA; Management by Exception Passive= MbEP; Laissez-faire= LF

Table 4.26 Inter-correlations among Leadership Styles and Faculty Job Satisfaction Variables

4.2.3.2 Linear Regression Results

To further examine factors of faculty job satisfaction in relation to HODs leadership style the regression test is utilized. Tables (4.27 to 4.30) present the outcomes of this test for leadership styles, transformational leadership with its 5 components, transactional leadership with its 3 components and laissez-faire with faculty job satisfaction, work and collegiality, supervision, and promotion. Generally, a standardized beta coefficient compares the strength of the effect of each individual independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. The R^2 based on Cohen's (1988) rules for illustrating sizes of effects for multiple regressions depicts that any R^2 below .0196 would have a small effect size. R^2 assess the contribution of new predictors to explaining variance in the outcome.

And the F-test of overall significance determines whether this relationship is statistically significant.

Table (4.27) represents the regression test results between faculty job satisfaction as dependent variable and leadership styles as independent variables. According to this table, the unstandardized regression coefficient ($B = .160$) associated with the effect of leadership styles on faculty job satisfaction was highly significant ($p<.001$). The F value is highly significant (F= 17.466, $p<.001$), and it explained 18.4% (Adjusted $R^2= .184$) of the variance. Therefore, leadership styles showed a highly significant relationship with faculty job satisfaction. Regarding the relationship between transformational leadership and faculty job satisfaction, the unstandardized regression coefficient ($B = .230$) at .001 level and the F value is highly significant (F= 32.338, $p<.001$), and it explains 29.2% (Adjusted $R^2= .292$) of the variance. Therefore, there was also a highly significant relationship between transformational leadership and faculty job satisfaction. Considering the regression results in the same Table (4.27), all of the 5 transformational leadership components also showed positive significant ($p<.001$) relationships with faculty job satisfaction in this sequence regarding the variance they explained: inspirational motivation (32.4%), individualized influence attributed (27.4%), individualized influence behaviour (25.7%), intellectual stimulation (24.1%), and individualized consideration (18.9%).

According to the same table, transactional leadership as a group did not show a significant relationship with faculty job satisfaction ($B= .215$, $p>.05$) and it explained 1.7% of variance. However, transactional leadership's two components, namely, contingent rewards and management by exception passive show highly significant relationships at .001 level, the former a positive relationship ($B= 1.066$) explaining 33.9% of variance and the latter a negative

relationship (B= -1.150) explaining 23.9% of variance. For laissez-faire, the unstandardized regression coefficient (B = -1.353) at .001 level and the F value is highly significant (F= 42.927, p<.001), and it explained 33.3% (Adjusted R^2= .333) of the variance. Therefore, there was a highly negative significant relationship between laissez-faire and faculty job satisfaction.

Faculty job satisfaction (DV) Leadership styles (IV)	B	$SE\ B$	β	Adj R^2	ΔR^2	F Change
Leadership Styles	**.160**	**.038**	**.442*****	**.184**	**.195**	**17.466*****
Transformational Leadership	**.230**	**.040**	**.549*****	**.292**	**.301**	**32.338*****
Idealized Influence Attributed	.898	.158	.532***	.274	.283	32.352***
Idealized Influence Behaviour	1.048	.196	.516***	.257	.267	28.713***
Inspirational Motivation	.997	.157	.576***	.324	.332	40.315***
Intellectual Stimulation	.922	.176	.500***	.241	.250	27.403***
Individualized Consideration	.836	.189	.446***	.189	.199	19.612***
Transactional Leadership	**.215**	**.140**	**.174**	**.017**	**.030**	**2.337**
Contingent Rewards	1.066	.162	.589***	.339	.347	43.129***
Management by Exception Active	.228	.236	.108	-.001	.012	.936
Management by Exception Passive	-1.150	.225	-.498***	.239	.248	26.095***
Laissez-faire	**-1.353**	**.206**	**-.584*****	**.333**	**.341**	**42.927*****
*p<.05, **p<.01, ***p<.001						

Table 4.27 Regression Test Results of Faculty Job Satisfaction and Leadership Styles

Table (4.28) represents the regression test results between work and collegiality as a dependent variable and leadership styles as independent variables. According to this table, the unstandardized regression coefficient (B = .091) associated with the effect of leadership styles on work and collegiality was highly significant (p<.001). The F value is highly significant (F= 13.351, p<.001), and it explained 14.1% (Adjusted R^2= .184) of the variance. Therefore, leadership styles showed a highly significant relationship with work and collegiality. Regarding the relationship between transformational leadership and faculty job satisfaction, the unstandardized regression coefficient (B = .137) at .001 level and the F value is highly significant (F= 26.584, p<.001), and it explains 24.7% (Adjusted R^2= .247) of the variance. Therefore, there was also a highly significant relationship between transformational leadership

and work and collegiality. Considering the regression results in the same table, all of the 5 transformational leadership components also showed positive significant ($p<.001$) relationships with faculty job satisfaction in this sequence regarding the variance they explained: inspirational motivation (26.8%), individualized influence attributed (22.1%), intellectual stimulation (20.4%), individualized influence behaviour (19.7%), and individualized consideration (18.3%).

According to the same table, transactional leadership as a group did not show a significant relationship with work and collegiality ($B=.101$, $p>.05$) and it explained .3% of variance. However, transactional leadership's two components, namely, contingent rewards and management by exception passive show highly significant relationships at .001 level, the former a positive relationship ($B=.634$) explaining 28.5% of variance and the latter a negative relationship ($B=-.694$) explaining 20.5% of variance. For laissez-faire, the unstandardized regression coefficient ($B=-.883$) at .001 level and the F value is highly significant ($F=36.508$, $p<.001$), and it explained 29.0% (Adjusted $R^2=.290$) of the variance. Therefore, there was a highly negative significant relationship between laissez-faire and work and collegiality.

Work & Collegiality (DV) Leadership styles (IV)	B	$SE\ B$	β	Adj R^2	ΔR^2	F Change
Leadership Styles	**.091**	**.025**	**.391*** **	**.141**	**.153**	**13.351*** **
Transformational Leadership	**.137**	**.027**	**.507*** **	**.247**	**.257**	**26.584*** **
Idealized Influence Attributed	.524	.104	.480***	.221	.230	25.392***
Idealized Influence Behaviour	.600	.131	.455***	.197	.207	21.154***
Inspirational Motivation	.579	.102	.526***	.268	.276	32.082***
Intellectual Stimulation	.566	.116	.462***	.204	.214	22.805***
Individualized Consideration	.539	.122	.440***	.183	.193	19.397***
Transactional Leadership	**.101**	**.091**	**.126**	**.003**	**.016**	**1.243**
Contingent Rewards,	.634	.108	.542***	.285	.294	34.488***
Management by Exception Active	.066	.152	.048	-.010	.002	.188
Management by Exception Passive	-.694	.147	-.464***	.205	.215	22.173***
Laissez-faire	**-.883**	**.138**	**-.546*** **	**.290**	**.298**	**36.508*** **
*$p<.05$, **$p<.01$, ***$p<.001$						

Table 4.28 Regression Test Results of work and collegiality and Leadership Styles

Table (4.29) represents the regression test results between supervision as a dependent variable and leadership styles as independent variables. According to this Table (4.29), the unstandardized regression coefficient (B = .041) associated with the effect of leadership styles on supervision was highly significant ($p<.001$). The F value was significant (F= 11.731, $p<.01$), and it explained 12.2% (Adjusted R^2= .122) of the variance. Therefore, leadership styles showed a highly significant relationship withsupervision. Regarding the relationship between transformational leadership and supervision, the unstandardized regression coefficient (B = .056) at .001 level and the F value is highly significant (F= 17.411, $p<.001$), and it explained 17.0% (Adjusted R^2= .170) of the variance. Therefore, there was also a highly significant relationship between transformational leadership and supervision. Considering the regression results in the same table, all of the 5 transformational leadership components also showed positive significant relationships with supervision in this sequence regarding the variance they explained: inspirational motivation (20.3%), intellectual stimulation (17.5%), individualized influence attributed (16.6%), individualized influence behaviour (16.0%), and individualized consideration (10.0%).

According to the same table, transactional leadership as a group did not show a significant relationship with supervision (B= .081, $p>.05$) and it explained 3.1% of variance. However, transactional leadership's two components, namely, contingent rewards and management by exception passive show highly significant relationships at .001 level, the former a positive relationship (B= .252) explaining 19.5% of variance and the latter a negative relationship (B= -.320) explaining 19.7% of variance. There was also a significant relationship between management by exception active and supervision (B= .157) at .05 level. For laissez-faire, the unstandardized regression coefficient (B = -.382) at .001 level and the F value is highly

significant (F= 34.474, $p<.001$), and it explained 27.6% (Adjusted R^2= .276) of the variance. Therefore, there was a highly negative significant relationship between laissez-faire and supervision.

Supervision (DV) Leadership styles (IV)	*B*	*SE B*	β	Adj R^2	ΔR^2	*F* Change
Leadership Styles	**.041**	**.012**	**.366****	**.122**	**.134**	**11.731****
Transformational Leadership	**.056**	**.013**	**.425*****	**.170**	**.181**	**17.411*****
Idealized Influence Attributed	.217	.051	.419***	.166	.175	18.296***
Idealized Influence Behaviour	.264	.064	.413***	.160	.170	17.021***
Inspirational Motivation	.255	.053	.461***	.203	.212	22.925***
Intellectual Stimulation	.250	.057	.429***	.175	.184	19.434***
Individualized Consideration	.194	.060	.333**	.100	.111	10.377**
Transactional Leadership	**.081**	**.043**	**.207**	**.031**	**.043**	**3.536**
Contingent Rewards	.252	.054	.452***	.195	.204	21.832***
Management by Exception Active	.157	.072	.231*	.042	.053	4.675*
Management by Exception Passive	-.320	.069	-.455***	.197	.207	21.610***
Laissez-faire	**-.382**	**.065**	**-.533*****	**.276**	**.284**	**34.474*****
*p<.05, **p<.01, ***p<.001						

Table 4.29 Regression Test Results of Supervision and Leadership Styles

Table (4.30) represents the regression test results between promotion as a dependent variable and leadership styles as independent variables. According to this table, the unstandardized regression coefficient (B = .021) associated with the effect of leadership styles on promotion was insignificant ($p>.05$). The F value was insignificant (F= 2.943, $p>.05$), and it explained only 2.5% (Adjusted R^2= .025) of the variance. In addition, there were no significant relationships between promotion with transformational leadership (B= .027, $p>.05$) and its components individualized consideration (B= .866, $p >.05$). However, there were significant relationahips between other transformational leadership's components at .05 level including inspirational motivation (Adjusted R^2= .056), individualized influence attributed (Adjusted R^2= .052),

individualized influence behaviour (Adjusted R^2= .043), and intellectual stimulation (Adjusted R^2= .035).

According to the same table (4.30), transactional leadership (B= .026, p>.05), and two of its components including management by exception active (B= .001, p>.05) and management by exception passive (B= -.101, p>.05) did not show a significant relationship with promotion. However, contingent rewards did show a significant relationship with promotion (B= .133, p<.05) explaining 5.5% of variance. For laissez-faire, the unstandardized regression coefficient (B = -.150) at .05 level and the F value was significant (F= 4.505, p<.05), and it explained 3.9% (Adjusted R^2= .39) of the variance.

Promotion (DV) Leadership styles (IV)	B	$SE\ B$	β	Adj R^2	ΔR^2	F Change
Leadership Styles	**.021**	**.012**	**.196**	**.025**	**.038**	**2.943**
Transformational Leadership	**.027**	**.014**	**.217**	**.035**	**.047**	**3.793**
Idealized Influence Attributed	.123	.051	.252*	.052	.063	5.744*
Idealized Influence Behaviour	.138	.064	.233*	.043	.054	4.644*
Inspirational Motivation	.129	.053	.259*	.056	.067	6.021*
Intellectual Stimulation	.113	.056	.214*	.035	.046	4.039*
Individualized Consideration	.866	.058	.166	.015	.027	2.286
Transactional Leadership	**.026**	**.040**	**.072**	**-.008**	**.005**	**.405**
Contingent Rewards	.133	.055	.257*	.055	.066	5.890*
Management by Exception Active	.001	.067	.001	-.012	.000	.000
Management by Exception Passive	-.101	.072	-.154	.012	.024	1.966
Laissez-faire	**-.150**	**.070**	**-.223***	**.039**	**.050**	**4.505***
*p<.05, **p<.01, ***p<.001						

Table 4.30 Regression Test Results of Promotion and Leadership Styles

As a result, the second hypothesis is also confirmed and faculty job satisfaction is best represented as a composite of the three factor groups selected based on the reliability and factor analysis results. There are significant relationships between leadership styles and faculty job

satisfaction and its different elements, including work and collegiality (work itself, collegial relationship, and general job satisfaction), supervision, and promotion respectively.

4.2.4 Results Related to the Third Research Question

RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?

H3-1. Hagedorn's (2000) triggers moderate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

H3-2. Hagedorn's (2000) mediators, identity, and job design mediate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

To enhance counseling theory, research, and practice, it is necessary to transcend from these basic questions. One way to achieve this is to investigate moderators and mediators of these effects. This study investigated the direct impact of leadership styles on job satisfaction related in the two first questions. The third question aimed to discover the indirect relationship between the predictors and outcomes through moderators and mediators. It includes two hypotheses; H3-1 is related to the impacts of the suggested moderators and H3-2 is related to the impact of the suggested mediators on the relationships between leadership styles and faculty job satisfaction.

4.2.4.1 Moderators

A moderator is a variable that changes the direction or strength of the link between a predictor and an outcome (Baron & Kenny 1986; Holmbeck 1997; James & Brett 1984). Questions with moderators target 'when' or 'for whom a variable most strongly predicts or leads to an outcome variable. Therefore, a moderator effect is simply an interaction in which the effects of variables are interdependent. Interaction effects are important for intervention studies, for example, if

gender is a significant moderator in a treatment study, and it is ignored, participants may experience an inappropriate or harmful treatment based on their gender. Interaction effects are also important in which researchers are curious to investigate if relationships between independent and dependent variables are stronger for a special group of participants compared to others. For example, Yousef (2000) found that national culture (nationality) has moderating impacts on the relationship between leadership behaviour and job satisfaction and those who are UAE nationals are more satisfied with their jobs. Therefore, Therefore, examining moderator effects can increase researchers' comprehension of the links between important predictors and outcomes, and enhance organisations' qualities in different aspects. The recognition of significant moderators of relations between predictors and outcomes signifies the maturity and sophistication of a field of inquiry (Aguinis et al. 2001; Judd et al. 1995) and is at the heart of theory in social science (Cohen et al. 2003). This study aimed to step forward by examining the indirect relationship between the predictors and outcomes through moderators related to the first hypothesis of the third main question.

This study was planned to examine six moderators on the relationship between HODs leadership style and faculty job satisfaction. These moderators were selected based on the study's theoretical framework and research questions. Then, according to the reliability scores and the results from factor analysis, two factor groups were identified as the potential moderators in this study. The two new factors were change in perceived justice (including perceived injustice and low ethnic prejudice) and work life balance. To examine the first hypothesis of the third question, which asks how moderators may affect the relationship between leadership styles and job satisfaction, correlations among all variables were obtained and multiple regression series were utilised.

4.2.4.1.1 Inter-correlation

Table (4.31) represents the inter-correlations among faculty job satisfaction, leadership styles and moderators. It exhibits significant relationships between faculty job satisfaction and leadership styles ($r=$ .442, $p<.01$), faculty job satisfaction and transformational leadership ($r=$ .549, $p<.01$), faculty job satisfaction and laissez-faire ($r=$ -.584, $p<.01$). In addition, the relationship between faculty job satisfaction and both change in perceived justice ($r=$ .257, $p<.05$) and work life balance ($r=$ .419, $p<.01$) were significant. Moreover, according to the same table, there were significant relationships between leadership styles and change in perceived justice ($r=$ -.257, $p<.01$), leadership styles and work life balance ($r=$ .419, $p<.01$), transformational leadership and change in perceived justice ($r=$ -.279, $p<.05$) as well as transformational leadership and work life balance ($r=$ .420, $p<.01$). Transactional leadership did not show any relationship with the two moderators, however, laissez-faire correlated significantly to change in perceived justice (r= .338, p<.01).

ICs	1	2	3	4	5	6	7
1.FJS	1.00						
2.LS	.442**	1.00					
3.TL	.549**	.951**	1.00				
4.TA	.174	.764**	.550**	1.00			
5.LF	-.584**	-.305**	-.512**	-.027	1.00		
6.CiPJ	-.257*	-.193	-.279*	-.059	.338**	1.00.	
7.WLB	.419**	.381**	.420**	.159	-.125	-.167	1.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Note. FJS=Faculty Job Satisfaction; Work and Collegiality= W&C; Supervision= Sup; Promotion= Pro; Leadership Styles= LS; Transformational Leadership= TL; Transactional Leadership= TA; Laissez-faire= LF; Change in Perceived Justice= CiPJ; Work Life Balance= WLB

Table 4.31 Inter-correlations among Moderators, Leadership Styles, and Job Satisfaction

4.2.4.1.2 Regression Tests

This study measured the moderation effects based on Baron and Kenny's (1986) criteria. The moderation effects were tested through hierarchical regression (Baron& Kenny 1986; Cohen & Cohen 1983). All predictor and moderator variables were centered as they are generally highly correlated with the interaction terms created from them and centering reduce the multicollinearity problems. Further benefits also may come when centering the variables (see Cohen et al., 2003; Cronbach 1988, West et al. 1996). According to Baron and Kenny (1986), specifically within a correlational analysis framework, a moderator is a third variable that influences the zero-order correlation between two other variables. The diagram (Figure 4.1) consists of three casual paths that feed into the outcome variable of task performance. The moderator hypothesis is supported if the interaction (path c) is significant. There may also be significant main effects on the predictor and the moderator (paths a and b), but these are not directly relevant conceptually to testing the moderator (Baron & Kenny 1986).
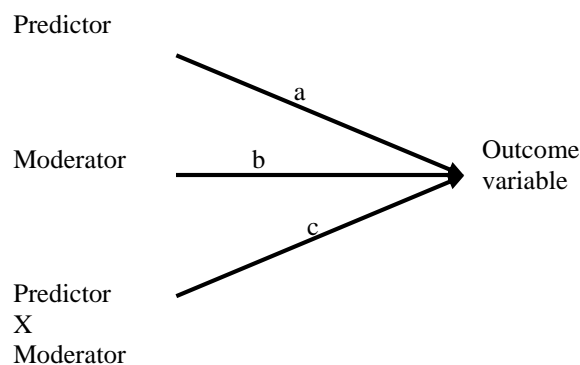
Predictor

Moderator   b   Outcome variable

a

c

Predictor
X
Moderator

Figure 4.1 Moderator Model (Baron & Kenny 1986)

Table (4.32) presents the outcomes of the regression tests. To test the moderation effect, linear and hierarchical regression following the regression procedures outlined by Baron and Kenny (1986) were used. The unstandardized coefficient, standard error, standardized coefficient, the significance, adjusted R^2, change in R^2 and F change for the variables are reported in Table (4.32). The results for the first moderator; change in perceived justice showed that it would not moderate the relationship between leadership styles and job satisfaction ($B= .009$, $p>0.05$). It would also not moderate the relationship between transformational leadership and job satisfaction ($B=.010$, $p>0.05$), transactional leadership and job satisfaction ($B=.015$, $p>0.05$) as well as laissez-faire and job satisfaction ($B=.080$, p>0.05). The insignificance F value ($p>.05$) and the very low change in R^2 were also consistent with the results of path c for change in perceived justice and its ineffectiveness as a moderator between leadership styles of HODs and job satisfaction of faculty.

According to the same table, the second moderator, work life balance, would also not moderate the relationship between leadership styles and job satisfaction ($B=.041$, $p>0.05$), the relationship between transactional leadership and job satisfaction ($B=.015$, $p>0.05$) as well as the relationship between laissez-faire and job satisfaction ($B=.198$, $p>0.05$), as path c in all of them was insignificant. However, work life balance would moderate the relationship between transformational leadership and job satisfaction as the standardized coefficient ($B=.050$) was significant at .05 level with a significant F value of 4.906 at .05 level. The R^2 change associated with the interaction term (transformational leadership X work life balance) was .039. In other words, the interaction between transformational leadership and work life balance explained an additional 3.9% of the variance over and above the 40% explained by the first- order effects of transformational leadership and work life balance alone. In addition, the relationship between

transformational leadership and job satisfaction (*B*=.230, *p*<.001) and the relationship between work life balance and faculty job satisfaction (*B*= 2.089, *p*<.001) were highly significant. As a result, work life balance would moderate the relationship between HODs' leadership style and faculty job satisfaction partially. It means that, the influence of HOD's transformational leadership style on the satisfaction level of faculty will be higher when faculty receive more support to balance their family and their job.

Faculty Job Satisfaction (DV)						
Variables (IVs)	*B*	*SE B*	β	Adj R^2	ΔR^2	*F* Change
Path a-Leadership styles	.160	.038	.442***	.184	.195	17.466***
Path b-Change in perceived justice	-.608	.246	-.257*	.055	.066	6.103*
Path c:						
Step1: Leadership styles	.147	.038	.406***	.209	.231	10.639***
Change in perceived justice	-.451	.250	-.191			
Step2: Leadership styles X Change in perceived justice	.009	.013	.075	.203	.005	.465
Path a-Leadership styles	.160	.038	.442***	.184	.195	17.466***
Path b-Work life balance	2.089	.497	.419***	.165	.175	17.635***
Path c:						
Step1-Leadership styles	.089	.039	.245*	.320	.339	17.713***
Work life balance	2.128	.513	.441***			
Step2-Leadership styles X Work life balance	.041	.021	.196	.345	.034	3.641
Path a-Transformational leadership	.230	.040	.549***	.292	.301	32.338***
Path b-Change in perceived justice	-.608	.246	-.257*	.055	.066	6.103*
Path c:						
Step1- Transformational leadership	.215	.042	.514***	.297	.316	17.091***
Change in perceived justice	-.289	.229	-.126			
Step2- Transformational leadership X Change in perceived justice	.010	.014	.071	-.293	.005	.519
Path a-Transformational leadership	.230	.040	.549***	.292	.301	32.338***
Path b-Work life balance	2.089	.497	.419***	.165	.175	17.635***
Path c:						
Step1-Transformational leadership	.155	.043	.367**	.384	.401	24.087***
Work life balance	1.835	.488	.381***			
Step2- Transformational leadership X Work life balance	.050	.023	.209*	.416	.039	4.906*
Path a-Transactional leadership	.215	.140	.174	.017	.030	2.337
Path b-Change in perceived justice	-.608	.246	-.257*	.055	.066	6.103*
Path c:						
Step1-Transactional leadership	.201	.137	.163	.071	.095	3.902*
Change in perceived justice	-.601	.260	-.256*			
Step2- Transactional leadership X Change in perceived justice	.015	.049	.036	.059	.001	.094

Path a-Transactional leadership	.215	.140	.174	.017	.030	2.337
Path b-Work life balance	2.089	.497	.419***	.165	.175	17.635***
Path c: Step1-Transactional leadership Work life balance	.066 2.437	.125 .496	.054 .503***	.245	.245	12.995***
Step2- Transactional leadership X Work life balance	.115	.087	.138	.253	.018	1.763
Path a-Laissez-faire	-1.353	.206	-.584***	.333	.341	42.927***
Path b-Change in perceived justice	-.608	.246	-.257*	.055	.066	6.103*
Path c: Step1-Laissez-faire Change in perceived justice	-1.287 -.209	.218 .222	-.556*** -.089	.332	.348	21.880***
Step2- Laissez-faire X Change in perceived justice	.080	.072	.105	.334	.010	1.218
Path a-Laissez-faire	-1.353	.206	-.584***	.333	.341	42.927***
Path b-Work life balance	2.089	.497	.419***	.165	.175	17.635***
Path c: Step1- Laissez-faire Work life balance	-1.267 1.667	.199 .418	-.537*** .336***	.437	.451	32.473***
Step2- Laissez-faire X Work life balance	.108	.110	.084	.437	.007	.967

*p<.05, **p<.01, ***p<.001

Table 4.32 Results of Regression Test Analyses of Change in Perceived Justice and Work Life Balance Moderating Leadership Styles on Job Satisfaction

The below scatterplot (Figure 4.2) also represents the moderating role of work life balance on transformational leadership (predictor) and faculty job satisfaction (outcome) as it is well distributed.
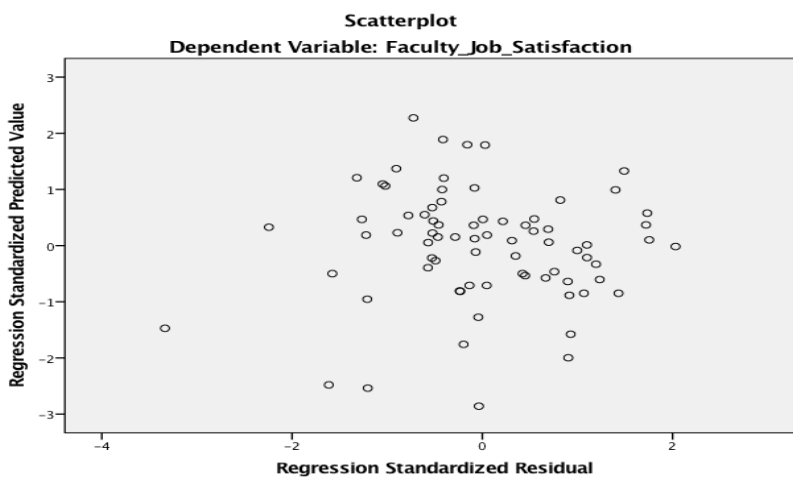

Figure 4.2 Moderating Role of Work Life Balance on Transformational Leadership and Faculty Job Satisfaction
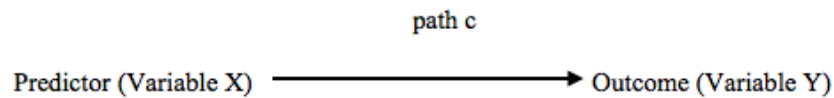
4.2.4.2 Results Related to Mediators

A mediator is defined as a variable that explains the relation between a predictor and an outcome (Baron & Kenny 1986; Holmbeck 1997; James & Brett 1984). "Whereas moderators address "when" or "for whom" a predictor is more strongly related to an outcome, mediators establish "how" or "why" one variable predicts or causes an outcome variable" (Frazier et al. 2004, p.116). In other words, a mediator is the system through which a predictor impacts on an outcome variable (Baron & Kenny 1986). The main aim of mediational analyses is to inspect the purpose behind the association between a predictor and outcome. (Frazier et al. 2004). For example, part of a study by Braun et al. (2013) was to analyze the relations between transformational leadership, job satisfaction, and the mediating role of trust in supervisor in this relation in a German research university. The results indicated that trust in supervisor mediated the relationship between individual perceptions of supervisors' transformational leadership and job satisfaction. If trust in the supervisor is a significant mediator in this case, the reason for higher individual followers' job satisfaction was reporting more supervisors' trustworthiness provided from transformational leadership styles. Therefore, according to Braun et al.'s (2013) study, it is very important for an organization to address transformational leadership behaviour at multiple levels in order to provide supervisors with necessary knowledge and skills.

Similar to the moderator research, it is also very important to test mediation effects outside of evaluating interventions. An indication of a maturing discipline is turning to explanation and theory testing of direct relations after they have been demonstrated (Hoyle & Kenny 1999). This is when this study turned to test the mediation effects on HODs leadership styles and faculty job satisfaction. According to MacKinnon et al. (2002), the most common method for testing mediation in psychological research was developed by Kenny and his colleagues (Baron &

Kenny 1986; Judd & Kenny 1981; Kenny et al. 1998). This study measured the effects of mediators based on Baron and Kenny's (1986) criteria. Figure (4.3) represents the 4 paths in mediation model:

A.

path c

Predictor (Variable X) ——————————→ Outcome (Variable Y)

B.

path c'

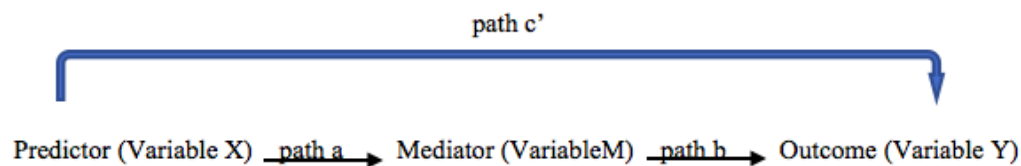Predictor (Variable X) _path a_→ Mediator (VariableM) _path b_→ Outcome (Variable Y)

Figure 4.3 Diagram of Paths in Mediation Model (Based on Baron & Kenny 1968)

According to this criterion, there are four paths (performed with three regression equations) in establishing that a variable (M) mediates the relation between a predictor variable (X) and an outcome variable. Baron and Kenny (1986) stated that, a variable can function as a mediator when it meets the following conditions: (a) variations in levels of the predictor significantly account for variations in the presumed mediator (path a), (b) variations in the mediator significantly account for variations in the outcome (path b), and (c) when paths a and b are controlled, a previously significant relation between the predictor and outcome variables is no longer significant (compare path c with c'). If M is a complete mediator, the relation between X and Y will not differ from zero after M is included in the model. If M is a partial mediator, the relation between X and M will be significantly smaller when M is included but will still be

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greater than zero. To test the significance of mediation effects, Sobel test was applied. According to Baron and Kenny (1986), Sobel (1982) provided an approximate significance test for the indirect effect of the independent variable on the dependent variable via the mediator (Baron & Kenny, 1986).

There are 4 final groups of mediators to be tested for the probable indirect impacts of HODs' leadership styles on faculty job satisfaction through mediators. They were selected based on the reliability and factor analysis test results. These groups are: motivators and hygienes (including achievement, recognition-informal, responsibility, advancement, working conditions, and job security), environmental conditions (including institutional climate or culture, relationships, institutional and administrative culture, and student quality), job design (including feedback, autonomy, and skill variety) and identity (including religious and cultural values, self-esteem, and need to belong). For each group, first the inter-correlation *r* was represented and then series of multiple regressions were reported.

4.2.4.2.1 Motivators and Hygienes
4.2.4.2.1.1 Inter-correlation Results
Table (4.33) represents the inter-correlations among faculty job satisfaction, leadership styles and motivators and hygienes as potential mediators including achievement, recognition-informal, responsibility, advancement, working conditions, and job security on this relationship. It exhibits the correlations between different styles of leadership and faculty job satisfaction, correlations between these leadership styles and all potential 6 mediators as well as the correlations between these potential mediators and faculty job satisfaction. Table (4.33) shows that, here were

significant relationships between leadership style and job satisfaction ($r = .442$, $p<.01$), transformational leadership and faculty job satisfaction ($r = .549$, $p<.01$), and laissez-faire and faculty job satisfaction ($r = -.584$, $p<.01$). In addition, there were significant relationships between faculty job satisfaction with achievement ($r = .676$, $p<.01$), responsibility ($r = .470$, $p<.01$), advancement ($r = .629$, $p<.01$), and job security ($r = .319$, $p<.01$). In terms of leadership styles and the potential mediators, there were significant relationships between leadership styles and achievement ($r = .283$, $p<.05$), responsibility ($r = .298$, $p<.01$), and advancement ($r = .227$, $p<.05$). Transformational leadership was correlated to achievement ($r = .319$) and responsibility ($r = .304$) at .01 level and to advancement ($r = .237$) at .05 level of significance. Transactional leadership was only correlated to responsibility ($r = .233$) at $p<.05$. However, laissez-faire was correlated to most of the potential mediators. It was correlated negatively to achievement ($r = -.349$), responsibility ($r = -.274$) and job security ($r = -.347$) at $p<.01$ and correlated to advancement ($r = -.245$) at $p<.05$.

ICs	1	2	3	4	5	6	7	8	9	10	11
1.FJS	1.00										
2.LS	.442**	1.00									
3.TL	.549**	.951**	1.00								
4.TA	.174	.764**	.550**	1.00							
5.LF	-.584**	-.305**	-.512**	-.027	1.00						
6.Achv	.676**	.283*	.319**	.179	-.349**	1.00					
7.ReI	.094	.168	.166	.146	-.039	.046	1.00				
8.Res	.470**	.298**	.304**	.233*	-.274**	.424**	-.006	1.00			
9.Adv	.629**	.227*	.237*	.132	-.245*	.563**	.028	.608**	1.00		
10.WoC	-.043	.070	.031	.071	.205	.032	.218*	.101	.115	1.00	
11.JS	.319**	.103	.127	.078	-.347**	.317**	-.093	.327**	.238*	-.272*	1.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Notes. ICs= Inter-correlations; FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; Ach= Achievement; ReI= Recognition Informal; Res= Responsibility; Adv= Advancement; WoC= Working Conditions; JS= Job Security

Table 4.33 Inter-correlations among Motivation and Hygienes, Leadership Styles, and Faculty Job Satisfaction Variables

4.2.4.2.1.2 Regression Results

Table (4.34) contains the analyses necessary to examine the probable mediational impact of the mediators and hygienes (including achievement, recognition-informal, responsibility, advancement, working conditions, and job security. Following the paths outlined earlier for testing mediation, for the first mediator, achievement, first, to establish that leadership styles were related to faculty job satisfaction, faculty job satisfaction was regressed on the leadership styles variable (path c). The unstandardized regression coefficient ($B = .160$) associated with the effect of leadership styles on faculty job satisfaction was significant ($p < .001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that leadership styles were related to achievement, achievement was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B = .029$) associated with this relation was significant at $p < .05$ level, and thus the condition for path a was met. To establish whether achievement was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both achievement and leadership styles variable (path b, c'). The coefficient associated with the relation between achievement and faculty job satisfaction (controlling for leadership styles) also was significant ($B = 2.037$, $p < .001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between leadership styles and faculty job satisfaction, controlling for achievement. When that path is zero, there is complete mediation. However, path c' was .097 and still significant ($p < .01$), although it was much smaller than path c (which was $B = .160$, $p < .001$). To test the drop from $B = .160$, $p < .001$ to $B = .097$, $p < .01$ (from c to c') is significant, the Sobel's (1982) test was employed (Sobel's test statistic = 2.447, $p < .05$). As a result of the hypothesis, achievement partially mediates the relationships of leadership styles and faculty job satisfaction.

To assess the probable impact of achievement on the relationship between transformational leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient (B = .230) associated with the effect of transformational leadership on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that transformational leadership was related to achievement, achievement was regressed on the leadership styles variable (path a). The unstandardized regression coefficient (B= .038) associated with this relation was significant at $p<$ .01 level, thus the condition for path a was met. To establish whether achievement was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both achievement and transformational leadership (path b, c'). The coefficient associated with the relation between achievement and faculty job satisfaction (controlling for leadership styles) also was significant (B= 1.876, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for achievement. When that path is zero, there is complete mediation. However, path c' was .154 and still significant ($p<$ .001), although it was smaller than path c (which was B= .230, $p<.001$). To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.663, $p<.01$). As a result of the hypothesis, achievement partially mediates the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of achievement on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient (B = -1.353) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for

mediation in path c was met. To test that laissez-faire was related to achievement, achievement was regressed on the laissez-faire variable (path a). The unstandardized regression coefficient (B= -.246) associated with this relation was significant at p< 01 level, and thus the condition for Path a was met. To establish whether achievement was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both achievement and laissez-faire (path b, c'). The coefficient associated with the relation between achievement and faculty job satisfaction (controlling for leadership styles) also was significant (B= 1.783, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for achievement. When that path is zero, there is complete mediation. However, path c' was -.895 and still significant (p< .001), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 3.121, p<.01). As a result of the hypothesis, achievement partially mediates the relationships of laissez-faire and faculty job satisfaction.

In terms of responsibility, following the 4 paths, first, to establish that leadership style was related to faculty job satisfaction, faculty job satisfaction was regressed on the leadership styles variable (path c). The unstandardized regression coefficient (B = .160) associated with the effect of leadership styles on faculty job satisfaction was significant (p<.001). Thus, path c was significant and the requirement for mediation in path c was met. To test that leadership styles was related to responsibility, responsibility was regressed on the leadership styles variable (path a). The unstandardized regression coefficient (B= .063) associated with this relation was significant at p< .01 level, and thus the condition for path a was met. To establish whether responsibility was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both responsibility and leadership styles variable (path b, c'). The coefficient

associated with the relation between responsibility and faculty job satisfaction (controlling for leadership styles) also was significant ($B= .575$, $p <.01$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between leadership styles and faculty job satisfaction, controlling for responsibility. When that path is zero, there is complete mediation. However, path c' was .126 and still significant ($p< .01$), although it was smaller than path c (which was $B= .160$, $p<.001$). To test the drop from $B= .160$, $p<.001$ to $B= .126$, $p<.01$ (from c to c') is significant, the Sobel's (1982) test was employed (Sobel's test statistic = 2.019, $p<.05$). As a result of the hypothesis, responsibility partially mediates the relationships of leadership styles and faculty job satisfaction.

To assess the probable impact of responsibility on the relationship between transformational leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = .230$) associated with the effect of transformational leadership on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that transformational leadership was related to responsibility, responsibility was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= .076$) associated with this relation was significant at $p< .01$ level, and thus the condition for path a was met. To establish whether responsibility was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both responsibility and transformational leadership (path b, c'). The coefficient associated with the relation between responsibility and faculty job satisfaction (controlling for leadership styles) also was significant ($B= .511$, $p <.01$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for responsibility.

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When that path is zero, there is complete mediation. However, path c' was .196 and still significant ($p < .001$), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.082, $p < .05$). As a result of the hypothesis, responsibility partially mediates the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of responsibility on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = -.1.353$) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p < .001$). Thus, path c was significant and the requirement for mediation in Path c was met. To test that laissez-faire was related to responsibility, responsibility was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B = -.390$) associated with this relation was significant at $p < 05$ level, and thus the condition for path a was met. To establish whether responsibility was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both responsibility and laissez-faire (path b, c'). The coefficient associated with the relation between responsibility and faculty job satisfaction (controlling for leadership styles) also was significant ($B = .555$, $p < .001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for responsibility. When that path is zero, there is complete mediation. However, path c' was -1.165 and still significant ($p < .001$), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.199, $p < .05$). As a result of the hypothesis, responsibility partially mediates the relationships of laissez-faire and faculty job satisfaction.

To assess the probable impact of advancement on the relationship between transformational

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leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = .230$) associated with the effect of transformational leadership on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in Path c was met. To test that transformational leadership was related to advancement, advancement was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= .037$) associated with this relation was significant at $p< .05$ level, and thus the condition for path a was met. To establish whether advancement was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both advancement and transformational leadership (path b, c'). The coefficient associated with the relation between advancement and faculty job satisfaction (controlling for leadership styles) also was significant ($B= 1.305$, $p<.001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for advancement. When that path is zero, there is complete mediation. However, path c' was .162 and still significant ($p< .001$), although it was smaller than Path c. To test, the Sobel's (1982) test was employed (Sobel's test statistic = 2.066, $p<.05$). As a result of the hypothesis, advancement partially mediates the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of advancement on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = -1.353$) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that laissez-faire was related to advancement, advancement was regressed on the leadership styles variable (path a). The unstandardized regression

coefficient (*B*= -.226) associated with this relation was significant at *p*< .05 level, and thus the condition for Path a was met. To establish whether advancement was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both advancement and laissez-faire (path b, c'). The coefficient associated with the relation between advancement and faculty job satisfaction (controlling for leadership styles) was also significant (*B*= 1.264, *p*<.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for advancement. When that path is zero, there is complete mediation. However, path c' was -1.031 and still significant (*p*< .001), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.245, *p*<.05). As a result of the hypothesis, advancement partially mediates the relationships of laissez-faire and faculty job satisfaction.

