RELATIONSHIP OF TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL CLIMATE WITH TECHNOLOGY ACCEPTANCE AT UNIVERSITY LEVEL

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college teaching

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FORWARDING SHEET

This thesis entitled, "Relationship of Transformational Leadership and Organizational Climate with Technology Acceptance at University Level" submitted by Muhammad Irfan Ashraf in partial fulfillment of requirement for Ph. D degree in Education has been completed under my guidance and supervision. I am satisfied with the quality and originality of student's research work.

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I, Muhammad Irfan Ashraf registration No 118-FSS/PHDEDU/S15, student of Ph. D. Education at department of the Education, International Islamic University Islamabad, do hereby solemnly declare that the thesis entitled, "RELATIONSHIP OF TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL CLIMATE WITH TECHNOLOGY ACCEPTANCE AT UNIVERSITY LEVEL" submitted by me in partial fulfillment for the requirement of degree, Ph. D Education, is my original work, except where otherwise acknowledged in the text and has not been submitted or published earlier and so will not be submitted in future for obtaining any degree from this or any other university.

Dated: _____ Signature _____

Muhammad Irfan Ashraf

DEDICATION

Dedicated to

my beloved **Mother & Father**

and

my **Reverend Teachers**

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MUHAMMAD IRFAN ASHRAF

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Abbreviations

DE	Distance Education
DoI	Diffusion of Innovation
EE	Effort Expectancy
ET	Educational Technology
FC	Facilitating Conditions
HEC	Higher Education Commission
HEIs	Higher Education Institutions
HoD	Head of Department
HTML	Hypertext Markup Language
IBDE	Internet Based Distance Education
ICT	Information and Communication Technology
KP	Khyber Pakhtunkhwa
LMS	Learning Management System
LSOCQ	Litwin and Stringer's Organizational Climate Questionnaire
MLQ	Multifactor Leadership Questionnaire
MOOCs	Massive Open Online Courses
NEP	National Education Policy
PBC	Perceived Behavioral Control
PE	Performance Expectancy
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
SI	Social Influence
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TRA	Teaching Research Assistant
UTAUT	Unified Theory of Acceptance and Use of Technology
WWW	World Wide Web

Abstract

Technology acceptance is willingness of the users to utilize technology for the task it is designed to support. Technological advancements around the globe have also augmented need for integration of modern technology in teaching-learning processes. Leadership plays a fundamental role in implementation of the modern technology in any educational milieu and appropriate organizational climate is also very significant in implementation of new technology. In recent past, Higher Education Commission mandated few conventional universities to launch dual-mode education programs assisted with technology. However, Ellahi and Zaka (2014) highlighted that university faculty are not using technology to their fullest capabilities. Hence, this research was embarked upon to investigate the relationship of transformational leadership and organizational climate with technology acceptance of university teachers. Main objectives of the study were to explore relationship of transformational leadership and organizational climate with technology acceptance by university teachers and to examine the relationship between demographic characteristics and technology acceptance of university teachers. Study was delimited to all faculty members of the universities operating on dual-mode education system. Sequential explanatory design using mixed-methods approach was employed for collection of data. Population of study comprised of faculty members from different departments of the universities operating on dual-mode education. In the 1st phase, 300 teachers were selected by employing proportionate stratified random sampling for quantitative data. Five-point Likert scale questionnaire comprising of 57 items was developed for quantitative data collection. Validity of the measure was ensured through experts and after pilot testing reliability of the instrument was checked through Cronbach's alpha. In order to analyze the quantitative data, percentages, arithmetic means, standard deviation, Pearson correlation, t-test, ANOVA, and posthoc multiple comparison tests were applied through SPSS. In 2nd phase, on the basis of technology acceptance scores, 20 outliers were selected from quantitative survey respondents through purposive sampling. Semi-structured interview questionnaire was developed to validate findings of quantitative phase. Interviews were conducted from the selected teachers, and data were analyzed through thematic analysis technique. Salient findings of the study surfaced as; male teachers were significantly better on technology acceptance than their female counterparts, transformational leadership and organizational climate have a significant moderate positive relationship with technology acceptance; majority of the respondents admitted that they were not using modern technology. In case of high-transformational leadership, significant strong positive association was found between transformational leadership and technology acceptance. In case of conducive climate significant strong positive association was observed between climate and technology acceptance. It is recommended that universities must have a clear vision and strategic plans for the implementation of modern technology in teaching; teachers must be motivated and incentivized for the use of modern technology; universities must maintain a conducive environment for technology assisted teaching at all tiers. Annual performance appraisals of teachers must included grading criteria regarding implementation of innovations and modern technology.

CHAPTER 1
INTRODUCTION

Technological and economic developments around the globe have augmented the need for technology-literate teachers to maneuver modern technology, effectively and efficiently in classroom teaching (Dantoe, 2018; Taras & Kartoglu, 2018). As the teaching-learning processes have been completely revamped and use of technology in classrooms for teaching has also gained momentum in the developed as well as developing countries. Now, technology integration is viewed as an essential part of successful teaching (Davis, 2018).

The development of e-learning in higher education institutions depends mainly on teachers' adoption and acceptance of e-learning technologies in teaching processes (Babie, Cicine & Bubas, 2016). Since, the higher education is evolving and adapting to new settings; universities have to maintain their responsibility of being reflective and adaptive to the students' learning needs. Teaching technologies should entail a move from the traditional modes of teaching at university level which has always provided adequate opportunities for teachers as well as students. Their aim and objectives should not be defined by the business model, but through the vision of a learning society (Laurillard, 2013).

A huge capital had been invested in technology for higher education; however, the utmost use of technology by faculty members is not guaranteed. That is why numerous studies were conducted on how university faculty go about implementing technology within their instruction (Gao, 2000; Georgina & Hosford, 2009; Hoffman, 2013). In this venture, two major determinants i.e. leadership and organizational climate, can play a vital role in acceptance and implementation of educational technology by the faculty members. Organizational climate is the shared perceptions of and meanings attached to

the policies, practices, procedures, employees' experience, and the behaviors they observe getting rewarded which are supported and expected (Schneider, Ehrhart & Macey. 2011).

Organizational climate includes size, structure, system complexity, leadership style, and goal directions, as well as common practices, shared beliefs, and value systems that an organization follows (Desrochers & Kirshstein, 2014). Higher education institutions should focus on teaching students that creative behavior is desirable in this modern era. Hence, the academicians being representatives of the creative class must prove themselves by their work and thus encourage their students to be creative (Sokol, Gozdek, Figurska & Blaskova, 2014). Organizational climate influences employees' attitudes within a work environment. Earlier researches revealed that organizational climate affects employees' behavior (Suarez, Muniz, Alvarez, Pedrero, & Cueto, 2013). Organizational climate affects a variety of variables e.g. job satisfaction, commitment, absenteeism, psychological well-being, psychological risk, violence at the workplace, and employees' behavior (Suarez et al., 2013). It is evident from previous researches that organizational climate influences the employees' behavior. Hence, it is believed that the organizational climate has a strong relationship with technology acceptance of university teachers.

Syyadi (2020) articulated that transformational leaders are better equipped to deploy information technology tools, products, and services. Givens (2008) stated that leaders have a great positive influence on their employees; hence, transformational leadership has obtained significant importance in the field of leadership studies. Transformational leadership connects to and positively influences an array of outcomes: employees' commitment to the organization, job satisfaction, perceived extra effort, organizational citizenship behaviors, self-efficacy, motivation, and trust (Givens, 2008). In higher education institutions, leaders not only exhibit less transformational

competencies but also an insufficient strong transactional focus (Herbst, 2017).