Variables	*B*	*SE B*	β	Adj R^2	ΔR^2	*F* Change
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Achievement	.029	.011	.283*	.068	.080	6.549*
Path b & c' Leadership styles Achievement Faculty job satisfaction Sobel's test statistic = 2.447, *p*<.05	.097 2.037	.031 .309	.273** .580***	.494	.508	36.111***
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Recognition-Informal	.022	.014	.168	.016	.028	2.314
Path b & c' Leadership styles Recognition-Informal Faculty job satisfaction Sobel's test statistic = .493, *p*>.05	.153 .230	.040 .442	.442*** .058	.176	.198	8.780***

	B	SE B	β	Adj R²	ΔR²	F Change
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Responsibility	.063	.024	.298**	.076	.089	7.193**
Path b & c' Leadership styles Responsibility Faculty job satisfaction Sobel's test statistic = 2.019, *p*<.05	.126 .575	.038 .182	.348** .332**	.279	.299	14.742***
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Advancement	.030	.015	.277*	.039	.052	4.088*
Path b & c' Leadership styles Advancement Faculty job satisfaction Sobel's test statistic = 1.905, *p*>.05	.108 1.377	.029 .219	.327*** .551***	.478	.493	34.014***
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Working conditions	.013	.021	.070	-.008	.005	.372
Path b & c' Leadership styles Working conditions Faculty job satisfaction Sobel's test statistic = .473, *p*>.05	.153 -.172	.039 .234	.434*** -.081	.167	.191	7.917**
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Job security	.013	.014	.103	-.002	.011	.816
Path b & c' Leadership styles Job security Faculty job satisfaction Sobel's test statistic = .866, *p*>.05	.149 .717	.037 .297	.412*** .249*	.235	.256	12.234***
Transformational Leadership Motivators & Hygienes Faculty Job Satisfaction	*B*	*SE B*	β	**Adj R²**	**ΔR²**	*F* **Change**
Path c Transformational leadership Faculty job satisfaction	.230	.049	.549***	.292	.301	32.338***
Path a Transformational leadership Achievement	.038	.013	.319**	.090	.102	8.818**

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Path b & c' Transformational leadership Achievement Faculty job satisfaction Sobel's test statistic = 2.663, *p*<.01	.154 1.876	.034 .290	.373*** .534***	.549	.561	46.626***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Recognition-Informal **Path b & c'**	.025	.016	.166	.016	.028	2.354
Transformational leadership Recognition-Informal Faculty job satisfaction Sobel's test statistic= .105 *p*>.05	.228 .043	.043 .406	.545*** .011	.282	.301	15.961***
Path c Transformational leadership Faculty job satisfaction	.230	.040	.549***	.292	.301	32.338***
Path a Transformational leadership Responsibility **Path b & c'**	.076	.027	.304**	.081	.093	7.853**
Transformational leadership Responsibility Faculty job satisfaction Sobel's test statistic= 2.082, *p*<.05	.196 .511	.041 .165	.465*** .298**	.372	.389	22.881***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Advancement **Path b & c'**	.037	.017	.237*	.044	.056	4.650*
Transformational leadership Advancement Faculty job satisfaction Sobel's test statistic= 2.066, *p*<.05	.162 1.305	.031 .198	.419*** .527***	.547	.560	46.372***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Working conditions **Path b & c'**	.007	.024	.031	-.012	.001	.075
Transformational leadership Working conditions Faculty job satisfaction Sobel's test statistic=.265, *p*>.05	.219 -.136	.042 .214	.535*** -.065	.270	.290	14.097***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***

	B	SE B	β	Adj R²	ΔR²	F Change
Transformational leadership Job security **Path b & c'**	.019	.017	.127	.004	.016	1.291
Transformational leadership Job security Faculty job satisfaction Sobel's test statistic= 1.011, *p*>.05	.217 .635	.040 .267	.517*** .225*	.333	.351	20.006***
Transactional Leadership Motivators & Hygienes Faculty Job Satisfaction	***B***	***SE B***	**β**	**Adj R²**	**ΔR²**	***F* Change**
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Achievement	.063	.040	.179	.020	.032	2.572
Path b & c' Transactional leadership Achievement Faculty job satisfaction Sobel's test statistic= 1.539, *p*>.05	.070 2.236	.109 .308	.057 .648***	.421	.437	38.301***
Path c Transactional leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337
Transactional leadership Recognition-Informal **Path b & c'**	.065	.048	.146	.010	.021	1.811
Transactional leadership Recognition-Informal Faculty job satisfaction Sobel's test statistic=.968, *p*>.05	.183 .638	.141 .460	.149 .159	.029	.055	2.144
Path c Transactional leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337
Transactional leadership Responsibility **Path b & c'**	.170	.081	.233*	.042	.054	4.417*
Transformational leadership Responsibility Faculty job satisfaction Sobel's test statistic= 1.850, *p*>.05	.107 .737	.134 .188	.086 .422***	.178	.201	9.030***
Path c Transactional leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337
Transactional leadership Advancement **Path b & c'**	.060	.051	.132	.005	.017	1.384
Transactional leadership Advancement Faculty job satisfaction Sobel's test statistic= 1.156, *p*>.05	.186 1.476	.105 .233	.163 .584***	.373	.389	23.277***

	B	SE B	β	Adj R²	ΔR²	F Change
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Working conditions	.045	.072	.071	-.008	.005	.393
Path b & c' Transactional leadership Working conditions Faculty job satisfaction Sobel's test statistic=.449, *p*>.05	.174 -.160	.140 .247	.147 -.077	-.002	.027	.939
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Job security	.035	.050	.078	-.006	.006	.488
Path b & c' Transactional leadership Job security Faculty job satisfaction Sobel's test statistic=.674, *p*>.05	.181 .782	.136 .307	.147 .281*	.084	.108	4.489*
Laissez-faire Motivators & Hygienes Faculty Job Satisfaction	*B*	*SE B*	β	Adj R²	ΔR²	F Change
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Achievement	-.246	.071	-.349**	.112	.122	11.936**
Path b & c' Laissez-faire Achievement Faculty job satisfaction Sobel's test statistic= 3.121, *p*<.01	-.895 1.783	.173 .248	-.390*** .543***	.584	.595	59.194***
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Recognition-Informal	-.031	.084	-.039	-.009	.002	.139
Path b & c' Laissez-faire Recognition-Informal Faculty job satisfaction Sobel's test statistic=.354, *p*>.05	-1.347 .466	.206 .372	-.582*** .111	.338	.353	22.396***
Path c Laissez-faire Faculty job satisfaction **Path a**	-1.353	.206	-.584***	.333	.341	42.927***

Laissez-faire Responsibility **Path b & c'**	-.390	.147	-.274*	.065	.075	7.000*
Laissez-faire Responsibility Faculty job satisfaction Sobel's test statistic= 2.199, *p* <.05	-1.165 .555	.199 .141	-.502*** .336***	.435	.449	32.546***
Path c Laissez-faire Faculty job satisfaction **Path a** Laissez-faire	-1.353	.206	-.584***	.333	.341	42.927***
Advancement **Path b & c'** Laissez-faire	-.226	.096	-.245*	.049	.060	5.576*
Advancement Faculty job satisfaction Sobel's test statistic= 2.245, *P*<.05	-1.031 1.264	.153 .169	-.477*** .527***	.605	.614	64.455***
Path c Laissez-faire Faculty job satisfaction **Path a** Laissez-faire	-1.353	.206	-.584***	.333	.341	42.927***
Working conditions **Path b & c'** Laissez-faire	.261	.135	.205	.031	.031	3.738
Working conditions Faculty job satisfaction Sobel's test statistic=.932, *p*>.05	-1.327 .213	.224 .200	-.584*** .105	.301	.319	17.765***
Path c Laissez-faire Faculty job satisfaction **Path a** Laissez-faire	-1.353	.206	-.584***	.333	.341	42.927***
Job security **Path b & c'** Laissez-faire	-.297	.086	-.347**	.110	.120	11.895**
Job security Faculty job satisfaction Sobel's test statistic= .080, *p*>.05	-1.268 .270	.222 .258	-.547*** .100	.334	.350	22.037***
p<.05. **p<.01, ***p<.001						

Table 4.34 Testing Mediator Effects Using Multiple Regression-Motivators and Hygienes on the Relationship between HODs' Leadership Styles and Faculty Job Satisfaction

All of the above paths, were applied for all motivators and hygienes variables. The results show that among all motivators and hygienes mediators, achievement, responsibility, and advancement would partially mediate the relationship between transformational leadership and faculty job

satisfaction and the relationship between laissez-faire and faculty job satisfaction. In addition, the first two of these mediators meaning achievement and responsibility would also mediate the relationship between leadership styles (as a group) and faculty job satisfaction. For all of these three mediators, the three related phases of testing mediation effects were met (three phases were significant) and the Sobel's test statistic also confirms these mediation effects (Table 4.34).

4.2.4.2.2 Environmental Conditions

4.2.4.2.2.1 Inter-correlation Results

Table (4.35) represents the inter-correlations among faculty job satisfaction, leadership styles and environmental conditions as potential mediators including institutional climate or culture, relationships, institutional and administrative culture, and student quality on this relationship. It exhibits the correlations between different styles of leadership and faculty job satisfaction, correlations between these leadership styles and all 4 potential mediators as well as the correlations between these potential mediators and faculty job satisfaction. The table shows that, there were significant relationships between leadership style and job satisfaction ($r = .442$, $p<.01$), transformational leadership and faculty job satisfaction ($r = .549$, $p<.01$), and laissez-faire and faculty job satisfaction ($r = -.584$, $p<.01$). In addition, there were significant relationships between faculty job satisfaction with institutional climate or culture ($r = .366$, $p<.01$), relationships ($r = .572$, $p<.01$), and institutional and administrative culture ($r = .517$, $p<.01$). In terms of leadership styles and the potential mediators, there were significant relationships between leadership styles and relationships ($r = .407$, $p<.01$), transformational leadership and relationships ($r = .492$, $p<.01$) and transactional leadership and student quality ($r = -.332$, $p<.01$). Laissez-faire was correlated to most of the potential mediators including

institutional climate or culture ($r = -.252$, $p<.05$), relationships ($r = -.518$, $p<.01$), and institutional and administrative culture ($r = -.391$, $p<.01$).

ICs	1	2	3	4	5	6	7	8	9
1.FS	1.00								
2.LS	.442**	1.00							
3.TL	.549**	.951**	1.00						
4.TA	.174	.764**	.550**	1.00					
5.LF	-.584**	-.305**	-.512**	-.027	1.00				
6.ICoC	.366**	-.087	-.011	-.126	-.252*	1.00			
7.Rels	.672**	.407**	.492**	.192	-.518**	.341**	1.00		
8.I&AC	.517**	.081	.154	.011	-.391**	.510**	.370**	1.00	
9.SQ	.172	-.209	-.099	-.332**	-.155	.334**	.240*	.306**	1.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Notes. ICs= Inter-correlations; FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; ICoC= Institutional Climate or Culture= ICoC; Rels= Relationships= Rels; I&AC= Institutional and Administrative Culture; SQ= Student Quality= SQ

Table 4.35 Inter-correlations among Environmental Conditions, Leadership Styles, and Faculty Job Satisfaction Variables

4.2.4.2.2.2 Regression Results

Table (4.36) contains the analyses necessary to examine the probable mediational impact of the environmental conditions including institutional climate or culture, relationships, institutional and administrative culture, and student quality. Following the paths outlined earlier for testing mediation, for the relationships as a potential mediator, first, to establish that leadership styles was related to faculty job satisfaction, faculty job satisfaction was regressed on the leadership styles variable (path c). The unstandardized regression coefficient ($B = .160$) associated with the effect of leadership styles on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that leadership styles was related to relationships, relationships was regressed on the leadership styles variable (path

a). The unstandardized regression coefficient (B= .048) associated with this relation was significant at $p<$ .001 level, and thus the condition for path a was met. To establish whether relationships was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both relationships and leadership styles variable (path b, c'). The coefficient associated with the relation between achievement and faculty job satisfaction (controlling for leadership styles) also was significant (B= 1.821, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between leadership styles and faculty job satisfaction, controlling for relationships. When that path is zero, there is complete mediation. However, path c' was .072 and still significant ($p<$ .05), although it was much smaller than path c (which was B= .160, $p<$.001). To test the drop from B= .160, $p<$.001 to B= .072, $p<$.05 (from c to c') is significant, the Sobel's (1982) test was employed (Sobel's test statistic = 3.390, $p<$.001). As a result of the hypothesis, relationships partially mediate the relationships of leadership styles and faculty job satisfaction.

To assess the probable impact of relationships as a potential mediator on the relationship between transformational leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient (B = .230) associated with the effect of transformational leadership on faculty job satisfaction was significant ($p<$.001). Thus, path c was significant and the requirement for mediation in path c was met. To test that transformational leadership was related to relationships, relationships was regressed on the leadership styles variable (path a). The unstandardized regression coefficient (B= .069) associated with this relation was significant at $p<$ .001 level, and thus the condition for path a was met. To establish whether relationships were related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both relationships and transformational leadership

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(path b, c'). The coefficient associated with the relation between relationships and faculty job satisfaction (controlling for transformational leadership) was also significant ($B=$ 1.514, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for relationships. When that path is zero, there is complete mediation. However, path c' was .125 and still significant ($p<$ .01), although it was smaller than path c (which was $B=$ .230, $p<$.001). To test, the Sobel's (1982) test was employed (Sobel's test statistic $=$ 3.636, $p<$.001). As a result of the hypothesis, relationships partially mediate the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of relationships as a potential mediator on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B =$ -1.353) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<$.001). Thus, path c was significant and the requirement for mediation in path c was met. To test that laissez-faire was related to relationships, relationships was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B=$ -.397) associated with this relation was significant at $p<$ .001 level, and thus the condition for path a was met. To establish whether relationships were related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both relationships and laissez-faire (path b, c'). The coefficient associated with the relation between relationships and faculty job satisfaction (controlling for laissez-faire) also was significant ($B=$ 1.477, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for relationships. When that path is zero, there is complete

mediation. However, path c' was -.754 and still significant ($p< .01$), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 3.895, $p<.0001$). As a result of the hypothesis, relationships partially mediate the relationships of laissez-faire and faculty job satisfaction.

To assess the probable impact of institutional and administrative culture as a potential mediator on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = -1.353$) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test, that laissez-faire was related to institutional and administrative culture, institutional and administrative culture was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= -.386$) associated with this relation was significant at $p< .001$ level, and thus the condition for path a was met. To establish whether relationships was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both institutional and administrative culture and laissez-faire (path b, c'). The coefficient associated with the relation between institutional and administrative culture and faculty job satisfaction (controlling for laissez-faire) also was significant ($B= .733$, $p<.01$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for institutional and administrative culture. When that path is zero, there is complete mediation. However, path c' was -1.038 and still significant ($p< .001$), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.641, $p<.01$). As a result of the hypothesis, institutional and administrative culture partially mediate the relationships of laissez-faire and faculty job

satisfaction.

Leadership styles Environmental conditions Faculty Job Satisfaction	*B*	*SE B*	β	Adj R²	ΔR²	*F* Change
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Institutional climate or culture **Path b & c'**	-.019	.025	-.087	-.006	.008	.576
Leadership styles Institutional climate or culture Faculty job satisfaction Sobel's test statistic = .748, *p*>.05	.165 .764	.036 .180	.444*** .406***	.313	.332	17.397***
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Relationships **Path b & c'**	.048	.012	.407***	.155	.166	14.923***
Leadership styles Relationships Faculty job satisfaction Sobel's test statistic = 3.390, *p*<.001	.072 1.821	.034 .285	.199* .597***	.480	.494	34.207***
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Institutional and administrative culture **Path b & c'**	.012	.017	.081	-.007	.007	.492
Leadership styles Institutional and administrative culture Faculty job satisfaction Sobel's test statistic = .697, *p*>.05	.133 1.144	.036 .247	.358*** .447***	.344	.362	19.588***
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Student quality **Path b & c'**	-.022	.012	-.209	.031	.044	3.462
Leadership styles Student quality Faculty job satisfaction Sobel's test statistic = 1.427, *p*>.05	.177 .833	.038 .366	.489*** .252*	.235	.256	12.231***
Transformational Leadership Environmental conditions Faculty Job Satisfaction	***B***	***SE B***	**β**	**Adj R²**	**ΔR²**	***F* Change**

	B	*SE B*	β	Adj R²	ΔR²	*F* Change
Path c Transformational Leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational Leadership Institutional climate or culture **Path b & c'**	-.003	.028	-.011	-.013	.000	.009
Transformational Leadership Institutional climate or culture Faculty job satisfaction Sobel's test statistic = .107, *p*>.05	.226 .682	.039 .165	.526*** .370***	.397	.413	25.708***
Path c Transformational Leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational Leadership Relationships **Path b & c'**	.069	.014	.492***	.233	.242	24.962***
Transformational Leadership Relationships Faculty job satisfaction Sobel's test statistic = 3.636, *p*<.001	.125 1.514	.040 .281	.299** .512***	.490	.504	37.023***
Path c Transformational Leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational Leadership Institutional and administrative culture **Path b & c'**	.026	.019	.154	.011	.024	1.866
Transformational Leadership Institutional and administrative culture Faculty job satisfaction Sobel's test statistic = 1.305, *p*>.05	.194 .986	.039 .226	.452*** .396***	.409	.424	26.553***
Path c Transformational Leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational Leadership Student quality **Path b & c'**	-.012	.014	-.099	-.003	.010	.775
Transformational Leadership Student quality Faculty job satisfaction Sobel's test statistic = .799, *p*>.05	.237 .706	.040 .317	.565*** .210*	.327	.345	19.489***
Transactional Leadership **Environmental conditions** **Faculty Job Satisfaction**	*B*	*SE B*	β	**Adj R²**	**ΔR²**	***F* Change**
Path c Transactional Leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337

	B	SE B	β	Adj R²	ΔR²	F Change
Transactional Leadership Institutional climate or culture	-.092	.082	-.126	.003	.016	1.255
Path b & c' Transactional Leadership Institutional climate or culture Faculty job satisfaction Sobel's test statistic = 1.064, *p*>.05	.216 .664	.134 .197	.174 .366**	.129	.152	6.540**
Path c Transactional Leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional Leadership Relationships	.077	.045	.192	.024	.037	2.970
Path b & c' Transactional Leadership Relationships Faculty job satisfaction Sobel's test statistic = 1.671, *p*>.05	.048 2.076	.107 .264	.039 .680***	.460	.475	32.982***
Path c Transactional Leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional Leadership Institutional and administrative culture	.006	.057	.011	-.013	.000	.009
Path b & c' Transactional Leadership Institutional and administrative culture Faculty job satisfaction Sobel's test statistic = .105, *p*>.05	.145 1.123	.129 .257	.117 .453***	.201	.223	10.325***
Path c Transactional Leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional Leadership Student quality	-.119	.038	-.332**	.099	.111	9.817**
Path b & c' Transactional Leadership Student quality Faculty job satisfaction Sobel's test statistic = 1.532, *p*>.05	.298 .724	.146 .412	.241* .208	.044	.069	2.747
Laissez-faire **Environmental conditions** **Faculty Job Satisfaction**	*B*	*SE B*	β	**Adj R²**	**ΔR²**	***F* Change**
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Institutional climate or culture	-.326	.135	-.252*	.053	.063	5.828*
Path b & c' Laissez-faire Institutional climate or culture Faculty job satisfaction Sobel's test statistic = 1.540, *p*>.05	-1.187 .352	.214 .176	-.518*** .187*	.349	.365	23.292***

Path c Laissez-faire Faculty job satisfaction **Path a**	-1.353	.20.6	-.584***	.333	.341	42.927***
Laissez-faire Relationships **Path b & c'**	-.397	.071	-.518***	.260	.269	31.613***
Laissez-faire Relationships Faculty job satisfaction Sobel's test statistic = 3.895, *p*<.0001	-.754 1.477	.210 .272	-.326** .493***	.506	.518	43.579***
Path c Laissez-faire Faculty job satisfaction **Path a**	-1.353	.206	-.584***	.333	.341	42.927***
Laissez-faire Institutional and administrative culture **Path b & c'**	-.386	.098	-.391***	.143	.153	15.507***
Laissez-faire Institutional and administrative culture Faculty job satisfaction Sobel's test statistic = 2.641, *p*<.01	-1.038 .773	.211 .217	-.453*** .328**	.419	.433	30.587***
Path c Laissez-faire Faculty job satisfaction **Path a**	-1.353	.206	-.584***	.333	.341	42.927***
Laissez-faire Student quality **Path b & c'**	-.104	.071	-.155	.013	.024	2.173
Laissez-faire Student quality Faculty job satisfaction Sobel's test statistic = .527, *p*>.05	-1.332 .178	.211 .315	-.575*** .051	.327	.343	21.446***
*p<.05. **p<.01, ***p<.001, ****p<.0001*						

Table 4.36 Testing Mediator Effects Using Multiple Regression-Environmental conditions on the Relationship between HODs' Leadership Styles and Faculty Job Satisfaction

The analysis results of the mediational impact of the environmental conditions including institutional climate or culture, relationships, institutional and administrative culture, and student quality reveals that relationships would partially moderate the relationship between leadership styles and faculty job satisfaction, transformational leadership and faculty job satisfaction, and laissez-faire and faculty job satisfaction. In addition, institutional and administrative culture would partially mediate the relationships of laissez-faire and faculty job satisfaction.

4.2.4.2.3 Job Design

4.2.4.2.3.1 Inter-correlation Results

Table (4.37) represents the inter-correlations among faculty job satisfaction, leadership styles and job design as potential mediators including feedback, autonomy, and skill variety. It exhibits the correlations between different styles of leadership and faculty job satisfaction, correlations between these leadership styles and all 3 potential mediators as well as the correlations between these potential mediators and faculty job satisfaction. The table shows that, there were significant relationships between leadership style and job satisfaction ($r = .442$, $p<.01$), transformational leadership and faculty job satisfaction ($r = .549$, $p<.01$), and laissez-faire and faculty job satisfaction ($r = -.584$, $p<.01$). In addition, there were significant relationships between faculty job satisfaction with all three potential mediators including feedback ($r = .532$, $p<.01$), autonomy ($r = .554$, $p<.01$), and skill variety ($r = .355$, $p<.01$). In terms of leadership styles and the potential mediators, there were significant relationships between leadership styles and feedback ($r = .395$, $p<.01$), transformational leadership and feedback ($r = .395$, $p<.01$), transformational leadership and autonomy ($r = .274$, $p<.05$) and transactional leadership and feedback ($r = .250$, $p<.05$). Laissez-faire was also correlated to feedback ($r = -.380$, $p<.01$) and autonomy ($r = -.460$, $p<.01$) significantly.

ICs	1	2	3	4	5	6	7	8
1.FJS	1.00							
2.LS	.442**	1.00						
3.TL	.549**	.951**	1.00					
4.TA	.174	.764**	.550**	1.00				
5.LF	-.584**	-.305**	-.512**	-.027	1.00			
6.FB	.532**	.395**	.395**	.250*	-.380**	1.00		
7.Aut	.554**	.190	.274*	.040	-.460**	.394**	1.00	
8.SV	.355**	.088	.141	-.019	-.201	.145	.263*	1.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Notes. ICs= Inter-correlations; FJS= Faculty Job Satisfaction; W&C= Work and Collegiality;
Supervision= Sup; Promotion= Pro; LS= Leadership Styles; TL= Transformational Leadership; TA=
Transactional Leadership; LF= Laissez-faire; FB= Feedback; Aut= Autonomy; SV= Skill Variety

Table 4.37 Inter-correlations among Job Design, Leadership Styles, and Faculty Job Satisfaction Variables

4.2.4.2.3.2 Regression Results

Table (4.38) contains the analyses necessary to examine the probable mediational impact of the job design including feedback, autonomy, and skill variety. Following the paths outlined earlier for testing mediation, for feedback as a potential mediator, first, to establish that leadership style was related to faculty job satisfaction, faculty job satisfaction was regressed on the leadership styles variable (path c). The unstandardized regression coefficient ($B = .160$) associated with the effect of leadership styles on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in Path c was met. To test that leadership styles were related to feedback, feedback was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= .027$) associated with this relation was significant at $p<$ .001 level, and thus the condition for path a was met. To establish whether relationships was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both feedback and leadership styles variable (path b, c'). The coefficient associated with the relation between feedback and faculty job satisfaction (controlling for leadership styles) also was significant ($B= 2.161$, $p <.001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between leadership styles and faculty job satisfaction, controlling for relationships. When that path is zero, there is complete mediation. However, path c' was .100 and still significant ($p< .05$), although it was much smaller than path c (which was $B= .160$, $p<.001$). To test the drop from $B=$ .160, $p<.001$ to $B= .100$, p<.05 (from c to c') is significant, the Sobel's (1982) test was employed (Sobel's test statistic $= 2.754$, $p<.01$). As a result of the hypothesis, feedback partially mediates the relationships of leadership styles and faculty job satisfaction.

To assess the probable impact of feedback as a potential mediator on the relationship between transformational leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = .230$) associated with the effect of transformational leadership on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that transformational leadership was related to feedback, feedback was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= .033$) associated with this relation was significant at $p< .001$ level, and thus the condition for path a was met. To establish whether feedback was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both feedback and transformational leadership (path b, c'). The coefficient associated with the relation between feedback and faculty job satisfaction (controlling for transformational leadership) also was significant ($B= 1.766$, $p<.01$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for feedback. When that path is zero, there is complete mediation. However, path c' was .174 and still significant ($p< .001$), although it was smaller than path c (which was $B= .230$, $p<.001$). To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.559, $p<.05$). As a result of the hypothesis, feedback partially mediates the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of feedback as a potential mediator on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = -1.353$) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the

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requirement for mediation in path c was met. To test that laissez-faire was related to feedback, feedback was regressed on the leadership styles variable (path a). The unstandardized regression coefficient (B= -.184) associated with this relation was significant at p< .001 level, and thus the condition for path a was met. To establish whether feedback was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both feedback and laissez-faire (path b, c'). The coefficient associated with the relation between feedback and faculty job satisfaction (controlling for laissez-faire) also was significant (B= 1.806, p <.001). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for feedback. When that path is zero, there is complete mediation. However, path c' was -1.019 and still significant (p< .001), although it was smaller than path c. To test the Sobel's (1982) test was employed (Sobel's test statistic = 2.816, p<.01). As a result of the hypothesis, feedback partially mediate the relationships of laissez-faire and faculty job satisfaction.

To assess the probable impact of autonomy as a potential mediator on the relationship between transformational leadership style and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient (B = .230) associated with the effect of transformational leadership on faculty job satisfaction was significant (p<.001). Thus, path c was significant and the requirement for mediation in path c was met. To test that transformational leadership was related to autonomy, autonomy was regressed on the leadership styles variable (path a). The unstandardized regression coefficient (B= .027) associated with this relation was significant at p< .05 level, and thus the condition for path a was met. To establish whether autonomy was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both autonomy and transformational leadership (path b, c'). The coefficient

associated with the relation between autonomy and faculty job satisfaction (controlling for transformational leadership) was also significant ($B= 1.785$, $p<.001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between transformational leadership and faculty job satisfaction, controlling for autonomy. When that path is zero, there is complete mediation. However, path c' was .182 and still significant ($p< .001$), although it was smaller than path c (which was $B= .230$, $p<.001$). To test the Sobel's (1982) test was employed (Sobel's test statistic $= 2.333$, $p<.05$). As a result of the hypothesis, autonomy partially mediates the relationships of transformational leadership and faculty job satisfaction.

To assess the probable impact of autonomy as a potential mediator on the relationship between laissez-faire and faculty job satisfaction, all the above 4 paths were measured. For path c, the unstandardized regression coefficient ($B = -1.353$) associated with the effect of laissez-faire on faculty job satisfaction was significant ($p<.001$). Thus, path c was significant and the requirement for mediation in path c was met. To test that laissez-faire was related to autonomy, autonomy was regressed on the leadership styles variable (path a). The unstandardized regression coefficient ($B= -.259$) associated with this relation was significant at $p< .001$ level, and thus the condition for Path a was met. To establish whether autonomy was related to faculty job satisfaction, faculty job satisfaction was regressed simultaneously on both autonomy and laissez-faire (path b, c'). The coefficient associated with the relation between autonomy and faculty job satisfaction (controlling for laissez-faire) also was significant ($B= 1.545$, $p<.001$). Thus, the condition for path b was met (path b was significant). This third regression equation also provided an estimate of path c', the relation between laissez-faire and faculty job satisfaction, controlling for autonomy. When that path is zero, there is complete mediation. However, path c'

was -1.051 and still significant (*p*< .001), although it was smaller than path c. To test the Sobel's

(1982) test was employed (Sobel's test statistic = 3.035, *p*<.01). As a result of the hypothesis,

autonomy partially mediates the relationships of laissez-faire and faculty job satisfaction.

Leadership styles Job Design Faculty Job Satisfaction	*B*	*SE B*	β	Adj R²	ΔR²	*F* Change
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Feedback	.027	.007	.395***	.144	.156	13.648***
Path b & c' Leadership styles Feedback Faculty job satisfaction Sobel's test statistic = 2.754, *p*<.01	.100 2.161	.038 .549	.278* .418***	.327	.346	18.257***
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Autonomy	.016	.009	.190	.024	.036	2.857
Path b & c' Leadership styles Autonomy Faculty job satisfaction Sobel's test statistic = 1.676, *p*>.05	.128 2.038	.034 .404	.354*** .470***	.391	.408	24.462***
Path c Leadership styles Faculty job satisfaction	.160	.038	.442***	.184	.195	17.466***
Path a Leadership styles Skill variety	.008	.010	.088	-.005	.008	.591
Path b & c' Leadership styles Skill variety Faculty job satisfaction Sobel's test statistic = .773, *p*>.05	.150 1.208	.036 .398	.415*** .305**	.267	.288	14.325***
Transformational Leadership **Job Design** **Faculty Job Satisfaction**	*B*	*SE B*	β	Adj R²	ΔR²	*F* Change
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***

	B	SE (B)	Beta	Adj R²	ΔR²	F Change
Transformational leadership Feedback **Path b & c'**	.033	.009	.395***	.145	.156	14.233***
Transformational leadership Feedback Faculty job satisfaction Sobel's test statistic = 2.559, *p*<.05	.174 1.766	.041 .494	.414*** .353**	.398	.414	25.418***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Autonomy **Path b & c'**	.027	.010	.274*	.064	.075	6.432*
Transformational leadership Autonomy Faculty job satisfaction Sobel's test statistic = 2.333, *p*<.05	.182 1.785	.037 .385	.435*** .412***	.444	.458	31.313***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Skill variety **Path b & c'**	.015	.012	.141	.008	.020	1.614
Transformational leadership Skill variety Faculty job satisfaction Sobel's test statistic = 1.144, *p*>.05	.214 1.053	.039 .369	.511*** .266**	.353	.370	21.775***
Transactional Leadership Job Design Faculty Job Satisfaction	**B**	**SE (B)**	**Beta**	**Adj R²**	**ΔR²**	**F Change**
Path c Transactional leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337
Transactional leadership Feedback **Path b & c'**	.062	.027	.250*	.050	.063	5.145*
Transactional leadership Feedback Faculty job satisfaction Sobel's test statistic = 1.866, *p*>.05	.051 1.641	.127 .512	.041 .528***	.272	.291	14.795***
Path c Transactional leadership Faculty job satisfaction **Path a**	.215	.140	.174	.017	.030	2.337
Transactional leadership Autonomy **Path b & c'**	.012	.032	.040	-.011	.002	.129
Transactional leadership Autonomy Faculty job satisfaction Sobel's test statistic = .374, *p*>.05	.201 2.228	.121 .426	.163 .512***	.273	.292	15.276***

	B	SE B	β	Adj R²	ΔR²	F Change
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Skill variety	-.006	.035	-.019	-.012	.000	.029
Path b & c' Transactional leadership Skill variety Faculty job satisfaction Sobel's test statistic = .171, *p*>.05	.227 1.326	.133 .433	.184 .331**	.116	.140	6.001**
Laissez-faire **Job Design** **Faculty Job Satisfaction**	**B**	**SE B**	**β**	**Adj R²**	**ΔR²**	**F Change**
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Feedback	-.184	.049	-.380***	.134	.144	14.308***
Path b & c' Laissez-faire Feedback Faculty job satisfaction Sobel's test statistic = 2.816, *p*<.01	-1.019 1.806	.206 .424	-.440*** .377***	.449	.463	34.428***
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Autonomy	-.259	.054	-.460***	.202	.211	23.332***
Path b & c' Laissez-faire Autonomy Faculty job satisfaction Sobel's test statistic = 3.035, *p*<.01	-1.051 1.545	.220 .394	-.436*** .358***	.444	.458	34.201***
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Skill variety	-.112	.058	-.201	.029	.040	3.697
Path b & c' Laissez-faire Skill variety Faculty job satisfaction Sobel's test statistic = 1.582, *p*>.05	-1.247 .991	.202 .359	-.538*** .241**	.382	.397	26.990***
*p<.05. **p<.01, ***p<.001*						

Table 4.38 Testing Mediator Effects Using Multiple Regression-Job Design on the Relationship between HODs' Leadership Styles and Faculty Job Satisfaction

The analysis results of the mediational impact of the job design including feedback, autonomy, and skill variety reveals that feedback would partially moderate the relationship between leadership styles and faculty job satisfaction, transformational leadership and faculty job satisfaction, and laissez-faire and faculty job satisfaction. In addition, autonomy partially mediate the relationships of transformational leadership and faculty job satisfaction as well as the relationships of laissez-faire and faculty job satisfaction.

4.2.4.2.4 Identity

4.2.4.2.4.1 Inter-correlation Results

Table (4.39) represents the inter-correlations among faculty job satisfaction, leadership styles and identity as potential mediators including religious and cultural values, self-esteem, and need to belong. It exhibits the correlations between different styles of leadership and faculty job satisfaction, correlations between these leadership styles and all 3 potential mediators as well as the correlations between these potential mediators and faculty job satisfaction. The table shows that, there were significant relationships between leadership style and job satisfaction ($r = .442$, $p<.01$), transformational leadership and faculty job satisfaction ($r = .549$, $p<.01$), and laissez-faire and faculty job satisfaction ($r = -.584$, $p<.01$). In addition, there were significant relationships between faculty job satisfaction with religious and cultural values ($r = -.269$, $p<.05$) and self-esteem ($r = .471$, $p<.01$). In terms of leadership styles and the potential mediators, there were significant relationships between transformational leadership and religious and cultural values ($r = -.246$, $p<.05$) and transformational leadership and self-esteem ($r = .221$, $p<.05$). Laissez-faire was also correlated to religious and cultural values ($r = -.342$, $p<.01$).

ICs	1	2	3	4	5	6	7	8
1.FJS	1.00							
2.LS	.442**	1.00						
3.TL	.549**	.951**	1.00					
4.TA	.174	.764**	.550**	1.00				
5.LF	-.584**	-.305**	-.512**	-.027	1.00			
6.R&CV	-.269*	-.169	-.246*	-.063	.342**	1.00		
7.SE	.471**	.108	.221*	-.174	-.168	-.129	1.00	
8.NtB	.166	.209	.189	.182	-.065	-.141	.160	1.00

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

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

Notes. ICs= Inter-correlations; FJS= Faculty Job Satisfaction; W&C= Work and Collegiality; Supervision= Sup; Promotion= Pro; LS= Leadership Styles; TL= Transformational Leadership; TA= Transactional Leadership; LF= Laissez-faire; R&CV= Religious and Cultural Values; SE= Self-esteem; NtB= Need to Belong

Table 4.39 Inter-correlations among Identity, Leadership Styles, and Faculty Job Satisfaction Variables

4.2.4.2.4.2 Regression Results

Table (4.40) contains the analyses necessary to examine the probable mediational impact of identity including religious and cultural values, self-esteem, and need to belong. Following the paths outlined earlier for testing mediation and based on the results reported in Table (4.40), all the 4 paths for all of the potential mediators of job design were measured. However, there was not any mediator from the identity group that can affect the relationship of HODs leadership styles on faculty job satisfaction.

Leadership styles Identity Faculty Job Satisfaction	*B*	*SE B*	β	Adj R^2	ΔR^2	*F* Change
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Religious and cultural values **Path b & c'**	-.028	.019	-.169	.015	.028	2.168

	B	SE B	β	Adj R²	ΔR²	F Change
Leadership styles Religious and cultural values Faculty job satisfaction Sobel's test statistic = 1.198, *p*>.05	.139 -.505	.040 .245	.374** -.222*	.197	.219	9.684***
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Self-esteem **Path b & c'**	.009	.009	.108	-.001	.012	.889
Leadership styles Self-esteem Faculty job satisfaction Sobel's test statistic = .976, *p*>.05	.143 1.946	.034 .425	.396*** .431***	.361	.379	21.665***
Path c Leadership styles Faculty job satisfaction **Path a**	.160	.038	.442***	.184	.195	17.466***
Leadership styles Need to belong **Path b & c'**	.014	.008	.209	.031	.044	3.459
Leadership styles Need to belong Faculty job satisfaction Sobel's test statistic = .945, *p*>.05	.151 .635	.039 .565	.418*** .121	.187	.209	9.397***
Transformational Leadership Identity **Faculty Job Satisfaction**	*B*	*SE B*	β	**Adj R²**	**ΔR²**	*F* Change
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Religious and cultural values **Path b & c'**	-.048	.021	-.246*	.048	.060	4.952*
Transformational leadership Religious and cultural values Faculty job satisfaction Sobel's test statistic = 1.266, *p*>.05	.210 -.350	.044 .230	.490*** -.155	.284	.303	15.665***
Path c Transformational leadership Faculty job satisfaction **Path a**	.230	.040	.549***	.292	.301	32.338***
Transformational leadership Self-esteem **Path b & c'**	.020	.010	.221*	.037	.049	4.048*
Transformational leadership Self-esteem Faculty job satisfaction Sobel's test statistic = 1.792, *p*>.05	.196 1.632	.038 .404	.468*** .364***	.412	.428	27.629***
Path c Transformational leadership Faculty job satisfaction	.230	.040	.549***	.292	.301	32.338***

	B	SE B	β	Adj R²	ΔR²	F Change
Path a Transformational leadership Need to belong	.015	.009	.189	.024	.036	2.926
Path b & c' Transformational leadership Need to belong Faculty job satisfaction Sobel's test statistic = .962, $p>.05$	.222 .605	.041 .513	.529*** .115	.296	.314	16.950***

Transactional Leadership **Identity** **Faculty Job Satisfaction**	*B*	*SE B*	β	**Adj R²**	**ΔR²**	***F* Change**
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Religious and cultural values	-.035	.063	-.063	-.009	.004	.309
Path b & c' Transactional leadership Religious and cultural values Faculty job satisfaction Sobel's test statistic = .962, $p>.05$	.151 -.654	.138 .257	.122 -.285*	.075	.100	3.995*
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Self-esteem	-.046	.030	-.174	.018	.030	2.461
Path b & c' Transactional leadership Self-esteem Faculty job satisfaction Sobel's test statistic = 1.471, $p>.05$	.332 2.379	.123 .455	.269** .520***	.273	.292	15.248***
Path c Transactional leadership Faculty job satisfaction	.215	.140	.174	.017	.030	2.337
Path a Transactional leadership Need to belong	.043	.026	.182	.021	.033	2.693
Path b & c' Transactional leadership Need to belong Faculty job satisfaction Sobel's test statistic = 1.147, $p>.05$	.177 .944	.141 .592	.144 .182	.037	.062	2.464

Laissez-faire **Identity** **Faculty Job Satisfaction**	*B*	*SE B*	β	**Adj R²**	**ΔR²**	***F* Change**
Path c Laissez-faire Faculty job satisfaction **Path a**	-1.353	.206	-.584***	.333	.341	42.927***

Laissez-faire Religious and cultural values **Path b & c'**	.348	.105	.342**	.106	.117	11.102**
Laissez-faire Religious and cultural values Faculty job satisfaction Sobel's test statistic = .911, $p > .05$	-1.353 -.218	.229 .230	-.567*** -.091	.347	.363	22.244***
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Self-esteem	-.082	.051	-.168	.017	.028	2.548
Path b & c' Laissez-faire Self-esteem Faculty job satisfaction Sobel's test statistic = 1.526, $p > .05$	-1.216 1.826	.185 .376	-.525*** .388***	.475	.488	39.052***
Path c Laissez-faire Faculty job satisfaction	-1.353	.206	-.584***	.333	.341	42.927***
Path a Laissez-faire Need to belong	-.030	.048	-.065	-.007	.004	.377
Path b & c' Laissez-faire Need to belong Faculty job satisfaction Sobel's test statistic = .579, $p > .05$	-1.340 .671	.205 .435	-.578*** .131	.342	.358	22.874***
$p < .05$. **$p < .01$, ***$p < .001$						

Table 4.40 Testing Mediator Effects Using Multiple Regression-Identity on the Relationship between HODs' Leadership Styles and Faculty Job Satisfaction

4.3 Qualitative Data Analysis Results

Researchers can explore various research problems in a holistic approach through interviews. Interviewing is an adjustable and worthy research tool well within the qualitative paradigm. For focused research, semi-structured interviews can be utilized, which simultaneously allow the researcher the freedom to formulate questions and sequences to be used in each unique interview. This thesis employed a semi-structured in-depth interview strategy for its second qualitative phase of research. A total number of 11 interviewees in STEM-related fields

participated in this phase. Interview questions were based on the research questions, theoretical framework, and the results from the first quantitative phase of the study.

4.3.1 Thematic Analysis

Thematic analysis is an inherent, coherent method of categorizing material into specific research questions, and was the analysis approach taken. It has been recognized to identify, analyse and report patterns or themes attached to data. (Braun & Clarke 2006). Themes aim to carefully highlight the participants' responses. A theme is an aspect that recognizes something critical within the data in regard to the research questions at hand, and presents some pattern throughout the data set. A rich discussion and elaboration of the entire data set is required, providing the reader with a more extensive comprehension of the main themes. The phases of thematic analysis that were carried out and followed were identified by Braun and Clarke (2006). The first stage is familiarization with the data, including transcribing, reading and re-reading the data, and noting initial ideas.

This step was highly pragmatic and allowed the researcher to more greatly understand and appreciate the data to perform a deeper analysis. The second stage was to create initial codes to organize data, by looking for interesting trends and unique features, whilst collecting relevant data for each code. The third stage was to look for themes by collating codes into potential ones. Then, the themes had to be checked in relation an extract of the entire analysis. Afterwards, clear names and definitions were set for each theme. Finally, vivid and compelling examples had to be selected to support the points and how the themes portray the research findings as a whole (Braun & Clarke 2006). These steps were closely followed in the thematic analysis phase of the research.

4.3.2 Results from Semi-Structured In-depth Interviews

The results from the qualitative interviews of the thesis are presented in this section. The analysis approach utilized was thematic analysis (Braun & Clarke 2006). 11 semi-structured in-depth face-to-face interviews, lasting on average 45-60 minutes each, were conducted. The interviews were audio-recorded, fully transcribed, and then coded thematically. The following main themes have emerged from an analysis of the interviews: HODs leadership style, faculty job satisfaction factors, STEM-related fields, and extra points. The aforementioned themes have also been divided into various sub themes. Table (4.41) is a depiction of the themes and sub themes that have been identified.

Themes	Sub-Themes	Code
HODs Leadership Styles	**Transformational Leadership**	**TL**
	Idealized Influence Attributed and Behaviour	IIA & IIB
	Inspirational Motivation	IM
	Intellectual Stimulation	IS
	Individualized Consideration	IC
	Transactional Leadership	**TA**
	Contingent Rewards	CR
	Management by Exception Active	MbEA
	Management by Exception Passive	MbEP
	Laissez-faire	**LF**
Faculty Job Satisfaction Elements	Work and Collegiality	W&C
	Supervision	Sup
	Promotion	Pro
Faculty Job Satisfaction Factors (Moderators & Mediators)	Work Life Balance	WLB
	Achievement	Ach
	Responsibility	Res
	Advancement	Adv
	Relations	Rel
	Institutional Climate and Administrative Culture	IC&AC
	Feedback	FB
	Autonomy	Aut
Extra Points related to HODs Leadership Styles and Faculty Job Satisfaction- STEM-related Fields	Team work	TW
	Leadership training	Lt

Table 4.41 Themes in Qualitative Analysis

4.3.2.1 First Theme: HODs Leadership Styles

In terms of the first theme, leadership styles, two main questions were asked from the interviewees along with some probes and follow-up questions and based on the 9 components of full range leadership styles. The two main questions were: "What is the most effective leadership to satisfy faculty?" and "How can leadership be improved here?". 5 Deans of colleges, 2 HODs, and 4 faculty members, in STEM-related fields shared their perceptions and experiences to have a holistic view about HODs' leadership styles with improving faculty job satisfaction in the UAE.

Transformational Leadership- According to Bass (1985) and Bass and Avolio (2000), this leadership style constitutes of behavior that promotes subordinates' higher-order needs, targets their growth needs individually, leads to performance that exceeds expectations, suggests new resolutions, shares the leader's vision effectively, appreciates change, and is a source of satisfaction among followers. In general, leaders who applied transformational leadership were highly appreciated by the interviewees.

Idealized Influence Attributed and Behaviour- Generally, the interviewees emphasized that HODs should communicate their own values and the importance of the Organisation's goals to be achieved, reveal their prioritized values and the significance of purpose, dedication, and the ethical consequences of decisions. They should generate pride, loyalty, confidence, and alignment around a shared purpose. They should be a role model and do what they expect from faculty in a very honest and transparent approach.

"Communication is the link between HODs and faculty for the leader to feel close to them, which improves the outcome. Faculty should know the goals…vision in the strategic plan needs to be aligned it with the faculty and link the people together." (Dean#2)

"To work by example, apply by yourself first, collegiality, and accountability are very important. Faculty are highly intelligent people; you give them the individual needs and opportunity to give you the goals, and we have set goals from the beginning. People (faculty) should work around the vision; don't let them change the vision, university needs should be cared for; we have annual plan for departments, and then plan for each faculty, and a comparison of these two represents the achievements all the way through." (HOD#2)

"To me it is really communication, this is my own personal perception. We have to understand the personality of each individual (faculty), we have to be transparent, keep their secrets, they'd feel to belong, I am here for you, … you (HODs) have to be very transparent and open. They'd feel safe and know that someone is here to fight for them…" (HOD#1)

"Leaders must know and share the mission, vision, background knowledge of what is offered and expected, the mission and vision and how to accomplish it, to treat people equally, share everything with them, and make faculty listen and contribute. Fairness and awareness (clarify everything) are very important, making people feel happy is the most important thing…" (Faculty #3)

"Make the faculty feel that they are not different, if sometimes somebody in the same level get more privileges, let me know and clarify it, … It is not fair, so just explain it." (Faculty#4)

"He (HOD) is one of the team not top of the team, ask them about the individual needs and try to solve the problems if he can, what he wants from me, he should apply it first, first show me and not do the opposite, this is not an excuse for me but a way of encouraging. HODs should have plans for goals, not at the end, track it, start by explaining in a meeting." (Faculty#1)

Inspirational Motivation- Generally, the interviewees mentioned that HODs should challenge faculty with high standards, and encourage them to achieve the departments' goals. They should encourage faculty for what needs to be done and communicate with the optimistically and enthusiastically.

"A good environment is crucial, they'd (faculty) take work as a hobby and enjoy. If they take it as a hobby they'd work very hard. This motivation generated by the environment and by family, comes with leadership. Faculty need to be self-motivated as well, it is very important…" (Dean#3)

"We have to explain the organisation's goals in a very simple way so everybody can understand their role…we are here to help them to reach the goals…" (HOD#1)

"I think that everything is clear, there are different meetings and they talk about the vision of the organization so we know what we should do…yes they come to us and encourage…most of the times senior faculty come to juniors if there is any problem to get the results, this is amazing…I really like talking to thecseniors." (Faculty#2)

Intellectual Stimulation- Generally, the interviewees believed that HODs should provide support for a creative environment. They should care about faculty initiatives and stimulate in other new perspectives and ways of doing things, even if they differ from the old perspectives and approaches.

"Every single faculty has to add something to the organization, and there is enough room for creativity. Of course, the initiatives come more by talking, approving, and facilitating them, which is necessary to succeed. HODs don't have to ignore their initiatives." (Dean# 4)

"We provide support and they should do their research. They must tell us and we can provide. Everything is clear from the beginning. They have to work in the same line of the department that's why we hire them, whether research or teaching modules…. they have to have research, and contribute." (HOD#2)

"There is no time to be creative, as a faculty I am very interested in getting involved in more projects and research but there is no time, the teaching load is very high…" (Faculty5)

Individualized Consideration- Generally, the interviewees believed that HODs should consider faculty's individual needs, abilities and aspirations, listen, advise and coach.

"This is very important, if HODs want a creative and happy environment, and happy environment they have to consider their faculty's needs… in this organization people are very caring, in this culture people know about each other." (Dean#1)

"Higher speed for individual needs such as equipment, research assistance, basic needs, comfortable accommodation for family…" (faculty#4)

"HODs shouldn't go in different directions, don't say no to the needs; say the truth (for providing facilities), in one month or a bit later, look at the bright side of people not only find the mistakes, respect them, listen to them… And faculty shouldn't ask too much, ask one and let people see your progress and then ask for other machines or other things. Step by step…" (Faculty#2)

"We have workshops for faculty, the criteria, accreditation, students, everything is here but faculty need to attend and apply them, the workshops are in rotation, TBL (team based learning) on BB, the course materials and text books on BB… there is everything here, they (faculty) have to care as well…" (Faculty#2)

Transactional Leadership- Transactional leadership is reinforced by exchange theory, where a leader and subordinates set the goals and the procedure of obtaining objectives by exchanging rewards, and using coercion to attain the subordinate's compliance to fulfill organizational performance (Bass 1985).

Contingent Rewards- Generally, the interviewees mentioned that the rewarding system is based on the organization. There are formal awards for successful faculty performance (arrange mutually satisfactory agreement). There are also rewards such as promotion, extra pay, and attending conferences for the faculty who exceed their goals.

"This is based on the organisation, some flexibility is there for all departments. It can be like giving incentive, money, certificate, recognition and highlight in newspapers, media, …" (Dean# 2)

"Rewards, … you fill what you did (in the evaluation form) and then they evaluate and appreciate, there is money and promotion as well. Also attending conferences for good faculty. They need to know how to be fair, transparent, how to smile to people, ..." (Faculty#2)

"It is crucial, we have different kinds of rewards, they are not from the Head of Department, they are from the organization, …they are available for all, from seniors to juniors. This year we had four people in this department that won…" (Faculty#5)

Management by Exception Active and Passive- Generally, the interviewees believed that HODs

Must have to watch over faculty performance and act to correct faculty in the case of any

divergence from the rules. They do not have to wait for problems to escalate before taking

action. They have to take care of the progress along the way and not only at the end of the term

or a project.

"If there is any mistake, again communication, I listen to both not just one person, you have to absorb everybody, so communication and transparency…" (HOD#1)

"Everything from the first week is clear, about problems, we talk about them. we don't do anything behind the doors, we face the problems, we don't hide them." (HOD#2)

"About mistakes; listen to all parties and give a thought, enough time, and enough thought, we are not working in a systematic way, you have to be flexible and listen to people." (Faculty #3)

"We are all in the same boat to achieve better standards of the institute, if they (faculty) have some weaknesses give them opportunities like training to improve and not feel that they are not contributing …" (Faculty#2)

"Be patient and professional with faculty, specially the new faculty when a problem arises…. discuss it in a very professional way, talk, support, and they (faculty) can improve it…" (Faculty#4)

"We have a map between department and organization to satisfy them, we have objectives, and we do an assessment for the outcomes, he needs to keep track if we are in a good way all along the way before any deviations happen...it is very important." (Faculty#1)

Laissez-faire- Laissez-faire leadership is described as non-leadership or the absence of leadership. A laissez-faire leader discards his/her liability, procrastinates, does not give feedback, and is not very attentive to the subordinates' needs (Avolio et al. 1999; Northouse 2010). Generally, the interviewees emphasized that non-leadership behaviours are not being tolerated. Leaders have to be available, set clear objectives, solve the problems, and supervise the performances actively.

"Non-leadership ...how can a leader not care about the organisations' goals and faculty and all the issues…he can't ignore his responsibilities or even delay making decisions…it is not possible, why is he there" (HOD#2)

"How can a leader be passive, some people are born in different ways, just look at what is good for them not all, don't communicate, don't share, if you don't know what you are doing, the whole system and the life cycle won't work. Passive leaders are invisible." (Faculty#3)

4.3.2.2 Second Theme: Faculty Job Satisfaction Elements

In terms of the second theme, faculty job satisfaction factors, two main questions were asked from the interviewees along with some probes and follow-up questions. The two main questions were: "What are the most important ways (factors) to satisfy faculty here?" and "How can faculty job satisfaction level be improved here?". 5 Deans colleges, 2 HODs, and 4 faculty members, in STEM-related fields shared their perceptions and experiences to have a holistic

view about the direct impact of HODs' leadership styles to some of the main elements of faculty job satisfaction.

Work and Collegiality- Since there is a strong relationship between collegial working environment and higher levels of both job satisfaction and the organisation's success, enhancing collegiality in the workplace should be one of the most important considerations for individual faculty members and the departmental leadership. Interviewees emphasized the importance of collegiality and were generally happy about the respect, friendliness, collegiality, collaboration, and cooperation. They believed that collegiality can lead to a higher job satisfaction level, especially when the working load is high and faculty need to share their feelings and problems with each other.

"Work itself is crucial, teaching load is based on the university rules and faculty accepted at the beginning, number one of our goal this year is research, we have given them more research this year and they are happy, …" (Dean#4)

"I think that we have a very professional environment, we have different formal and informal meetings with faculty so they can talk about their problems…senior faculty are very helpful… (Head#1)

"It is unbelievable (I am so glad) that he (a senior faculty) really takes time to hear my problems and give me very helpful support". (Faculty# 4)

"Teaching load is obvious and based on your contract; if you like you can get more and you will be paid… you know it at the beginning…" (Faculty#2)

"Collegiality is very important, homogeneity, friendliness, equality, sharing respect, considering that all are very nice, making parties, faculty also should attend the seminars, gatherings, activities, and be part of that, the more you work with people the more you like them and they like you. And know what is in your mind ..." (Faculty#2)

Supervision- Supervision has a significant and positive impact on the job satisfaction levels of faculty (Perrewe & Carlson, 2002; Cohen and Wills 1985). The interviewees believed that the role of a professional and qualified HOD who knows how to delegate the responsibilities and how to support faculty through his supervision is crucial for job satisfaction of faculty and improvement of the organization.

"Seniors mentor the juniors here, mentorship is very important. juniors just started they don't know how to use the funding, organizing labs, … so we need mentorship, we look at the report from seniors and decide about their contracts." (HOD#2)

"Give the course to the faculty who are specialized, you give the right work to the right people, don't make people in many works, just distribute them and schedule them." (Faculty#2)

"HODs shouldn't interfere in teaching and works, micromanagement shouldn't be there…also." (Faculty#4)

"Supervision will remind people, to stand on their goals, you need to tell them, it is part of the system and give the work direction, to make it successful tell them schedule what you expect one by one… You work in an open world, before exam, and everything is open to all…" (Faculty#2)

"In our department, the HOD help from the seniors to help the juniors and solve problems it is easier to solve problems, it is excellent." (Faculty#1)

Promotion-Hagedorn (2000) stated that advancement in academia relates to promotion of rank. The interviewees believed that there is a need for support during the preparation for promotion. These supports can be some programs that support scholarly activities that strengthen academic achievement and advancement.

"They have to be promoted, they have to improve, they have to have self-assessment. In terms of education support and any needs, I can support, but the research we don't know (what they need) they should say." (HOD#2)

"Supporting them (faculty) is more important than giving more salary, they need more chances for promotion…also they need more time to do research, more assistance to run projects." (Faculty#1)

4.3.2.3 Third Theme: Faculty Job Satisfaction Factors (Moderators & Mediators)

In terms of the second theme, faculty job satisfaction factors, three main questions were asked from the interviewees along with some probes and follow-up questions. One of the questions was: "How far do you think that factors such as collegiality, supervision, or work itself are important in improving faculty job satisfaction?". 5 Deans colleges, 2 HODs, and 4 faculty members, in STEM-related fields shared their perceptions and experiences to have a holistic view about the factors which can impact indirectly (as moderators or mediators) on the relationship between HODs' leadership styles and faculty job satisfaction in the UAE.

Work Life Balance-According to Rosser and Daniels (2004), balancing work and family is a common issue in all disciplines in higher education. It seems to be more serious for faculty in STEM-related fields due to the nature of the discipline such as long work hours, and frequent travel (Mason & Ekman 2007; Monroe et al. 2008). Generally, the interviewees believed that this is one of the biggest challenges and major concern for academia.

"… here family is very important, yes there are teaching, researching, and other commitments but they should manage, and we are ready to help if they ask…" (HOD# 1)

"Work life balance, for academia usually this is the worst thing, I have to give up rewards and higher positions because of family…" (Faculty#3)

"I love teaching, I love researching and everything I am doing here but balancing between work and family life is an issue." (Faculty#1)

"Teaching load is the critical problem; there is no time for family and other commitments … (Faculty#4)

Achievement- Researchers can identify job achievement through different factors, such as successfully completing a task, finding solutions, showing work evidence, and viewing work results (Herzberg et al. 1959). Some studies found that the number of research and publications can increase faculty job satisfaction (Hagedorn 2000; Lahey et al. 2000; Sabharwal & Corley 2009). However, some studies did not find any significant change in faculty job satisfaction by increasing the number of research and publications (August & Waltman 2004). Generally, the interviewees believed that leaders should consider all the achievements of faculty and encourage them to contribute more in a positive manner.

"Leaders have to consider all initiatives and success of their faculty, encourage them and support them… recognition is very important …" (HOD#1)

"Achievement, it is personal because of the load, they (HOD) encourage faculty for more research and presentation ... I have a high teaching load and many other commitments, personally, I am happy with my teaching; Head of Department and students are very happy…about my researches and other achievements, time is a big problem." (Faculty#3)

Responsibility- Herzberg et al. (1959) defined responsibility is the events from which a person derives satisfaction, such as the responsibility of one's work or the work of others. Some studies found that responsibility and job satisfaction can affect each other positively (Bowen &

Radhakrisha 1991; Herzberg et al. 1959; Padilla-Velez 1993); however, others claimed that they

do not have any effects on each other (Cano & Miller 1992; Castillo et al. 1998). Generally, the

interviewees believed that good leaders involve faculty in making decisions for teaching,

research, the community, and the whole organization.

"They (faculty) have to be involved in making decisions, we are one…the benefit will be for all people here… that is why we ask them to decide about what is happening here…this is not only for senior faculty, we ask from junior faculty also… (Head#1)

"Yes, here they ask us about everything related to the job and I think most of the faculty are happy about it … the problem is the time spent on community service and engagement…. sometimes committees take too long." (Faculty#5)

Advancement- Herzberg explains the advancement factor as a transition in the rank or positon

of a faculty member. Some reports show that faculty members of color, female, or foreign

origins have struggled and worked harder to be promoted within academia (Corley & Sabharwal

2007; Laden & Hagedorn 2000; Turner & Myers 2000). Generally, the interviewees believed

that there are opportunities for more growth and development.

"There are different seminars and workshops for faculty to participate, they should attend and benefit from them … if they need more workshops or a special one we are ready to support …" (Dean#2)

"There are opportunities and some faculty attend…I think that self-interest is also very important. The problem is not always the time but the lack of interest …" (Faculty#1)

Relations- Relationships with colleagues, students and administrators can significantly impact

faculty job satisfaction (Hagedorn 2000). The interviewees strongly agreed on the importance of

a good environment where there are professional relationships between leaders, faculty, and

students. They believed that the role of leaders in building these relationships is very important.

*"*There is a big gap between the high school level and higher education, this is a national
problem not a university problem, this is one of the satisfying factors for faculty to see the
students can research and are outstanding…their relationship is very professional, fairness and
respect is there. Even though the failure is there sometimes, respect is still there." (HOD#2)

"Relationship between faculty and students: they are very sensitive on their marks that is very
negative but generally it is very important." (Faculty#4)

"Professional relationships with colleagues and students are critical. About students, friendly
relationship is important and not too much because they misuse the relationship… we can try to
solve even their family's problems …" (Faculty#1)

"Relationships with students is very important. we call our students as sons or daughters not
students …" (Faculty #2)

"Quality of students, they come from high school with not a good quality, it's a global problem
but more in developing countries. Relationship is very important but difficult in a class with
more than 40 students that we have sometimes…" (faculty#3)

Institutional Climate and Administrative Culture- According to Hagedorn (2000), the climate

and culture of workplace can significantly affect faculty job satisfaction (Hagedorn 2000). In

addition, some institutional factors such as leadership styles, climate and culture, and the

collegial relationships have been emphasized to have a significant effect on faculty job

satisfaction (Grunwald & Peterson 2003; Zhou & Volkwein 2004). The interviewees believed

that the lack of support from the administration and the way of communication could be problematic.

"Yes, this is crucial, good environment is a key to success, … we support them with everything they ask, it may be late sometimes but we try our best, the only problem is research funding and this problem is not only in this department that is why salary is important … about culture, there is not any problem, everybody respect others…" (HOD#1)

"Culture sometimes makes problems, there is miscommunication or lack of communication sometimes because of different language and culture, but it doesn't make a serious problem." (Faculty#4)

Feedback- "The degree to which the employee receives clear information about his or her performance from supervisors or from co-workers" (Hackman & Oldham 1974, p.5). The relation between these job characteristics (including feedback) and job satisfaction is consistent as summarized by a meta-analysis conducted by Fried and Ferris (1987). Generally, the interviewees believed that giving a productive and on-time feedback is necessary for improvement and satisfaction.

"Feedback is necessary tell them I like your work you (faculty) should look at this not throw them away, to read it try to understand it and improve, faculty at the beginning don't like the feedback but with time they understand that feedback is very important. Feedback is one way to accomplish the vision and mission of the organization, everything is online, and you have all online, feedback construct people if you disagree tell them, always there are some people (faculty) that don't like and taking in different ways but they should read and understand and discuss." (Faculty#2)

"They (HODs) need to be more involved in training, workshops in effective leadership styles for HODs to deal better for the new faculty; many times, problems should be solved just with a positive feedback, the way of giving feedback is critical." (Faculty#4)

Autonomy- "The degree to which the job provides substantial freedom, independence, and discretion of the employee in scheduling the work and in determining the procedures to be used in carrying it out" (Hackman & Oldham 1974, p.5). The findings in Gozukara & Colakoglu's study (2016) showed that autonomy at the workplace enhances the satisfaction levels of employees. In addition, Hackman and Oldham (1980) and Pousette and Hansen (2002) reported that there is a positive relationship between job autonomy and job satisfaction. Generally, the interviewees believed the important role of autonomy in job satisfaction.

"Freedom is very important, they (faculty) must have enough freedom, should be free to agree or to disagree…" (Dean#1)

"Dividing the roles, if I know this is my zone, if somebody wants to interfere he should consult first because I had already planned it, He doesn't interfere and should see the results at the end. More freedom within your job..." (Faculty#3)

Extra Points related to HODs Leadership Styles and Faculty Job Satisfaction

Team work was one of the factors that most of the interviewees emphasized on for STEM-related fields. Training in leadership for HODs was another factor that almost all of the interviewees emphasized.

"In the management perspective, no difference with STEM [STEM-related fields] with other disciplines…but team work is not very important but very critical in STEM [STEM-related fields]." (Dean#5)

"Usually based on credentials people assigned to be a chairman, they need training in leadership, they must go through proper training… They must also have psycothic tests to be chairman." (HOD#2)

"Training is very important, even though you are a leader by nature you should learn about the environment." (Faculty #3)

"HOD has to keep learning either by training workshops about leadership, management or learn by reading from others, even the university should ask for this before taking this position." (Faculty #1)

CHAPTER 5: DISCUSSION

This section presents the integrated discussions of the results from the first quantitative phase and the second qualitative phase of the study and links them to relevant literature. In addition, it provides the main findings related to each research question and presents a new developed model. A total number of 120 participants including 101 faculty members, 14 HODs, and 5 deans of colleges in STEM-related fields participated in this study. Amongst the 101 faculty, 82% of them were recorded as males where females were only 18%. In addition, a majority of the respondents (70%) reported to be middle aged (i.e. 36- 54) years and the majority considered themselves Muslim (86%). Regarding the 14 HODs, all of them were recorded as males, the majority of the respondents (71%) reported to be middle aged (i.e. 36- 54) years and the majority considered themselves Muslim (88%). Regarding the 5 deans, all of them were males who worked in 4 different universities in 3 emirates in the UAE.

5.1 The First Research Question

RQ1. What are the most effective leadership styles for HODs in relation to faculty job satisfaction, in STEM-related fields?

H1. There is a significant relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

To investigate the first question, the inter-correlations among variables, the descriptive analysis of the leadership styles perceived by faculty, the descriptive analysis of the leadership styles perceived by HODs, the stepwise regression of the main leadership styles, and the semi-structured interviews were conducted.

Results from inter-correlations revealed that, the correlation between transformational leadership and faculty job satisfaction was significant (p<.01) and substantial (r between .50- .69). In addition, most of the transformational leadership components including inspirational motivation, individualized influence attributed, idealized influence behaviour and intellectual stimulation had a substantial and significant (p<.01) correlation with faculty job satisfaction. Only individualized consideration was in a moderate correlation with faculty job satisfaction (r between .30 to .49, p<.01). Transactional leadership did not correlate to faculty job satisfaction significantly (p>.05); however, its components, contingent rewards and management by exception passive, were significantly and substantially correlated (p<.01); positively for the first one and negatively the second. In terms of laissez-faire, there was a substantial, significant (p<.01) and negative correlation between laissez-faire and faculty job satisfaction. The results of inter-correlations between different styles of HODs leadership and job satisfaction of faculty represented that there was generally a significant positive relationship between transformational leadership and transactional contingent rewards with faculty job satisfaction. In addition, there were significant negative relationships between transactional management by exception passive and laissez-faire with faculty job satisfaction.

After further investigation, the descriptive analysis results showed that based on the perspectives of the faculty members, the mean score for transformational leadership styles was much higher (M= 56.57, SD= 17.14) than the mean score for transactional leadership (M= 24.24, SD= 5.78) and laissez-faire (M= 3.00, SD= 3.10). Similarly, based on the perspectives of the HODs on their own leadership styles, the mean score for transformational leadership styles was much higher (M= 81.09, SD= 7.36) than the mean score for transactional leadership (M= 35.53, SD= 5.22) and laissez-faire (M= 6.14, SD= 2.28). As a result, and based on the perspectives of both faculty and

HODs, the HODs practice transformational leadership and transactional leadership with an emphasis on the former one. Transformational leaders build a sense of purpose, instill pride, and acquire respect and trust through charisma (Bass & Avolio 1990). Transactional leaders socialize with their subordinates to clarify completing tasks and reassure them of rewards (Avolio et al. 1999). Transformational and transactional leaders exhibit various types of behaviour. The descriptive results showed that faculty and HODs perceived that the most practiced components of transformational and transactional leadership were inspirational motivation, idealized influence behaviour and idealized influence attributed as well as contingent rewards respectively. However, HODs believed that they consider the individualized consideration components as the second most important of their transformational leadership behaviour, while, faculty considered that as the lowest practiced transformational leadership behaviour by HODs. Based on both the faculty and HODs' perceptions, the least three leadership behaviours were related to management by exception active, management by exception passive and laissez-faire.

Furthermore, the researcher conducted a multiple stepwise regression analysis on the three main leadership styles to determine the leadership styles that best explain the distribution. The results from the stepwise regression analysis, showed that the main leadership styles practiced in relation to faculty job satisfaction, were transformational leadership, which accounted for approximately 41% of the variance in faculty job satisfaction and laissez-faire which accounted for approximately 32% of the variance (negative).

Moreover, eleven semi-structured in-depth interviews were conducted to enrich the achieved data in the first quantitative of this study and provide a holistic view of the first question. The results are based on the deans, HODs and faculty members' perceptions on the most effective leadership styles practicing by HODs in relation to faculty job satisfaction. The results revealed

that they strongly agree that transformational leadership is the most effective style with improving the level of faculty job satisfaction. All transformational leadership components including idealized influence attributed, idealized influence behaviour, inspirational motivation, intellectual stimulation, and individualized consideration as well as transactional contingent rewards were emphasized as significant behaviours of effective leaders. They rejected any non-leadership behaviour including passive management by exception and laissez-faire.

On the whole, the results from both quantitative and qualitative phases were consistent and answer the first question clearly: transformational leadership is considered the most effective leadership styles practiced by HODs in which faculty would be more satisfied (explaining 41% of the variance). Transactional contingent reward is also considered as an effective leadership styles to increase faculty job satisfaction. In addition, laissez-faire is one of the main leadership styles (explaining 32% of the variance) that when practiced that, would reduce faculty job satisfaction level considerably. In other words, faculty job satisfaction depends on transformational leadership styles and transactional contingent rewards significantly. Practicing any behaviour related to these two leadership styles will considerably increase faculty job satisfaction. On the other hand, practicing any non-leadership behaviour including transactional management by exception passive and laissez-faire will significantly decrease the satisfaction level of faculty. According to Judge and Piccolo (2004), the non-presence of leadership (laissez-faire) is almost as significant as the presence of other styles of leadership.

The findings related to the first question, are in line with the literature. For example, researchers such as Al- Hourani (2013), Lopez-Zafra et al. (2012) and Matzler et al. (2015) have demonstrated transformational as the most powerful leadership style. In an education setting, satisfaction of faculty is generally shown to be affected greatly by leadership of the university

(Chen et al. 2006; Duong 2014; Grunwald & Peterson 2003; Hagedorn 2000; Leary et al. 1999; Sadeghi et al. 2012; Zhou & Volkwein 2004). In a review, Kelali and Narula (2015) synthesized studies regarding the relationship between leadership styles and faculty job satisfaction. They found that there is a strong and significant relationship between leadership and job satisfaction. In addition, transformational leadership style has more power to increase job satisfaction of the faculty among transactional or laissez-faire leadership styles. Transformational leadership has been found to be more acceptable and effective than transactional leadership in most empirical studies across multiple cultures including Canada, India, Japan, the Netherlands, and Singapore as well as the United States (Arvey et al. 2015). Bass (1990) stated that the ideal leaders for their followers are transformational leaders who are reported as most effective and successful among other leaders. A study of Bolda and Nawaz (2010) showed that 265 faculty members in the public and private districts in Pakistan were using transformational and laissez- faire (passive) leadership styles similarly. However, the faculty in the private sector was using transactional leadership more than the public sector. Greiman's (2009) study of some American agricultural deans found that they prefer the transformational leadership style to the transactional style. The same result has been achieved for American agricultural and life science leaders (Jones & Rudd 2008), as well as Taiwanese nursing deans (Chen 2004), and American university presidents (Levine 2000). A study of three university deans in Egypt and Lebanon by Al-Hourani (2013) investigated that women leaders at the three universities practiced transformational leadership style while men leaders used transactional styles that academic science leadership is related with both academic reputation and network structure. The findings in Sakiru et al.'s (2014) study revealed that the most commonly used leadership styles among the HOD of Nigeria Public University is transformational leadership styles.

Many researchers believe that the most influential leaders practice a combination of transformational and transactional leadership styles (Bass et al. 2012; Bateh & Heyliger 2014; Yukl & Mahsud 2010). By far, transformational leadership and transactional leadership reported as the most powerful leadership styles respectively. Yukl and Mahsud (2010) found that the university and college deans or program directors tended to practice transformational leadership along with transactional leadership. In terms of the components, one of the most effective leadership behaviours discovered in this study was inspirational motivation that indicates that the HODs expressively and characteristically emphasize on the requirement to perform well and assist to achieve the organizational aims. Bass and Avolio (1994) implied that leaders who exhibit this behavior are able to strengthen their followers' responses and clarify main ideas simply. By idealized influence behaviour and attributed mentioned by both HODs and faculty members, the HODs are trusted and respected. They retain high morals and the faculty seek to imitate them. Idealized influence can be attributed (coming from followers) and/or resulted from the leader's behaviour. By adopting individualized consideration, the HODs perceived that they treat their faculty members both equally and individually. Individual needs are acknowledged and tasks are given to the faculty for learning opportunities. However, the faculty members who participated in this study did not emphasize on this behaviour. One more behaviour that was emphasized by both faculty members and HODs was contingent rewards in which faculty members receive rewards for their good performance. Based on both the faculty and HODs' perceptions, the least three leadership behaviours were related to management by exception active, management by exception passive and laissez-faire. Stumpf (2003) also examined this relationship in North Carolina and claimed that there is a positive relationship between transformational leadership, transactional contingent rewards and management by exception

active with overall job satisfaction; however, there is a negative relationship between laissez-faire and overall job satisfaction. In addition, Brown and Moshavi (2002) looked into faculty responses to transformational and contingent rewards leaderships by US department chairs. Findings indicated that the idealized influence (charisma) component of transformational leadership was significantly more predictive of desired organisational outcomes than what has been reported in other settings. Surprisingly, contingent reward was not predictive in this setting.

An important observation related to the first question's results is that, there is a significant positive relationship between transactional contingent reward leadership and individual consideration. This is in line with Bass and Riggio's (2006) study in the US; they suggested that transactional leadership can serve as a foundation for building transformational leaders. They also implied that contingent rewards leadership builds standards for performance and equality, and aims to develop trust between leaders and their followers.

Another important observation related to the first question's results is that, there is a significant negative relationship between laissez-faire, and management by exception passive with faculty job satisfaction. It suggests that the non-leadership behaviours such as avoiding making decisions, abdicating responsibility and missuse of authority, are strongly perceived by their faculty as unfair and it can decrease the satisfaction of faculty in STEM-related fields considerably. This result corresponds to the findings of other research. For example, Brown (2003) found that laissez-faire leadership and management by exceptions passive had a statistically significant negative correlation with affective and normative commitment. Also, Hamidifar (2009) claimed that laissez-faire cause a dissatisfaction to employees and there is a statistically significant negative effect of laissez-faire on the employee's job satisfaction. In

addition, Bateh and Heyliger (2014) concluded that faculty who recognized passive leadership as dominant had reduced job satisfaction. Furthermore, Frooman and his colleagues (2012) found that there is a positive relationship between transformational leadership and job satisfaction, while there is a negative relationship between laisse-faire and job satisfaction. However, Susanj and Jakopec (2012), found that passive leadership styles do not have a negative impact on the job satisfaction, so and any passive behaviour from leaders does not cause a decrease in the employee satisfaction. Saqer (2009) even found a weak positive relationship between laissez-faire and continuance commitment.

Overall, the consistency of the findings related to the first question among quantitative results, qualitative results, and related literature provide full support for the first hypothesis and a clear answer to the first question. The most effective leadership styles practiced by HODs with improving faculty job satisfaction are transformational leadership and transactional contingent rewards. Practicing laissez-faire and transactional passive management by exception behaviours have a significant negative effect on faculty job satisfaction.

5.2 The Second Research Question

RQ2. What are the main job satisfaction elements for faculty in STEM-related fields in relation to HODs leadership styles?

H2- Faculty job satisfaction is best represented as a composite of 5 or less elements.

In order to investigate the second research question, inter-correlations among variables, multiple linear regression analysis, and semi-structured in-depth interviews were conducted.

The inter-correlations were measured among leadership styles, transformational leadership, transactional leadership, laissez-faire as dependent variables (predictors) with faculty job

satisfaction, work and collegiality, supervision, and promotion as dependent variables (outcomes). Results from the inter-correlations revealed that faculty job satisfaction is dependent on leadership styles, transformational leadership, all of transformational leadership's components, and transactional contingent rewards significantly ($p<.01$). These relationships are moderate and substantial (Davis 1971). It is also dependent on transactional leadership management by exception passive and laissez-faire significantly ($p<.01$) but negatively. Results from multiple linear regression revealed that the effects of different styles of leadership on faculty job satisfaction are highly significant. Faculty job satisfaction shows highly positive significant ($p<.001$) relationships with leadership styles, transformational leadership, and all its 5 components; inspirational motivation, individualized influence attributed, individualized influence behaviour, intellectual stimulation, and individualized consideration respectively. Faculty job satisfaction also has a positive significant relationship with transactional contingent rewards ($p<.001$). Therefore, practicing these behaviours would increase faculty job satisfaction level significantly. On the other hand, there are negative significant relationships with both transactional management by exception passive and laissez-faire. Applying these behaviours would result in a significant decrease in the job satisfaction of faculty. All of the above results for the relationships between faculty job satisfaction and leadership styles are consistent.

The qualitative results are also in line with the significant positive impacts of transformational leadership styles, and transactional contingent rewards on faculty job satisfaction level. The interviewees believe that faculty satisfaction depends significantly on the leadership styles that are practiced by HODs. It means that when HODs lead their faculty as transformational leaders with charisma who establish their relationships built on inspiration and personal attention and encourage their faculty to think more creatively, they would increase the job satisfaction level of

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their faculty significantly. HODs can also benefit from practicing contingent rewards behaviour of a transactional leader and increase their faculty job satisfaction considerably. Therefore, HODs can promise rewards for specific levels of effort, and attend to the desires and needs of faculty based on their efforts. These findings are in line with the literature (Al- Hourani 2013; Lopez-Zafra et al. 2012; Matzler et al. 2015) that have demonstrated transformational the most powerful leadership style. In addition, many researchers found that satisfaction of faculty is generally shown to be greatly influenced by leadership of the university (Chen et al. 2006; Duong 2014; Grunwald & Peterson 2003; Hagedorn 2000; Kelali & Narula 2015; Leary et al. 1999; Sadeghi et al. 2012; Zhou & Volkwein 2004).

However, HODs should be very careful of non-leadership behaviours. The results of this study show highly negative significant relationships between non-leadership behaviours and faculty job satisfaction in the context of this study. In addition, the faculty interviewees believe that these actions would be considered seriously by faculty as unfair and there is no room for leaders who do not consider his responsibilities. It means that if, for example, HODs do not take actions until mistakes, errors, or deviations occur, if they do not make decisions, and if they are not available when required, the job satisfaction level of their faculty would considerably decrease. These are in line with some previous studies such as Brown (2003), Hamidifar (2009) and Bateh and Heyliger (2014). In some contexts, these behaviours have no effect on the job satisfaction of faculty (Frooman et al. 2012; Saqer 2009; Susanj & Jakipec 2012), however, in the context of this study, these behaviours would result in a significant dissatisfaction level of faculty. One main reason, may relate to the culture and religion of this context.

In terms of work and collegiality (dependent variable), the correlation table represents positive significant correlations between work and collegiality and leadership styles, transformational

leadership, all of the transformational leadership components, and transactional contingent rewards significantly ($p<.01$). There are also significant correlations between work and collegiality with management by exception passive and laissez-faire ($p<.01$) but negatively. Results from multiple linear regression on work and collegiality also show highly significant impacts of relationship styles on this aspect of faculty job satisfaction, work and collegiality. Leadership styles, transformational leadership, and all its five components including inspirational motivation, individualized influence attributed, intellectual stimulation, individualized influence behaviour, and individualized consideration, respectively, increase satisfaction level of faculty significantly ($p<.001$). This satisfaction can also be increased through transactional contingent rewards behaviour of HODs ($p<.001$). This satisfaction includes not only an overall job satisfaction of faculty, but also their pride in their job, their enjoyment, and their interpersonal relations with their colleagues. HODs should consider the significant negative impact of practicing the transactional management by exception passive and laissez-faire that they can decrease their great feeling towards their job and collegial relationships significantly ($p<.001$). The interviewees also believed the significant impact of HODs in providing an environment where they can enjoy both their work and their relationships with the leader and colleagues and can be proud of their job.

Regarding the literature, work itself and its special features such as the opportunity to apply their initiatives are considered as factors that certainly increase the level of academics' job satisfaction (Bryman 2007; Harris et al. 2004; Murry & Stauffacher 2001; Ramsden 1998). According to Bryman (2007, p.2), "What seems to lie at the heart of this list is the need for leader to create an environment or context for academics and others to fulfil their potential and interest in their work". Hagedorn (2000) discussed that perceptions of climate and culture of the workplace, and

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relationships with superiors, peers, and students are some factors that can significantly increase faculty job satisfaction. Collegial relationships are usually a source of support and network system for faculty members (Hagedorn 1996; Matzler et al. 2015). And this is the leader who is expected to play a role and cultivate collegiality (Bryman 2007). Olsen (1993) discussed that academic staff in US universities have experienced a decline in collegial relationship, which caused them disappointment as they consider that in terms of professional values and feeling of self-worth, having support from colleagues, is more effective than other factors such as being dissatisfied with salary.

In terms of supervision (dependent variable), the correlation table represented positive significant correlations between work and collegiality and leadership styles, transformational leadership, all of the transformational leadership components, and transactional contingent rewards significantly ($p<.01$). It has a significant relationship with transactional management by exception active at .05 level. There are also significant correlations between work and collegiality with management by exception passive and laissez-faire significantly ($p<.01$) but negatively. Results from multiple linear regression reveal that supervision can also be influenced significantly by practicing effective leadership styles. Transformational leadership styles and all its components including inspirational motivation, intellectual stimulation, individualized influence attributed, individualized influence behaviour, and individualized consideration respectively increase the supervision aspect of faculty job satisfaction significantly ($p<.001$). Supervision can also be significantly improved through practicing transactional contingent rewards ($p<.001$), and management by exception active ($p<.05$). It means that the HODs who practice these behaviours are more competent in doing their job, more willing to delegate responsibility, and faculty are more satisfied regarding their HODs' technical abilities. Results of

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this study confirms that practicing non-leadership behaviours such as passive management by exception and laissez-faire can significantly ($p<.001$) deteriorate supervision. The interviewees also emphasized the important role of HODs to increase job satisfaction in terms of supervising. They believed that the role of a professional and qualified HOD who knows how to delegate the responsibilities and how to support faculty through his supervision, is crucial for job satisfaction of faculty and improvement of the organization. Results are consistent with the literature and many researchers consider that supervision has a significant and positive impact on the job satisfaction levels of faculty (Perrewe & Carlson 2002; Cohen & Wills 1985).

In terms of promotion (dependent variable), the correlation table represented only some significant correlations at $p<.05$ level between promotion with idealized influence attributed, idealized influence behaviour, inspirational motivation, intellectual stimulation positively and with management by exception passive and laissez-faire negatively. Results from multiple linear regression reveals that promotion has only significant relationships with inspirational motivation, individualized influence attributed, individualized influence behaviour, and intellectual stimulation respectively at .05 level. It shows a positive significant relationship with contingent rewards ($p<.05$) and a negative significant relationship with laissez-faire ($p<.05$). It means that taking on an active leadership can increase the chance of promotion and faculty satisfaction about these chances. Conversely, taking on non-leadership practices by HODs, decrease faculty satisfaction towards their chances of being promoted and basically decrease these chances. Results from the interviews also confirm that the HOD has an important role to support the faculty during the preparation for promotion. This support can include some programs that provide scholarly activities that strengthen academic achievement and advancement. The faculty believed that promotion is more important that the amount of salary. The findings are consistent

with the literature; Hagedorn (2000) noted that growth in academia correlates with promotion of rank. According to Bryman (2007), academics are usually notably less content with matters such as pay and promotion prospects, forming the assumption that they tend to exchange the pecuniary aspects of their jobs with the intrinsic ones.

Overall, the consistency of the findings related to the second question among the quantitative phase results, qualitative results, and related literature provides full support for the second hypothesis and a clear answer to the second question. Leadership styles have significant impacts on faculty job satisfaction and its elements including work and collegiality, supervision and to a lesser extent promotion. The impacts of transformational leadership and transactional contingent rewards are positive, while transactional passive management by exception and laissez-fair have negative impacts and can decrease the job satisfaction of faculty significantly.

5.3 The Third Research Question

To enhance counseling theory, research, and practice, it is necessary to transcend from these basic questions. One way to achieve this is to investigate moderators and mediators of these effects. Both moderators and mediators hold a great potential to develop researchers' understanding in counseling psychology research beside other areas of research in psychology (Baron & Kenny 1986; Holmbeck 1997; James & Brett 1984). The third research question of this study examines effects of moderators and mediators

RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?

H3-1. Hagedorn's (2000) triggers moderate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

H3-2. Hagedorn's (2000) mediators, identity, and job design mediate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

5.3.1 Moderators

Among 6 initial planned potential moderators, two factor groups were identified based on the reliability scores and factor analysis results. The two new factors were change in perceived justice (including perceived injustice and low ethnic prejudice) and work life balance. To investigate the impact of these factors as potential moderators on the relationship between leadership styles and job satisfaction, correlations were obtained multiple linear regressions, multiple hierarchical regression tests were utilised and semi-structured in-depth interviews were conducted. Results from inter-correlations between faculty job satisfaction, leadership styles, and change in perceived justice shows that, there are significant ($p<.01$) correlations between faculty job satisfaction with leadership styles, transformational leadership, and laissez-faire. However, the correlation with laissez-faire is negative. In terms of the potential moderators: there is a low positive significant ($p<.05$) correlation between faculty job satisfaction and change in perceived justice, and a moderate positive significant ($p<.01$) correlation between faculty job satisfaction and work life balance. The correlations between all leadership styles, transformational leadership, and laissez-faire with change in perceived justice and work life balance are significant and positive, except laissez-faire that shows significant negative correlations with both moderators.

The best well-known three-path criteria of testing moderation effects (Baron & Kenny, 1986) was selected to measure any moderation effects of change in perceived justice on the relationship between leadership styles and faulty job satisfaction, transformational leadership and faulty job satisfaction, transactional leadership and faulty job satisfaction, and laissez-faire and faulty job

satisfaction. All paths were repeated to investigate if there are any moderation effects of work life balance on all the above relationships. Multiple linear regression, and multiple hierarchical regression tests were applied and all of the dependent variables were centered prior to testing moderations. Results from moderation tests reveal that change in perceived justice would not moderate the relationship between leadership styles, transformational leadership, transactional leadership, and laissez-faire with faculty job satisfaction (path c in all of them was insignificant). Regarding work life balance, there is not any moderation effect of work life balance on the relationship between leadership styles, transactional leadership, and laissez-faire with faculty job satisfaction (path c in all of them was insignificant). However, work life balance can moderate the relationship between transformational leadership and faculty job satisfaction. All paths in the moderation effects model were significant and the interaction between transformational leadership and work life balance explained an additional 3.9% of the variance over and above the 40% explained by the first- order effects of transformational leadership and work life balance alone.

As a result, work life balance would moderate the relationship between HODs' leadership style and faculty job satisfaction partially; the well distribution in the scatterplot also confirms this moderation effect. It means that, the influence of HOD's transformational leadership style on the satisfaction level of faculty will be higher when faculty receive more support to balance their family and their job. The interviewees also emphasized on the important role of work life balance and believed that this is one of the biggest challenges for academia. According to Rosser and Daniels (2004), balancing work and family is a common issue in higher education and one of the main issues among faculty in all disciplines. However, it is weightier for faculty STEM-

related fields due to the nature of the field such as competitiveness, long work house, and constant travel (Mason & Ekman 2007; Monroe et al. 2008). Rosser and Daniels (2004, p.144) stated, "The issue of balancing work with family responsibilities is the most pervasive and persistent challenge facing female science and engineering faculty members, spanning the variables of time, type of institution, and discipline". In Gardner's (2012) study, females also exhibited dissatisfaction with the paucity of policies to reinforce work-family balance. The importance of work life balance's role to improve job satisfaction is undoubtable and consistent with literature.

Regarding the triggers in Hagedorn's (2000) framework, there are very few studies. August and Waltman's (2004) study on factors related to job satisfaction found only weak impacts for trigger variables. Bentley et al. (2015) who included three out of six triggers in their studies, note that triggers are hard to operationalize in the absence of longitudinal data to assess satisfaction before and after a certain event, they found only life stage in a significant relationship with job satisfaction. There is no study on the moderating role of change in perceived justice and work life balance on the relationship between leadership styles and job satisfaction. Yousef (2000) found that national culture (nationality) has moderating impacts on the relationship between leadership behaviour and job satisfaction and those who are UAE nationals are more satisfied with their jobs. Therefore, looking into moderator effects can raise researchers' comprehension of the links between important predictors and outcomes and improve organisations' quality in different aspects. This study confirms that there are some factors that can impact on the relationship between leadership styles and job satisfaction as moderators. Therefore, the results of moderators in this study are not only consistent with the literature that emphasized the

importance role of work life balance on job satisfaction, but also with the literature that found the indirect effects of leadership styles on job satisfaction through moderators. However, the moderating role of work life balance is one of the results of this study that can be added to the literature.

Overall, the first hypothesis of the third research question is supported and work life balance would moderate the relationship between leadership styles and faculty job satisfaction. It is also important to find that change in perceived justice would not moderate this relationship. The recognition of vital moderators of relations between predictors and outcomes signifies the maturity and sophistication of a field of inquiry (Aguinis et al. 2001; Judd et al. 1995).

5.3.2 Mediators

RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?

H3-2. Hagedorn's (2000) mediators, identity, and job design mediate the relationship between leadership styles of HODs and job satisfaction of faculty members, in STEM-related fields.

A mediator is the system through which a predictor impacts on an outcome variable (Baron & Kenny 1986). An indication of a maturing discipline is turning to explanation and theory testing of direct relations after they have been demonstrated (Hoyle & Kenny 1999). This is when the study turned to test the mediation effects on HODs leadership styles and faculty job satisfaction. To examine the mediation effects related to the second hypothesis (H3-2), inter-correlations and multiple regression tests were applied and semi-structured in-depth interviews were conducted. The outcome was faculty job satisfaction and the predictors were leadership styles,

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transformational leadership, transactional leadership, and laissez-faire. The 4 final potential mediator groups that were selected based on the reliability test and factor analysis test results consisted of: motivators and hygienes (including achievement, recognition-informal, responsibility, advancement, working conditions, and job security), environmental conditions (including institutional climate or culture, relationships, institutional and administrative culture, and student quality), job design (including feedback, autonomy, and skill variety) and identity (including religious and cultural values, self-esteem, and need to belong). This study measured the mediation effects based on the most widely used method to assess mediation, which is the causal steps approach outlined in the classic work of Baron & Kenny (1986), including 4 paths to establish mediation effect of a variable. In addition, Sobel's (1982) test was applied as it is a significant test for the indirect effect of the independent variable on the dependent variable via the mediator. All of the 4 paths of the mediation test and Sobel test were measured for the final 4 groups (including 16 variables) of potential mediators.