The idea of transformational leadership was initially propounded by famous psychologist Burns, who investigated the political leaders and assumed that transformational leaders motivate and encourage his/her followers to accomplish more by synchronizing their interest with the organizational interests and values. Transformational leaders strengthen their employees' morale and motivate them to accomplish more and the sub-components pay special attention to employees' intrinsic problems and issues (Burns, 2012). Bromley and Kirschner (2007) stated that transformational leaders inspire, intellectually stimulate their employees and possess charismatic personalities. Similarly, Shields (2020) propounded the transformative leadership theory (TLT) which is a values-based critical theory, focused both on beliefs and actions that challenge inequity and promote more equity and inclusive participation. The salient interconnected and interrelated concepts are described as (a) mandate for deep and equitable change; (b) Need to deconstruct knowledge frameworks that perpetuate inequity and injustice; (c) need to address the inequitable distribution of power; (d) emphasis on private and public good; (e) focus on emancipation, democracy, equity, and justice; (f) emphasis on interconnectedness, interdependence, and global awareness; (g) necessity of balancing critique with promise; (h) call to exhibit moral courage (Shields, 2020). Although, both have been confused and confounded at times; however, transformational leadership has more positivist overtones and focuses more on organizational effectiveness and efficiency. Transformational leadership was taken in this study as the researcher believed that it is the most suitable leadership style that may have a positive relationship with the technology acceptance of university teachers. Numerous researches were conducted (Ibrahim & Hassan, 2018); (Hoffman, 2013); (Kothenath, 2012) that explored the factors affecting the acceptance and use of technology for educational purpose. However, the

relationship between transformational leadership, organizational climate and technology acceptance has not yet been elucidated in Pakistan. Hence, this study was embarked to investigate the relationship of transformational leadership and organizational climate with technology acceptance at university level in Pakistan.

1.1. Background of Study

The success of the educational reforms depends on the magnitude and quality of efforts put-in by the teachers. However, organizational climate and academic leadership play a vital role in implementation of the technology in an academic milieu (Riegel, 2019). Leadership is a process whereby intentional influence is exerted by one person over other people to guide, structure, and facilitate activities and relationships in a group or organization (Yukl, 2006). Transformational leader is the one who seeks to create ideas and new perspectives to create a new path of growth and prosperity in front of the organization (Korejan & Shahbazi, 2016). The transformational leadership focuses on development of followers and their needs (Top, Mohammad & Hemn, 2020). The transformational leader guides and encourages his employees by articulating a vision that escalates employees' consciousness and consideration for the pursuance of organizational values and goals (Khan et al, 2020). Transformational leadership can motivate and engage teachers in the change process and an appropriate organizational climate facilitates teachers for the effective and efficient use of modern technology in educational settings.

In Pakistan distance education programs, assisted with technology, were launched in few conventional universities which are coded as dual-mode universities. The dual-mode universities are the one that offer programs of study either as distance or face-to-face classroom teaching programs or both (Saifi, 2016).

Machado & Chung, (2015) argued that in classroom instruction meaningful technology integration is indeed very important as it boosts student's achievement and learning. However, higher education faculty members lack the desire to implement new technology during teaching (Jackson, 2019). Studies conducted in the past explored the salient aspects that influence acceptance and use of technology in various contexts (Parra, 2019; Khan, 2018). However, the educational sector was relegated and the factors affecting acceptance of technology were least focused. The use of modern Information and Communication Technologies (ICTs) at all levels of education has also been emphasized upon in our National Educational Policy (NEP), especially at the tertiary level of education (National Educational Policy, 2017). Similarly, it is stressed upon that expansion of online and distance learning (ODL) programs and greater provision of these programs in Higher Education Institutes (HEIs) must be assured (NEP, 2017).

Rogers (2005) explained that in process of adopting innovation or change there are four key elements i.e. communication channels, time, innovation, and social systems. The innovation diffusion theory propounded by Rogers can be applied to the study of educational reforms; peculiarly, agent's framework of informal and formal communication. It is possible that in this environment of change, resistance can disrupt or distort the perception of innovation to the proposed adopter (Heck & Hallinger, 2009).