5.3.2.1 Motivators and Hygienes

Results from inter-correlations among faculty job satisfaction, leadership styles and motivators and hygienes mediators showed that there are significant correlations between leadership styles, transformational leadership, and laissez-faire with faculty job satisfaction ($p<.01$). This correlation with the laissez-faire is negative. In addition, there are significant positive correlations between faculty job satisfaction with achievement, responsibility, advancement, and job security at .01 level. Leadership styles has significant relationships with responsibility at .01 level, and with achievement and advancement at .05 level. Transformational leadership has significant relationships with achievement and responsibility at .01 level, and with advancement

at .05 level. Transactional leadership was only correlated to responsibility ($p<.05$). Furthermore, laissez-faire is negatively correlated to achievement, responsibility, and job security at $p<.01$ and correlated to advancement at $p<.05$. Results from the regression test analysis show that, achievement partially (Sobel's test statistic = 2.447, $p<.05$) mediates the relationships of leadership styles and faculty job satisfaction. The faculty, who feel more satisfied are more likely to be prouder of their contributions and achievements in their department.

This is the first study that explicitly identifies the mediating role of achievement in the relationship between leadership styles and faculty job satisfaction. Thus, it is has contributed to existing efforts towards understanding how leadership styles influence faculty job satisfaction through some practices. These practices include recognition of faculty's achievements, giving them feelings of accomplishment, and providing facilities to increase faculty contribution in a positive manner. Results from the regression test analysis also show that, achievement partially (Sobel's test statistic =2.663, $p<.01$) mediates the relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to be prouder of their contributions and achievements in their department. This is the first study that explicitly identifies the mediating role of achievement in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how transformational leadership style influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate achievement practices, recognize their faculty's achievement and assist them for more contribution to help them be more satisfied with their job.

These practices include recognition of faculty's achievements, giving them feelings of accomplishment, and providing facilities to increase faculty's contribution in a positive manner

In addition, results from the regression test analysis show that, achievement partially (Sobel's test statistic =3.121, $p<.01$) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be prouder of their contributions and achievements in their department. This is the first study that explicitly identifies the mediating role of achievement in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how laissez-faire influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede achievement practices and will prevent the faculty members' increased job satisfaction. These practices include recognition of faculty's achievements, giving them feeling of accomplishments, and providing facilities to increase faculty's contribution in a positive manner. The quantitative results also show that there is not any mediation effect of achievement on the relationship between transactional leadership and faculty job satisfaction. The qualitative interviews also show the important role of leaders to increase faculty job satisfaction through considering all the achievements of faculty and encouraging them to contribute more in a positive manner.

In terms of responsibility, results from the regression test analysis show that, responsibility partially (Sobel's test statistic =2.019, $p<.05$) mediates the relationships of leadership styles and faculty job satisfaction. The faculty who feel more satisfied are more likely to be more satisfied regarding their influence and the amount of responsibilities they have in their department. This is the first study that explicitly identifies the mediating role of responsibility in the relationship

between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include involving faculty in making decisions for their teaching, research, the organization and the community. Results from the regression test analysis show that, responsibility partially (Sobel's test statistic $=2.082$, $p<.05$) mediates the relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to be more satisfied regarding their influence and the amount of responsibilities they have in their department. This is the first study that explicitly identifies the mediating role of responsibility in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate responsibilities practices and will help them be more satisfied with their job. These practices include involving faculty in making decisions for their teaching, research, the organization and the community.

Results from the regression test analysis show that, responsibility partially (Sobel's test statistic $=2.199$, $p<.05$) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be more satisfied regarding their influence and the amount of responsibilities they have in their department. This is the first study that explicitly identifies the mediating role of responsibility in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede responsibilities practices and will

prevent the faculty members' increased job satisfaction. These practices include involving faculty in making decisions for their teaching, research, the organization and the community. The quantitative results also show that there is not any mediation effect of responsibilities on the relationship between transactional leadership and faculty job satisfaction. The qualitative interviews also reveal that if leaders involve faculty in making decisions from teaching and research, to the community and organisation's problems, they would feel more satisfied.

Results from the regression test analysis show that, advancement partially (Sobel's test statistic =2.066, $p<.05$) mediates the relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to have more opportunities for growth and advancement. This is the first study that explicitly identifies the mediating role of advancement in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate advancement practices and will help them be more satisfied with their job. These practices include providing the faculty members enough opportunities for professional growth through formal education, enough opportunities to objectively evaluate their accomplishments, and enough opportunities to increase their responsibilities for advancement.

Results from the regression test analysis show that, advancement partially (Sobel's test statistic =2.245, $p<.05$) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to have more opportunities for growth and advancement. This is the first study that explicitly identifies the mediating role of advancement in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing

efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede advancement practices and will prevent the faculty members' increased job satisfaction. These practices include providing the faculty members enough opportunities for professional growth through formal education, enough opportunities to objectively evaluate their accomplishments, and enough opportunities to increase their responsibilities for advancement. The quantitative results also show that there is not any mediation effect of advancement on the relationship between leadership styles and faculty job satisfaction. In addition, advancement did not affect the relationship between transactional leadership and faculty job satisfaction as a mediator. The qualitative interviews also reveal that providing opportunities for more growth and improvement through seminars, workshops, and conferences are very helpful to increase their satisfaction.

Another important result coming from this study is that, results also show that there is not any mediation effect of recognition-informal, working conditions, and job security as the three suggested potential mediators of this study on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lasses-faire with faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices.

5.3.2.2 Environmental Conditions

Results from inter-correlations among faculty job satisfaction, leadership styles and environmental conditions mediators showed that there were significant correlations between leadership styles, transformational leadership, and laissez-faire with faculty job satisfaction ($p<.01$). This correlation with the laissez-faire is negative. In addition, there were significant relationships between faculty job satisfaction with institutional climate or culture, relationships, and institutional and administrative culture at .01 level. There were also significant correlations between leadership styles and relationships, transformational leadership and relationships, and transactional leadership and student quality at .01 level and the last correlation was negative. Laissez-faire was negatively correlated to all institutional climate or culture ($p<.05$), relationships ($p<.01$), and institutional and administrative culture ($p<.01$). Results from the regression test analysis show that, relationships partially (Sobel's test statistic =3.390, $p<.001$) mediates the relationships of leadership styles and faculty job satisfaction. The faculty who feel more satisfied are more likely to have satisfying relationships with superiors, colleagues and students.

This is the first study that explicitly identifies the mediating role of relationships in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include providing the faculty members with required supports from superiors and colleagues, and building an environment that helps form good relationships with superiors, colleagues, and students. Results from the regression test analysis also show that, relationships partially (Sobel's test statistic =3.636, $p<.001$) mediates the

relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to have satisfying relationships with superiors, colleagues and students. This is the first study that explicitly identifies the mediating role of relationships in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate relationships practices and will help them be more satisfied regarding their job. These practices include providing the faculty members with required supports from superiors and colleagues, and building an environment that helps form relationships with superiors, colleagues, and students.

Results from the regression test analysis show that, relationships partially (Sobel's test statistic $=3.895$, $p<.0001$) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to have satisfying relationships with superiors, colleagues and students. This is the first study that explicitly identifies the mediating role of relationships in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede relationships practices and will prevent the faculty members' increased job satisfaction. These practices include providing the faculty members with required supports from superiors and colleagues, and building an environment that helps form good relationships with superiors, colleagues, and students. The quantitative results also show that there is not any

mediation effect of relationships on the relationship between transactional leadership and faculty job satisfaction. The interviewees also strongly agreed on the importance of a good environment where there are professional relationships between leaders, faculty, and students. They believed that HODs can play a significant role to build these relationships.

Results from the regression test analysis show that, institutional and administrative culture partially (Sobel's test statistic $=2.641$, $p<.01$) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty, who feel more satisfied are more likely to be satisfied regarding the policies and communications in the department. This is the first study that explicitly identifies the mediating role of institutional and administrative culture in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede institutional and administrative culture practices and will prevent the faculty members' increased job satisfaction. These practices include providing the faculty members with a supportive attitude towards teaching and research, providing them with well-maintained and appropriate research funding, and building good communication between management and academics. The quantitative results also show that, there is not any mediation effect of institutional and administrative culture on the relationship between leadership styles and faculty job satisfaction. In addition, institutional and administrative culture did not effect on the relationship between transactional leadership and faculty job satisfaction as well as transactional leadership and faculty job satisfaction as a mediator. The qualitative interviews revealed that the lack of support from the HODs and the way of communication and interactions could be

problematic. Therefore, HODs have to avoid non-leadership behaviours.

Another important result arising from this study is that, there is not any mediation effect of institutional climate or culture and student quality as the two other suggested potential mediators of this study on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lasses-faire with faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices.

5.3.2.3 Job Design

Results from inter-correlations among faculty job satisfaction, leadership styles and job design mediators showed that there are significant correlations between leadership styles, transformational leadership, and laissez-faire with faculty job satisfaction ($p<.01$). This correlation with the laissez-faire is negative. In addition, there are significant positive correlations between faculty job satisfaction with all three feedback, autonomy, and skill variety at .01 level. Leadership styles has significant relationship with feedback at .01 level, transformational leadership has significant relationship with feedback at .01 level and with autonomy at .05 level, and transactional leadership also has a significant relationship with feedback at .01 level. Furthermore, laissez-faire is negatively correlated to feedback and autonomy at $p<.01$. Results from the regression test analysis also show that, feedback partially (Sobel's test statistic =2.754, $p<.01$) mediates the relationships of leadership styles and faculty job satisfaction. The faculty, who feel more satisfied are more likely to receive feedback and be

happy with its quality. This is the first study that explicitly identifies the mediating role of feedback in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include providing the faculty members with on-time and productive feedback in which they feel satisfied with the overall quality of the supervision they receive at work.

Results from the regression test analysis show that, feedback partially (Sobel's test statistic =2.559, *p*<.05) mediates the relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to receive feedback and be happy with its quality. This is the first study that explicitly identifies the mediating role of feedback in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how transformational leadership style influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate feedback practices and will help them to be more satisfied regarding their job. These practices include providing the faculty members with on-time and productive feedback in which they feel satisfied with the overall quality of the supervision they receive at work. Results from the regression test analysis show that, feedback partially (Sobel's test statistic =2.816, *p*<.01) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to receive feedback and be happy with its quality. This is the first study that explicitly identifies the mediating role of feedback in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding

how laissez-faire influences faculty job satisfaction through some practices.

As there is a negative relationship between laissez-faire and faculty job satisfaction at $p<.001$, this finding suggests that HODs exhibiting laissez-faire are more likely to impede feedback practices and will then prevent the faculty members' increased job satisfaction to be more satisfied with their job. These practices include providing the faculty members with on-time and productive feedback in which they feel satisfied with the overall quality of the supervision they receive at work. The quantitative results also show that there is not any mediation effect of feedback on the relationship between transactional leadership and faculty job satisfaction. The qualitative interviews also revealed that providing a productive and on-time feedback is necessary for improvement and satisfaction, and the role of HODs is very important. Results from the regression test analysis show that, autonomy partially (Sobel's test statistic =2.333, $p<.05$) mediates the relationships of transformational leadership style and faculty job satisfaction. The faculty who feel more satisfied are more likely to be satisfied with the level of autonomy they have in the department. This is the first study that explicitly identifies the mediating role of autonomy in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how transformational leadership style influences faculty job satisfaction through some practices. This finding suggests that HODs exhibiting transformational leadership are more likely to facilitate autonomy practices and will help them to be more satisfied with their job. These practices include satisfying the faculty members with the level of autonomy they have in teaching their courses, and providing considerable opportunities for independence and freedom in how they work.

Results from the regression test analysis show that, autonomy partially (Sobel's test statistic

=3.035, *p*<.01) mediates the relationships of laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be satisfied with the level of autonomy they have in the department. This is the first study that explicitly identifies the mediating role of autonomy in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how laissez-faire influences faculty job satisfaction through some practices. As there is a negative relationship between laissez-faire and faculty job satisfaction at *p*<.001, this finding suggests that HODs exhibiting laissez-faire are more likely to impede autonomy practices and then will prevent the faculty members to be more satisfied regarding their job. These practices include satisfying the faculty members with the level of autonomy they have in teaching their courses, and providing considerable opportunities for independence and freedom in how they work. The quantitative results also show that there is not any mediation effect of autonomy on the relationship between leadership styles and faculty job satisfaction. In addition, autonomy would not mediate the relationship between transactional leadership and faculty job satisfaction. The qualitative interviews also reveal that autonomy and freedom at work are important factors to increase faculty job satisfaction and HODs should provide enough freedom.

5.3.2.4 Identity

Results from inter-correlations revealed that there were significant correlations between faculty job satisfaction with all leadership styles, transformational leadership, and laissez-faire at .01 level. The last correlation with laissez-faire was negative. In addition, there were significant correlations between faculty job satisfaction with religious and cultural values (*p*<.05) and self-esteem (*p*<.01). Transformational leadership had significant correlations with both religious and

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cultural values and self-esteem at .01. Laissez-faire was also correlated to religious and cultural values at .01 level. However, results from regression revealed that another important result coming from this study is that, there is not any mediation effect of skill variety as the last group (including religious and cultural values, self-esteem, and need to belong) of the suggested potential mediators of this study on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lasses-faire with faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices.

The results on the mediation effects on the relationships between leadership styles and faculty job satisfaction are consistent with the literature. However, there is no study in which the impact of these mediators has been examined. There are some studies on the mediation effect on the relationship between leadership styles and faculty job satisfaction in business setting for example, Yang (2014) evaluated the influence of leadership style and employee trust in their leaders on job satisfaction in large insurance companies in Taiwan. The results revealed that the effect of transformational leadership on job satisfaction was mediated by leadership trust and highlighted the importance of leadership trust in leadership-satisfaction relationships. Zhu et al.'s (2013) study investigated the impacts of trust as a mediator on the relationship between follower perceptions of transformational leadership behaviour and their work outcomes in China. The findings revealed that affective trust fully mediated the relationships between transformational leadership and the work outcomes of followers, including their affective organizational

dedication, organizational citizenship behaviors (OCBs), and job performance. In contrast, cognitive trust negatively mediated the relationship between transformational leadership and follower job satisfaction, and insignificantly affected their organizational commitment and organizational citizenship behaviors.

Kimura's (2012) study was conducted to explore the causal relationship among transformational leadership, perceptions of organizational politics, market orientation, and work-related outcome in Japanese companies. It was assumed that organization-level perceptions of organizational politics and market orientation mediate the relationship between top management's transformational leadership and employees' work-related outcomes and that perceptions of organizational politics diminish market orientation. The findings revealed that both perceptions of politics and market orientation mediated the relationship between transformational leadership and employees' job satisfaction. A study by Rokhman and Hassan (2012) was conducted to explore the relationship of transformational leadership with organizational justice and work outcomes. Specifically, the study examined the potential role of procedural justice as a mediator of transformational leadership and work outcomes, namely, job satisfaction, organizational commitment, and turnover intention in Indonesia. The findings indicated that transformational leadership contributed significantly to procedural justice perceptions as well as to the three work outcomes. Also, procedural justice had significant effect on all the three work outcomes. The test of mediation effect of procedural justice on transformational leadership and work outcome relationship indicated no significant mediating effect on job satisfaction and turnover intention, though it was partially significant with organizational commitment.

In higher education, there are few related studies. Saleem (2015) investigated the impact of leadership styles on job satisfaction and to see if perceived organizational politics has a

mediating role or not. The results revealed that transformational leadership has a positive impact on job satisfaction and transactional leadership has a negative impact on job satisfaction of faculty in Pakistan. In addition, perceived organizational politics partially mediate the relationship between both leadership styles and job satisfaction. Braun et al.'s (2013) study was conducted to analyze the relations between transformational leadership, trust in supervisor and team, job satisfaction, and team performance via multilevel analysis in a German research university. The results indicated that there is a positive relationship between transformational leadership and followers' job satisfaction at both individual and team levels. The results also showed that trust in the supervisor and trust in the team can mediate the relationship between individual perceptions of supervisors' transformational leadership and job satisfaction. In addition, Wulumba and Lawler (2003) found that collectivism strengthens the effect of transformational leadership on employees' job satisfaction. And justice has been found to be another mediator of leadership to job satisfaction (Mayer et al. 2008)

The mediating role of 4 final groups of mediators including 16 potential mediators on the relationship between leadership styles and faculty job satisfaction were examined. The results show that all assumptions of mediation for predicting job satisfaction for 7 out of the 16 potential mediators are fulfilled and achievement, responsibility, advancement, relationships, institutional climate and administrative culture, feedback and autonomy identified as partial mediators between both leadership and faculty job satisfaction. Table (5.1) shows the partial mediators discovered in this study.

Mediators		
Motivators and Hygienes **Achievement:** LS*, TL**, LF **(-) **Responsibility:** LS*, TL*, LF* (-) **Advancement:** TL*, LF *(-)		Job Design **Feedback:** LS**, TL*, LF** (-) **Autonomy:** TL*, LF** (-)
Environmental conditions **Relationships:** LS *** TL***, LF*****(-) **Institutional and administrative culture:** LF **(-)		Identity
*p<.05, **p<.01, ***p<.001 (the significance in Sobel Test)		

Table 5.1 Discovered Partial Mediators

There is no study that investigates the impact of these mediators on the relationship between leadership styles and faculty job satisfaction. The results are in line with a number of studies that found these variables in a significant relationship with job satisfaction. Satisfaction of faculty is also shown to be affected by achievement (August & Waltman 2004; Blackburn & Lawrence 1995; Hagedorn 2000; Lahey & Vihtelic 2000; Olsen et al. 1995; Sabharwal & Corley 2009), responsibility (Bowen 1980; Bowen & Radhakrisha 1991; Herzberg et al. 1959; Padilla-Velez 1993), advancement (Corley & Sabharwal 2007; Eyupoglu & Saner 2009; Hagedorn 1996; Laden & Hagedorn 2000; Perna 2003; Turner & Myers 2000), relationships (August & Waltman 2004; Hagedorn 2000; Gross & Napir 1967; Tsitmideli et al. 2017), institutional climate and administrative culture (Grunwald & Peterson 2003; Hagedorn 2000; Sabharwal & Corely 2009; Zhou & Volkwein 2004), feedback (Fried & Ferris 1987; Church 2000) and autonomy (Blegen 1993; Hackman & Oldham 1980; Fried & Ferris 1987, Gozukara & Colakoglu 2016; Lee 1998; Pousette & Hansen 2002).

The results are also in line with a number of studies that emphasized the direct impact of leadership styles on faculty job satisfaction. Leadership of the university can greatly affect faculty job satisfaction directly (Bass & Riggio 2006; Bateh & Heyliger 2014; Duong 2014;

Grunwald & Peterson 2003; Hagedorn 2000; Judge & Piccolo 2004; Kelali & Narula 2015; Sabharwal & Corely 2009; Sakiru et al. 2014; Sadeghi et al. 2012; Welch & Jha 2015; Zhou & Volkwein 2004).

And more importantly, the results are in line with some studies that emphasized the indirect impact of leadership styles on job satisfaction. These findings are much in line with the studies conducted by Braun et al. (2013), Gadot (2007), Kimura (2012), Mayer et al. (2008), Rokhman and Hassan (2012), Saleem (2015), Talat et al. (2013), Yang (2014), Wulumba & Lawler (2003), Zhu et al. (2013) recommended that the relationship between leadership and job satisfaction are also indirect (intervened). They proposed that trust, justice, organizational politics, market orientation, collectivism, and organizational commitment are the mediators between leadership and job satisfaction (mostly in business setting).

It is noteworthy to mention that, almost all of the above studies (related to the mediation effects) employed a quantitative approach (similar to most of the job satisfaction and leadership style studies) and there is a lack of employing a qualitative approach. Therefore, the discovered mediation effects of achievement, responsibility, advancement, relationships, institutional climate and administrative culture, feedback and autonomy through a mixed methods approach would add to the literature and lead to more valuable studies. In addition, the other 9 suggested mediators which would not moderate the relationships between leadership styles and faculty job satisfaction in this study would also add to the literature and lead to more valuable studies.

5.4 A Summary

RQ1. What are the most effective leadership styles for STEM Heads of Departments in relation to faculty job satisfaction?
H1. There is a significant relationship between leadership styles of Heads of STEM Departments and job satisfaction of STEM faculty members.
MMA. Inter-correlations, Descriptive analysis of the LS perceived by faculty, Descriptive analysis of the LS perceived by HODs, Stepwise regression, Semi-structured in-depth interviews with STEM Deans, HODs and Faculty members.

Sig. (+)
LS, TL, IIA, IIB, IM, IS, IC, CR
Sig. (-)
LF, MbEP

→ **FJS**

RQ2. What are the main job satisfaction elements for STEM faculty in relation to Heads of Departments' leadership styles?
H2. Faculty job satisfaction is best represented as a composite of 5 or less elements.
MMA. Inter-correlations, Multiple linear regression, Semi-structured in-depth interviews with STEM Deans, HODs and Faculty members.

Sig. (+): LS, TL, IIA, IIB, IM, IS, IC, CR
Sig. (-): LF, MbEP
→ **FJS**

Sig. (+): LS, TL, IIA, IIB, IM, IS, IC, CR
Sig. (-): LF, MbEP
→ **Work & Collegiality**

Sig. (+): LS, TL, IIA, IIB, IM, IS, IC, CR
Sig. (-): LF, MbEA, MbEP
→ **Supervision**

Sig. (+): LS, IIA, IIB, IM, IS, CR
Sig. (-): LF
→ **Promotion**

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RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?
H3-1. Hagedorn's (2000) triggers moderate the relationship between leadership styles of Heads of STEM Departments and job satisfaction of STEM faculty members.
MMA. Inter-correlations, Multiple linear regression, Multiple Hierarchical regression tests, Semi-structured in-depth interviews with STEM Deans, HODs and Faculty members.
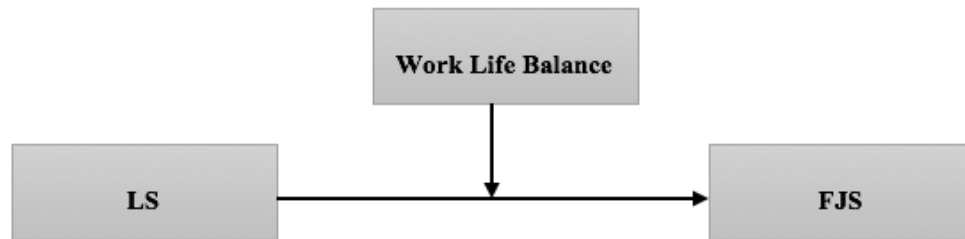
RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?
H3-2. Hagedorn's (2000) mediators, identity, and job design mediate the relationship between leadership styles of Heads of STEM Departments and job satisfaction of STEM faculty members.
MMA. Inter-correlations, Multiple regressions tests, Semi-structured in-depth interviews with STEM Deans, HODs and Faculty members.

Mediators
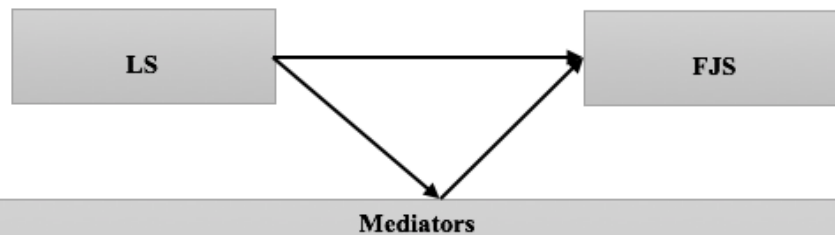
Motivators & Hygienes
Achievement: LS*, TL**, LF **(-), Responsibility: LS*, TL*, LF* (-), Advancement: TL*, LF* (-)

Environmental Conditions
Relationships: LS*** TL***, LF**** (-), Institutional and administrative culture: LF **(-)

Job Design
Feedback: LS**, TL*, LF**(-) Autonomy: TL*, LF** (-)

(Significance in Sobel tests: *p<.05, **p<.01, ***p<.001, ****p<.0001)

Note. MMA= Mixed Methods Approach; FJS= Faculty Job Satisfaction; LS= Leadership Styles; TL= Transformational Leadership; LF= Laissez-faire; IIA= Idealized Influence Attributed; IIB= Idealized Influence Behaviour; IM= Inspirational Motivation; IS= Intellectual Stimulation; IC= Individual Consideration; CR= Contingent Rewards; MbEA= Management by Exception Active; MbEP= Management by Exception Passive **(Significance in Sobel tests: *p<.05, **p<.01, ***p<.001, ****p<.0001)**

Figure 5.1 A Summary of the Findings

5.5 Main Findings

5.5.1 RQ1. What are the most effective leadership styles for HODs in relation to faculty job satisfaction, in STEM-related fields?

The inter-correlations among leadership styles and faculty job satisfaction variables, the descriptive analysis of the leadership styles perceived by faculty, the descriptive analysis of the leadership styles perceived by HODs, the stepwise regression of the main leadership styles, and the semi-structured in-depth interviews with deans of colleges, HODs, and faculty members in STEM-related fields were conducted to examine the first question. The independent variables consisted of transformational leadership and its 5 components, transactional leadership and its 3 components, and laissez-faire and the dependent variable consisted of faculty job satisfaction. The main three findings from the first research question are consistent among all of the conducted tests, interviews, and with the literature:

1. The most effective leadership style in improving job satisfaction of faculty members in STEM-related fields is mainly transformational leadership and then transactional leadership style in a much lesser extent and through practicing contingent rewards behaviour. Inspirational motivation was the most practiced transformational leaders' behaviour, followed by idealized influence attributed, idealized influence behaviour, intellectual stimulation, and individualized consideration. The adjusted R^2 value of transformational leadership shows 41% of the variance, which indicates that the satisfaction of the faculty for this research, heavily depends on the transformational leadership practiced by HODs. Indeed, the transformational leadership is the dominant leadership style in this study.

This result is consistent with literatures. Bass (1990) and Avolio et al. (1999) discussed that transformational leaders are reported as the perfect leaders for their followers, they are the most effective, successful, and influential leaders among other leaders. Transformational leaders are more involved with colleagues and followers than transactional leaders are. Rather than a simple exchange or agreement, they provide a sense of purpose, spark pride, and acquire trust through charisma (Bass 1990). The transformational leadership model is at present arguably the dominant paradigm of leadership (Ashkanasy 2003) and many researchers have demonstrated that transformational leadership is the most influential leadership style (Al- Hourani. 2013; Kelali & Narula 2015; Lopez-Zafra et al. 2012; Matzler et al. 2015). It has been found to be more acceptable and effective than transactional leadership across multiple cultures (Arvey et al. 2015).

2. Due to the significant positive relationship between transactional contingent reward leadership and transformational individual consideration in this study ($r = .665**$), transactional leadership style may serve a foundation for building transformational leaders as contingent rewards leadership builds expectations for performance and fairness, and aims to develop trust between leaders and their followers (Bass & Riggo 2006). The significant positive relationship between the contingent behaviour and faculty job satisfaction in this study implies that the job satisfaction of faculty is also significantly dependent on the use of contingent reward. The results are consistent with some studies that found contingent rewards behaviour is positively related to subordinate satisfaction such as Podsakoff et al. (1981) and Judge and Piccolo (2004). Similar findings in other studies such as Abdalla and Pinnington (2012, p.192), Avolio et al. (1988) and Waldman et al. (1990) reveal that contingent rewards leader behaviour is positively related to follower attitude and performance.

In a meta-analysis study, Judge and Piccolo (2004) noted that separating the unique effects of transformational leadership and transactional leadership is difficult as they are so highly related. Yukl and Van Fleet (1992. P.176) noted "Bass views transformational and transactional leadership as distinct but not mutually exclusive processes". In addition, many researchers emphasized that the most effective leaders employ both transformational leadership and transactional leadership (Bass et al. 2012; Bateh & Heyliger 2014; Yukl & Mahsud 2010). The results of many studies in different cultures also found a combination of transformational and transactional leadership styles with an emphasis on the former style such as investigation of leadership styles of American science deans in Greiman's study (2009), American science leaders in Jones and Rudd's (2008) study, Taiwanese nursing deans in Chen's (2004) study, American university presidents in Levine's (2000) study, and Nigerian HODs of a public university in Sakiru et al.'s (2014) study.

3. Due to the significant negative relationship between laissez-faire, and management by exception passive with faculty job satisfaction, the non-leadership behaviours such as avoiding making decisions, abdicating responsibility and misuse of authority, are strongly perceived by the faculty as unfair and inappropriate and would decrease the satisfaction of faculty in STEM-related fields considerably. The adjusted R^2 value of laissez-faire shows 32% of the variance, which indicates that the satisfaction of the faculty for this research considerably decrease by practicing laissez-faire by HODs. The absence of leadership (laissez-faire) is almost as significant as the presence of other styles of leadership (Judge & Piccolo 2004). The result of non-leadership behaviours in this study corresponds to the findings of other research such as Brown (2003), Hamidifar (2009) and Bateh and Heyliger (2014). However, some studies found a neutral impact of passive leadership such as Susanj and Jakipec (2012).

Overall, the most effective leadership styles practiced by HODs with improving faculty job satisfaction are transformational leadership and transactional contingent rewards. Practicing laissez-faire and transactional passive management by exception behaviours has a significant negative impact on faculty job satisfaction.

5.5.2 RQ2. What are the main job satisfaction elements for faculty in relation to HODs' leadership styles, in STEM-related fields?

The inter-correlations among leadership styles and faculty job satisfaction variables, the multiple linear regression between leadership styles and faculty job satisfaction variables, and semi-structured in-depth interviews with deans of colleges, HODs, and faculty members in STEM-related fields were conducted to examine the second question. The independent variables consisted of leadership styles, transformational leadership and its 5 components, transactional leadership and its 3 components, and laissez-faire and the dependent variables consisted of faculty job satisfaction and its elements including work and collegiality, supervision, and promotion. The main four findings from the second research question are consistent among all of the conducted tests, interviews, and with the literature:

1. The effects of different styles of leadership on faculty job satisfaction are highly significant. There are highly positive significant relationships between leadership styles, transformational leadership, and all its 5 components; inspirational motivation, individualized influence attributed, individualized influence behaviour, intellectual stimulation, and individualized consideration respectively with faculty job satisfaction. It means that when HODs lead their faculty as transformational leaders with charisma who establish their relationships built on inspiration and

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personal attention and encourage their faculty to think more creatively, these HODs increase the job satisfaction level of their faculty significantly. In addition, faculty job satisfaction has a highly positive significant relationship with transactional contingent rewards, so HODs can also benefit from practicing contingent rewards behaviour of a transactional leader and significantly increase faculty job satisfaction. These behaviors include promising rewards for specific levels of effort, and attending to the desires and needs of faculty based on their efforts. However, HODs should be very careful of non-leadership behaviours as there are highly negative significant relationships with both transactional management by exception passive and laissez-faire. Applying these leadership styles and behaviours will decrease job satisfaction of the faculty significantly. It means that if, for example, HODs do not take any action until mistakes, errors, or deviations occur, if they decline to make decisions or are not accessible when required, and if they select to take no authority, the job satisfaction level of their faculty will considerably decrease.

The above results are in line with many prior studies that emphasized the significant direct relationship between leadership styles and faculty job satisfaction, emphasized that transformational leadership style is more pronounced in faculty job satisfaction as compared to transactional, and emphasized on the importance of practicing transformational leadership components and transactional contingent rewards component (Brown & Moshavi 2002; Chen & Silverthorne 2005; Chen et al. 2006; Dastoor et al. 2003; Duong 2014; Grunwald & Peterson 2003; Hagedorn 2000; Judge & Piccolo 2004; Kelali &Narula 2015; Leary et al. 1999; Sadeghi et al. 2012; Sadeghi & Lope Pihie's 2013; Sakiru et al. 2014; Stumpf 2003;Webb 2009; Zhou & Volkwein 2004).

2. The effects of different styles of leadership on work and collegiality are highly significant.

Leadership styles, transformational leadership, and all its 5 components including inspirational motivation, individualized influence attributed, intellectual stimulation, individualized influence behaviour, and individualized consideration respectively increase work and collegiality satisfaction level of faculty significantly. This satisfaction can also be increased through transactional contingent rewards behaviour of HODs. This satisfaction includes faculty's pride in their job, their enjoyment, and their interpersonal relations with their colleagues. HODs should consider the significant negative impact of practicing the transactional management by exception passive and laissez-faire as they can significantly decrease faculty's great feeling towards their job and collegial relationships. Many researchers emphasized the significant role of leaders in increasing faculty job satisfaction regarding their work itself with particular facets of it, such as considering their initiatives or research findings (Bryman 2007; Harris et al. (2004); Murry & Stauffacher 2001; Ramsden 1998). In addition, the crucial role of leaders in creating an environment for faculty to fulfil their potential and interest in their works is the heart of the list that leaders should care about (Bryman 2007). This environment, not only provides mutual supports in different aspects of work, but also provides a feeling of pride and joy.

3. The effects of different styles of leadership on supervision are also highly significant. Leadership styles, transformational leadership and all its components including inspirational motivation, intellectual stimulation, individualized influence attributed, individualized influence behaviour, and individualized consideration, respectively, increase the supervision aspect of faculty job satisfaction significantly. Supervision can also be improved significantly through practicing transactional contingent rewards and management by exception active. The HODs who practice these behaviours are more competent in doing their job, more willing to delegate responsibility, and faculty are more satisfied regarding their HODs' technical abilities. Knowing

how to delegate the responsibilities and how to support faculty through their high-quality supervision are crucial for job satisfaction of faculty and improvement of the organization. The results of this study confirm that practicing non-leadership behaviours such as passive management by exception and laissez-faire can significantly deteriorate supervision. Results are consistent with the literature and many researchers consider that supervision has a significant and positive impact on the job satisfaction levels of faculty (Perrewe & Carlson 2002; Cohen & Wills 1985).

4. The effects of different styles of leadership on promotion are significant ($p<.05$). Results reveal that promotion has only significant relationships with inspirational motivation, individualized influence attributed, individualized influence behaviour, and intellectual stimulation, respectively. It shows a positive significant relationship with contingent rewards and a negative significant relationship with laissez-faire. HODs can play an important role to support the faculty during the preparation for promotion. This support can include some programs that provide scholarly activities that strengthen academic achievement and advancement. It means that taking an active leadership can increase the chance of promotion and faculty satisfaction about these chances. Conversely, taking non-leadership practices by HODs, decreases faculty satisfaction towards their chances of being promoted and basically decreases these chances. The interviewed faculty believed that promotion is more important that the amount of salary. The findings are consistent with the literature; Hagedorn (2000) noted that advancement in higher education is related to promotion of rank. According to Bryman (2007), academics are usually notably less content with matters such as pay and promotion prospects, forming the assumption that they tend to exchange the pecuniary aspects of their jobs with the intrinsic ones.

Overall, the main job satisfaction elements for faculty in relation to HODs' leadership styles in STEM-related fields are work and collegiality, supervision, and promotion with an emphasis on the first two factors. Leadership styles have significant impacts on faculty job satisfaction and its elements including work and collegiality, supervision and to a lesser extent promotion. The impacts of practicing transformational leadership, its components, and transactional contingent rewards are positive and would lead to a significant increase in work and collegiality, supervision, and promotion approaches and the satisfaction level of faculty. While practicing non-leadership behaviours; transactional passive management by exception and laissez-faire would lead to a significant decrease in work and collegiality, supervision, and promotion approaches and the satisfaction level of faculty.

5.5.3 RQ3. What are the most important factors apart from leadership style that influence faculty job satisfaction?

To enhance counseling theory, research, and practice, it is necessary to transcend from these basic questions. One way to achieve this is to examine moderators and mediators of these effects.

5.5.3.1 Investigation of Moderators

The identification of essential mediators of relations between predictors and outcomes signifies the maturity and sophistication of a field of inquiry (Aguinis et al. 2001; Judd et al. 1995). The inter-correlations, multiple linear regression, and multiple hierarchical regression tests among moderators, leadership styles, faculty job satisfaction variables along with semi-structured in-depth interviews with deans of colleges, HODs, and faculty members in STEM-related fields were conducted to examine the impact of moderators on the relationship between HODs leadership styles and faculty job satisfaction. The predictors consisted of leadership styles,

transformational leadership, transactional leadership, laissez-faire, the outcome consisted of faculty job satisfaction, and the two moderators consisted of change in perceived justice and work life balance. Investigating moderator impacts would increase researchers' understanding of the relationships between important predictors and outcomes. The main three findings are consistent among all of the conducted tests, interviews, and with the literature:

1. The investigation of the moderating effects of change in perceived justice on the relationship between leadership styles and faculty job satisfaction revealed that change in perceived justice would not moderate the relationship between any of the leadership styles, transformational leadership, transactional leadership, and laissez-faire with faculty job satisfaction.

2. The investigation of the moderating effects of work life balance on the relationship between leadership styles and faculty job satisfaction revealed that there is not any moderation effect of work life balance on the relationship between leadership styles, transactional leadership, and laissez-faire with faculty job satisfaction.

3. The investigation of the moderating effects of work life balance on the relationship between leadership styles and faculty job satisfaction revealed that work life balance can partially moderate the relationship between transformational leadership and faculty job satisfaction, explaining an additional 3.9% of the variance over and above the 40% explained by the first-order effects of transformational leadership and work life balance alone. It means that, the influence of HOD's transformational leadership style on the satisfaction level of faculty will be higher when faculty receive more support to balance their family and their job.

Balancing work and family is a common problem in higher education and one of the main issues for faculty members of all disciplines (Mason & Goulden 2002; Rosser & Daniels 2004). It

seems to be a more serious issue for faculty in STEM-related fields (Mason & Ekman 2007; Monroe et al. 2008), particularly for female science and engineering faculty members (Rosser & Daniels 2004). The importance of work life balance's role to improve job satisfaction is undoubtable and consistent with literature. There is no published study that could be found on the moderating role of change in perceived justice or work life balance on the relationship between leadership styles and faculty job satisfaction. The investigation of moderators in this study is much in line with the studies that show the impact of moderators on the relationship between leadership styles and job satisfaction such as Yousef's (2000) study that found the impact of national culture as a moderator on this relationship.

Overall, the moderating roles of 2 final moderators in the relationship between HODs leadership styles and faculty job satisfaction in STEM-related fields were examined. The results show that all assumptions of moderation for one moderator are fulfilled, and work life balance identified as a partial moderator on the relationship between leadership and faculty job satisfaction that can be added to the literature.

5.5.3.2 Investigation of Mediators

A mediator is the system through which a predictor impacts on an outcome variable (Baron & Kenny 1986). An indication of a maturing discipline is turning to explanation and theory testing of direct relations after they have been demonstrated. (Hoyle & Kenny 1999). The inter-correlations, multiple regressions tests among mediators, leadership styles, faculty job satisfaction variables along with semi-structured in-depth interviews with deans of colleges, HODs, and faculty members in STEM-related fields were conducted to examine the impact of

mediators on the relationship between HODs leadership styles and faculty job satisfaction. The predictors consisted of leadership styles, transformational leadership, transactional leadership, and laissez-faire, the outcome consisted of faculty job satisfaction, and the mediators consisted of 4 groups including motivators and hygienes (including achievement, recognition-informal, responsibility, advancement, working conditions, and job security), environmental conditions (including institutional climate or culture, relationships, institutional and administrative culture, and student quality), job design (including feedback, autonomy, and skill variety) and identity (including religious and cultural values, self-esteem, and need to belong). The main findings are consistent both among all of the conducted tests, interviews, and with the literature.

5.5.3.2.1 Motivators and Hygienes

The investigation of the mediating effects of the first group of the mediators, motivators and hygienes, on the relationship between leadership styles and faculty job satisfaction resulted in three main findings which are consistent among all of the conducted tests, interviews, and with the literature:

1. Achievement would partially mediate the relationship between leadership styles and faculty job satisfaction, the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be prouder of their contributions and achievements in their department. This is the first study that explicitly identifies the mediating role of achievement in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include recognizing faculty's achievements, giving them feelings of accomplishment, and providing facilities for higher

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faculty contribution in a positive manner. The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate achievement practices, however, practicing laissez-faire non-leadership behaviours is more likely to impede achievement practices and will prevent the faculty members from becoming satisfied with their job.

2. Responsibility would partially mediate the relationship between leadership styles and faculty job satisfaction, the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be more satisfied regarding their influence and the amount of responsibilities they have in their department. This is the first study that explicitly identifies the mediating role of responsibility in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include involving faculty in making decisions for their teaching, research, the organization and the community. The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate responsibilities practices, however, practicing laissez-faire non-leadership behaviours is more likely to impede responsibilities practices and will prevent the faculty members from becoming more satisfied with their job.

3. Advancement would partially mediate the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to have more opportunities for growth and advancement. This is the first study that explicitly identifies the mediating role of

advancement in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include providing the faculty members with enough opportunities for professional growth through formal education, enough opportunities to objectively evaluate their accomplishments, and enough opportunities to increase their responsibilities for advancement. The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate advancement practices, however, practicing laissez-faire non-leadership behaviours are more likely to impede responsibilities practices and will prevent the faculty members from becoming more satisfied with their job.

4. Results also revealed that, there is not any mediation effect of recognition-informal, working conditions, and job security as the three suggested potential mediators of this study on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lasses-faire with faculty job satisfaction. In addition, there is not any mediation effect of achievement, responsibilities, and advancement on the relationship between transactional leadership and faculty job satisfaction. Furthermore, advancement would not mediate the relationship between leadership styles (as a group) and faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles do or do not influence faculty job satisfaction through particular practices.

5.5.3.2.2 Environmental Conditions

The investigation of the mediating effects of the second group of the mediators, environmental

conditions, on the relationship between leadership styles and faculty job satisfaction resulted in three main findings which are consistent among all of the conducted tests, interviews, and with the literature:

1. Relationships would partially mediate the relationship between leadership styles and faculty job satisfaction, the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to have satisfying relationships with superiors, colleagues and students. This is the first study that explicitly identifies the mediating role of relationships in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include providing the faculty members with required supports from superiors and colleagues, building an environment that would help faculty form good relationships with superiors, colleagues, as well as students. The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate relationships practices, however, practicing laissez-faire non-leadership behaviours are more likely to impede relationships practices and will prevent the faculty members from becoming more satisfied with their job.

2. Institutional and administrative culture would partially mediate the relationships between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be satisfied regarding the policies and communications in the department. This is the first study that explicitly identifies the mediating role of institutional and administrative culture in the relationship between laissez-faire and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through

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some practices. These practices include providing the faculty members with a supportive attitude towards teaching and research, providing them with well-maintained and appropriate research funding, and building good communication between management and academics. As there is a negative relationship between laissez-faire and faculty job satisfaction, practicing laissez-faire non-leadership behaviours is more likely to impede institutional and administrative culture practices and will prevent the faculty members from becoming more satisfied with their job.

3. Results also revealed that, there is no mediation effect of institutional climate or culture and student quality as the other two suggested potential mediators on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lasses-faire with faculty job satisfaction. In addition, there is not any mediation effect of institutional and administrative culture on the relationship between leadership styles and faculty job satisfaction, and the relationship between transactional leadership and faculty job satisfaction. Furthermore, relationships would not mediate the relationship between transactional leadership and faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles do or do not influence faculty job satisfaction through some practices.

5.5.3.2.3 Job Design

The investigation of the mediating effects of the third group of the mediators, job design, on the relationship between leadership styles and faculty job satisfaction resulted in three main findings which are consistent among all of the conducted tests, interviews, and with the literature:

1. Feedback would partially mediate the relationship between leadership styles and faculty job satisfaction, the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to receive feedback and be happy with its quality. This is the first study that explicitly identifies the mediating role of feedback in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles influences faculty job satisfaction through some practices. These practices include providing the faculty members with on-time and productive feedback, so they would feel satisfied with the overall quality of the supervision they receive at work.

The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate feedback practices; however, practicing laissez-faire non-leadership behaviours is more likely to impede feedback practices and will prevent the faculty members from becoming more satisfied with their job.

2. Autonomy would partially mediate the relationship between transformational leadership style and faculty job satisfaction, and the relationship between laissez-faire and faculty job satisfaction. The faculty who feel more satisfied are more likely to be satisfied with the level of autonomy they have in the department. This is the first study that explicitly identifies the mediating role of autonomy in the relationship between transformational leadership style and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how transformational leadership style influences faculty job satisfaction through some practices. These practices include satisfying the faculty members with the level of autonomy they have in teaching their courses, and providing considerable opportunities for independence and freedom

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in how they work. The finding suggests that HODs exhibiting transformational leadership behaviours are more likely to facilitate autonomy practices, however, practicing laissez-faire non-leadership behaviours is more likely to impede autonomy practices and will prevent the faculty members from becoming more satisfied with their job.

3. Results also revealed that, there is not any mediation effect of skill variety as another suggested potential mediator on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or laissez-faire with faculty job satisfaction. In addition, there is not any mediation effect of feedback and autonomy on the relationship between transactional leadership styles and faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as potential mediators in the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to existing efforts towards understanding how leadership styles do or do not influence faculty job satisfaction through some practices.

5.5.3.2.4 Identity

The investigation of the mediating effects of the fourth group of the mediators, identity, on the relationship between leadership styles and faculty job satisfaction resulted in one main finding which are consistent among all of the conducted tests, interviews, and with the literature:

1. Results revealed that there is not any mediation effect of religious and cultural values, self-esteem, and need to belong on the relationship between any of the leadership styles, transformational leadership, transactional leadership, or lassez-faire with faculty job satisfaction. This is the first study that explicitly identifies the lack of mediating role of these variables as on the relationship between leadership styles and faculty job satisfaction. Thus, it has contributed to

existing efforts towards understanding how leadership styles do not influence faculty job satisfaction through some practices related to religious and cultural values, self-esteem, and need to belong.

There is no study that investigates the impact of all above mediators on the relationship between leadership styles and faculty job satisfaction. The results are in line with a number of studies that found these variables are in a significant relationship with job satisfaction (August &Waltman 2004; Fried & Ferris 1987, Gozukara & Colakoglu 2016; Laden & Hagedorn 2000; Sabharwal & Corley 2009; Tsitmideli et al. 2017), particularly with Hackman and Oldham (1980), Hagedorn (2000), Herzberg et al. (1959), and Spector (1985) that were part of the theoretical framework of this study. The results are also in line with a number of studies that emphasized the direct impact of leadership styles on faculty job satisfaction (Bass & Riggo 2006; Bateh & Heyliger 2014; Duong 2014; Hagedorn 2000; Judge & Piccolo 2004; Kelali & Narula 2015; Sabharwal & Corley 2009; Sadeghi et al 2012; Welch & Jha 2015; Zhou & Volkwein 2004). And more importantly, the results are in line with some studies that emphasized the indirect impact of leadership styles on job satisfaction through mediators (Braun et al. 2013; Gadot 2007; Kimura 2012; Mayer et al. 2008; Rokhman & Hassan 2012; Saleem 2015; Talat et al. 2013; Yang 2014; Wulumba & Lawler 2003; Zhu et al. 2013). They discovered that trust, justice, organizational politics, market orientation, collectivism, and organizational commitment are the mediators between leadership and job satisfaction.

Overall, the mediating role of 4 final groups of mediators including 16 mediators on the relationship between HODs leadership styles and faculty job satisfaction were examined. The results show that all assumptions of mediation for predicting job satisfaction for 7 out of the 16 potential mediators are fulfilled and achievement, responsibility, advancement, relationships,

institutional and administrative culture, feedback and autonomy identified as partial mediators between both leadership and faculty job satisfaction.

5.6 Final Model of HODs' Leadership Styles and Faculty Job Satisfaction, in STEM-related Fields
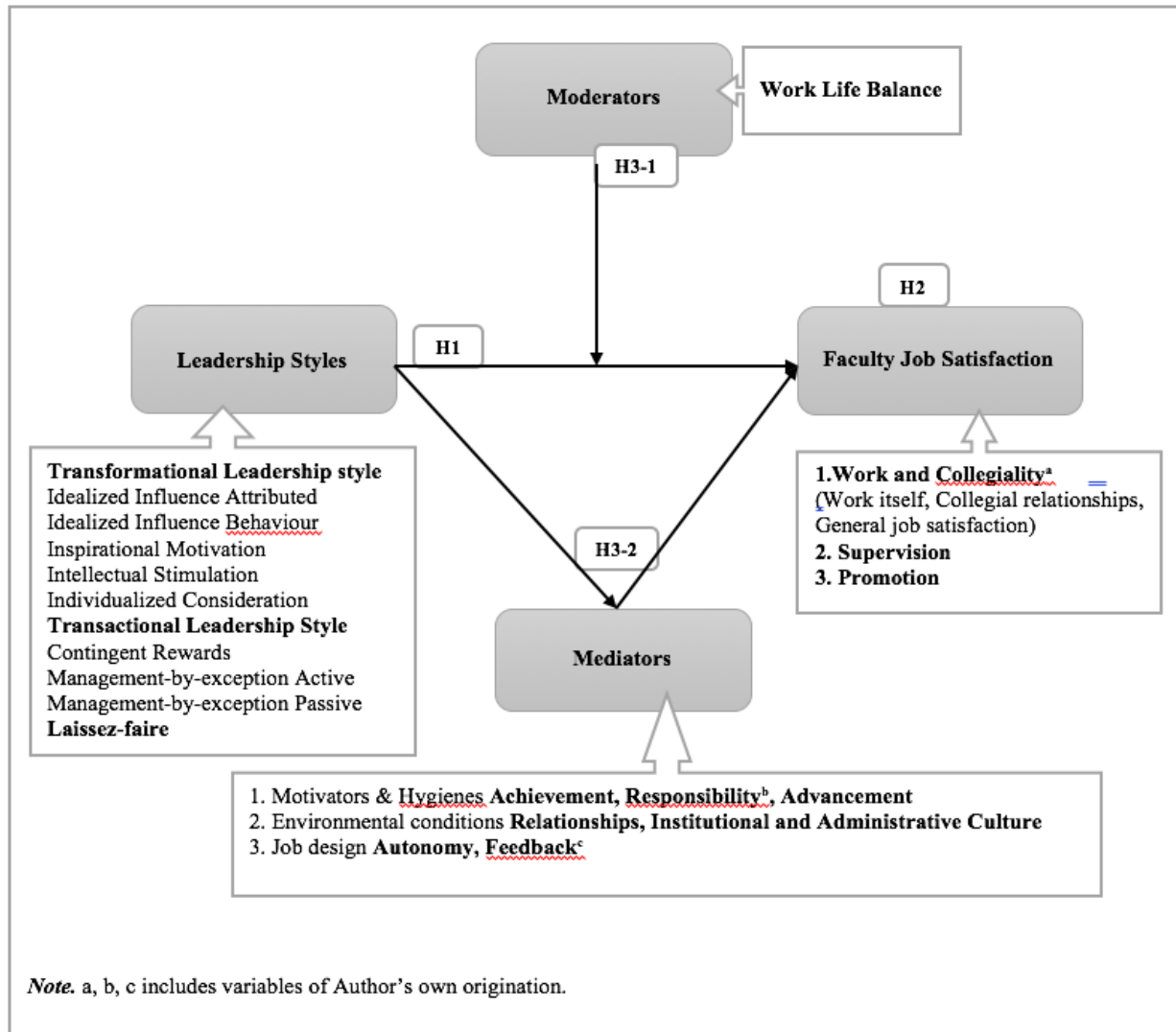
Figure 5.2 Final Model of HODs' Leadership Styles and Faculty Job Satisfaction, in STEM-related Fields

CHAPTER 6: CONCLUSION

The purpose of this study is to investigate the relationship between HODs' leadership styles and faculty job satisfaction factors, in STEM-related fields, in the UAE. It also investigates the impact of moderators and mediators on this relationship. The intention is to gain a better understanding of the leadership styles practiced by HODs, the most effective elements that satisfy faculty in their job, and the impacts of moderators and mediators on the relationship between HODs' leadership styles and faculty job satisfaction, in STEM-related fields.

This chapter presents the theoretical, methodological, and practical implications and concludes with limitations and directions for future research.

6.1 Theoretical

The results of this study have theoretical implications for understanding the direct and indirect impacts of leadership styles of HODs on faculty job satisfaction, in STEM-related fields. The results would help expand researchers' theorizing on the impacts of leadership behaviours on job satisfaction in higher education particularly in STEM-related fields.

1. This study is based on six rich and well-known theories and models in leadership and job satisfaction areas. The study has benefited from Avolio and Bass's (1991) full range leadership theory, Burns' (1978) transformational leadership, Hagedorn's (2000) faculty conceptual framework, Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), Spector's (1985) job satisfaction survey (JSS). The use of all these theories and models allowed for a more nuanced view of the complex processes and contexts that

contribute to leadership styles and faculty job satisfaction. There is no study that employed all 6 simultaneously. The results of this study are consistent with the theoretical framework along with new results to add to literatures.

The Full Range Leadership Theory (FRLT) proposed by Avolio and Bass (1991) which is based on the transformational leadership theory proposed by Burns (1978), consists of three main leadership styles including transformational leadership and its 5 components, transactional leadership and its 3 components, and laissez-faire. Based on the FRLT, the transformational leadership style is the most and laissez-faire is the least dominant style that has been reported. This study also found the transformational leadership as the most effective and dominant leadership style practiced by HODs, in which the faculty job satisfaction would considerably increase (explaining 41% of the variance), and laissez-faire as the least effective leadership style (explaining 32% of the variance), in which the faculty job satisfaction would considerably decrease. It can be assumed that, the absence of leadership (laissez-faire), is almost as significant as the presence of other styles of leadership (Judge & Piccolo 2004).

In addition, there is a significant positive relationship between transactional contingent rewards leadership and transformational individual consideration. Contingent rewards leadership has the potential of molding expectations for performance and fairness and building trust between leaders and their followers (Bass & Riggo 2006). Judge and Piccolo (2004) noted that separating the unique effects of transformational leadership and transactional leadership is difficult as they are so highly related. Yukl and Van Fleet (1992, p.176) noted "Bass views transformational and transactional leadership as distinct but not mutually exclusive processes". It seems that in line with Bass and Riggio (2006), transactional leadership can serve as a foundation for building transformational leaders.

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The conceptual framework for faculty job satisfaction, developed by Hagedorn (2000), argues that the highest predictors of faculty job satisfaction were the work itself, salary, relationships with administration, student quality and relationships, and institutional climate and culture. This study also found the significant positive effects of work itself, relationships with administration, relationships with students, and institutional and administrative culture on faculty job satisfaction. It added that work itself and collegiality can also be an element of faculty job satisfaction and be greatly influenced by transformational leadership. This study also added that relationships (with administration, colleagues and students), institutional and administrative culture would also have mediation effects on the relationship between HODs leadership styles and faculty job satisfaction, in STEM-related fields. In addition, this study added that work life balance, one of the triggers in Hagedorn's framework namely change in family related and personal circumstances, would have moderation effects on the relationship between HODs leadership styles and faculty job satisfaction, in STEM-related fields. The study did not find any significant influence of recognition, salary, and the demographic factors on job satisfaction in the context of this study that Hagedorn (1994, 1996) had found.

The two-factor theory, developed by Herzberg's (1968), indicates that rather than demographic variables such as education, rank, gender, and age, the factors that Herzberg ultimately found to be influential in either increasing job satisfaction or decreasing job dissatisfaction were only achievement, recognition, work itself, responsibility, advancement, and (to a lesser degree) salary. This study also found the significant positive effects of achievement, work itself, responsibility, and advancement on job satisfaction. It added that achievement, responsibility, and advancement would also have mediation effects on the relationship between HODs leadership styles and faculty job satisfaction, in STEM-related fields.

The job characteristics model, developed by Hackman and Oldham in 1975, argues that five core dimensions of job characteristics lead to satisfied and productive employees. This study also found the significant positive effects of skill variety, autonomy, and feedback on job satisfaction. It added that feedback and autonomy would also have mediation effects on the relationship between HODs leadership styles and faculty job satisfaction, in STEM-related fields.

The job satisfaction survey (JSS), developed by Spector (1985), argues that there are nine subscales in the instrument to measure the satisfaction including pay, promotion, supervision, benefits, rewards, operating procedures, co-workers, work itself, and communication. This study also found the significant positive effects of promotion, supervision, co-workers, work itself on job satisfaction. It added that supervision and promotion can also be two elements of faculty job satisfaction and be greatly influenced by transformational leadership. This study also added that relationship with colleagues/co-workers would also have mediation effects on the relationship between HODs leadership styles and faculty job satisfaction, in STEM-related fields.

2. There is a positive significant relationship between transformational leadership and transactional contingent rewards with faculty job satisfaction. However, there is a negative significant relationship between laissez-faire and passive management by exception with faculty job satisfaction. Understanding how a leader's behaviour may increase faculty job satisfaction, or how a leader's behaviour, such as non-leadership behaviours, may unintentionally decrease the likelihood of job satisfaction among faculty, provides an important theoretical insight into the more nuanced effects of leader behaviour.

3. This study analysed all components of transformational and transactional leadership. The analysis consisted of the components of transformational leadership including idealized influence

attributed, idealized influence behaviour, inspirational motivation, intellectual motivation, and individualized consideration. In addition, it consisted of the transactional components including contingent rewards, management by exception active and management by exception passive. This allowed measuring the contribution of these components to faculty job satisfaction and its elements, a more concise prediction of the effective leadership behaviours, and a higher strength in the achieved results and reasons behind them.

4. Whereas existing research has traditionally examined the ways leaders impact on job satisfaction, this research also assesses how leaders can also directly influence on three main different elements of job satisfaction including, work and collegiality, supervision, and promotion along with the faculty job satisfaction itself. Therefore, it broadens the research scope of job satisfaction. This study contributes to the leadership and job satisfaction theoretical framework and literatures by providing a more comprehensive portrayal of the impacts of leadership behaviours on the job satisfaction elements of faculty.

5. This study introduced several factors in improving faculty job satisfaction. To increase faculty job satisfaction, a range of factors is required, depending on the particular situations and goals made, the job satisfaction will require on a decidedly particular factor. For example, increasing the practices of autonomy creates a distinctly different job than improving collegial relationships. In addition, some departments may be high on one of the job satisfaction factors, and further increases will not be manageable, or may have negligible effects. Given that the developed model in this study consists of a wide range of effective factors that influence job satisfaction directly and indirectly through moderators and mediators, an assessment of these different job satisfaction factors in different situations is possible. For example, if it is impossible to change

the work itself, another option would help increase faculty job satisfaction.

6. This is the first study that explicitly discovered the moderating role of 1 moderator in the relationship between leadership styles and faculty job satisfaction. This partial moderator is work life balance. Thus, this study has contributed to existing efforts towards understanding when and for whom leadership styles influences faculty job satisfaction through the effect of moderators. This advances researchers' understanding of effective leadership and the moderators in engendering job satisfaction.

7. This is the first study that explicitly discovered the mediating role of 7 mediators in the relationship between leadership styles and faculty job satisfaction. These partial mediators are: achievement, responsibility, advancement, relationships, institutional and administrative culture, feedback, and autonomy. Thus, this study has contributed to existing efforts towards understanding how and why leadership styles influences faculty job satisfaction through strengthening these mediators. This advances researchers' understanding of effective leadership and the mediators in engendering job satisfaction. It uncovers how leadership is conducive to the deployment of the mediators, which in turn significantly contribute to faculty job satisfaction. This implies that the positive impacts of transformational leadership on faculty job satisfaction will be stronger when the organizational context facilitates the mediators' activities. This advances researchers' understanding of effective leadership and the mediators in engendering job satisfaction.

8. This study examined all the moderation and mediation test's paths for 5 more moderators and 9 more mediators and introduced them as the factors that would not moderate or mediate the relationship between leadership styles and faculty job satisfaction. Change in perceived justice is

the examined factor that could not moderate this relationship and recognition-informal, working conditions, job security, institutional climate or culture, student quality, skill variety, religious and cultural values, self-esteem, and need to belong are the examined factors that could not mediate this relationship. Should these findings be supported in future research studies, they will assist researchers and leaders to be less inclined to spend time and effort to analyze, understand, and practice such relationships and factors.

9. This study clarified the type and strength of the effects of the leadership styles (Independent variable) on faculty job satisfaction (Dependent variable). Transformational leadership was the vriable that best represented the variance (41%) of most satisfying variables of faculty job satisfaction. This study demonstrated that HODs who employ transformational leadership behaviours and transactional contingent rewards can be more effective in satisfying faculty. In addition, laissez-faire was the variable that best represented the variance (32%) of the least satisfying variables of faculty job satisfaction. Therefore, these findings empirically contribute to the current body of knowledge related to the leadership styles of academic leaders, particularly in developing countries by demonstrating the extent to which HODs' leadership styles influence faculty job satisfaction

10. This study can be used to forecast effects or impacts of full range leadership style and its 9 components on the faculty job satisfaction and its elements in this study including work and collegiality, supervision, and promotion. For example, it can predict that transformational inspirational motivation behaviour would significantly increase faculty job satisfaction as it explains 32.4% of the variance or it can help increase faculty job satisfaction in terms of supervision approaches as it explains 20.3% of the variance. Therefore, it holds much potential for furthering researchers' understanding and expectation when running research in different

areas.

11. This study can contribute to prediction and explanation of the trends and future values of the effects of leadership styles on faculty job satisfaction through moderators and mediators. For example, if HODs practice to help faculty to achieve more, to recognize their achievements and encourage them to contribute more, it will lead to an increase in faculty job satisfaction as achievement would mediate the relationship between leadership styles and faculty job satisfaction with regards to the findings of this study. However, if HODs focus on practices to include faulty in the organisation's plans, or make them feel that they belong, it will not lead to more faculty job satisfaction as need to belong would not mediate the relationship between leadership styles and faculty job satisfaction with regard to the findings of this study. Therefore, it holds much potential for furthering researchers' understanding and expectation when running research in different areas.

12. Overall, these results may help expand researchers' theorizing on the effects of leaders in higher education on their faculty job satisfaction in different ways. The new and extended developed conceptual framework in this study can be employed in different contexts and disciplines as the introduced factors are related to all higher education institutions and organisations without any restrictions. In addition, the designed survey questionnaire can be utilised in different contexts and disciplines with only slight modifications.

6.2 Methodological

This study has methodological implications for researchers to develop more rigorous and effective designs.

1. This study adds to the existing body of literature on leadership styles and faculty job satisfaction through providing a unique mixed methods analysis of the most effective leadership styles and the most important faculty job satisfaction factors by investigating perceptions from deans of colleges, HODs, and faculty members quantitatively and qualitatively. This approach allowed for a more holistic view and a better understanding that may also be extended to other institutions. Most of the studies in academic leadership in relation to faculty job satisfaction are based on a quantitative approach (e.g., Amin et al. 2013; Bateh & Heyliger 2014; Braun et al. 2013; Chen 2004; Saleem 2015; Waters 2013). Applying a qualitative design besides the quantitative design has been suggested in a number of the related studies to obtain more exact results. This study may add valuable results to the related literature since it employed both quantitative and qualitative approaches.

2. One of the important components of this study that can be added to the literature methodologically is the designed job satisfaction survey. While there are many studies on job satisfaction in higher education, the measurements are narrow, incomplete and problematic; if researchers simply use them without examining the larger work design literature, their research runs the risk of being deficient (Morgeson & Humphrey 2006). Therefore, in order to test, critique, and extend Hagedorn's (2000) conceptual framework, which is the only framework for faculty job satisfaction, a range of constructs have been included from Herzberg's (1959) two-factor theory, Hackman and Oldham's (1974) job characteristics model (JCM), Spector's (1985)

job satisfaction survey (JSS), and Author. It has been designed particularly for job satisfaction of academia in higher education, in STEM-related fields, and for two contexts; the UAE and the UK (two separate versions with small contextual modifications). The survey may be applicable internationally through a small modification related to its disciplinary and the contextual items.

3. Another important component of this study is the interviews with 11 deans, HODs, and faculty members, in STEM-related fields. To really understand what is the leadership styles of HODs, there is a need to know what HODs actually do; by understanding members of staff's perceptions on HODs' actions and not simply their description of what they are doing (Bargh et al. 2000; Bryman 2007). The use of such data, multi-source information and objective measures can also prevent skewing results due to common method bias (Podsakoff et al. 2012). Therefore, this is important to obtain the data from different sources for their validity. It seems that interviewing different groups of stakeholders could provide a rich and detailed description on the most effective HODs leadership styles and the most important faculty job satisfaction factors.

4. To develop counselling theory, research, and practice, it is essential to surpass these fundamental questions. One method for achieving this is to investigate moderators and mediators of relations between predictors and outcomes which represent the maturity and sophistication of a field of inquiry (Aguinis et al. 2001; Judd et al. 1995). The methodological and statistical challenge of investigating mediation has made methodology for assessing mediation an active research topic. Investigating both moderators and mediators in this study can increase researchers' understanding in further research and in different areas of leadership styles and job satisfaction in higher education or even in other settings such as business, health, and industrial.

6.3 Practical

The findings of this study in relation to past research have significant practical implications because across a wide variety of higher education organisations, faculty job satisfaction and dissatisfaction has been repeatedly linked to leadership styles. Faculty job satisfaction is one of the most influential aspects in higher education and is crucial to the development, advancement, and effectiveness of the higher education institutions. Therefore, practicing an appropriate leadership style and considering job satisfaction factors is necessary.

1. The results will provide chancellors, provosts, presidents, deans, HODs, and faculty members with a reference source to apply when making decisions about hiring, supporting, and budgeting, as well as the ways to improve faculty job satisfaction, retention, and quality in higher education. Job satisfaction is a key predictor of intention to remain in or leave an academic position (Hagedorn 1996; Rosser 2004; Smart 1990; Seifert & Umbach 2008). If faculty job satisfaction and the retention rate increase, there will be no need for the extra cost of selection and hiring of new faculty and this will add financial stability to the organisation (Froesche & Sinkford 2009). As a 5% growth in retention rate can result in a 10% decline in costs, and a 65% increase in productivity further (Wong & Heng 2009). The results of this study would assist the decision makers in hiring new faculty and keeping the current faculty to avoid extra cost and add financial stability.

2. Faculty members have a critical role in the success of higher education organisations (Bateh & Heyliger 2014; Cordeiro 2010). The job satisfaction of academic members has been examined by a number of researchers in developed countries, however, there is a lack of studies from developing countries, which is a gap that needs to be filled (e.g., Eyupoglu & Saner 2009; Ssesanga & Garrett 2005; Duong 2014). Since in higher education satisfaction of faculty is

generally demonstrated to be greatly influenced by leadership of the university (Duong 2014; Grunwald & Peterson 2003; Hagedorn 2000; Kelali & Narula 2015; Leary et al. 1999; Sadeghi et al. 2012; Zhou & Volkwein 2004), this study investigated the impact of leadership styles on faculty job satisfaction, on faculty job satisfaction elements, and on faculty job satisfaction through moderators and mediators. It is hoped that the gap is bridged by developing a new and extended conceptual framework and particularly in STEM-related fields.

3. Higher education institutions should provide training that target transformational leader behavior to equip leaders with essential knowledge and skills. HODs take a dual role of an administrator and a faculty member (Bowman 2002). Most accept the position without leadership training, without a vision for the program, without a clear understanding of the time demands and inherent stress and conflict in the position, and without an awareness of the effects on their career or personal life (Czech & Forward 2010). An examination of the academic leaders' problems found that HODs are among the least prepared of all managers (Stanton-Spicer & Spicer 1987). Transformational leadership has to be considered in hiring, promoting, and training academic leaders. Since, leadership development in academia experience some weaknesses to date (Peus et al. 2010; Smith & Hughey 2006), it would benefit from applying merged training and coaching approaches based on the transformational leadership concept (Braun et al. 2009).

4. Another important observation deducted from the result was the adjusted R^2 value of transformational leadership that showed 41%, which indicates that the selected education departments for this research heavily emphasize on transformational leadership. In addition, practicing laissez-faire that represented 32% of the variance, can decrease the satisfaction of

these faculty considerably. Furthermore, transactional contingent rewards significantly increase and transactional passive management by exception significantly decreases faculty job satisfaction. These leadership styles do not only increase or decrease faculty job satisfaction, but also some elements of it including work and collegiality, supervision, and promotion. Furthermore, these leadership styles not only increase faculty job satisfaction directly but also has a potential to increase it through a moderator, work life balance and mediators including achievement, responsibility, advancement, relationships, institutional and administrative culture, feedback, and autonomy. These results informed that faculty job satisfaction heavily relies on leadership styles and it plays a crucial role in determining the satisfaction of the faculty in STEM-related fields. As a result, higher education organisations must carefully analyze what kind of leadership they should adopt if they want to increase faculty job satisfaction. Below are the behaviours that an effective leader should learn and apply regarding the results of this study:

Individualized influence (attributed)- It means that certain leadership traits or qualities are attributed to the leader, such as a leader possessing high levels of energy, self-confidence, strong convictions and personal beliefs. Transformational leaders that display characteristics of individualized influence are often charismatic and they are role models who are respected and typically admired by others, leaders that display a high level of attributed individualized influence have a clear sense of vision, purpose and mission, and they tend to take risks to achieve success.

Individualized influence (behavior)- Leadership characteristics have less to do with their attributes than their behaviours. Leaders with high levels of behavioural individualized influence often display personal conviction and trust. They emphasize on personal values and morals and they demonstrate high levels of purpose, commitment and ethics.

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Inspirational motivation- Leaders act in ways that encourage others to reach to higher standards, articulate a compelling vision of the future, and generate enthusiasm for shared responsibilities and challenge followers. Therefore, leaders should clearly communicate their expectations demonstrate a commitment to the goals and a shared vision.

Intellectual stimulation- Leaders make faculty more interested and excited in on their work, encourage them to be creative, facilitate initiatives, and support innovations. Leaders should create an environment that challenges faculty and convinces them to self-evaluate. These guide faculty to change for the higher standards of the goals.

Individual consideration- Leaders focus on a follower's growth and development based on the faculty's individual talents, knowledge, and competencies, and to achieve individual and organizational goals. Leaders ensure that individuals are specifically motivated and engaged in the transformation process at the organizational level. Considering individuals' needs, abilities and aspirations, and helping them develop their strengths are some practices of individual consideration behaviour. According to (Homrig 2001, p. 6) individual consideration "not only educates the next generation of leaders, but also fulfills the individuals need for self-actualization, self-fulfillment, and self-worth. It also naturally propels followers to further achievement and growth". According to Avolio et al. (1999) individualized consideration has been cited as the one transformational leadership dimension that may work in tandem with transactional leadership practices to produce positive impacts on individual motivation and performance.

Transactional Contingent rewards- Leader can define some goals for faculty, then provide a reward when the goal is met. The leader and faculty can both work to achieve a specified result

in order to receive the reward. Contingent reward is reported to influence the organizational results positively (Blanchard & Johnson 1985; Howell & Avolio 1993; Lowe et al. 1996).

Management-by-exception (passive)- leaders try to solve the problems or correct faculty's undesired activities after acting. Leaders would only become involved in the work of the faculty and take action after problems become serious. Since, in this study, transactional passive management by exception was found to have a significant negative impact on the faculty job satisfaction whether the relationship is direct or indirect, these practices will lead to a significant decrease in faculty job satisfaction, so leaders should avoid these practices.

Laissez-faire- Leaders do not take stand on issues, avoid making decisions, and do not focus on the goals of organization. Leaders do not build a professional relationship with faculty and so there is not any interaction. Since, in this study, laissez-faire was found to have a significant negative impact on the faculty job satisfaction whether the relationship is direct or indirect, these practices will lead to a significant decrease in faculty job satisfaction so leaders so leaders should avoid laissez-faire leadership practices.

Faculty Job Satisfaction Elements Practicing an appropriate leadership style as discussed above, would also significantly increase faculty job satisfaction elements including work and collegiality, supervision, and promotion through some practices such as increasing faculty's feeling of pride in their job, their enjoyment, and their interpersonal relations with their colleagues. These HODs are more competent in doing their job, more willing to delegate responsibility, more willing to increase the chance of promotion for faculty members and faculty satisfaction about these chances.

The Impact of Moderators- Effective leaders also consider the impact of moderators such as the impact of work life balance on the relationship between leadership styles and faculty job satisfaction. They consider that the influence of HOD's transformational leadership style on the satisfaction level of faculty will be higher when faculty receive more support to balance their family and their job particularly for whom work in STEM-related fields regarding their nature of work. Transformational leaders foster faculty's work life balance. These leaders take into consideration the goals, needs, and interests of individuals (Chun et al. 2009; Walumbwa et al. 2005), which can make faculty members more satisfied with their jobs.

The Impact of Mediators- Moreover, effective leaders with the help of organisations can also predict faculty job satisfaction by strengthening the mediators including achievement, responsibility, advancement, relationships, institutional and administrative culture, feedback, and autonomy among faculty. They consider how and why one variable such as leadership styles predicts an outcome such as job satisfaction. Some of the required practices to strengthen these mediators are: giving faculty feelings of accomplishment, providing facilities to increase faculty's contribution in a positive manner, involving faculty in making decisions for their teaching, research, the organization and the community, providing faculty enough opportunities for professional growth through formal education, providing faculty enough opportunities to objectively evaluate their accomplishments, and enough opportunities to increase their responsibilities for advancement, providing faculty with required supports from superiors and colleagues, building an environment that helps form good relationships with superiors, colleagues, and students, providing faculty members with a supportive attitude towards teaching and research, providing them with well-maintained and appropriate research funding, and building good communication between management and academics, providing the faculty

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members with on-time and productive feedback in which they feel satisfied with the overall quality of the supervision they receive at work, satisfying the faculty members with the level of autonomy they have in teaching their courses, and providing considerable opportunities for independence and freedom in how they work.

6.4 Limitations and Future Research Directions

The researcher acknowledges that this research has limitations that need to be addressed in future research.

The participants were from four main disciplines including science, technology, engineering and mathematics. Regarding the response rate (61%), the findings of this study can be confidently generalized to the population in the same disciplines. In addition, the findings may be partially generalized to other disciplines and areas of professional work organization. Employing the same instrument (Two versions is available; one for the UAE's participants, and one for the UK's participants) in other contexts around the world seems applicable with very light modifications to be contextually appropriate. Employing the same instrument for other disciplines seems applicable with the light modifications to meet the disciplinary requirements.

Decreasing the number of sites was one of the main issues faced; two UAE Universities were excluded due to their rules for providing approval, and one UK university was excluded due to the low response rate. These problems of site access and survey data collection caused a considerable reduction in the number of potential participants from 1558 to 193 and extended the data collection period from April 2016 to May 2017.

The unsatisfactory number of participants in the present study is one of the circumstances that

may have negatively influenced the results. The author admits that 120 deans, HODs and faculty members (120 accepted from193), may be a small sample and may have too little of a variability which could reduce correlations between variables, making the elaboration of these correlations by the model more difficult. A larger sample would have the potential to test the conceptual framework of the study and would provide more precise estimates to report.

Another great concern of this research study was the time frame. Confirmation or disconfirmation from the 5 universities to provide the approval and run the study, meeting almost all of the participants in-person and inviting them to fill the survey questionnaire with several follow-up reminders, and meeting the interviewees in-person and inviting them to an interview, were very time-consuming. The sites were geographically split and there were invariably delays in scheduling university visits due to busy calendars, vacations, replacements, and other unexpected events.

The length and completion time of the survey could have influenced the participants' reaction to the task and their responses. However, the number of survey questions about issues regarding demographic (26 questions), leadership styles (45 questions, *alpha*= .929), and faculty job satisfaction (27questions; 92 items *alpha*= .846), were quite enough so that the selection of variables for analysis was not restricted by the available information from the interview guide.

The reliability of the mediators was a bit less than .90, which is recommended for the mediating variables, this may have caused an underestimation of the relationship between mediators and outcome and an overestimation between predictor and the outcome (Hoyle & Robinson 2003).

It would be useful to broaden the developed conceptual framework concerning the relevance of leadership and job satisfaction in academia. This model is restricted to the positive influence of

full range leadership styles on faculty job satisfaction moderated by work life balance and mediated by achievement, responsibility, advancement, relationships, institutional and administrative culture, feedback, and autonomy. Thereby, this study neglected other styles of leadership, additional moderators, additional mediators, and disciplines.

Moreover, further research could be carried out longitudinally in order to examine the effects of moderators of this study on the relationship between HODs leadership styles and faculty job satisfaction, if the short-term nature of participants' assignments do not lead to high percentages of non- responses in follow-up studies.

Finally, increased knowledge about the factors influencing job satisfaction in relation to leadership styles is of great importance to higher educational organisations. This study advances researchers' understanding of effective leadership and the moderators and mediators in engendering job satisfaction. It uncovers how leadership fosters moderators and how leadership is conducive to the deployment of the mediators, which in turn significantly contribute to faculty job satisfaction. It is hoped that this study will provide researchers, chancellors, administrators, deans of colleges, HODs, faculty members and all decision makers in higher education with a reference source to use when making decisions about budgets, hiring, support staff, and ways to improve faculty job satisfaction, retention, and quality in higher education. It is hoped that, this study will encourage researchers to apply the developed conceptual framework and employ the instrument in different contexts and a larger sample size, and will inspire future research on the impact of leadership styles on faculty job satisfaction in STEM-related fields both directly and through moderators and mediators.

REFERENCES

Abdalla, H.G. & Pinnington, A.H. (2012). 'Transformational Leadership in a Public Sector Agency', In: Tony Dundon and Adrian Wilkinson (eds.), *Case Studies in Global Management: Strategy Innovation and People*. Sydney, Australia: Tilde University Press, Chapter 21, pp. 184-194.

Aguinis, H., Boik, R. J. & Pierce, C. A. (2001). A generalized solution for approximating the power to detect effects of categorical moderator variables using multiple regression. *Organizational Research Methods*, vol. 4 (4), pp. 291–323.

Aguirre, A. (2000). Women and minority faculty in the academic workplace: Recruitment, retention and academic culture. *ASHE-ERIC Higher Education Report*, vol. 27 (6). Washington: American Association for Higher Education

Aguirre, A., Hernandez, A. & Martinez, R. (1994). Perceptions of the workplace: Focus on minority women faculty. *Initiatives,* vol. 56 (3), pp. 41–50.

Aksu, A. & Aktas, A. (2005), "Job satisfaction of managers in tourism: cases in the Antalya region of Turkey", *Managerial Auditing Journal*, vol. 20 (5), pp. 479-88.

Al-Hourani, L.G. (2013*). Leadership effectiveness of university deans in Lebanon and Egypt: A study of gender and leadership style.* PhD Thesis, Capella University.

Al Farra, S. (2011). 'Education in the UAE: A vision for the future', in ECSSR (eds). *Education in the UAE: Current status and future developments*. Abu Dhabi: Emirates Center for Strategic Studies and Research, pp. 219-237.

Al-Omari, A. (2007). Leadership Styles of Department Chairs at the Hashemite University'. *Journal of Educational and Psychological Sciences*, vol. 18 (3), pp. 7-24.

Al-Omari, A. (2008). The Relationship between Leadership Styles of Hashemite University Department Chairs and Job Satisfaction as Reported by Department Faculty Members. *University of Sharjah Journal for Humanities & Social Sciences*, vol. 5 (2), pp. 101-124.

Alhawary, F.A. & Aborumman, A.H. (2011). Measuring the Effect of Academic Satisfaction on Multi-Dimensional Commitment: A Case Study of Applied Science Private University in Jordan. *International Business Research*, vol. 4 (2), pp. 153-160.

Ali, A.J., Azim, A.A. & Krishnan, K.S. (1995). Expatriates and host country nationals: managerial values and decision styles. *Leadership & Organization Development Journal*, vol. 16 (6), pp. 27-34.

Ali, A.J. & Al-Kazemi, A. (2005). The Kuwaiti Manager: Work Values and Orientations. *Journal of Business Ethics*, vol. 60 (1), pp. 63-73.

Ali, A.J. & Al-Owaihan, A. (2008). Islamic Work Ethic: a critical review. *Cross Cultural Management: An International Journal*, vol. 15 (1), pp. 5-19.

Allen, D. K. (2003). Organisational climate and strategic change in higher education: Organisational insecurity. *Higher Education*, vol. 46 (1), pp. 61–92.

Altbach, P. G. (2005). Globalization and the university: Myths and realities in an unequal world. *The NEA 2005 Almanac of higher education*, pp. 63–74. Washington, DC: NEA.

Ambrose, S. T., Huston, T. & Norman, M. (2005). A qualitative method for assessing faculty satisfaction. *Research in Higher Education*, vol. 46 (7), pp. 803–830.

American Association of University Women (AAUW) (2010). Why so few? Women in science, engineering, technology, and mathematics. Retrieved at http://www.aauw.org/learn/research/upload/whysofew.pdf

Amin, M., Shah, S. & Tatlah, I.J. (2013). Impact of Principals/Directors' Leadership Styles on Job Satisfaction of the Faculty Members: Perceptions of the Faculty Members in a Public University of Punjab, Pakistan. *Journal of Research and Reflections in Education*. vol.7 (2), pp. 97- 112. http://www.ue.edu.pk/jrre

Appelbaum, S. H., Adam, J., Javeri, N., Lessard, M., Lion, J. P., Simard, M. & Sorbo, S. (2005). A case study analysis of the impact of satisfaction and organizational citizenship on productivity. *Management Research News*, vol. 28 (5), pp. 1–26.

Arvey, R., Dhannaraj, C., Javisan, M. & Zhang, ZX. (2015). Are there unique leadership models in Asia? Exploring uncharted territory· *The Leadership Quarterly*, vol. 26 (1), pp. 1-6. journal homepage: www.elsevier.com/locate/leaqua

Ashkanasy, N.M. (2003), "Emotions in organizations: a multi-level perspective", in Yammarino, F. and Dansereau, F. (Eds), *Research in Multi-Level Issues*, Elsevier/JAI Press, Oxford, pp. 9-54.

Astrauskaite, M., Notelaers, G. & Medisauskaite, A. (2014). Workplace harassment: Deterring role of transformational leadership and core job characteristics. *Scandinavian Journal of Management*, http://dx.doi.org/10.1016/j.scaman. 2014.06.001

Avolio, B. J. & Bass, B. M. (1991). *The full range leadership development programs: Basic and advanced manuals*. Binghamton, NY: Bass, Avolio & Associates.

Avolio, B. J. & Bass, B. M. (2004). *Multifactor Leadership Questionnaire 5X*. Redwood City, CA: Mindgarden.

Avolio, B. J., Bass, B. M. & Jung, D. I. (1995). *Multifactor Leadership Questionnaire technical report*. Redwood City, CA: Mind Garden.

Avolio, B. J., Bass, B. M. & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *Journal of Occupational and Organizational Pyschology*, vol. 72, pp. 441-462.

Awamleh, R., Mahate, A. & Evans, J. (2005). A Test of Transformational and Transactional Leadership Styles on Employees' Satisfaction and Performance in the UAE Banking Sector. *Journal of Comparative International Management*, vol. 8 (1), pp. 3-19.

August, L. & Waltman, J. (2004). Culture, climate, and contribution: Career satisfaction among female faculty. *Research in Higher Education*, vol. 45 (2), pp. 177–192.

Baldwin, R.G. & Blackburn, R.T. (1990). The academic career as a developmental process: Implications for higher education. In M.J. Finkelstein (Ed.), *ASHE reader on faculty and faculty issues in colleges and universities.* 2nd ed. pp. 106-118. Needham Heights, MA: Ginn Press. [Original work published in 1981.]

Bargh, C., Bocock, J., Scott, P. & Smith, D. (2000). *University Leadership: The Role of the Chief Executive.* Buckingham, SRHE and Open University Press.

Barinaga, E. (2007). Cultural diversity at work: National culture as a discourse organizing an international project group. *Human Relations*. vol. 60 (2), pp. 315-340.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology,* vol. 51(6), pp. 1173–1182.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.

Bass, B. M. (1990). *Bass and Stogdill's handbook of leadership*. New York: Free Press.

Bass, B.M. & Avolio, B.J. (1990). The implications of transactional and transformational leadership for individual, team, and organizational development, *Research in Organizational Change and Development,* vol. 4 (1), pp. 231-272.

Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, vol. 17, pp. 112-122.

Bass, B.M. & Avolio, B.J. (1994). *Improving organizational effectiveness through transformational leadership.* Thousand Oaks, CA: Sage.

Bass, B. M. & Avolio, B. J. (1995*). Multifactor leadership questionnaire leader form (5X-short). Redwood City*, CA: Mind Garden.

Bass, B. M. & Avolio, B. J. (1999). *Manual for the multifactor leadership questionnaire (form 5X). Redwood City,* CA: Mind Garden.

Bass, B. M. & Avolio, B. J. (2000). *MLQ: Multifactor Questionnaire: Third Edition Manual and Sampler Set*. Redwood City, CA: Mind Garden.

Bass, B. M., Avolio, B. J., Jung, D. I. & Berson, Y. (2012). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, vol. 88 (2), pp. 207-218.

Bass, B.M. & Riggio, R.E. (2006). *Transformational Leadership*. 2nd ed. Mahwah: Lawrence Erlbaum Associates.

Basset-Jones, N. & Lioyd, GC. (2005). Does Herzberg's motivation theory have staying power? *Journal of Management Development*, vol. 24 (10), pp.929-943.

Bateh, J. & Heyliger, W. (2014). Academic Administrator Leadership Styles and the Impact on Faculty Job Satisfaction. *Journal of Leadership Education.* DOI: 1012806/V13/I3/R3

Baumeister, R. F. (1999). *The self in social psychology*. Philadelphia, PA: Psychology Press.

Baumeister, R. F. & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as fundamental human motivation. *Psychological Bulletin*, vol. 117 (3), pp. 497-529.

Baysak, B. & Yener, M. (2015). The Relationship Between Perceived Leadership Style and Journal of Perceived Stress on Hospital Employees, 11th International Strategic Management Conference, Procedia - Social and Behavioral Sciences, vol. 207 (20), October 2015, pp. 79-89.

Bender, K. A., & Heywood, J. (2006). Job satisfaction of the highly educated: The role of gender, academic tenure and earnings. *Scottish Journal of Political Economy,* vol. 53 (2), pp. 253-279.

Bentley, P., Coates, H., Dobson, j., Goedegebuure, L. & Meek, V.L. (2013). *Job satisfaction around the academic*. Dordrect, NL: Springer.