In his famous change theory, Fullan (2008) propounded six components for a successful and sustainable change effort. Components of change are (a) love your employees, (b) connect peers with purpose, (c) capacity building prevails, (d) learning is the work, (e) transparency rules, and (f) systems learn. Particularly, the concept of "learning is the work" suggests that organizations need to balance consistency and innovation to ensure successful and sustainable change. The concept of equilibrium between consistency and innovation provides an ideal lens through which the problem of

faculty support for online learning can be examined. Organizational consistency involves utilizing the information that an organization has already accumulated. Moreover, innovation involves the discovery of new information or techniques to encourage organizational improvement (Fullan, 2008). However, academic leaders are responsible to trace modern ideas for technology integration and to add them in teaching processes for achieving excellence in higher education (Ijaz, Babar, Raziq & Shaheen, 2012)

Ely (1999) also suggested eight conditions of change that facilitate adoption, implementation, and institutionalization of educational technology at the university level. These conditions are (a) 'lack of satisfaction with status quo', (b) availability of sufficient 'knowledge and skills', (c) appropriate assets, (d) the time available, (e) rewards and awards for participants, (f) 'participation which is expected and encouraged', (g) a commitment of the participants and (h) the 'leadership'. Implications for leaders include the need for the communication of a clear vision and professional development for teachers and staff to support the new process (Heck & Hallinger, 2009).

In his famous book, Fullan (2007) introduced a framework that included the complexity of the process of change in any academic milieu. It was predicted that technology would completely transform higher education by the end of the 20th century (Sculley, 1989). It is revealed through researches that a country's economic strength and prosperity in the 21st century depends, mainly, on its teachers' ability to utilize ICTs in education system to prepare students for the global knowledge economy (Fullan, 2012; Gyaase, & Adu Gyamfi, 2015).

Educational technology is a diversified field developed from different elements of different domains. It is the amalgamation of 'cognitive psychology', 'perception psychology', 'measurement', 'evaluation', 'communication', management, media and system engineering elements. These elements have been arranged in a manner that the

whole is larger than total of its components. This field was quickly developed from audio-visual education through educational communication and then educational technology (Khan, 2018).

The terminologies, 'educational technology', 'instructional technology', and 'communication technology' have overlapping concepts. However, Kumar (2008) in his book explained, the 'technology is a symbol of techniques as well as technical inventions. The systematic approach of applying techniques to achieve an objective is as important as the use of technical equipment for the purpose. Januszewski and Molenda (2008) explained instructional technology as 'the study and practice of facilitating learning by using appropriate technological processes and tools'.

Higher education institutions have realized the merits of using technology in classrooms to improve learning environments. Infusion of technology has caused the delivery of instruction and methods of communication in our traditional university classrooms to be reformed (Selim, 2007). In order to improve the system, information technology has opened new overtures for teachers to integrate technological tools into educational processes. These advancements create prospects for collaboration, sharing and interaction in learning (Suleiman 2011). Moreover, the use of technology by university academia has inspired educators to approach teaching tasks with sense of purpose. Advancements in technology have rapidly transformed teachers and their work to the level that a technology-supported environment in classrooms has become a need of the hour.

Chizmar and Williams (2001) identified few barriers in implementation and acceptance of technology at Illinois State University i.e. lack of 'institutional support', lack of monetary support and lack of time, etc. In another survey of undergraduate students across 99 higher education institutions, the majority of students believed that

using information technology in their courses improved their learning and it had a positive influence on different aspects related to learning (Salaway, Caruso, & Nelson, 2007). The increasing need to produce graduates that can effectively react to future demands of technology is another reason for the adoption of technological changes by educational institutions (Chubin, Donaldson, Olds, & Fleming, 2008).

The importance of using technology in education was recognized by the United States Department of Education and presented in the National Education Technology plan in 2010 to implement advanced technologies in their educational system to improve student's learning ("National Educational Technology Plan", 2010). It has been judged by higher education universities that are adopting various instructional technologies to improve the learning experiences of technology-savvy students. For example, the College of Engineering at Virginia Tech University is frequently looking for the means and ways to make the teaching and learning environment more effective (Tront, 2007).