Bentley, P., Coates, H., Dobson, j., Goedegebuure, L. & Meek, V.L. (2015). Academic Job Satisfaction from an International Comparative Perspective. In Teichler. U., & Cummings, W.K (Eds), *The Changing Academy-The Changing Academic Profession in International Comparative Perspective 14, Forming, Recruiting, and Managing the Academic Profession* (pp.187-210). Springer International Publishing Switzerland 2015.

Biglan, A. (1973). The characteristics of subject matter in different academic areas. *Journal of Applied Psychology*, vol. 57 (3), pp.195-203.

Bilimoria, D., Perry, S. R., Liang, X., Stoller, E., Higgins, P. & Taylor, C. (2006). How do female and male faculty members construct job satisfaction? The roles of perceived institutional leadership and men- toring and their mediating processes. *The Journal of Technology Transfer*, vol. 31(3), pp. 355–365.

Blackburn, R. T. & Lawrence, J. H. (1995). *Faculty at work: Motivation, expectation, satisfaction.* Baltimore: Johns Hopkins University Press.

Blake, R.R. & Mouton, J.S. (1978). *The new managerial grid*. Houston: Gulf.

Blanchard, H. & Johnson, S. (1985). *The one-minute manager.* Berkeley, CA: Berkeley Publishing Co.

Blegen, M. A. (1993). Nurses' job satisfaction: A meta-analysis of related variables. *Nursing Research*, vol. 42 (1), pp. 36-41.

Bodla, M. & Nawaz, M. (2010). Comparative study of full range leadership model among faculty members in public and private sector higher education institutes and universities. *International Journal of Business & Management*, vol. 5 (4), pp. 208- 214.

Boeve, W.D. (2007). *A National Study of Job Satisfaction Factors among Faculty in Physician Assistant Education.* Doctoral thesis, Eastern Michigan University.

Bogardus, E.S. (1918). *Essentials of social psychology*. Los Angeles: University of Southern California Press.

Bowen, B. E. (1980). *Job satisfaction of teacher educators in agriculture*. Unpublished PhD Thesis, The Ohio State University. Columbus, Ohio.

Bowen, B. E. & Radhakrisha, R. B. (1991). Herberg's motivator-hygiene theory and the job satisfaction of agricultural education faculty. Paper presented at the National Agricultural Education Research Meeting, Cincinnati, OH.

Bowman, R. (2002). The real work of department chair. *Clearing House*, vol. 75 (3), pp. 158-162.

Bozeman, B. & Corley, E. A. (2004). Scientists' collaboration strategies: Implications for scientific and technical human capital. *Research Policy,* vol. 33 (4), pp. 599–616.

Bozeman, B. & Gaughan, M. (2011). Job Satisfaction among University Faculty: Individual, Work, and Institutional Determinants. *The Journal of Higher Education,* vol. 82 (2), pp. 154-186.

Brace, N., Kemp, R. & Slengar, R. (2009). *SPSS for Psychologists*. 4th ed. Palgrave macmillan.

Bradburn, N., Sudman, S. & Wansink, B. (2004). *Asking questions*. 2nd ed. San Francisco: Jossey Bass.

Bragg, D.L. (2008). *The Application of Transformational Leadership among Christian School Leaders in the Southeast and the Mis-Atlantic North Regions*, PhD Thesis, Liberty University.

Braun, V. & Clarke, V. (2006) Using thematic analysis in Psychology. *Qualitative Research in Psychology*, vol. 3 (2), pp. 77–101.

Braun, S., Nazlic, T., Weisweiler, S., Pawlowska, B., Peus, C. & Frey, D. (2009). Effective leadership development in higher education: Individual and group level approaches. *Journal of Leadership Education*, vol. 8 (1), pp. 195-206.

Braun, S., Peus, C., Weisweiler, S. & Frey. D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly,* vol. 24 (1), pp. 270-283.

Brayfield, A. H. & Crockett, W. H. (1955). Employee attitudes and employee performance. *Psychological Bulletin*, vol. 52, pp. 396-424.

Brief, A. & Weiss, H. (2002). Organization behavior: Affect in the workplace. *Annual Review Psychology,* vol. 53, pp. 279-307.

Brown, B.B. (2003). *Employees' Organizational Commitment and Their Perception of Supervisors' Relations-Oriented and Task-Oriented Leadership Behaviors*, PhD dissertation,

Virginia Polytechnic Institute and State University.

Brown, A. K. & Mitchell, T. (1993). Organizational obstacles: Links with financial performance, customer satisfaction, and job satisfaction in a service environment. *Human Relations,* vol. 3 (4), pp. 345-360.

Brown, W. & Moshavi, D. (2002). Herding academic cats: Faculty reactions to transformational and contingent reward leadership by department chairs. *Journal of Leadership Studies*, vol. 8 (3), pp. 79-93.

Bryman, A. (2007). Research and Development Series: Effective leadership in higher education, Summary of findings, School of Management, University of Leicester.

Budhwar, P & K. Mellahi (2007). *Managing human resources in the Middle East.* New Jersey: Routledge.

Bullers, S. (1999). Selection effects in the relationship between women's work/family status and perceived control. *Family Relations: Interdisciplinary Journal of Applied Family Studies*, vol. 48 (2), pp. 181–188.

Burns, J. M. (1978). *Leadership.* Harper & Row, New York.

Buys, M.A., Olckers, C. & Schaap, P. (2007). The construct validity of the revised job diagnostic survey. *South African Journal of Business Management*, vol. 38 (2), pp. 33-40.

Callister, R. R. (2006). The impact of gender and department climate on job satisfaction and intentions to quit for faculty in science and engineering fields. *The Journal of Technology Transfer*, vol. 31(3), pp. 367–375.

Cano, J. & Miller, G. (1992). An analysis of job satisfaction and job satisfier factors among six taxonomies of agricultural teachers. *Journal of Agricultural Education*, vol. 33 (4), pp. 9-16.

Carlyle, T. (1907). *Heroes and hero worship*. Boston: Adams.

Castillo, J. X., & Cano, J. (2004). Factors explaining job satisfaction among faculty. *Journal of Agricultural Education,* vol. 45 (3), pp. 65-74.

Castillo, J. X., Conklin, E. A. & Cano, J. (1998). Job satisfaction of Ohio agricultural education teachers. *Journal of Agricultural Education*, vol. 40 (2), pp. 19-27.

Cerimagic, S. (2010). "Influence of culture on project practices", Education, Business and Society. *Contemporary Middle Eastern Issues*, vol. 3 (4), pp. 277- 288.

Cetin, M., Karabay, M.E., & NaciEfe, M. (2012). The Effects of Leadership Styles and the Communication Competency of Bank Managers on the Employee's Job Satisfaction: The Case of Turkish Banks. *Procedia- Social and Behavioral Sciences*, vol.58, pp. 227-235. ELSEVIER.

Chaudhry, A. Q. & Javed, H. (2012). Impact of Transactional and Laissez Faire Leadership Style on Motivation. *International Journal of Business and Social Science*, vol. 3 (4), pp. 258-264.

Chen, H.C. (2004). *The relationship between leadership styles and faculty job satisfaction in Taiwan,* PhD Thesis, The University of Utah.

Chen, J.C. & Silverthorne, C. (2005). Leadership Effectiveness, Leadership Style and Employee Readiness. *Leadership & Organization Development Journal,* vol. 28 (4), pp. 280-288.

Chen, S. H., Yang, C. C., Shiau, J. Y. & Wang, H. H. (2006). The development of an employee satisfaction model for higher education. *The TQM Magazine,* vol. 8(15), pp. 484-500.

Chhokar, J. S., Brodbeck, F. C. & House, R. J. (2007). *Culture and Leadership Across the World: The GLOBE Book of In-Depth Studies of 25 Societies,* Philadelphia: Lawrence Erlbaum Associates.

Chou, H-W., Lin, Y-H, Chang, H-H. & Chuang, W-W. (2013). *Transformational Leadership and Team Performance: The Mediating Roles of Cognitive Trust and Collective Efficacy*. SAGE Open, http://sgo.sagepub.com.

Chun, J. U., Yammarino, F. J., Dionne, S. D., Sosik, J. J. & Moon, H. K. (2009). Leadership across hierarchical levels: Multiple levels of management and multiple levels of analysis. *The Leadership Quarterly*, vol. 20, pp. 689–707, http://dx.doi.org/10.1016/j.leaqua.2009.06.003.

Church, A. H. (2000). Do higher performing managers actually receive better ratings? A validation of multirater assessment methodology. *Consulting Psychology Journal: Practice and Research,* vol. 52 (2), pp. 99-116.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* 2nd ed. Hillsdale, NJ: Erlbaum.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, J., Cohen, P., West, S. G. & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.

Cohen, S. & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin,* vol. 98 (2), pp. 310-357.

Connolly, J. J. & Viswesvaran, C. (2000). The role of affectivity in job satisfaction: A meta-analysis. *Personality and Individual Differences*, vol. 29 (2), pp. 265–281.

Cordeiro, W. P. (2010). A business school's unique hiring process. *Business Education Innovation Journal,* vol. 2 (1), pp. 56-60. Retrieved from http://www.beijournal.com/

Corley, E. A. & Sabharwal, M. (2007). Foreign-born academic scientist and engineers: Producing more and getting less than their US-born peers? *Research in Higher Education*, vol. 48 (8), pp. 909-940.

Creswell, J. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches.* 3rd ed. Thousand Oaks, Sage.

Creswell, J. W. (2009). *Research Design, Qualitative, Quantitative, and Mixed Methods Approaches.* 3rd ed. Sage.

Creswell, J.W. (2012). *Educational Research, Planning, Conducting, and Evaluating Quantitative, and Qualitative Research.* 4th ed. International Edition, Pearson.

Creswell, J. W. (2014). *Research Design.* 4th ed. Sage Publications, Inc.

Creswell, J. & Plano Clark, V.L. (2007). *Designing and conducting mixed methods research.* Thousand Oaks, Sage.

Crocker, J. & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review*, vol. 96 (4), pp. 608-630.

Cronbach, L. (1988). Internal Consistency of Tests: Analysis Old and New. *PSYCHOMETRIKA*, vol.53 (1), pp. 63-70

Cropanzano, R. & Wright, T. A. (2001). When a "happy" worker is really a "productive" worker: A review and further refinement of the happy-productive worker thesis. *Consulting Psychology Journal: Practice and Research*, vol. 53(3), pp. 182–199.

Czech, K. & Forward, G.L. (2010) Leader Communication: Faculty Perceptions of the Department Chair, *Communication Quarterly*, vol. 58 (4), pp. 431-457, DOI: 10.1080/01463373.2010.525158

Daly, C. J. & Dee, J. R. (2006). Greener pastures: Faculty turnover intent in urban public universities. *Journal of Higher Education*, vol. 77 (5), pp. 776–803.

Dasgupta, N. (2011). In group experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model. *Psychological Inquiry*, vol. 22 (4), pp. 231-246. doi:10.1080/1047840X.2011.607313

Dastoor, B., Suwannachin, K. & Golding, A. (2003). *Transformational Leadership and Cultural Values in Thailand: Faculty Perceptions of University Administrators*. Clearwater: Academy of International Business Southeast.

Davis, J. A. (1971). *Elementary survey analysis. Englewood Cliffs*. NJ: Prentice Hall.

Decker, F. H., Harris-Kojetin, L. D. & Bercovitz, A. (2009). Intrinsic job satisfaction, overall satisfaction, and intention to leave the job among nursing assistants in nursing homes. *The Gerontologist,* vol. 49 (5), pp. 596-610.

De Wit, H. (2002). *Internationalization of higher education in the United States of America and Europe: A historical, comparative, and conceptual analysis*. Westport, CT: Greenwood Publishers.

Dhanapal, S., Alwie, S.B.M., Subramaniam, T. & Vashu, D. (2013). Factors Affecting Job Satisfaction among Academicians: A Comparative Study between Gender and Generations. *International Journal of Management Excellence*, vol. 2 (1), pp. 128-139.

Diener, T. (1985). Job Satisfaction and College Faculty in Two Predominantly Black Institutions. *Journal of Negro Education*, vol. 54 (4), pp. 558-565.

Dillman Don, A. (2000). Mail and Internet Surveys: *The Tailored Design Method*, New York: Wiley.

Dvir, T., Eden, D., Avolio, B. J. & Shamir, B. (2002). *Impact of transformational leadership on follower development and performance: A field experiment*. *Academy of Management Journal*, vol. 45 (4), pp. 735-744.

Duong, MQ. (2014). The relationship between demographic characteristic and faculty job satisfaction in Vietnamese higher education. *European Journal of Research and Reflection in*

Educational Sciences, vol. 2 (3), pp. 87-98.

Eagly, A. H., Johannesen-Schmidt, M. C. & Van Engen, M. (2003). Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men, *Psychological Bulletin*, vol. 19 (4), pp. 569–591.

EFA: Education for All (2011). EFA Global Monitoring Report - The hidden crisis: Armed conflict and education-Global findings. UNESCO, Paris.

Ehrenberg, R. G., Kasper, H. & Rees, D. I. (1991). Faculty turnover in American colleges and universities. *Economics of Education Review*, vol. 10 (2), pp. 99-110.

Elliott, M. (2009). Who Needs Charisma? *Time,* pp. 35-38.

Endo, J. J. & Harpel, R. L. (1982). The effect of student–faculty interaction on students' educational outcomes. *Research in Higher Education*, vol. 16 (2), pp. 115–138.

Enshassi, A. & Burgess, R. (1990). Training for construction site managers involved with multicultural work teams. *International Journal of Project Management*, vol. 8 (2), pp. 95-101.

Erez, A. & Isen, A. M. (2002). The influence of positive affect on the components of expectancy motivation. *Journal of Applied Psychology,* vol. 87 (6), pp. 1055-1067.

Ethington, C.A., Smart, J.C. & Zeltmann, M.L. (1989). Institutional and departmental satisfaction of women faculty. *Research in Higher Education*, vol. 30 (3), pp. 261-271.

Etzkowitz, H., Kemelgor, C. & Uzzi, B. (2000). *Athena unbound: The advancement of women in science and technology*. Cambridge, UK: Cambridge University Press.

Ewen, R. (1964). Some determinants of job satisfaction: A study of the generality of Herzberg's theory. *Journal of Applied Psychology*. vol. 48 (3), pp. 161-163.

Eyupoglu, S. Z. & Saner, T. (2009). Job satisfaction: Does rank make a difference? *African Journal of Business Management*, vol. 3 (10), pp. 609-615.

Feghali, E. (1997). Arab Cultural Communication Patterns. *International Journal of Intercultural relationships*, vol. 21 (3), pp. 345-378.

Felfe, J. & Schyns, B. (2010). "Followers' personality and the perception of transformational leadership: further evidence for the similarity hypothesis", *British Journal of Management*, vol. 21 (2), pp. 393-410.

Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd ed. Sage.

Finch, J. H., Allen, R. S. & Weeks, H. S. (2010). The salary premium required for replacing management faculty: Evidence from a national survey. *Journal of Education for Business*, vol. 85, pp. 264-267. doi:10.1080/08832320903449576

Forawi, S. (2014). Youth Career and Educational Aspirations: Perceptions and Instrument Validation. *The International Journal of Humanities Education*, vol.11 (1), pp. 11-25.

Foskett, N. & Lumby, J. (2003). *Leading and Managing Education: International Dimensions*. London: Paul Chapman.

Fox, M. F. (2001). Women, science, and academia: Graduate education and careers. *Gender and Society,* vol. 15 (5), pp. 654–666.

Fox, J., Mourtada Sabbah, N. & Al Mutawa, M. (2006). The Arab Gulf region: Traditionalism globalized or globalization traditionalized? In J. Fox, N. Mourtada Sabbah ., & M. Al Mutawa (Eds). *Globalization and the Gulf* (pp. 3-59). Abingdon: Routledge.

Frazier, P.A., Tix, A.P. & Baron, K.E. (2004). Testing Moderator and Mediator Effects in Counseling Psychology Research. *Journal of Counseling Psychology*, vol. 51 (1), pp. 115-134.

Fried, Y. & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, vol. 40 (2), pp. 287-322.

Froeschle, M. L. & Sinkford, J. C. (2009). Full-time dental faculty perceptions of satisfaction with the academic work environment. *Journal of Dental Education*, vol. 73, pp. 1153-1170.

Frooman, J., Mendelson, M.B. & Murphy, J.K. (2012), "Transformational and passive avoidant leadership as determinants of absenteeism", *Leadership & Organization Development Journal*, vol. 33 (5), pp. 447- 463.

Furnham, A., Forde, L. & Ferrari, K. (1999). Personality and work motivation. *Personality and Individual Differences,* vol. 26 (6), pp. 1035–1043.

Gadot, E. V. (2007). Leadership style, organizational politics, and employees' performance: An empirical examination of two competing models. *leadership style,* vol. 36 (5), pp. 661-683.

Galaz-Fontes, J.F. (2003*). Job Satisfaction of Mexican Faculty in a Public State University:* Institutional Reality through the Lenz of Professoriate, PhD Thesis, Claremont Graduate University.

Galton, F. (1870). *Hereditary genius*. New York: Appleton.

Gardner, S. (2012). "I Couldn't Wait to Leave the Toxic Environment": A Mixed Methods Study of Women Faculty Satisfaction and Departure From One Research Institution. *NASPA Journal About Women in Higher Education,* vol. 5 (1), pp. 71-95.

Gardner, D. G. & Pierce, J. L. (2001). Self-esteem and self-efficacy within the organizational context: A replication. *Journal of Management System*, vol. 13, pp. 31-48.

Garrett, M. R. (1999). Teacher job satisfaction in developing countries. *Educational research supplemental series*, ERIC Document Reproduction Service No. ED 459 150.

Gawel, J. E. (1997). *Herzberg's Theory of Motivation and Maslow's Hierarchy of Needs*. Washington, D.C.: ERIC Clearinghouse on Assessment and Evaluation.

Gaziel, H. (1986). Correlates of job satisfaction: A study of the two-factor theory in an educational setting. *The Journal of Psychology*, vol. 120 (6), pp. 613-626.

Geijsel, F., Sleegers, P., Leithwood, K. & Jantzi, D. (2003). Transformational leadership effects on teachers' commitment and effort toward school reform. *Journal of Educational Administration*, vol. 41 (3), pp. 228-256.

Giri, V. N. & Kumar, P. B. (2010). Assessing the impact of organizational communication on job satisfaction and job performance. *Psychological Studies*, vol. 55 (2), pp. 137-143. doi:10. 1007/s12646-010-0013-6.

Glesne, C. (2011). *Becoming Qualitative Researchers, An Introduction.* 4th ed. International Edition, Pearson.

Gmelch, W. & Parkay, F. (1999). Becoming a department chair: Negotiating the transition from scholar to administrator. Paper presentation at American Educational Research Associaton Conference, Montreal, Canada, April 1999.

Good, C. D., Rattan, A. & Dweck, C. S., (2012). Why do women opt out? Sense of belonging and women's representation in mathematics. *Journal of Personality and Social Psychology*, vol. 102 (4), pp. 700-717. doi: 10.1037/a0026659

Gozukara, I. & Cloakoglu, N. (2016). The mediation effect of work family conflict on the relationship between job autonomy and job satisfaction. *Procedia. Social and Behavioral Sciences.* vol. 229, pp. 253-266.

Gray, E. & Smeltzer, L. (1989). *Management: The competitive edge*. New York: Macmillan.

Green, W.J. (1994). Transformational leadership as a predictor of effectiveness, extra effort, and satisfaction in Higher Education. PhD Thesis. Nova Southeastern University.

Greene, J. C., Caracelli, V. J. & Graham, W. F. (1989) "Toward a Conceptual Framework for Mixed-method Evaluation Designs". *Educational Evaluation and Policy Analysis*, vol. 11 (3), pp. 255-274.

Greenhaus, J. H. & Badin, I. J. (1974). Self-esteem, performance, and satisfaction: Some tests of a theory, *Journal of Applied Psychology*, vol. 59 (6), pp. 722-726.

Greiman, B.C. (2009). Transformational leadership research in agricultural education: A synthesis of the literature. *Journal of Agricultural Education*, vol. 50 (4). pp. 50-62.

Griffeth, R. W., Hom, P. S., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management,* vol. 26 (3), pp. 463-488.

Gross, N. & Napior, D. (1967), *The Job and Career Satisfaction of Men School Principals,* (National Principalship Study Series Mono- graph No. 5), Harvard and Cambridge Graduate School of Education, Cambridge, MA.

Grunwald, H. & Peterson, M. W. (2003). Factors that promote faculty involvement in and satisfaction with institutional and classroom student assessment. *Research in Higher Education*, vol. 44, pp. 173–204.

Hackman, R. & Oldham, G.R. (1974). *Job diagnostic survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects*. Yale University, Technical Report, vol. 4. Department of Administrative Sciences.

Hackman, J. R. & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology*, vol. 60 (2), pp. 159-170.

Hackman, J. R. & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, vol. 16, pp. 250-279.

Hackman, J. R. & Oldham, G. R. (1980). *Work redesign. Reading*, MA: Addison-Wesley.

Hagedorn, L. S. (1994). Retirement proximity's role in the prediction of satisfaction in academe. *Research in Higher Education*, vol. 35 (6), pp. 711–728.

Hagedorn, L. S. (1996). Wage equity and female faculty job satisfaction: The role of wage differentials in a job satisfaction causal model. *Research in Higher Education.* vol. 37 (5), pp. 569-598.

Hagedorn, L. S. (2000). Conceptualizing faculty job satisfaction: Components, theories, and outcomes. *New Directions for Institutional Research*, vol. 27 (1), pp. 5-20.

Hagedorn, L.S. (2000). Conceptualizing faculty job satisfaction: Components, theories, and outcomes. In L.S. Hagedorn (Ed.), *What contributes to job satisfaction among faculty and staff* (pp. 5-20) (New Directions for Institutional Research, No. 105, Vol. XXVII, No. 1). San Francisco: Jossey-Bass.

Hamidifar, F. (2009). A study of the relationship between leadership styles and employee job satisfaction at Islamic Azad University branches in Tehran, Iran. *AU-GSB e- Journal*, pp.1-13.

Hansen, J. T. (2004). Thoughts on knowing: Epistemic implications of counseling practice. *Journal of Counseling & Development*, vol. 82 (2), pp. 131-138.

Hanson, W. E., Creswell, J. W., Plano Clark, V. L., Petska, K. S. & Creswell, J. D. (2005). Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology,* vol. 52 (2), pp. 224-235.

Hanushek, E. A. & Kimko, D. D. (2000). Schooling, Labor Force Quality, and the Growth of Nations. *American Economic Review*, vol. 90 (5), pp. 1184-1208.

Harman, G. & Meek, L. (2007). Australia: Adjustment to the new management and entrepreneurial environment. In W. Locke & U. Teichler (Eds.), *The changing conditions for academic work and careers in select countries* (pp. 127-146). Kassel: International Centre for Higher Education Research (INCHER).

Harrigan, M. N. (1999). *An analysis of faculty turnover at the University of Wisconsin Madison.* Paper presented at the annual AIR Forum, Seattle, WA.

Harris, P. (2010). *Designing and Reporting Experiments in Psychology*. 3rd ed. Mc Graw Hill, Open University Press.

Harris, J., Martin, B.N. &Agnew, W. (2004). The Characteristics, Behaviours, and Training of Effective Educational/Leadership Chairs in Thompson, D.C. and Crampton, F.E. (eds.) *The Changing Face(s) of Educational Leadership: UCEA at the Crossroads*. Kansas City, Missouri.

Harvey, R. J., Billings, R. S. & Nilan, K. J. (1985). Confirmatory factor analysis of the job diagnostic survey: Good news and bad news. *Journal of Applied Psychology*, vol. 70 (3), pp. 461- 468.

Hassan, T., Hassan, E. M. & Mabekoje, S. O. (2008). A canonical correlation analysis of the causal relationship between organisational commitment and job satisfaction. *International Journal of Multidisciplinary Research*, vol. 1 (1), pp. 13-24.

Hecht, I., Higgerson, M., Gmelch, W. & Tucker, A. (1999). The department chair as academic leader. Phoenix, AZ: American Council on Education and The Oryx Press.

Hemmasi, M. (1992). Correlates of pay and benefit satisfaction: The unique case of public university faculty. *Public Personnel Management*, vol. 21 (4), pp. 429-443.

Heppner, p.p. & Heppner, M.J. (2004). *Writing and Publishing Your Thesis, Dissertation & Research; A Guide for Students in the Helping Professions*. THOMSON, BROOKS/COLE.

Herrmann, D. & Felfe, J. (2014), "Effects of leadership style, creativity technique and personal initiative on employee creativity". *British Journal of Management*, vol. 25 (2), pp. 209-227.

Hersey, P. & Blanchard, K.H. (1977). *Management of organizational behavior: Utilizing human resources*, 3rd ed. Englewood Cliffs: Prentice-Hall.

Herzberg, F. (1966). *Work and the nature of man*. Cleveland, OH., World.

Herzberg, F. (1968). One more time: How do you motivate employee. *Harvard Business Review*, vol. 46 (1), pp. 53-62.

Herzberg, F., Mausner, D., Peterson, R. O. & Capwell, D. F. (1957). *Job attitudes: Review of research and opinion. Pittsburgh.* Psychological Service of Pittsburgh.

Herzberg, F., Maunser, B. & Snyderman, B. (1959). *The motivation to work*. New York, NY: John Wiley and Sons, Inc.

Herzberg, F., Mausner, B. & Snyderman, B. B. (1993). *The motivation to work*: Transaction Pub.

Hesli, V.L. & Lee, M.L. (2013). Job Satisfaction in Academia: Why Are Some Faculty Members Happier Than Others? *PS: Political Science & Politics,* vol. 46 (2), pp. 339-354.

Hesselgrave, D.J. & Rommen, E. (2003). *Contextualization: Meanings, Methods, and Models.* Retrieved from http://books.google.com/books?id=Sqb1SjbODw0C&dq [Accessed 3rd September, 2009].

Hickson, D. & Pugh, D.S. (1995). *Management Worldwide: The Impact of Societal Culture on Organizations Around the Globe*, Penguin, Harmondsworth.

Hocking, W.E. (1924). Leaders and led. *Yale Review*, vol. 13, pp. 625-641.

Hofstede, G. (1980). *Cultures Consequences: International Differences in Work-related Values*. Sage, Beverly Hills, CA.

Hofstede, G. (1983). Cultural Dimensions for Project Management. *International Journal of Project Management*, vol. 1 (1), pp. 41-48.

Hofstede, G. (1991). *Cultures and Organizations: Software of the Mind*. McGraw-Hill, London.

Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology,* vol. 65 (4), pp. 599–610.

Hom, P.W., Griffeh, R.W., Mitchell, T.R. & Lee, T.W. (2012). Reviewing Employee Turnover: Focusing on Proximal Withdrawal States and an Expanded Criterion. *Psychological Bulletin*, vol. 138 (5), pp. 831–858

Homrig, M. A. (2001). *Transformational Leadership.* http://leadership.au.af.mil/documents/ homrig.htm İndirilme Tarihi: 10 Mayıs 2006.

Hopkins, P. (2004). Presentation: "Building Job Offers at University of Washington department chair training meeting" Seattle, WA.

House, R.J., Dorfman, P.W., Javidan, M., Hanges, M. &Sully de Luque, M.F. (2013). *Strategic Leadership Across Cultures, The GLOBE Study of CEO Leadership Behavior and Effectiveness in 24 Countries.* DSAGE

Howell, J.M. &Avolio, B.J. (1993). Transformational Leadership, Transactional Leadership, Locus of Control and Support for Innovation: Key Predictors of Consolidated- Business-Unit Performance. *Journal of Applied Psychology*, vol. 78 (6), pp. 891-902.

Hoyle, R. H. & Kenny, D. A. (1999). Sample size, reliability, and tests of statistical mediation. In R. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 195–222). Thousand Oaks, CA: Sage.

Hoyle, R. H. & Robinson, J. I. (2003). Mediated and moderated effects in social sychological

research: Measurement, design and analysis issues. In C. Sansone, C. Morf, & A. T. Panter (Eds.), Handbook of methods in social psychology. Thousand Oaks, CA: Sage.

Hoyt, J. E., Howell, S. L., & Eggett, D. (2007). Dimensions of part-time faculty job satisfaction: Development and factor analysis of a survey instrument. *Journal of Adult Education,* vol. 36 (2), pp. 23-34.

Hult, C., Callister, R. R. & Sullivan, K. (2005). Is there a global warming toward women in academia? *Liberal Education*, vol. 91, pp. 50–57.

Ilies, R., Curşeu, P.L., Dimotakis, N. & Spitzmuller, M. (2012), "Leaders' emotional expressiveness and their behavioural and relational authenticity: effects on followers", *European Journal of Work and Organizational Psychology,* vol. 2, pp. 1-19.

Izard, C., Kagan, J., & Zajonc, R. (1984). *Emotions, Cognition, and Behavior.* New York: Cambridge University Press.

Jain, H.C., Normand, J. & Kanungo, R.N. (1979), ``Job motivation of Canadian anglophone and francophone hospital employees'', *Canadian Journal of Behavioral Science*, vol. 11 (2), pp. 160-3.

James, L. R. & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology*, vol. 69, 307–321.

Jayakumar, U. M., Howard, T. C., Allen, W. R. & Han, J. C. (2009). Racial privilege in the professoriate: An exploration of campus climate, retention, and satisfaction. *Journal of Higher Education,* vol. 80 (5), pp. 538–563.

Johnson, B. & Christensen, L. B. (2014). *Educational research: quantitative, qualitative and mixed approaches.* 5th ed. Thousand Oaks, Calif.: SAGE.

Johnson, R. B. & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. Tashakkori, and C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 297-319). Thousand Oaks, CA: Sage.

Johnsrud, L. K., Heck, R. H. & Rosser, V. J. (2000). Morale matters: Midlevel administrators and their intent to leave. *Journal of Higher Education*, vol. 71 (1), pp. 34-59.

Johnsrud, L. K. & Rosser, V. J. (2002). Faculty members' morale and their intention to leave: A multilevel explanation. *Journal of Higher Education*, vol. 73 (4), pp. 518–542.

Jones, D. & Rudd, R. (2008). Transactional, transformational, or laissez-faire leadership: An assessment of college of agriculture academic program leaders' (Deans) leadership styles. *Journal of Agricultural Education*, vol. 49 (2), pp. 88-97.

Judd, C. M. & Kenny, D. A. (1981). Process analysis: Estimating mediation in treatment evaluations. *Evaluation Review,* vol. 5 (5), pp. 602–619.

Judd, C. M., McClelland, G. H. & Culhane, S. E. (1995). Data analysis: Continuing issues in the everyday analysis of psychological data. *Annual Review of Psychology*, vol. 46, pp. 433–465.

Judge, T. A. & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology*, vol. 85 (5), pp. 751-765.

Judge, T.A. & Piccolo, R.F. (2004). Transformational and Transactional Leadership: A Meta-Analytic Test of Their Relative Validity. *Journal of Applied Pasycology*, vol. 89 (5). pp. 755-768.

Judge, T. A., Thoresen, C. J., Bono, J. E. & Patton, G. K. (2001). The job satisfaction-Job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, vol. 127 (3), pp. 376–407.

Kabasakul, H. and Bodur, M. (2002). Arabic Cluster: a bridge between East and West. *Journal of World Business*, vol. 37 (1), pp. 40-54.

Kalleberg, A. L. (1977). Work values and job rewards: A theory of job satisfaction. *American Sociological Review,* vol. 42 (1), pp. 124-143.

Kechichian, J. A. (1999). Socio-political origins of Emirati leaders, *Middle East Policy,* vol.6, (4), pp. 16-18.

Kelali, T. & Narula, S. (2015). Relationship between leadership styles and faculty job satisfaction (A Review-based Approach). *International Journal of Science and Research (IJSR)*, vol. 6 (3). pp. 1917-1925.

Kelly, J. D. (1989). Gender, pay, and job satisfaction of faculty in journalism. *Journalism Quarterly*, vol. 66 (22), pp. 446-452.

Kenny, D. A., Kashy, D. A. & Bolger, N. (1998). Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology.* 4th ed., pp. 233-265. New York: Oxford University Press.

Kirk, D. (2010). *The development of higher education in the United Arab Emirates*. Abu Dhabi:

Emirates Center for Strategic Studies and Research.

Khalid, S. & Irshad, M.Z. (2010). Job satisfaction among Bank employees in Punjab, Pakistan: A comparative study. *European Journal of Social Sciences*. vol. 17 (40), pp. 570-577.

Khalid, S., Irshad, M. & Mahmood, B. (2012) Job satisfaction among Academic Staff: A Comparative Analysis between Public and Private Sector Universities of Punjab, Pakistan. *International Journal of Business and Management*. vol. 7 (1), pp. 126-136.

Kimura, T. (2012). Transformational leadership and job satisfaction: The mediating effects of perceptions of politics and market orientation in the Japanese context. *Int. Journal of Business Science and Applied Management,* vol. 7 (1), pp. 30-42.

Kirkbride, P. (2006). Developing transformational leaders: the full range leadership model in action, *Industrial and commercial training*, vol. 38 (1), pp. 23-32.

Knight, P. J. & Westbrook, J. (1999). "Comparing Employees in Traditional Job Structures Vs. Telecommuting Jobs Using Herzberg's Hygiene and Motivators." *Engineering Management Journal.* vol. 11 (1), pp. 15-20.

Kvale, S. & Brinkman, S. (2009). *Interviews: Learning the Craft of Qualitative Research Interviewing,* Sage.

Kuh, G. D. & Whitt, E. J. (1988). *The invisible tapestry: Culture in American colleges and universities*. Washington, DC: The George Washington University.

Kuhn, T.S. (1962). *The structure of scientific revolution*. 2nd ed. London: The University of Chicago Press.

Kula, S. & Guler, A. (2014). Influence of Supervisor Support on Job Satisfaction Levels: An Evaluation of Turkish National Police (TNP) Officers in the Istanbul Police Department. *International Journal of Criminal Justice Sciences*, vol. 9 (2), pp. 209-224.

Kulik, C. T., Oldham, G. R. & Langer, P. H. (1988). Measurement of job characteristics: Comparison of the original and the revised Job Diagnostic Survey. *Journal of Applied Psychology*, vol. 73 (3), pp. 462-466.

Lacy, F. J. & Sheehan, B. A. (1997). Job satisfaction among academic staff: An international perspective. *Higher Education*. vol. 34 (3), pp. 305-322.

Laden, B. V. & Hagedorn, L. S. (2000). Job satisfaction among faculty of color in academe: Individual survivors or institutional transformers? *New Directions for Institutional Research*, vol.

2000 (105), pp. 57-66.

Lahey, K.E. & Vihtelic, J.L. (2000). Finance faculty demographics, career history, diversity, and job satisfaction. *Financial Practice and Education,* vol. 10 (1), pp. 111-123.

Land, P. C. (2003). From the other side of the academy to academic leadership roles: Crossing the great divide. *New Directions for Higher Education,* vol. 2003 (124), pp. 13-20.

Lawler, E. (1970). Job attitudes and employee motivation: Theory, research, and practice. *Personnel Psychology,* vol. 23 (3), pp. 223-237.

Leahey, E. (2007). Not by productivity alone: How visibility and specialization contribute to academic earnings. *American Sociological Review*, vol. 72 (4), pp. 533–561.

Leary, M. & Allen, A. B. (2011). Personality and persona: Personality processes in self-presentation. Journal of Personality, vol. 79 (6), pp. 1191-1218.

Leary, M. R., Kelly, K. M., Cottrell, C. A., & Schreindorfer, L. S. (2007). Individual differences in the need to belong: Mapping the nomological network. Unpublished manuscript, Department of Psychology, Duke University, Durham, NC.

Leary, P.A., Sullivan, M.E. & Ray, D.A. (1999). The Relationship of Leadership Styles of Selected West Virginia Deans and Department Chairs to Job Satisfaction of Departmental Faculty Members. *National Forum of Educational Administration and Supervision*, vol. 16 (4), pp. 33-41.

Lee, F. K. (1998). Job Satisfaction and Autonomy of Hong-Kong registered Nurses. *Journal of Advanced Nursing,* vol. 27 (2), pp. 355-363.

Lee, J.E. (2013). *Women in Science, Technology, Engineering, and Mathematics (STEM) Fields: The Importance of the Need to Belong and Self-Esteem on the Intention to Leave a Job.* Master Thesis, San Jose State University.

Levine, M.F. (2000). *The importance of leadership: An investigation of presidential style at fifty national universities,* PhD Thesis, University of North Texas.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage.

Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 163–188). Thousand Oaks, CA: Sage.

Lincoln, J.R. & Kalleberg, A.L. (1985), "Work organization and workforce commitment: a study of plants and employees in the USA and Japan", *American Sociological Review*, vol. 50 (6), pp. 738-60.

Little, A. (1996). Globalization and International Research: Whose Contexts Counts? *International Journal of Educational Development*, vol.16 (4), pp. 427- 438.

Liu, M. C. (2001). "The Adaptation and Experience of Foreign-Born Faculty Members in the United States." PhD Thesis, Claremont Graduate University.

Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior & Human Performance,* vol. 4 (4), pp. 309-336.

Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology.* Chicago: Rand McNally.

Long, CS., Akintunde Ajagbe, M. & Owee Kowang, T. (2014). Addressing the Issues on Employees' Turnover Intention in the Perspective of HRM Practices in SME. *Procedia - Social and Behavioral Sciences,* vol. 129, pp. 99-104.

Loosemore, M. & Al-Muslmani, H.S. (1999). Construction project management in the Persian Gulf: inter-cultural communication. *International Journal of Project Management*, vol. 17 (2), pp. 95-100.

Lopez-Zafra, E., Garcia-Retamero, R. & Martos, M. P. (2012). The relationship between transformational leadership and emotional intelligence from a gendered approach. *The Psychological Record,* vol. 62, pp. 97-114.

Lowe, K. B., Kroeck, K. G. & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational leader- ship and transactional leadership: A meta-analytic review of the MLQ literature. *Leadership Quarterly*, vol. 7 (3), pp. 385-425.

Lucas, A. F. & Associates. (2000). *Leading academic change: Essential roles for department chairs.* San Francisco, CA: Jossey-Bass

MacDonald, G. & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin*, vol. 131 (2), pp. 202-223. doi:10.1037/0033-2909.131.2.224

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G. & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, vol. 7 (1), pp. 83-104.

Madlock, P.E. (2008). The Link between Leadership Style, Communicator Competence, and Employee Satisfaction. *Journal of Business Communication*, vol. 45 (1), pp. 61-78.

Mamiseishvili, K. (2011). Characteristics, job satisfaction, and workplace perceptions of foreign-born faculty at public 2-year institutions. *Community College Review*, vol. 39 (1), pp. 26-45.

Manisera, M., Dusseldorf, E. & Vander Kooij, A. (2005). *Component Structure of Job Satisfaction based on Herzberg's Theory,* University of Brescia, Italy. *Working paper 253.*

Mardanov, I. T., Heischmidt, K. & Henson, A. (2008). Leader-member exchange and job satisfaction bond and predicted employee turnover. *Journal of Leadership & Organizational Studies,* vol. 15 (2), pp. 159-175.

Markus, L.C. (2011). *Job Satisfaction of Foreign-born Faculty in Community Colleges Using NSOPF 2004 Data*. PhD Thesis, North Carolina State University.

Marsh, H. W. & Hattie, J. (2002). The relation between research productivity and teaching effectiveness: Complementary, antagonistic, or independent constructs? *Journal of Higher Education,* vol. 73 (5), pp. 603-641.

Marston, C. (2010). Generational Insights: Practical Solutions for Understanding and Engaging a Generationally Disconnected Workforce. United States.

Maslow, A.H. (1943). A Theory of Human Motivation. *Psychological Review,* vol. 50 (4), pp. 370-96.

Maslow, A.H. (1954). *Motivation and personality*. New York: Harper.

Mason, M. A. & Ekman, E. M. (2007). *Mothers on the Fast track: How a New Generation Can Balance Family Careers.* New York: Oxford University Press.

Mason, M.A. & Goulden, M. (2002). Do babies matter? The effect of family formation on the lifelong careers of academic men and women. *Academe*, vol. 88 (6), pp. 21-27

Master Plan for UAE (2007). Educating the Next Generation of Emiratis: A Master Plan For UAE Higher Education United Arab Emirates Ministry of Higher Education and Scientific Research Office of Higher Education Policy and Planning.

Matzler, K., Bauer, F. A. & Mooradian, T.A. (2015),"Self-esteem and transformational leadership". *Journal of Managerial Psychology*, vol. 30 (7), pp. 815-831. Permanent link to this document: http://dx.doi.org/10.1108/JMP-01-2013-0030

Maxwell, J. A. (1996). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage.

Maxwell, J. A. & Loomis, D. M. (2002). Mixed method design: An alternative approach. In A. Tashakkori and C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 241-271). Thousand Oaks. CA: Sage Publications.

Mayer, D.M., Bardes, M. & Piccolo, R.F. (2008). Do servant-leadership help satisfy subordinate needs? An organizational justice perspective. *European Journal of Work and Organizational Psychology*, vol. 17 (2), pp. 180-197.

McCrae, R.R., Terracciano, A., Realo, A. & Allik, J. (2004). "Interpreting GLOBE Societal Practices Scale," *Journal of Cross-Cultural Psychology,* vol. 39 (6), pp. 805-810.

McInnis, J. S.C. (2003). New realities of the student experience: how should universities respond? paper presented at the Twenty-Fifth Annual Conference of the European Association for Institutional Research, Limerick, Ireland.

Merriam, S.B. (2009). *Qualitative Research; A Guide to Design and Implementation*. Jossey-Bass.

Miia, M., Nicole, H., Karlos, A., Jaakko, K. & Ali, J. (2006). Project-based management as an organizational innovation: Drivers, changes, and benefits of adopting project-based management. *Project Management Journal*, vol. 37 (3), pp. 87-96.

Monroe, K., Ozyurt, S., Wrigley, T. & Alexander, A. (2008). Gender equality in academia: Bad news from the trenches, and some possible solutions. *Perspectives on Politics*, vol. 6 (2), pp. 215- 233.

Moodie, G. (2008). *From Vocational to Higher Education: An International Perspective*. Maidenhead: Society for Research in Higher Education and Open University Press.

Morgeson, F P. & Humphrey, SE. (2006). The Work Design Questionnaire (WDQ): Developing and Validating a Comprehensive Measure for Assessing Job Design and the Nature of Work. *Journal of Applied Psychology*, vol. 91 (6), pp. 1321-1339

Moxley, L. S. (1977). Job satisfaction of faculty teacher higher education: An examination of Herzberg's dual factor theory and Porter's need satisfaction. ERIC Document Service No. ED 139 349.

Mukhtar, F. (2012). "Work life balance and job satisfaction among faculty at Iowa State University" (2012). Graduate Theses and Dissertations. Paper 12791.

Mullen, C., Samier, E.A., Brindley, S., English, F. & Carr, N. (2013). An epistemic frame analysis of neoliberal culture and politics in the US, UK, and UAE. *Interchange*, vol. 43 (3), pp. 187-228.

Murray, J. P. & Cunningham, S. (2004). New Community College Faculty Members and Job Satisfaction. *Community College Review*, vol. 32 (2), pp. 19-32.

Murry, J.W.J. & Stauffacher, K.B. (2001). Department Chair Effectiveness: What Skills and Behaviours Do Deans, Chairs, and Faculty in Research Universities Perceive as Important? *Arkansas Educational Research & Policy Studies Journal*, vol. 1 (1), pp. 62-75.