Barber (2012) predicted that colleges within higher education will continue to see newer instructional technology trends as it improves the teaching and learning environment. However, none of these trends will have a positive effect unless there is a complete understanding of what could facilitate the acceptance of instructional technology in higher education. Pajo and Wallace (2001) explained that the integration of technology in teaching depends not only on the availability of technology but also on the ways and means through which instructors embrace and use it. In another study by Hustad and Arntzen (2013), it was revealed that faculty member uses Learning Management Systems (LMSs) as it does supplement in their lectures; however, the synchronous functionalities of LMS i.e. Chat, Online discussions, etc were seldom used by faculty members without any direct contact with participants.

Fullan (2007) argued that educational change depends upon teachers' approach

towards technological changes as it may be simple and complex at times. It also indicated that teachers are the main determinants that how they will accept and apply educational changes in their profession. In this regard, the related literature (Jung, 2005; Mumtaz, 2000; Sang, 2011; Vanderlin, 2015), ICT related courses and pedagogical courses in the teacher-training programs (HEC, 2006), theories and models aiming to understand teachers' intentions to use and actual use of technology in teaching (Agyei & Voogt, 2012) were reviewed to identify the factors that influence acceptance and use of technology in teaching practices. However, the role of transformational leadership and organizational climate in implementation of modern technology for teachers was least elucidated.

1.2. Rationale of the Study

Numerous efforts have been made to enhance the literacy level in Pakistan and all policies focused upon a non-formal system due to dropouts and population growth as the people who cannot join the formal system are very large in quantity. These people cannot contribute to the national development effectively (Government of Pakistan, 2010). Since the formal mode of education could not fulfill the desired targets; hence, distance education programs were started in conventional universities which are coded as dual-mode universities. In this context, conventional universities are offering distance education programs to facilitate learning to those people who cannot attend classes for a whole year and these dual-mode universities provide opportunities to learners to learn at their own time and place (Haque & Batoool, 2000).

However, few pieces of research concluded that instructional technology has not been fully integrated into the curriculum of higher education as students, in one of the studies, reported that about 20% of teachers were using technology effectively ("How Students Rate Instructors' Use of Information Technology in Courses", 2011). Few other

researchers (Anderson, 1998; Beggs, 2000; Beaudin, 2002; Bariso, 2003) also confirmed that there are many barriers to acceptance of instructional technology, e.g. lack of access to technology, poor quality software/hardware, lack of time, technical issues, poor attitudes, lack of funds, low confidence, lack of institutional support, and lack of training, etc. Similarly, researchers identified major barriers in the higher education domain e.g. reliability of technology, lack of time and institutional support were hindering the acceptance and use of instructional technology at Ball State University (Butler & Selbom, 2002).

Findings of research conducted in Pakistan also un-folded that the faculty members were not using technology to their fullest capabilities for teaching purposes (Ellahi & Zaka, 2014). Another research highlighted that faculty members do not possess requisite skills and the head of departments lack appropriate skills for motivation of their faculty members in successful implementation of technology at the dual-mode universities (Saifi, 2016)

Although, past studies examined growth of administrative and staff job duties at higher education institutions (Curtis & Thornton, 2014; Desrochers & Kirshstein, 2014), and few others investigated influence of administrators and staff on student learning experiences (Rosser, 2000; Rosser, 2004). It was an urgent need of the hour to investigate the relationship of transformational leadership and organizational climate with technology acceptance in higher education institutions.

This study has been initiated on the belief that organizational climate and transformational leadership have a positive association with technology acceptance of university teachers. In this context, a comprehensive review of the literature was carried out and factors affecting technology acceptance were observed in different studies. Numerous studies discussed the impact of transformational leadership on

technology acceptance; however, no study was conducted to find out the relationship between these domains. Hence, this study focused to investigate the relationship of transformational leadership and organizational climate with technology acceptance of university teachers.