NAFSA: The Association of International Educators (2006). Restoring U.S. Competitiveness for international students and scholars. Retrieved November 13, 2009, from NAFSA web site: http://www.na fsa.org//Document/restoringu.s.pdf . National Center for Education Statistics, 2006.

National Academy of Sciences, National Academy of Engineering, Institute of Medicine. 2007. Rising Above the Gathering Storm. NAP Press. http://www.nap.edu/catalog.php?record_id=11463.

National Academy of Sciences, National Academy of Engineering, Institute of Medicine. 2010. Rising Above the Gathering Storm Revisited. NAP Press. http://www.nap.edu/catalog.php?record_id=12999.

National Center for Education Statistics (1993). Schools and staffing in the U.S.: A statistical profile 1990-91, Washington, DC: U.S. Office of Education.

National Research Council. (1996). *National science education standards*. Washington.

Neal, J. E. (1990). An examination of disciplinary differences in factors related to job satisfaction among liberal arts college faculty members. Paper presented at the annual meeting of the Association for the Study of Higher Education, Portland

Neumann, Y. & Finaly, N. (1991). Determinants and correlates of faculty burn-out in U.S. research universities. Journal of Educational Administration, vol. 29 (3), pp. 80–92.

Nigam, M.K. & Jain, S. (2014). A Study of Job Satisfaction amongst Delhi University Faculty Based On Seniority of Post. *IOSR Journal of Business and Management,* vol. 15 (5), pp. 68-76.

Northouse, P.G. (1997). *Leadership: Theory and Practice*. Thousand Oaks: Sage.

Northouse, P. G. (2004). *Leadership: Theory and practice*. Thousand Oaks, CA: Sage.

Northouse, P. G. (2010). *Leadership: Theory and practice*. 5th edition, Thousand Oaks, CA: Sage.

Nunnally, J.C. (1970). *Introduction to psychological measurement*. New York, NY: McGraw-Hill.

Nydell, M.K. (2006). *Understanding Arabs: A guide for modern times*. Fourth Edition. Boston: Intercultural Press. Retrieved from http://books.google.com/books?id=ZNoiieefqAcC&dq=nydell&source=gbs_navlinks_s [Accessed 1st September 2008].

Okpara, J. O., Squillace, M. & Erondu, E. A. (2005). Gender differences and job satisfaction: A study of university teachers in the United States. *Women in Management Review,* vol. 20(3), pp. 177-190.

Olsen, D. (1993). Work Satisfaction and Stress in the First and Third Year of Academic Appointment. *Journal of Higher Education*, vol. 64, pp. 453-471.

Olsen, D., Maple, S. A. & Stage, F. K. (1995). Women and minority faculty job satisfaction: Professional role interests, professional satisfactions, and institutional fit. *The Journal of Higher Education,* vol. 66 (3), pp. 267–291.

Onwuegbuzie, A. J., & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report*, vol. 12 (2), pp. 281-316. [Online] Available: http://www.nova.edu/ssss/QR/QR12-2/onwuegbuzie2.pdf

Opp, R. D. (1992). Disciplinary differences in faculty career satisfaction. Paper presented at the annual meeting of the Association for the Study of Higher Education, Minneapolis.

O'Rourke, N., Hatcher, L. & Stepanski, E. J. (2005). *A step by step approach to using SAS for univariate and multivariate statistics.* 2nd ed. Cary, NC: SAS Institute and Wiley.

Oshagbemi, T. (1997). "Job satisfaction and dissatisfaction in higher education", Education + Training, vol. 39 (3), pp.354-359, https://doi.org/10.1108/00400919710192395

Oshagbemi, T. (2000). Is length of service related to the level of job satisfaction? International Journal of Social Economics, vol. 27 (3), pp. 213-26.

Ozaralli, N. (2003). Effects of transformational leadership on empowerment and team effectiveness, *Leadership & Organization Development Journal*, vol. 24 (6), pp. 335-344.

Padilla-Velez, D. (1993). Job satisfaction of vocational teachers in Puerto Rico. Unpublished PhD Thesis, The Ohio State University. Columbus, Ohio.

Parker, S. K., Wall, T. D. & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of Occupational and Organizational Psychology,* vol. 74 (4), pp. 413-440.

Paris. S. G. Bymes. J. P. & Paris, A. H. (2001). Constructing theories, identities, and actions of self-regulated learners. In B. J. Zimmerman & D. H. Schunk (Eds.). *Self-regulated learning and academic achievement* (pp. 253-288). Mahwah. NJ Lawrence Erlbaum Associates.

Parsons, E. & Broadridge, A. (2006). Job Motivation and satisfaction: Unpacking the factors for charity shop managers. *Journal of Retailing and Consumer Services*, vol. 13 (2), pp.121-131.

Parveen, A. (2009). Job satisfaction characteristics of higher education faculty by race. *Educational Research and Review*. vol. 4 (5), pp. 289-300

Perna, L. W. (2003). The status of women and minorities among community college faculty. *Research in Higher Education,* vol. 44 (2), pp. 205-240.

Perrewé, P. L. & Carlson, D. S. (2002). Do men and women benefit from social support equally? Results from a field examination within the work and family context', In D. L. Nelson and D. S. Burke (Eds.), *Gender, work, stress, and health: Current research issues* (pp. 101-114). Washington, DC: American Psychological Association.

Perry, J.N., Liebhold, A.M., Rosenberg, M.S., Dungan, J., Miriti, M., Jakomulska, A. & Citron-Pousty, S. (2002) *Illustration and guidelines for selecting statistical methods for quantifying spatial patterns in ecological data*. Ecography, vol. 25 (5), pp. 578-600.

Peus, C., Braun, S., Weisweiler, S. & Frey, D. (2010). Kompetent führen, führend forschen? Professionalisierung der Führungskompetenz and deutschen Universitäten [Competent leadership, leading research? Professionalization of leadership competencies in German universities]. *OrganisationsEntwicklung,* vol. 29, pp. 38–45.

Philips, D.C., & Burbules, N.C. (2000). *Postpositivism and educational research*. Lanham, MD: Rowman & Littlefield.

Pienaar, J., Sieberhagen, C. F. & Mostert, K. (2007). Investigating Turnover Intentions by Role Overload, Job Satisfaction and Social Support Moderation. *SA Journal of Industrial Psychology,* vol. 33 (2), pp. 62 – 67.

Pierce, J. L. & Gardner, D. G. (2004). Self-esteem within the work and organizational context: A review of the organization-based self-esteem literature. *Journal of Management*, vol. 30 (5), pp.

591-622. doi:10.1016/j.jm.2003.10.001.

Pierce, J.L., Gardner, D.G., Cummings, L.L. & Dunham, R.B. (1989), "Organization-based self-esteem: construct definition, measurement, and validation", *The Academy of Management Journal,* vol. 32 (3), pp. 622-648.

Pinder, C. C. (1998). *Work motivation in organizational behaviour*. USA: Prentice Hall.

Pinnington, A.H. (2011). 'Leadership Development in the Funded and Unfunded Sectors', *Leadership,* August, vol. 7 (3), pp. 335-365.

Pintrich, P. R, & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology,* vol. 82 (1), pp. 33-40.

Platsidou, M. & Diamantopoulou, G. (2009). *Job satisfaction of Greek university professors: Is it affected by demographic factors, academic rank and problems of higher education?* Paper presented at the Educating the Adult Educator: Quality Provision and Assessment in Europe, Thessaloniki.

Podsakoff, P.M., MacKenzie, S.B. & Podsakoff, N.P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, vol. 63, pp. 539-569.

Podsakoff, P.M., Todor, W.D. & Skov, R. (1981). Effects of leader reward and punishment behaviors on subordinate performance and attitudes. Paper presented at the National Academy of Management Meetings.

Pond, S. B. & Geyer, P. D. (1991). Differences in the relation between job satisfaction and perceived work alternatives among older and younger blue-collar workers. *Journal of Vocational Behavior,* vol. 39 (2), pp. 251-262.

Ponterotto, J.G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, vol. 52 (2), pp. 126-136.

Pousette, A. & Hansen, J.J. (2002). Job characteristics as predictors of ill-health and sickness absenteeism in different occupational types-a multigroup structural equation modelling approach. *Work & Stress*, vol. 16 (3), pp. 229-250.

Ramsden, P. (1998). *Learning to Lead in Higher Education*. London, Routledge.

Randeree, K. & Chaudhry, A.G. (2007). Leadership in Project Managed Environments: Employee Perceptions of Leadership Styles within Infrastructure Development in Dubai. *International Review of Business Research Papers*, vol. 3 (4), pp. 220-232.

Rees-Caldwell, K. and Pinnington, A.H. (2013). 'National Culture Differences in Project Management: Comparing British and Arab Project Managers' Perceptions of Different Planning Areas', *International Journal of Project Management*, vol. 31 (2), pp. 212-227.

Reybold, L. E. (2005). Surrendering the dream: Early career conflict and faculty dissatisfaction thresholds. *Journal of career development*, vol. 32 (2), pp. 107-121.

Richman, L. S., vanDellen, M. & Wood, W. (2011). How women cope: Being a numerical minority in a male-dominated profession. *Journal of Social Issues*, vol. 67 (3), pp. 492-509.

Robbins, S. P. & Coultar, M. (2005). *Management*. 8th ed. Pearson Education.

Robbins, SP. & Coulter, M (2012). *Management.* 11th ed. Pearson.

Rodwell, S. (1998). Internationalisation or Indigenisation of Educational Management Development? Some Issues of Cross-Cultural Transfer. *Comparative Education*, vol. 34 (1), pp. 41-54.

Roethlisberger, F.J. & Dickson, W.J. (1939). *Management and the worker*. Cambridge, Massachusetts: Harvard University Press.

Rokhman, W. & Hassan, A. (2012). Transformational leadership and work outcomes: organizational justice as mediator. *World Review of Business Research*. vol. 2 (4), pp. 164-171.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton. NJ: Princeton University Press.

Rosser, V. J. (2004). Faculty members' intentions to leave: A national study on their work-life and satisfaction. *Research in Higher Education*, vol. 45 (3), pp. 285-309.

Rosser, V. J. (2005). Measuring the change in faculty perceptions over time: An examination of their worklife and satisfaction. *Research in Higher Education*, vol. 46 (1), pp. 81-107.

Rosser, S. V. & Daniels, J. Z. (2004). Widening Paths to success, improving the environment, and moving toward lessons learned from the experiences of POWRE and CBL awardees. *Journal of Women and Minorities in Science and Engineering,* vol. 10 (2), pp. 131-148. doi:10.1615/JWomenMinorScienEng.v10.i2.20

Saari, L.M. & Judge, T.A. (2004). Employee Attitudes and Job Satisfaction. *Human Resource Management,* vol. 43 (4), pp. 395-407.

Sabharwal, M., & Corley, E.A. (2009). Faculty job satisfaction across gender and discipline. *The Social Science Journal*, vol. 46 (3), pp. 539–556.

Sadeghi, A. & Lope Pihie, Z. A. (2013). The Role of Transformational Leadership Style in Enhancing Lecturers' Job Satisfaction. *International Journal of Business and Social Science*, vol. 4 (8), pp. 264-271.

Sadeghi, A., ZaidatolAkmaliah, L. P., Habibah, E. & Foo, S.F (2012). Demographic analysis on academic staff's job satisfaction in Malaysian Research Universities. *Pertanik Journal of Social Sciences & Humanities,* vol. 20 (5), pp. 1-20.

Sakiru, O.K., Othman, J., Silong, A.D., Kreem, S.D., Oluwafemi, A.O. & Yusuf, G.O. (2014). Relationship between Head of Department Leadership Styles and Lecturers Job Satisfactions in Nigerian Public Universities. *Asian Social Science*; vol. 10 (6); 2014, ISSN 1911-2017 E-ISSN 1911-2025 Published by Canadian Center of Science and Education.

Saleem, H. (2015). The Impact of Leadership Styles on Job Satisfaction and Mediating Role of Perceived Organizational Politics, *Journal of Procedia Social and Behavioral Sciences*, vol. 172 (27), pp. 563–569.

Sapienza, A.L. (2005). From the inside: scientists' own experience of good (and bad) management. *Research and Development Management*, vol. 35 (5), pp. 473-482.

Saqer, H.O. (2009). *The effects of perceived leadership style on organizational commitment of UNRWA staff* (Master's thesis). Retrieved from Digital library and archives http://library.iugaza.edu.ps/thesis/86879.pdf

Sax, L.J., Hagedorn, L.S., Arredondo, M. & Dicrisi III, F.A. (2002). Faculty research productivity: Exploring the role of gender and family-related factors. *Research in Higher Education,* vol. 43 (4), pp. 423-446.

Schraw, G., Crippen, J.K. & Hartley, K. (2006). Promoting Self-Regulation in Science Education: Metacognition as Part of a Broader Perspective on Learning. *Research in Science Education,* vol. 36 (1), pp. 111-139.

Schwab, D., DeVitt, W. & Cummings (1971). A test of the adequacy of the two-factor theory as a predictor of self-report performance effects. *Personnel Psychology,* vol. 24 (2), pp. 293-303.

Schwandt, T. A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructionism. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 189-213). Thousand Oaks, CA: Sage.

Seifert, T. A. & Umbach, P. D. (2008). The effects of faculty demographic characteristics and disciplinary context on dimensions of job satisfaction. *Research in Higher Education,* vol. 49 (4), pp. 357–381.

Shah, S. (2006). Educational Leadership: An Islamic Perspective. *British Educational Research Journal,* vol. 32 (3), pp. 363-385.

Shah, S. (2010). Re-thinking Educational Leadership: Exploring the Impact of Cultural and Belief Systems. *International Journal of Leadership in Education*, vol. 13 (1), pp. 27-44.

Shahin, A.I. & Wright, P.L. (2004). Leadership in the Context of Culture. *Leadership & Organization Development Journal*, vol. 25 (6), pp. 499-511.

Shamir, B. House, R. J. & Arthur, M. B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science*, vol. 4 (4), pp. 577–594.

Shapira, Z. & Griffith, T. (1990). Comparing the work values of engineers with man- agers, production and clerical workers. *Journal of Organization Behavior,* vol. 11(4), pp. 281-292.

Shaw, M. (2005). The Cultural Context of Educational Leadership, in Coleman, M. and Earley, P. (eds.) *Leadership and Management in Education: Cultures, Change and Context*. Oxford: Oxford University Press.

Shrauger, J. S. & Rosenberg, S. E. (1970). Self-esteem and the effects of success and failure feedback on performance. *Journal of Personality*, vol. 38 (3), pp. 404-417. doi:10.1111/j.1467 6494.1970.tb00018.x

Siddique, A., Aslam, H.D., Khan, M. & Fatima, U. (2011). "Impact of academic leadership on faculty's motivation and organizational effectiveness in higher education system". *International Journal of Academic Research*, vol. 3 (2), pp. 730-737.

Siegel, D., Waldman, D., Atwater, L. & Link, A. (2004). Toward a model of the effective transfer of scientific knowledge from academicians to practitioners: qualitative evidence from the commercialization of university technologies, *Journal of Engineering and Technology Management*, vol. 21 (1, 2), pp. 115-142.

Sierpe, E. (1999). Job Satisfaction among Librarians in English-Language Universities in Quebec. *Library & Information Science Research*, vol. 21 (4), pp. 479-499

Sivanathan, N. & Fekken, G. C. (2002). Emotional intelligence, moral reasoning and transformational leadership. *Leadership and Organization Development Journal*, vol. 23 (3, 4), pp. 198-204.

Smart, J. C. (1990). A causal model of faculty turnover intentions. *Research in Higher Education*, vol. 31 (5), pp. 405–424.

Smith, B. L., & Hughey, A. W. (2006). Leadership in higher education its evolution and potential: A unique role facing critical challenges. *Industry and Higher Education*, vol. 20 (3), pp. 157–163, http://dx.doi.org/10.5367/000000006777690972.

Smith, P. C., Kendall, L. M. & Hulin, C. L. (1969). *The measurement of satisfaction in work and retirement*. Chicago: Rand McNally.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological method- ology 1982* (pp. 290–312). Washington, DC: American Sociological Association.

Spector, PE. (1985). Measurement of human service staff satisfaction: Development of the job satisfaction survey. *American journal of Community Psychology,* vol.13 (6), pp. 693-713.

Spector, P.E. (1997). The role of frustration in antisocial behavior at work. In R.A. Giacalone and J. Greenberg (eds.). *Antisocial behavior in organizations*. London: Sage Publications.

Spector, P. (2008), Industrial and Organizational Psychology: Research and Practice, 5th ed., John Wiley & Sons, New York, NY.

Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.

Ssesanga, K. & Garrett, R. M. (2005). Job satisfaction of university academics: Perspectives from Uganda. *Higher Education*, vol. 50 (1), pp.33-56.

Stanton-Spicer, A. & Spicer, C. (1987). Socialization of the academic chairperson: A typology of communication dimensions. *Educational Administration Quarterly*, vol. 23 (1), pp. 41- 64.

Stephan, P. E. (2004). Robert K. Merton's perspective on priority and the provision of the public good knowledge. *Scientometrics*, vol. 60 (1), pp. 81–87.

Stordeur, S., D'hoore, W. & Vandenberghe, C. (2001). Leadership, organizational stress, and emotional exhaustion among hospital nursing staff. *Journal of Advanced Nursing*, vol. 35 (4), pp. 533-542.

Stromquist, N. P. (2007). Internationalization as a response to globalization: Radical shifts in university environments. *Higher Education*, vol. 53 (1), pp. 81–105.

Stumpf, M. N. (2003). *The Relationship of Perceived Leadership Styles of North Carolina County Extension Directors' to Job Satisfaction of County Extension Professionals*. unpublished dissertation for the Doctor of Education Program, North Carolina State University.

Suliman, A. (2006). "Human resource management in the United Arab Emirates", In P. Budhwar & K. Mellahi (Eds.). *Managing human resources in the Middle East* (pp. 59-78). New Jersey: Routledge.

Susanj, Z. & Jakopec, A. (2012). Fairness Perceptions and Job Satisfaction as Mediators of the Relationship between Leadership Style and Organizational Commitment. *Psychological Topics*, vol. 21 (3), pp. 509-526

Taber, T. D. & Taylor, E. (1990). A review and evaluation of the psychometric properties of the Job Diagnostic Survey. *Personnel Psychology,* vol. 43 (3), pp. 467–500.

Tack, M. W. & Patitu, C. L. (1992). *Faculty Job Satisfaction: Women and Minorities in Peril.* Washington, D.C.: School of Education and Human Development, George Washington University.

Talat, I., Rehman, S. & Ahmed, I. (2013). Investigating the mediating role of organizational politics between leadership style and followers' behavioral outcomes. *Business Strategy Series,* vol. 14 (2, 3), pp. 80 - 96.

Tan, T.H. & Waheed, A. (2011). Herzberg's motivation-hygiene theory and job satisfaction in the Malaysian retail sector: the mediating effect of love of money. MPRA Paper No. 30419, Online at http://mpra.ub.uni-muenchen.de/30419/

Tashakkori, A. & Teddlie, C. (2010). *Handbook of Mixed Methods in Social & Behavioral Research.* 2nd ed. Sage.

Terpstra, D. E. & Honoree, A. L. (2004). Job satisfaction and pay satisfaction levels of university faculty by discipline type and by geographic region. *Education*, vol. 124 (3), pp. 528–539.

Thatcher, J.B., Liu, Y. & Stepina, L. P. (2002). The role of the work itself: An empirical examination of intrinsic motivation's influence on IT workers attitudes and intentions. *Proceedings of the ACM SIGCPR Conference.* 2002, pp. 25-33.

Thompson, P. (2000). *The Voice of The Past: Oral History*. 2nd ed. Oxford, Oxford University press.

Tietjen, M. A. & Myers, R. M. (1998). Motivation and job satisfaction. *Management Decision*, vol. 36 (4), pp. 226–231.

Tourish, D.J. and Pinnington, A.H. (2002). 'Transformational leadership, corporate cultism and the spirituality paradigm: An unholy trinity in the workplace?' *Human Relations*, vol. 55 (2), pp. 147-172.

Toutkoushian, R. K. (1999). The status of academic women in the 1990s no longer outsiders, but not yet equals. *The Quarterly Review of Economics and Finance*, vol. 39 (5), pp. 679-698.

Tsai, W.C., Chen, H.W. & Cheng, j.w. (2009). Employee positive moods as a mediator linking transformational leadership and employee work outcomes. *The International Journal of Human Resource Management,* vol. 20 (1), pp. 206-219

Tsitmideli G., Sidiropoulos G., Chalikias M., Drosos D. & Kalantonis P. (2017) The Relationship Between Subordinates and Supervisors and the Impact on Job Satisfaction and Efficiency of the Employees. In: Kavoura A., Sakas D., Tomaras P. (eds) *Strategic Innovative Marketing*. Springer Proceedings in Business and Economics. Springer, Cham

Tucker, A. (1992). *Chairing the academic department: Leadership among peers*. 3rd ed. Phoneix, AZ: American Council on Education.

Turner, C. S. & Myers, S. L., Jr. (2000). *Faculty of color in academe: Bittersweet success*. Des Moines, IA: Longwood Division, Allyn & Bacon.

UAE Vision 2021 (2009). Vision 2021: United in Ambition and Determination. Abu Dhabi: United Arab Emirates. Retrieved on October 9, 2011 from http://www.vision2021.ae

Van Knippenberg, D. & Sitkin, S.B. (2013). "A critical assessment of charismatic – transformational leadership research: back to the drawing board?" *The Academy of Management Annals*, vol. 7 (1), pp. 1-60.

Vroom, V. H. (1964). *Work and Motivation*. Wiley, New York.

Waldman, D.A., Bass, b.m. & Yammarino. (1990). Adding to Contingent-Reward Behavior The Augmenting Effect of Charismatic Leadership. *Group & Organization Management,* vol. 15 (4), pp, 381-394.

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, vol. 92 (1), pp. 82–96.

Walton, G. M. & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, vol. 331 (6023), pp. 1447-1451. doi:10.1126/science.1198364

Walumbwa, F.O., Avolio, B.J. & Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance: the role of identification and efficacy beliefs. *Pers. Psychol.* vol. 61 (4), pp. 793–825.

Walumbwa, F. O. & Lawler, J. J. (2003). Building effective organizations: Trans- formational leadership, collectivist orientation, work-related attitudes, and withdrawal behaviors in three emerging economies. *International Journal of Human Resource Management,* vol. 14 (7), pp. 1083-1101.

Walumbwa, F. O., Orwa, B., Wang, P. & Lawler, J. J. (2005). Transformational leadership, organizational commitment, and job satisfaction: A comparative study of Kenyan and U.S. financial firms. *Human Resource Development Quarterly*, vol. 16 (2), pp. 235–256, http://dx.doi.org/10.1002/hrdq.1135.

Walumbwa, F. O., Wang, P., Lawler, J. J. & Shi, K. (2004). The role of collective efficacy in the relations between transforma- tional leadership and work outcomes. *Journal of Occupational and Organizational Psychology*, vol. 77 (4), pp. 515-530.

Wang, G., Oh, I.-S., Courtright, S.H. & Colbert, A.E. (2011), "Transformational leadership and performance across criteria and levels: a meta-analytic review of 25 years of research", *Group & Organization Management,* vol. 36 (2), pp. 223-270.

Wang, X. & Howell, J. M. (2012). A multilevel study of transformational leadership, identification, and follower outcomes. *Leadership Quarterly*, vol. 23 (5), pp. 775-790.

Ward, M. E. & Sloane, P. J. (2000). Non-pecuniary advantages vs. pecuniary disadvantages: Job satisfaction among male and female academics in Scottish universities. *Scottish Journal of Political Economy,* vol. 47 (3), pp. 273-303.

Waters, K.K. (2013). *The Relationship between Principal's leadership styles and Job Satisfaction as perceived by School Teachers across NSW Independent Schools*, PhD Thesis, University of Wollongong.

Webb, K. S. (2009). Creating satisfied employees in Christian higher education: Research on leadership competencies. *Christian Higher Education,* vol. 8 (1), pp. 18-31.

Weisfeld, G.E. (1990). Sociobiological Patterns of Arab Culture. *Ethology and Sociobiology*, vol. 11, pp. 23-49.

Weiss, D., Davis, R, Lofquist, L. & England, G. (1966). *Instrumentation for the theory of work adjustment*. University of Minnesota, Minneapolis.

Weiss, H. M., Nicholas, J. P. & Daus, C. S. (1999). "An Examination of the Joint Effects of Affective Experiences and Job Beliefs on Job Satisfaction and Variations in Affective Experiences over Time." *Organizational Behavior and Human Decision Processes*, vol. 78 (1), pp. 1-24.

Welch, E.W. & Jha. Y. (2015). *Network and perceptual determinants of satisfaction among science and engineering faculty in US research universities.* J Technol Transf DOI 10.1007/s10961-015-9393-z

West, S. G., Aiken, L. S. & Krull, J. L. (1996). Experimental personality designs: Analyzing categorical by continuous variable interactions. *Journal of Personality,* vol. 64 (1), pp. 1-49.

Whitehouse, G. (2001). Recent trends in pay equity: Beyond the aggregate statistics. *Journal of Industrial Relations,* vol. 43 (1), pp. 66-78.

Wong, E. & Heng, T. (2009). Case study of factors influencing job satisfaction in two Malaysian universities. *International Business Research*, vol. 2 (2), pp. 86-98. Retrieved from http://www.ibrusa.com.

Wood, O. R. (1976). A research project: Measuring job satisfaction of the community college staff. Community College Review, vol. 3 (3), pp. 56-64.

Wood, O. R. (1973). *An analysis of faculty motivation to work in the North Carolina community college system.* Unpublished doctoral dissertation, North Carolina State University. Raleigh, NC.

Xu, Y. J. (2008). Faculty turnover: Discipline specific attention is warranted. *Research in Higher Education,* vol. 49 (1), pp. 40-61.

Yang, Y.-F. (2014), "Studies of transformational leadership: evaluating two alternative models of trust and satisfaction", *Higher Education Quarterly*, vol. 67 (3), pp. 275-294. doi: 10.1111/ hequ.12018.

Yasin, M.M. & Zimmerer, T. (1995). Achieving new venture success in the emerging Arab countries: a study of comparative cultures and strategies in two segments of the Arab world. *Cross Cultural Management*, vol. 2 (4), pp. 3-14.

Yasin, M.M., Zimmerer, T.W. & Wafa, M.A. (1997). American vs. Arab Project Managers: The Road to Effectiveness. *Cross Cultural Management: An International Journal*, vol. 4 (4), pp. 17-28.

Yavas, U., Luqmani, M. & Quraeshi, Z. (1990), "Organizational commitment, job satisfaction, work values: Saudi and expatriate managers", *Leadership & Organization Development Journal*, vol. 11 (7), pp. 3-10.

Young, C. (1996). "Emotions and Emotional Intelligence." http://trochim.human.cornell.edu /gallery/young/emotion.htm.

Yousef, D.A. (2000). "Organisational Commitment: A Mediator of the Relationships of Leadership Behaviour with Job Satisfaction and Performance in A Non-Western Country", *Journal of Managerial Psychology*, vol. 15 (1), pp. 6-28.

Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly,* vol. 10 (2), pp. 285-305.

Yukl, G. (2013). *Leadership in Organizations*, Prentice Hall, Englewood Cliffs, NJ.

Yukl, G. & Mahsud, R. (2010). Why flexible and adaptive leadership is essential. *Consulting Psychology Journal: Practice and Research*, vol. 62 (2), pp. 81-93. doi:10.1037/a0019835

Yukl, G. & Van Fleet, D. D. (1992). Theory and research on leadership in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 147-197). Palo Alto, CA: Consulting Psychologists Press.

Zey-Ferrell, M. (1982). Predictors of faculty intent to exit the organization: Potential turnover in a large university. *Human Relations*, vol. 35 (5), pp. 349–372.

Zhou, Y. & Volkwein, J. F. (2003). The influences on faculty departure in two-year colleges: A national study using NSOPF-99. Paper presented at the Association for the Study of Higher Education (ASHE) Conference, Portland, OR.

Zhou, Y. & Volkwein, J. F. (2004). Examining the influences on faculty departure intentions: A comparison of tenured versus non-tenured faculty at research universities using NSOPF-99. *Research in Higher Education*, vol. 45 (2), pp. 139-176.

Zhu, W., Newman, A., Miao, Q. & Hooke, A. (2013). Revisiting the mediating role of trust in transformational leadership effects: Do different types of trust make a difference? *Leadership Quarterly*, vol. 24 (1), pp. 94-105.

Zikmund, G. W. (2003). *Exploring marketing research.* 8th ed. South-Western: Thomson.

Appendix 3.1 Faculty Survey Questionnaire

Consent Form

The focus of this study is to gain a better understanding of the leadership styles practiced by Heads of STEM Departments, the most effective factors that satisfy faculty in their job, and the most appropriate HODs' leadership styles that can help with improving faculty job satisfaction.

The first part of the questionnaire includes demographic questions, the second part includes leadership style questions, and the third part asks you to respond to the job satisfaction questions. Please ensure that you answer ALL of the questions. Completion of the survey is your indication of consent to voluntarily participate in this research.

Completing this survey will take about 25 minutes and all responses will remain anonymous and non-attributable. The identities of participants will remain strictly confidential. The results of this study will be published, but no names or identifying information will be included in the publications.

You may contact me at 050 2518532 or via email at fatemeh.mirshahi@yahoo.com if additional information is needed or you have any concern about research. My Director of Studies for this research project is Professor. Ashly H. Pinnington whom can be reached via his email: ashly.pinnington@buid.ac.ae

* 1. Contact information (Your information are strictly confidential, they are available only to the researcher and no names or identifying information will be included in the publications).

Work Email Address

University Name

Department Name

2. I plan to discuss this research with a small sample of respondents and in follow-up interviews. If you are willing to attend an interview, please select option yes.

◯ Yes

◯ No

* 3. I understand that my individual participation is entirely confidential.

◯ Yes

◯ Exit Survey

Part I- Demographics

This section asks you to provide information about yourself. Please be reminded that all your answers are confidential.

4. Are you:

○ Male

○ Female

5. State the country/ countries which you are a citizen?

[   ]

6. What is the kind of university that you are working in?

○ Private for profit

○ Private for non-profit

○ Federal

○ Other (please specify)

[   ]

7. What are the Titles, the Universities and the Years that you achieved your degrees?

Doctoral	[ ]
Master	[ ]
Bachelor	[ ]
Diploma	[ ]
Certificates (related to your job)	[ ]
Other	[ ]

8. What is your main teaching discipline?

[   ]

9. What is your field of specialization?

[   ]

10. What is your academic title and position?

[ ]

11. For each of the activities below, please indicate the approximate percentage of time you spend annually. Then mention your preferred time spending on each.

	0%	1%-9%	10%-19%	20%-29%	30%+
Teaching-Actual time spent on teaching	○	○	○	○	○
Teaching-Your preferred allocation	○	○	○	○	○
Research-Actual time spent on Research	○	○	○	○	○
Research-Your preferred allocation	○	○	○	○	○
Administration and internal service-Actual time spent on administration and internal service	○	○	○	○	○
Administration and internal service-Your preferred allocation	○	○	○	○	○
External service (e.g. Community outreach; participation in professional committees)-Actual time spent on external service	○	○	○	○	○
External service (e.g. Community outreach; participation in professional committees)-Your preferred allocation	○	○	○	○	○

12. Are you employed full or part time at this institution?

○ Full time

○ Part time

13. What was your first job in higher education?

Job Title	
Name of the University:	
Year	
Full time/ Part time	

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14. What is your _monthly_ salary (excluding all allowances)?
(Your responses to these items are strictly confidential. They will be used only in statistical summaries)

○ 1– 9,999 AED

○ 10,000– 19,999 AED

○ 20,000– 29,999 AED

○ 30,000– 39,999 AED

○ 40,000– 49,999 AED

○ More than 50,000 AED

15. For all of the categories below, please estimate the number of journal articles, edited books, authored books, chapters in books, presentations at conferences you have had from 2009 to 2015?

Journal articles	
Edited books	
Authored books	
Chapter(s) in books	
Presentations at conferences outside the UAE	
Presentations at conferences in the UAE	

16. This question is about recognition in your organization. During 2010-present date, which of the following have you been a member of? Tick all those that apply.

☐ National/international scientific board

☐ Elected leader of a professional association or union

☐ Elected leader of an external professional/academic organization

☐ Chairperson in an external professional role

☐ Engagement in funded or creative research /consultancy

17. Please answer the following two questions about responsibility at workplace.

What is the number of committees you have served on in the last 5 years?

What is the number of committees you have chaired in the last 5 years?

18. What is your age?

○ Young—35 years and younger

○ Middle aged—36 to 54 years

○ Senior—55 years and over

19. Would you consider yourself as a:

○ Muslim

○ Non-Muslim

20. This question is related to change in your family and personal circumstances. Are you:

☐ Single and never married

☐ Married

☐ Living with partner or significant other

☐ Separated, divorced, or widowed

21. Were your circumstances in the question above the same as 12 months ago?

○ Yes

○ No

22. This question is related to change in your rank. Have you been:

○ Promoted to a higher rank within the last 5 years

○ In the same academic rank for more than 5 years

23. This question is related to transfer to a new institution. How long have you been employed in your current institution?

Years: _____

Months: _____

24. This question is related to promotion in your current institution. How long have you been employed in your current position?

Years: _____

Months: _____

25. When you feel exceptionally good about your job, what aspects of the job come to mind? Name 3 aspects (Please respond regarding your attitudes toward your teaching research, and organizational responsibilities).

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26. When you feel exceptionally bad about your job, what aspects of the job come to mind? Name 3 aspects (Please respond regarding your attitudes toward your teaching research, and organizational responsibilities).

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Part II- Leadership Styles

This questionnaire is used to describe the leadership style of Heads of the STEM Departments. Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits the person you are describing. Please answer all items.

27. Provides me with assistance in exchange for my efforts

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

28. Re-examines critical assumptions to question whether they are appropriate

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

29. Fails to interfere until problems become serious

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

30. Focuses attention on irregularities, mistakes, exceptions, and deviations from standards

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

31. Avoids getting involved when important issues arise

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

32. Talks about their most important values and beliefs

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

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33. Is absent when needed

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

34. Seeks different perspectives when solving problems

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

35. Talks optimistically about the future

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

36. Instills pride in me for being associated with him/her

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

37. Discusses in specific terms who is responsible for achieving performance targets

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

38. Waits for things to go wrong before taking action

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

39. Talks enthusiastically about what needs to be accomplished

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

40. Specifies the importance of having a strong sense of purpose

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

41. Spends time teaching and coaching

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

42. Makes clear what one can expect to receive when performance goals are achieved

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

43. Shows that he/she is a firm believer in "If it ain't broke, don't fix it."

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

44. Goes beyond self-interest for the good of the group

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

45. Treats me as an individual rather than just as a member of a group

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

46. Demonstrates that problems must become chronic before taking action

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

47. Acts in ways that builds my respect

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

48. Concentrates his/her full attention on dealing with mistakes, complaints, and failures

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

49. Considers the moral and ethical consequences of decisions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

50. Keeps track of all mistakes

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

51. Displays a sense of power and confidence

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

52. Articulates a compelling vision of the future

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

53. Directs my attention toward failures to meet standards

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

54. Avoids making decisions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

55. Considers me as having different needs, abilities, and aspirations from others

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

56. Gets me to look at problems from many different angles

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

57. Helps me to develop my strengths

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

58. Suggests new ways of looking at how to complete assignments

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

59. Delays responding to urgent questions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

60. Emphasizes the importance of having a collective sense of mission

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

61. Expresses satisfaction when I meet expectations

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

62. Expresses confidence that goals will be achieved

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

63. Is effective in meeting my job-related needs

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

64. Uses methods of leadership that are satisfying

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

65. Gets me to do more than I expected to do

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

66. Is effective in representing me to higher authority

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

67. Works with me in a satisfactory way

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
◯	◯	◯	◯	◯

68. Heightens my desire to succeed

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

69. Is effective in meeting organizational requirements

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

70. Increases my willingness to try harder

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

71. Leads a group that is effective

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

Part III- Job Satisfaction

The purpose of this study is to gain an understanding of your attitude regarding your academic job. Below are listed some factors that may relate to the level of satisfaction or dissatisfaction that you find in your job. Please reflect on your job and rate your current satisfaction for all of the following statements.

72. Work itself

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I sometimes feel my job is meaningless	○	○	○	○	○
I feel a sense of pride in doing my job	○	○	○	○	○
My job is enjoyable	○	○	○	○	○

73. Achievement

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am proud to work in this organisation because it recognizes my achievements	○	○	○	○	○
I feel satisfied with my job because it gives me a feeling of accomplishment	○	○	○	○	○
I feel I have contributed towards my organisation in a positive manner	○	○	○	○	○

74. Need to belong

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I need to feel that there are people I can turn to in times of need	○	○	○	○	○
I have a strong need to belong	○	○	○	○	○
It bothers me a great deal when I am not included in other people's plans	○	○	○	○	○

75. Recognition

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
When I do a good job, I receive the recognition for it that I should receive	○	○	○	○	○
There are few rewards for those who work here	○	○	○	○	○
I don't feel my efforts are rewarded the way they should be	○	○	○	○	○

76. Self-esteem

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
On the whole, I am satisfied with myself	○	○	○	○	○
I feel I do not have much to be proud of	○	○	○	○	○
I feel that I am a person of worth, at least on an equal level with others	○	○	○	○	○
I wish I could have more respect for myself	○	○	○	○	○

77. Responsibility

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am involved in making decisions for research	○	○	○	○	○
I am involved in making decisions for teaching programs	○	○	○	○	○
I am involved in making decisions for the organisation	○	○	○	○	○
I am responsible for decisions related to community engagement	○	○	○	○	○
I feel satisfied with the amount of responsibility I have	○	○	○	○	○
I feel satisfied with the perceived influence I have at the department level	○	○	○	○	○

78. Skill variety

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The job requires me to use a number of complex or high-level skills	○	○	○	○	○
The job requires me to do many different things at work	○	○	○	○	○
I do not receive any professional development courses for the skills I need	○	○	○	○	○

79. Autonomy

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am completely satisfied with the level of autonomy that I have in teaching my courses	○	○	○	○	○
I would like more freedom to determine the content, materials, and texts for my courses	○	○	○	○	○
The job gives me considerable opportunity for independence and freedom in how I do the work	○	○	○	○	○

80. Advancement

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have enough opportunities provided for professional growth through formal education	○	○	○	○	○
I have enough opportunity to objectively evaluate my accomplishments	○	○	○	○	○
I have opportunities for increased responsibilities	○	○	○	○	○

81. Change in rank

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am satisfied with the promotion process overall	○	○	○	○	○

82. Promotion

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There is really too little chance for promotion in my job	○	○	○	○	○
Those who do well on the job stand a fair chance of being promoted	○	○	○	○	○
I am satisfied with my chances for promotion	○	○	○	○	○

83. Salary

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel I am being paid a fair amount for the work I do	○	○	○	○	○
Raises are too few and far between	○	○	○	○	○
I feel satisfied with my chances for salary increases	○	○	○	○	○

84. Benefits

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am not satisfied with the benefits I receive	○	○	○	○	○
The benefits we receive are as good as most other organisations offer	○	○	○	○	○
The benefit package we have is equitable	○	○	○	○	○

85. Work security

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe my job is secure	○	○	○	○	○
I feel satisfied with the amount of job security that I have	○	○	○	○	○
I feel safe when I am working in the laboratories and doing experiments and projects	○	○	○	○	○

86. Feedback

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work	○	○	○	○	○
I am satisfied with the overall quality of the supervision I receive in my work	○	○	○	○	○
The feedback I receive is usually on-time and productive	○	○	○	○	○

87. Supervision

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My supervisor is quite competent in doing his/her job	○	○	○	○	○
My supervisor has a high willingness to delegate responsibility	○	○	○	○	○
Generally I feel satisfied with the technical ability of the administrator to whom I report	○	○	○	○	○

88. Collegial relationships

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I like the people I work with	○	○	○	○	○
I find I have to work harder at my job than I should because of the incompetence of people I work with	○	○	○	○	○
There is too much bickering and fighting at work	○	○	○	○	○
I feel satisfied about interpersonal relations with my colleagues	○	○	○	○	○

89. Interpersonal relations (superior)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel very comfortable requesting assistance from academic department faculty when I have questions about my courses or students	○	○	○	○	○
I feel my performance has improved because of the support from my supervisor	○	○	○	○	○
I feel satisfied at work because of my relationship with my supervisor	○	○	○	○	○

90. Change in perceived justice

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel that female and male faculty are treated fairly	○	○	○	○	○
I feel that funding is allocated to particular people unfairly	○	○	○	○	○
There is a low level of ethnic prejudice at my institution	○	○	○	○	○
Prejudice against my gender group affects me	○	○	○	○	○
Personally, I experienced gender discrimination	○	○	○	○	○
Due to gender discrimination, the average female faculty are deprived of opportunities that are available to men	○	○	○	○	○

91. Policies and communications

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
At my institution there is good communication between management and academics	○	○	○	○	○
At my institution there is a supportive attitude of administrative staff towards teaching	○	○	○	○	○
At my institution there is a supportive attitude towards research	○	○	○	○	○
The goals of this organisation are not clear to me	○	○	○	○	○

92. Students

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Students lack motivation or the academic skills to succeed in my courses	○	○	○	○	○
I feel satisfied about the interpersonal relations with my students	○	○	○	○	○
I feel unsatisfied about my students' quality because I have to spend more time than I would like teaching basic skills due to student deficiencies	○	○	○	○	○
I feel satisfied with the work published together with my students	○	○	○	○	○

93. Institutional climate/ culture

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The classrooms I teach in are well-maintained and appropriate	○	○	○	○	○
The laboratories are well-maintained and appropriate	○	○	○	○	○
The research equipment is well-maintained and appropriate	○	○	○	○	○
The research funding is well-maintained and appropriate	○	○	○	○	○
The computer facilities are well-maintained and appropriate	○	○	○	○	○
The secretarial support is well-maintained and appropriate	○	○	○	○	○

94. Religious and cultural values

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There are substantial differences in attitudes toward women's advancement in the UAE as a developing country	○	○	○	○	○
The religion and different aspects of culture of the UAE are considered in this workplace	○	○	○	○	○
There is no problem in this workplace regarding the religion and culture of this country	○	○	○	○	○
The religion and cultural values in UAE higher education are the main barriers to teaching students	○	○	○	○	○
The religion and cultural values in UAE higher education are the main barriers to research	○	○	○	○	○
The religion and cultural values in UAE higher education are the main barriers to working relationships with colleagues	○	○	○	○	○
The religion and cultural values in the UAE higher education are the main barriers to communication with students	○	○	○	○	○

95. Change in family related and personal circumstances

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am usually satisfied with how I balance my professional and personal life	○	○	○	○	○
Most faculty in my department are supportive of colleagues who want to balance their family and career lives	○	○	○	○	○
The department is supportive of family leave	○	○	○	○	○

96. Change in mood/ emotional state

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I would rate my overall emotional well-being as excellent	○	○	○	○	○

97. General job satisfaction

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am satisfied with my job	○	○	○	○	○
I am happy with the way my colleagues and superiors treat me	○	○	○	○	○
I am satisfied with what I achieve at work	○	○	○	○	○
I feel good at work	○	○	○	○	○

98. Additional Comments

Thank You Very Much for Your Time and Participation

Appendix 3.2 HODs Survey Questionnaire

* 1. Contact information (Your information are strictly confidential, they are available only to the researcher and no names or identifying information will be included in the publications).

Work Email Address	
University Name	
Department Name	

2. I plan to discuss this research with a small sample of respondents and in follow-up interviews. If you are willing to attend an interview, please select option yes.

◯ Yes

◯ No

* 3. I understand that my individual participation is entirely confidential.

◯ Yes

◯ Exit Survey

Part I: Demographics

This section asks you to provide information about yourself. Please be reminded that all your answers are confidential.

4. Are you:

◯ Male

◯ Female

5. State the country/ countries which you are a citizen?

[   ]

6. What is the kind of university that you are working in?

◯ Private for profit

◯ Private for non-profit

◯ Federal

◯ Other (please specify)

[   ]

7. What are the Titles, the Universities and the Years that you achieved your degrees?

Doctoral	[ ]
Master	[ ]
Bachelor	[ ]
Diploma	[ ]
Certificates (related to your job)	[ ]
Other	[ ]

8. What is your main teaching discipline?

[   ]

9. What is your field of specialization?

[   ]

10. What is your academic title and position?

[ ]

11. For each of the activities below, please indicate the approximate percentage of time you spend annually. Then mention your preferred time spending on each.

	0%	1%-9%	10%-19%	20%-29%	30%+
Teaching-Actual time spent on teaching	○	○	○	○	○
Teaching-Your preferred allocation	○	○	○	○	○
Research-Actual time spent on Research	○	○	○	○	○
Research-Your preferred allocation	○	○	○	○	○
Administration and internal service-Actual time spent on administration and internal service	○	○	○	○	○
Administration and internal service-Your preferred allocation	○	○	○	○	○
External service (e.g. Community outreach; participation in professional committees)-Actual time spent on external service	○	○	○	○	○
External service (e.g. Community outreach; participation in professional committees)-Your preferred allocation	○	○	○	○	○

12. Are you employed full or part time at this institution?

○ Full time

○ Part time

13. What was your first job in higher education?

Job Title	[ ]
Name of the University:	[ ]
Year	[ ]
Full time/ Part time	[ ]

14. What is your monthly salary (excluding all allowances)?
(Your responses to these items are strictly confidential. They will be used only in statistical summaries)

- ○ 1– 9,999 AED
- ○ 10,000– 19,999 AED
- ○ 20,000– 29,999 AED
- ○ 30,000– 39,999 AED
- ○ 40,000– 49,999 AED
- ○ More than 50,000 AED

15. For all of the categories below, please estimate the number of journal articles, edited books, authored books, chapters in books, presentations at conferences you have had from 2009 to 2015?

Journal articles	
Edited books	
Authored books	
Chapter(s) in books	
Presentations at conferences outside the UAE	
Presentations at conferences in the UAE	

16. This question is about recognition in your organization. During 2010-present date, which of the following have you been a member of? Tick all those that apply.

- ☐ National/international scientific board
- ☐ Elected leader of a professional association or union
- ☐ Elected leader of an external professional/academic organization
- ☐ Chairperson in an external professional role
- ☐ Engagement in funded or creative research /consultancy

17. Please answer the following two questions about responsibility at workplace.

What is the number of committees you have served on in the last 5 years?

What is the number of committees you have chaired in the last 5 years?

354

18. What is your age?

○ Young—35 years and younger

○ Middle aged—36 to 54 years

○ Senior—55 years and over

19. Would you consider yourself as a:

○ Muslim

○ Non-Muslim

20. This question is related to change in your family and personal circumstances. Are you:

☐ Single and never married

☐ Married

☐ Living with partner or significant other

☐ Separated, divorced, or widowed

21. Were your circumstances in the question above the same as 12 months ago?

○ Yes

○ No

22. This question is related to change in your rank. Have you been:

○ Promoted to a higher rank within the last 5 years

○ In the same academic rank for more than 5 years

23. This question is related to transfer to a new institution. How long have you been employed in your current institution?

Years: _____

Months: _____

24. This question is related to promotion in your current institution. How long have you been employed in your current position?

Years: _____

Months: _____

25. When you feel exceptionally good about your job, what aspects of the job come to mind? Name 3 aspects (Please respond regarding your attitudes toward your teaching research, and organizational responsibilities).

26. When you feel exceptionally bad about your job, what aspects of the job come to mind? Name 3 aspects (Please respond regarding your attitudes toward your teaching research, and organizational responsibilities).

Part II- Leadership Styles

This questionnaire is used to describe your leadership styles as the Head of STEM Department. Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits your leadership styles. Please answer all items.

27. I provide others with assistance in exchange for their efforts

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

28. I re-examine critical assumptions to question whether they are appropriate

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

29. I fail to interfere until problems become serious

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

30. I focus attention on irregularities, mistakes, exceptions, and deviations from standards

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

31. I avoid getting involved when important issues arise

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

32. I talk about my most important values and beliefs

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

33. I am absent when needed

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

34. I seek different perspectives when solving problems

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

35. I talk optimistically about the future

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

36. I instill pride in others for being associated with me

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

37. I discuss in specific terms who is responsible for achieving performance targets

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

38. I wait for things to go wrong before taking action

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

39. I talk enthusiastically about what needs to be accomplished

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

40. I specify the importance of having a strong sense of purpose

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

41. I spend time teaching and coaching

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

42. I make clear what one can expect to receive when performance goals are achieved

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

43. I show that I am a firm believer in "If it ain't broke, don't fix it."

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

44. I go beyond self-interest for the good of the group

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

45. I treat others as an individual rather than just as a member of a group

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

46. I demonstrate that problems must become chronic before I take action

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

47. I act in ways that builds other's respect for me

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

48. I concentrate my full attention on dealing with mistakes, complaints, and failures

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

49. I consider the moral and ethical consequences of decisions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

50. I keep track of all mistakes

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

51. I display a sense of power and confidence

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

52. I articulate a compelling vision of the future

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

53. I direct my attention toward failures to meet standards

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

54. I avoid making decisions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

55. I consider an individual as having different needs, abilities, and aspirations from others

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

56. I get others to look at problems from many different angles

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

57. I help others to develop their strengths

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

58. I suggest new ways of looking at how to complete assignments

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

59. I delay responding to urgent questions

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

60. I emphasize the importance of having a collective sense of mission

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

61. I express satisfaction when others meet expectations

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

62. I express confidence that goals will be achieved

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

63. I am effective in meeting others' job-related needs

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

64. I use methods of leadership that are satisfying

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

65. I get others to do more than they expected to do

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

66. I am effective in representing others to higher authority

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

67. I work with others in a satisfactory way

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

68. I heighten others' desire to succeed

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

69. I am effective in meeting organizational requirements

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

70. I increase others' willingness to try harder

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

71. I lead a group that is effective

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
○	○	○	○	○

72. Additional Comments

Thank You Very Much for Your Time and Participation

Appendix 3.3 Consent Form

<div style="border:1px solid;">

Consent Form

This research study examines the influence of leadership on the job satisfaction of academics. The focus of this study is to gain a better understanding of the leadership styles practiced by heads of STEM Departments, the most effective factors that satisfy faculty in their job, and the most appropriate Heads of Departments' leadership styles that can help with improving faculty job satisfaction.

Interview Protocol:

1.The participant will be briefed prior to interview with the study purpose and objectives explaining the following:
- Anonymity
- Privacy of answers
- Right to refrain or withdraw without any negative consequences

2. Permission for recording the interview will be requested at the beginning of the interview.

3. Notes will also be taken during the interview.

4. Interviews will be given the opportunity to check the data collected for authentication.

5. All data collected throughout the study will be safely kept in a private locked cupboard until the end of the project and the dissemination of the results. Later, hard copies will be disposed using a shredder and after all the study's results have been published, all transcripts recording will be deleted.

You may contact me at 0502518532 or via email at Fatemeh.mirshahi@yahoo.com if additional information is needed or you have any concern about research. My director of studies for this research project is Professor Ashly Pinnington whom can be reached via his email: ashly.pinnington@buid.ac.ae

❖ By clicking this box, I understand that my participation is completely voluntary and confidential

☐

Name:
Contact Number:

</div>

Appendix 3.4 Interview Questions (the Main Questions)

<div style="border:1px solid">

<p align="center">Interview Schedule</p>

1. What is the most effective leadership to satisfy faculty?

2. What are the most important ways (factors) to satisfy faculty here?

3. How far do you think that factors such as collegiality, supervision, or work itself are important in improving faculty job satisfaction? (DVs)

4. To what extent do you think that factors such as quality of students and relationships, responsibility, achievement, and feedback are important in improving faculty job satisfaction? (Mediators)

5. How far do you think that factors such as work life balance, change in perceived justice, salary, and the first job in higher education are important in improving faculty job satisfaction? (Moderators)

6. How can leadership be improved here?

7. How can faculty job satisfaction level be improved here?

<p align="center">Thank you for your time and participation</p>

</div>

Appendix 4.1 Tests of Normality: Kolmogorov-Smirnov and Shapiro-Wilk Tests

Variable	Kolmogorov-Smirnov Test	Shapiro-Wilk Test
Leadership Styles-A (Transformational, Transactional, Laissez-faire Extra Effort, Satisfaction, Effectiveness)	D (80)=0.077, **p>.05** (0.200*)	D (80)=0.981, **p>.05** (0.294)
Leadership Styles-Aa (Transformational, Transactional, Laissez-faire)	D (82)=0.070, **p>.05** (0.200*)	D (82)=0.990, **p>.05** (0.809)
Transformational Leadership Style	D (85)=0.091, **p>.05** (.080)	D (85)=0.984, **p>.05** (0.379)
Idealized Influence Attributed	D (85)=0.107, p<.05	D (85)=0.975, **p>.05** (0.099)
Idealized Influence Behaviour	D (85)=0.115, p<.05	D (85)=0.976, **p>.05** (0.120)
Inspirational Motivation	D (85)=0.129, p<.05	D (85)=0.970, **p>.05** (0.046)
Intellectual Stimulation	D (85)=0.113, p<.05	D (85)=0.973, **p>.05** (0.074)
Individualized Consideration	D (85)=0.144, p<.05	D (85)=0.959, p<.05
Transactional Leadership Style	D (85)=0.083, **p>.05** (0.200*)	D (85)=0.980, **p>.05** (0.214)
Contingent Rewards	D (85)=0.106, p<.05	D (85)=0.977, **p>.05** (0.129)
Management by Exception Active	D (85)=0.088, **p>.05** (0.153)	D (85)=0.988, **p>.05** (0.621)
Management by Exception Passive	D (85)=0.970, p<.05	D (85)=0.938, p<.05
Laissez-faire	D (94)=0.169, p<.05	D (94)=0.856, p<.05
Extra Effort	D (90)=0.138, p<.05	D (90)=0.949, p<.05
Satisfaction	D (90)=0.237, p<.05	D (90)=0.908, p<.05
Effectiveness	D (90)=0.132, p<.05	D (90)=0.959, p<.05
Faculty Job Satisfaction	D (72)=0.102, **p>.05** (0.063)	D (72)=0.941, p<.05
Work Itself	D (72)=0.110, p<.05	D (72)=0.923, p<.05
Salary	D (72)=0.128, p<.05	D (72)=0.956, p<.05
Promotion	D (72)=0.193, p<.05	D (72)=0.819, p<.05
Supervision	D (72)=0.263, p<.05	D (72)=0.858, p<.05
Collegial Relationship	D (72)=0.270, p<.05	D (72)=0.834, p<.05
General Job Satisfaction	D (72)=0.278, p<.05	D (72)=0.799, p<.05
Moderators	D (66)=0.105, **p>.05** (0.067)	D (66)=0.958, p<.05
Change in Life Stage	D (66)=0.410, p<.05	D (66)=0.671, p<.05
Change in Family-related or Personal Circ	D (66)=0.118, p<.05	D (66)=0.964, **p>.05** (0.052)
Transfer to a New Institution	D (66)=0.117, p<.05	D (66)=0.868, p<.05
Change in Perceived Justice	D (66)=0.103, **p>.05** (0.080)	D (66)=0.972, **p>.05** (0.137)
Change in Mood or Emotional State	D (66)=0.375, p<.05	D (66)=0.760, p<.05
Mediators (except Motivators & Hygienes)	D (80)=0.091, **p>.05** (0.099)	D (80)=0.976, **p>.05** (0.128)
Demographic	D (100)=0.083, **p>.05** (0.088)	D (100)=0.963, p<.05
Gender	D (100)=0.475, p<.05	D (100)=0.543, p<.05
Ethnicity	D (100)=0.125, p<.05	D (100)=0.952, p<.05
Institutional Type	D (100)=0.349, p<.05	D (100)=0.787, p<.05
Academic Discipline	D (100)=0.100, p<.05	D (100)=0.962, p<.05
Motivators and Hygienes (except Recognition)		

Achievement	D (41)=0128, **p>.05** (0.090)	D (41)=0.901, **p>.05** (0.020)
Recognition	D (41)=0.200, p<.05	D (41)=0.768, p<.05
Responsibility	---	---
Advancement	D (41)=0.193, p<.05	D (41)=0.915, p<.05
Working Conditions	D (41)=0.165, p<.05	D (41)=0.956, **p>.05** (0.113)
Job Security	D (41)=0.133, **p>.05** (0.067)	D (41)=0.938, p<.05
	D (41)=0.151, p<.05	D (41)=0.948, **p>.05** (0.059)
Environmental Conditions		
Student Quality or Relationships (*Students*)	D (89)=0.061, **p>.05** (0.200*)	D (89)=0.987, **p>.05** (0.538)
Administration	D (89)=0.114, p<.05	D (89)=0.971, p<.05
Institutional Climate or Culture	D (89)=0.104, p<.05	D (89)=0.975, **p>.05** (0.086)
	D (89)=0.147, p<.05	D (89)=0.949, p<.05
Job Design		
Skill Variety	D (89)=0.119, **p>.05** (0.061)	D (89)=0.969, p<.05
Autonomy	D (89)=0.152, p<.05	D (89)=0.952, p<.05
Feedback	D (89)=0.140, p<.05	D (89)=0.941, p<.05
	D (89)=0.178, p<.05	D (89)=0.934, p<.05
Identity		
Need to Belong	D (85)=0.078, **p>.05** (0.200*)	D (85)=0.985, **p>.05** (0.459)
Self-esteem	D (85)=0.105, p<.05	D (85)=0.970, p<.05
Religious and Cultural Values	D (85)=0.151, p<.05	D (85)=0.942, p<.05
	D (85)=0.086, **p>.05** (0.181)	D (85)=0.987, **p>.05** (0.536)

This is a lower bound of the true significance.

Appendix 4.2 Normal Q-Q Plots

Normal Q–Q Plot of A_Leadership_Styles

Normal Q–Q Plot of Aa_Leadership_Styles

Normal Q–Q Plot of A_1_Transformational_Leadership

Normal Q–Q Plot of A_2_Transactional_Leadership

Normal Q–Q Plot of A_3_Laissez_faire

Normal Q–Q Plot of A_4_ExtraEffort

Normal Q-Q Plot of A_5_Satisfaction

Normal Q-Q Plot of A_6_Effectiveness

Normal Q–Q Plot of B_Faculty_Job_Satisfaction

Normal Q–Q Plot of T_Moderators

Normal Q–Q Plot of C_1_Demographic

Normal Q–Q Plot of C_1_Mediators_Except_MotHyg

Normal Q–Q Plot of C_3_Environmental_Conditions

Normal Q–Q Plot of C_4_Job_Design

Normal Q–Q Plot of C_5_Identity

Appendix 4. 3 Reliability for Leadership Styles (45 Qs)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.934	.925	45

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Provides me with assistance in exhange for my efforts	107.3659	797.889	.370	.702	.933
Re-examines critical assumptions to question whether they are appropriate	107.8293	794.143	.602	.640	.931
Fails to interfere until problems become serious	109.0976	854.534	-.377	.788	.938
Focuses attention on irregularities, mistakes, exceptions, and deviations from standards	108.1463	828.744	-.018	.523	.936
Avoids getting involved when important issues arise	109.2195	851.408	-.358	.778	.938
Talks about their most important values and beliefs	107.6585	812.647	.235	.526	.934
Is absent when needed	109.8293	840.341	-.296	.791	.936
Seeks different perspectives when solving problems	107.3171	785.627	.605	.647	.931
Talks optimistically about the future	107.1098	784.445	.604	.733	.931
Instills pride in me for being associated with him/her	107.5366	786.918	.518	.778	.932
Discusses in specific terms who is responsible for achieving performance targets	107.3293	788.199	.586	.776	.931

Waits for things to go wrong before taking action	109.6220	851.571	-.413	.823	.937
Talks enthusiastically about what needs to be accomplished	107.0000	793.309	.477	.703	.932
Specifies the importance of having a strong sense of purpose	107.3171	784.812	.692	.798	.931
Spends time teaching and coaching	107.2683	789.606	.503	.615	.932
Makes clear what one can expect to receive when performance goals are achieved	107.3902	772.784	.715	.815	.930
Shows that he/she is a firm believer in "If it ain't broke, don't fix it."	108.6341	828.037	-.003	.606	.935
Goes beyond self-interest for the good of the group	107.4512	781.312	.556	.733	.931
Treats me as an individual rather than just as a member of a group	107.7073	791.222	.408	.707	.933
Demonstrates that problems must become chronic before taking action	109.4390	837.163	-.148	.756	.936
Acts in ways that builds my respect	106.8902	775.778	.734	.795	.930
Concentrates his/her full attention on dealing with mistakes, complaints, and failures	108.0000	800.765	.345	.685	.933
Considers the moral and ethical consequences of decisions	106.9390	775.293	.772	.867	.930
Keeps track of all mistakes	108.0854	817.758	.133	.726	.935
Displays a sense of power and confidence	107.0732	777.970	.734	.884	.930
Articulates a compelling vision of the future	107.3049	773.202	.755	.865	.930
Directs my attention toward failures to meet standards	108.0854	789.931	.491	.681	.932

Avoids making decisions	109.3049	851.622	-.364	.777	.938
Considers me as having different needs, abilities, and aspirations from others	108.6220	798.090	.364	.686	.933
Gets me to look at problems from many different angles	107.5000	772.056	.805	.900	.929
Helps me to develop my strengths	107.4878	762.426	.838	.916	.929
Suggests new ways of looking at how to complete assignments	107.6829	768.145	.818	.889	.929
Delays responding to urgent questions	109.5976	840.466	-.221	.800	.936
Emphasizes the importance of having a collective sense of mission	107.1585	777.938	.733	.850	.930
Expresses satisfaction when I meet expectations	106.9512	765.479	.805	.902	.929
Expresses confidence that goals will be achieved	106.9634	772.530	.765	.899	.930
Is effective in meeting my job-related needs	107.1463	770.768	.798	.894	.929
Uses methods of leadership that are satisfying	107.1098	768.124	.842	.916	.929
Gets me to do more than I expected to do	108.0000	802.198	.357	.579	.933
Is effective in representing me to higher authority	107.5122	772.105	.711	.846	.930
Works with me in a satisfactory way	106.9390	772.725	.766	.868	.930
Heightens my desire to succeed	107.2561	762.860	.808	.914	.929
Is effective in meeting organizational requirements	106.9146	770.672	.781	.907	.930
Increases my willingness to try harder	107.2805	762.204	.802	.903	.929
Leads a group that is effective	107.0488	770.121	.777	.927	.930

Appendix 4. 4 Reliability and Factor Analysis for Leadership Styles (36 Qs)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.883	.868	36

Item-Total Statistics

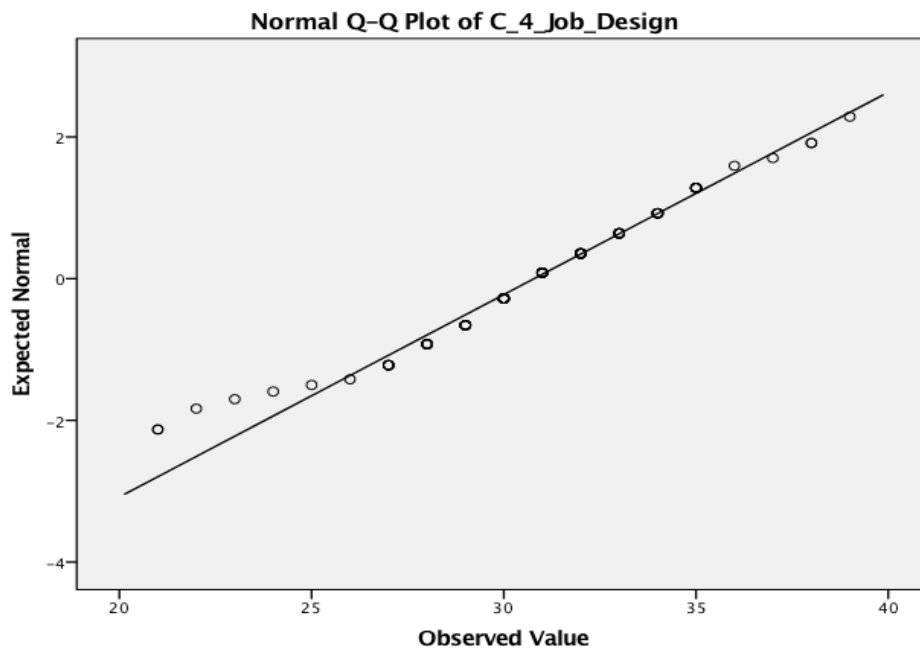|	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Provides me with assistance in exhange for my efforts	80.8571	375.015	.335	.613	.881
Re-examines critical assumptions to question whether they are appropriate	81.2976	370.453	.613	.578	.877
Fails to interfere until problems become serious	82.5833	409.354	-.324	.708	.892
Focuses attention on irregularities, mistakes, exceptions, and deviations from standards	81.6429	393.871	-.013	.376	.888
Avoids getting involved when important issues arise	82.7143	407.773	-.312	.665	.891
Talks about their most important values and beliefs	81.1310	381.368	.280	.445	.882
Is absent when needed	83.3095	400.409	-.220	.676	.887
Seeks different perspectives when solving problems	80.8333	365.996	.566	.591	.877
Talks optimistically about the future	80.5476	365.865	.555	.688	.877
Instills pride in me for being associated with him/her	80.9881	365.843	.508	.730	.878
Discusses in specific terms who is responsible for achieving performance targets	80.8095	367.915	.562	.643	.877

Waits for things to go wrong before taking action	83.1190	407.576	-.350	.765	.890
Talks enthusiastically about what needs to be accomplished	80.5000	370.422	.447	.632	.879
Specifies the importance of having a strong sense of purpose	80.7976	364.380	.700	.750	.875
Spends time teaching and coaching	80.7262	366.563	.518	.495	.877
Makes clear what one can expect to receive when performance goals are achieved	80.8690	359.537	.653	.699	.875
Shows that he/she is a firm believer in "If it ain't broke, don't fix it."	82.1310	391.248	.053	.511	.886
Goes beyond self-interest for the good of the group	80.9286	362.910	.540	.584	.877
Treats me as an individual rather than just as a member of a group	81.1905	369.144	.398	.665	.880
Demonstrates that problems must become chronic before taking action	82.9048	398.304	-.105	.643	.888
Acts in ways that builds my respect	80.3571	360.883	.675	.751	.874
Concentrates his/her full attention on dealing with mistakes, complaints, and failures	81.4762	375.409	.340	.617	.881
Considers the moral and ethical consequences of decisions	80.4048	360.244	.718	.756	.874
Keeps track of all mistakes	81.5714	384.874	.170	.637	.884
Displays a sense of power and confidence	80.5357	361.071	.700	.741	.874
Articulates a compelling vision of the future	80.7976	359.440	.697	.788	.874
Directs my attention toward failures to meet standards	81.5595	366.394	.520	.608	.877
Avoids making decisions	82.7738	407.358	-.305	.690	.891

Considers me as having different needs, abilities, and aspirations from others	82.0952	372.714	.375	.612	.880
Gets me to look at problems from many different angles	81.0000	357.205	.771	.829	.873
Helps me to develop my strengths	80.9643	351.770	.774	.869	.872
Suggests new ways of looking at how to complete assignments	81.1667	354.912	.786	.851	.872
Delays responding to urgent questions	83.0714	402.284	-.216	.650	.889
Emphasizes the importance of having a collective sense of mission	80.6429	362.401	.679	.778	.875
Expresses satisfaction when I meet expectations	80.4286	353.838	.749	.864	.872
Expresses confidence that goals will be achieved	80.4405	358.298	.711	.853	.874

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.835
Bartlett's Test of Sphericity	Approx. Chi-Square	1873.074
	df	630
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.054	36.261	36.261	13.054	36.261	36.261	8.821	24.501	24.501
2	3.060	8.499	44.760	3.060	8.499	44.760	4.152	11.533	36.035
3	1.699	4.720	49.481	1.699	4.720	49.481	2.840	7.888	43.922
4	1.534	4.262	53.743	1.534	4.262	53.743	1.836	5.101	49.023
5	1.417	3.937	57.679	1.417	3.937	57.679	1.775	4.931	53.954

6	1.295	3.598	61.278	1.295	3.598	61.278	1.554	4.317	58.271
7	1.167	3.241	64.519	1.167	3.241	64.519	1.537	4.270	62.541
8	1.059	2.942	67.461	1.059	2.942	67.461	1.428	3.968	66.508
9	1.013	2.815	70.276	1.013	2.815	70.276	1.356	3.767	70.276
10	.906	2.516	72.792						
11	.889	2.469	75.261						
12	.868	2.412	77.673						
13	.782	2.172	79.844						
14	.718	1.995	81.839						
15	.630	1.751	83.591						
16	.588	1.633	85.223						
17	.553	1.536	86.760						
18	.537	1.491	88.250						
19	.488	1.355	89.605						
20	.426	1.184	90.790						
21	.388	1.076	91.866						
22	.358	.994	92.860						
23	.342	.951	93.811						
24	.310	.862	94.673						
25	.286	.794	95.467						
26	.228	.633	96.100						
27	.225	.624	96.725						
28	.214	.595	97.320						
29	.182	.506	97.826						
30	.169	.470	98.296						
31	.148	.411	98.707						
32	.129	.357	99.064						
33	.118	.329	99.393						
34	.084	.234	99.627						
35	.078	.216	99.844						
36	.056	.156	100.000						

Extraction Method: Principal Component Analysis.

Scree Plot
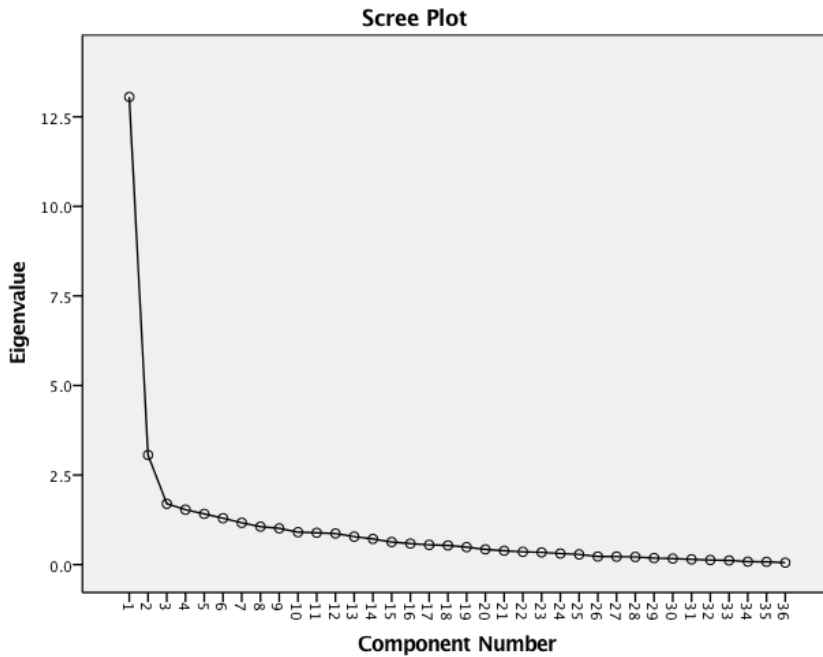
Rotated Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
IS-58.Suggests new ways of looking at how to complete assignments	**.800**	-.243	.161		.162	.108	.184		
IA-47.Acts in ways that builds my respect	**.781**	-.124	.202		.113			-.197	
IC-57.Helps me to develop my strengths	**.761**	-.238	.241		.199				.112
IM-62.Expresses confidence that goals will be achieved	**.758**	-.134		-.106	.393		-.212		.110
CR-42.Makes clear what one can expect to receive when performance goals are achieved	**.750**	-.195	.251	.147	-.132		-.109		
IB-60.Emphasizes the importance of having a collective sense of mission	**.727**	-.229			.319	.102	-.152	-.132	
CR-61.Expresses satisfaction when I meet expectations	**.724**	-.223	.109		.481				
IC-41.Spends time teaching and coaching	**.679**				-.122				
IS-56.Gets me to look at problems from many different angles	**.673**	-.230	.203	.110	.256	.252	.173		.218

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	1	2	3	4	5	6	7	8	9
IB-40.Specifies the importance of having a strong sense of purpose	**.662**	-.169	.276	.290			-.178		.173
IM-52.Articulates a compelling vision of the future	**.626**	-.346	.321			.217			.248
IB-49.Considers the moral and ethical consequences of decisions	**.624**	-.260	.261	.168	.235			.120	.147
MA-53.Directs my attention toward failures to meet standards	**.590**			.311		.222	.348	.109	-.193
IA-51.Displays a sense of power and confidence	**.552**	-.174	.472	.274				.163	.263
IM-35.Talks optimistically about the future	**.495**	-.241	.326	-.134	.196	-.146		.144	.247
CR-37.Discusses in specific terms who is responsible for achieving performance targets	**.484**	-.180	.356				-.362	.217	.272
IA-44.Goes beyond self-interest for the good of the group	**.410**	-.191	.393	.248	.269		-.227	-.154	
MP-38.Waits for things to go wrong before taking action	-.225	**.797**	-.158	-.148					-.158
MP-46.Demonstrates that problems must become chronic before taking action		**.765**	-.147	.192	-.120			.163	
LF-33.Is absent when needed	-.157	**.747**	-.121		-.103				
LF-54.Avoids making decisions	-.320	**.665**		.123	-.117			-.177	
MP-29.Fails to interfere until problems become serious	-.294	**.630**				.289	.312		-.189
LF-31.Avoids getting involved when important issues arise	-.278	**.565**	-.107	-.222			.338	.381	
CR-27.Provides me with assistance in exchange for my efforts	.224	-.305	**.690**		-.110			-.197	
IA-36.Instills pride in me for being associated with him/her	.380		**.651**	-.165	.247	-.342			
IC-45.Treats me as an individual rather than just as a member of a group	.154		**.631**		.222	.348		-.214	
IS-28.Re-examines critical assumptions to question whether they are appropriate	.463	-.133	**.481**	.154		.208		.259	
MA-50.Keeps track of all mistakes	.110			**.860**			.140		
MA-48.Concentrates his/her full attention on dealing with mistakes, complaints, and failures	.175			**.650**	.508	-.145		.195	

IS-34.Seeks different perspectives when solving problems	.360	-.244	.266		**.552**	.206	.170		.125
IM-39. Talks enthusiastically about what needs to be accomplished	.418	-.226	.145		**.442**	-.286	-.292		
IC-55. Considers me as having different needs, abilities, and aspirations from others	.369				**.767**				-.104
LF-59. Delays responding to urgent questions	-.266	.461			**.523**	-.267	-.129		.204
MP-43. Shows that he/she is a firm believer in "If it ain't broke, don't fix it."		.176		.187			**.745**	-.156	.297
MA-30. Focuses attention on irregularities, mistakes, exceptions, and deviations from standards			-.130			-.111	**.794**		
IB-32. Talks about their most important values and beliefs	.196						.159		**.803**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 15 iterations.

Appendix 4. 5 Reliability and Factor Analysis for Faculty Job Satisfaction

Faculty Job Satisfaction (92 items)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.846	.866	92

Faculty Job Satisfaction (6 elements)

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.885	.893	13

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	721.899
	df	78
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.870	45.150	45.150	5.870	45.150	45.150	4.256	32.740	32.740
2	1.598	12.289	57.439	1.598	12.289	57.439	2.558	19.679	52.419
3	1.510	11.616	69.055	1.510	11.616	69.055	2.163	16.636	69.055
4	.988	7.602	76.657						
5	.786	6.043	82.700						
6	.574	4.419	87.119						
7	.435	3.347	90.466						
8	.311	2.394	92.861						

9	.273	2.101	94.962					
10	.213	1.639	96.601					
11	.181	1.395	97.996					
12	.155	1.194	99.191					
13	.105	.809	100.000					

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component		
	1	2	3
97-2.I am happy with the way my colleagues and superiors treat me	**.829**	.215	
97-4. I feel good at work	**.812**	.174	.324
97-1. I am satisfied with my job	**.771**	.232	.339
97-3. I am satisfied with what I achieve at work	**.744**	.180	.238
88-4.I feel satisfied about interpersonal relations with my colleagues	**.730**	.231	-.221
72-3. My job is enjoyable	**.610**	.105	.437
88-1.I like the people I work with	**.580**	.371	
72-2. I feel a sense of pride in doing my job	**.550**	-.120	.407
87-2. My supervisor has a high willingness to delegate responsibility		**.888**	
87-1. My supervisor is quite competent in doing his/her job	.223	**.838**	.226
87-3.Generally I feel satisfied with the technical ability of the administrator to whom I report	.370	**.799**	.234
82-2.Those who do well on the job stand a fair chance of being promoted	.117	.163	**.829**
82-3. I am satisfied with my chances for promotion		.153	**.828**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Appendix 4. 6 Reliability and Factor Analysis for Moderators

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.559	.532	6

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.595
Bartlett's Test of Sphericity	Approx. Chi-Square	159.173
	df	15
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.541	42.351	42.351	2.541	42.351	42.351	2.416	40.269	40.269
2	1.453	24.211	66.562	1.453	24.211	66.562	1.578	26.293	66.562
3	.838	13.966	80.528						
4	.520	8.670	89.197						
5	.408	6.799	95.996						
6	.240	4.004	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component	
	1	2
90-6.Due to gender discrimination, the average female faculty are deprived of opportunities that are available to men	**.828**	.256
90-5. Personally, I experienced gender discrimination	**.806**	.104
90-4. Prejudice against my gender group affects me	**.764**	.236
90-3.There is a low level of ethnic prejudice at my institution	**.587**	.186
95-3.The department is supportive of family leave	-.304	**.824**
95-2.Most faculty in my department are supportive of colleagues who want to balance their family and career lives	-.430	**.779**

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Appendix 4.7 Reliability and Factor Analysis for Mediators-Motivators and Hygienes

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.792	.777	26

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.702
Bartlett's Test of Sphericity	Approx. Chi-Square	960.887
	df	325
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.191	23.810	23.810	6.191	23.810	23.810	3.720	14.307	14.307
2	2.898	11.147	34.957	2.898	11.147	34.957	3.529	13.571	27.878
3	2.438	9.377	44.334	2.438	9.377	44.334	2.582	9.930	37.808
4	1.717	6.604	50.938	1.717	6.604	50.938	2.408	9.260	47.069
5	1.562	6.008	56.945	1.562	6.008	56.945	1.647	6.334	53.403
6	1.231	4.736	61.682	1.231	4.736	61.682	1.524	5.861	59.264
7	1.168	4.492	66.173	1.168	4.492	66.173	1.505	5.788	65.052
8	1.035	3.979	70.152	1.035	3.979	70.152	1.326	5.101	70.152
9	.986	3.794	73.947						
10	.877	3.374	77.320						
11	.757	2.912	80.232						
12	.663	2.551	82.783						
13	.637	2.450	85.232						
14	.516	1.984	87.216						
15	.495	1.902	89.118						
16	.422	1.621	90.740						

17	.393	1.513	92.252							
18	.352	1.354	93.606							
19	.339	1.303	94.910							
20	.316	1.215	96.124							
21	.261	1.005	97.130							
22	.206	.791	97.921							
23	.182	.700	98.621							
24	.147	.566	99.187							
25	.123	.473	99.661							
26	.088	.339	100.000							

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
73-1.I am proud to work in this organisation because it recognizes my achievements	**.753**		.295		.164		.185	
73-2.I feel satisfied with my job because it gives me a feeling of accomplishment	**.749**	.160			.344			
75-1.When I do a good job, I receive the recognition for it that I should receive	**.720**	.110	.241		-.116			.278
80-3.I have opportunities for increased responsibilities	**.706**	.372	.142	.169				.105
80-2.I have enough opportunity to objectively evaluate my accomplishments	**.680**	.514						-.206
80-1I have enough opportunities provided for professional growth through formal education	**.615**	.512	-.131		-.139			-.188
77-5.I feel satisfied with the amount of responsibility I have	.183	**.737**			.207			-.117
77-6. I feel satisfied with the perceived influence I have at the department level		**.729**			.360	-.128	.102	.171
77-1.I am involved in making decisions for research	.223	**.726**				-.148	.176	
77-2.I am involved in making decisions for teaching programs	.187	**.608**	.226		.104	.487	-.116	
77-3.I am involved in making decisions for the organisation	.192	**.586**	.276	.264	-.145	-.291		

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	1	2	3	4	5	6	7	8
85-2.I feel satisfied with the amount of job security that I have	.225		**.781**	.112	.229	-.101	-.150	-.162
85-1.I believe my job is secure	.142		**.769**		.210	-.136	-.165	-.111
75-3.I don't feel my efforts are rewarded the way they should be	-.222	-.287	**-.538**	.389	.204	-.206	-.139	
11-2.Teaching-Your preferred allocation	.161		**-.530**		.177	.437	-.335	-.188
11-7.External service (e.g. Community outreach; participation in professional committees)-Actual time spent on external service				**.849**		-.152		
11-8.External service (e.g. Community outreach; participation in professional committees)-Your preferred allocation	.135		-.158	**.631**	-.170		.115	.263
11-6.Administration and internal service-Your preferred allocation		.248	-.122	**.610**		.436		-.139
11-5. Administration and internal service-Actual time spent on administration and internal service	-.269	.139		**.516**	.194	.130	.369	.430
77-4.I am responsible for decisions related to community engagement	.185	.374	.265	**.409**		-.347	-.258	
85-3.I feel safe when I am working in the laboratories and doing experiments and projects			.333	-.123	**.748**	-.150		
73-3.I feel I have contributed towards my organisation in a positive manner	.468	.239			**.639**			-.243
11-1.Teaching-Actual time spent on teaching		-.287	-.142			**.705**		
11-4Research-Your preferred allocation			-.123		-.126		**.860**	
11-3.Research-Actual time spent on Research	.238	.188	-.413	.358		-.166	**.432**	-.224
75-2.There are few rewards for those who work here			-.207	.167	-.123		-.160	**.792**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 16 iterations.

Appendix 4. 8 Reliability and Factor Analysis for Mediators- Environmental conditions

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.871	.874	15

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.760	
Bartlett's Test of Sphericity	Approx. Chi-Square	688.899
	df	105
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.556	37.042	37.042	5.556	37.042	37.042	3.672	24.477	24.477
2	2.021	13.476	50.518	2.021	13.476	50.518	2.655	17.700	42.177
3	1.568	10.451	60.968	1.568	10.451	60.968	2.480	16.535	58.712
4	1.300	8.665	69.633	1.300	8.665	69.633	1.638	10.922	69.633
5	.901	6.004	75.637						
6	.722	4.812	80.449						
7	.577	3.849	84.298						
8	.538	3.588	87.886						
9	.401	2.674	90.560						
10	.367	2.445	93.005						
11	.290	1.930	94.935						
12	.257	1.713	96.648						
13	.201	1.342	97.990						
14	.168	1.118	99.108						
15	.134	.892	100.000						
Extraction Method: Principal Component Analysis.									

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Rotated Component Matrix[a]				
	Component			
	1	2	3	4
93-2.The laboratories are well-maintained and appropriate	**.840**	.174		
93-1.The classrooms I teach in are well-maintained and appropriate	**.839**	.176	.118	
93-3.The research equipment is well-maintained and appropriate	**.787**		.286	.117
93-5.The computer facilities are well-maintained and appropriate	**.774**		.187	.187
93-6.The secretarial support is well-maintained and appropriate	**.724**	.153	.169	.113
89-3.I feel satisfied at work because of my relationship with my supervisor		**.875**	.271	
89-1.I feel very comfortable requesting assistance from academic department faculty when I have questions about my courses or students	.266	**.773**		
89-2.I feel my performance has improved because of the support from my supervisor		**.739**	.333	.101
92-2.I feel satisfied about the interpersonal relations with my students	.288	**.650**	-.150	.130
91-2.At my institution there is a supportive attitude towards research	.159	.174	**.795**	
91-1.At my institution there is good communication between management and academics	.162		**.788**	.235
91-3.At my institution there is a supportive attitude of administrative staff towards teaching	.208	.260	**.714**	
93-4.The research funding is well-maintained and appropriate	.451		**.546**	.117
92-3.Reverse coding_I feel unsatisfied about my students' quality because I have to spend	.102		.176	**.905**
92-1.Reverse coding_Students lack motivation or the academic skills to succeed in my courses	.224	.340		**.803**

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Appendix 4. 9 Reliability and Factor Analysis for Mediators- Job Design

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.716	.723	6

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.584
Bartlett's Test of Sphericity	Approx. Chi-Square	165.487
	df	15
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.542	42.364	42.364	2.542	42.364	42.364	2.250	37.493	37.493
2	1.420	23.660	66.024	1.420	23.660	66.024	1.712	28.532	66.024
3	.958	15.961	81.986						
4	.453	7.544	89.530						
5	.385	6.413	95.942						
6	.243	4.058	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component	
	1	2
86-2.I am satisfied with the overall quality of the supervision I receive in my work	**.822**	
86-3.The feedback I receive is usually on-time and productive	**.820**	
79-1.I am completely satisfied with the level of autonomy that I have in teaching my courses	**.679**	.189
79-3.The job gives me considerable opportunity for independence and freedom in how I do the work	**.653**	.371
78-2.The job requires me to do many different things at work		**.875**
78-1.The job requires me to use a number of complex or high-level skills		**.874**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Appendix 4. 10 Reliability and Factor Analysis for Mediators- Identity

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.630	.637	8

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742
Bartlett's Test of Sphericity	Approx. Chi-Square	532.910
	df	28
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.744	46.802	46.802	3.744	46.802	46.802	3.640	45.497	45.497
2	1.666	20.823	67.625	1.666	20.823	67.625	1.551	19.383	64.880
3	1.276	15.945	83.570	1.276	15.945	83.570	1.495	18.691	83.570
4	.555	6.931	90.502						
5	.398	4.980	95.482						
6	.208	2.603	98.084						
7	.106	1.330	99.414						
8	.047	.586	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component		
	1	2	3
94-6.The religion and cultural values in UAE higher education are the main barriers to working relationships with colleagues	**.961**		
94-5.The religion and cultural values in UAE higher education are the main barriers to research	**.956**		-.101
94-4.The religion and cultural values in UAE higher education are the main barriers to teaching students	**.939**		
94-7.The religion and cultural values in the UAE higher education are the main barriers to communication with students	**.938**		
76-1.On the whole, I am satisfied with myself		**.891**	
76-3.I feel that I am a person of worth, at least on an equal level with others		**.846**	.182
74-2.I have a strong need to belong		**.889**	
74-1.I need to feel that there are people I can turn to in times of need	-.187	.161	**.806**

Extraction Method: Principal Component Analysis.

 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.