1.3. Statement of the Problem

The Higher Education Commission of Pakistan had mandated few conventional universities to launch distance education programs assisted with technology and those universities are termed as dual-mode universities. However, studies revealed that the faculty members were not using technology to their fullest capabilities for teaching purposes (Ellahi & Zaka, 2014). Similarly, the head of departments were also failed to implement the modern technology to impart instructions in dual-mode universities (Saifi, 2016). It has been confirmed through researches that effective leadership and appropriate organizational climate can effectively manage and implement the change (Elly, 1999). Hence, this all augmented the need to explore relationship of transformational leadership and organizational climate with technology acceptance at university level in Pakistan.

1.4. Objectives of the Study

Following were the objectives of the study:-

1. To explore the relationship of transformational leadership and organizational climate with technology acceptance of university teachers.
2. To investigate the relationship between transformational leadership and technology acceptance of university teachers.
3. To find out the relationship between organizational climate and technology acceptance of university teachers.

4. To examine the relationship between demographic characteristics and technology acceptance of university teachers.
5. To determine the technology acceptance of university teachers.

1.5. Research Questions

Following questions paved the path to accomplish this research:-

1. To what extent the transformational leadership and organizational climate correlate with technology acceptance of university teachers?
2. How much transformational leadership correlates with technology acceptance of university teachers?
3. Does the organizational climate correlates with technology acceptance of university teachers?
4. To what extent the demographic characteristics of teachers correlate with technology acceptance at the university level?
5. To what extent university teachers have acceptance of the modern technology?

1.6. Research Hypothesis

The following hypothesis served the purpose:-

H_{01}: Transformational leadership and organizational climate have no significant relationship with technology acceptance of university teachers.

H_{a1}: Transformational leadership and organizational climate have a significant relationship with technology acceptance of university teachers.

H_{02}: There is no significant relationship between transformational leadership and technology acceptance of university teachers.

H_{a2}: There is a significant relationship between transformational leadership and technology acceptance of university teachers.

H_{03}: There is no significant relationship between organizational climate and technology acceptance of university teachers.

H_{a3}: There is a significant relationship between organizational climate and technology acceptance of university teachers.

H_{04}: There is no significant relationship between different dimensions of transformational leadership and the technology acceptance of university teachers.

H_{a4}: There is a significant relationship between different dimensions of transformational leadership and the technology acceptance of university teachers.

H_{05}: There is no significant relationship between different dimensions of organizational climate and technology acceptance of university teachers.

H_{a5}: There is a significant relationship between different dimensions of organizational climate and technology acceptance of university teachers.

H_{06}: There is no significant relationship between demographic characteristics and technology acceptance of university teachers.

H_{a6}: There is a significant relationship between demographic characteristics and technology acceptance of university teachers.

H_{07}: There is no significant acceptance of technology by university teachers.

H_{a7}: There is significant acceptance of technology by university teachers.

1.7. Significance of Study

This study is a unique approach to the problem because it focuses specifically on organizational climate and transformational leadership associated with technology acceptance at the university level. Findings of the research would be beneficial not only to academics, public and private sector universities but also to the country as a whole. In other words, this study would be very useful for individual level and organizational levels.

1.7.1. Individual Level. Bates (2000) argued that there are two different approaches in the use of technology for teaching; (a) as a classroom aid and (b) for distributed learning. The use of technology in which teaching, assessment, and administration are all carried out more efficiently and effectively, leaving more time for research and leisure (Ryan, Scott, Freeman & Patel 2000). If universities utilized the findings from this research by planning strategies to support the technology usage of academics, it is expected that teachers will use educational technology more in their teaching. Accessing the technology helps by saving time and expense, such as by using email for communications, and accessing information and knowledge effectively around the globe free of charge. In addition, teaching through technology helps in changing academics' professional practice especially in the teaching and learning process. In turn, the quality of their working life will be better, consequently helping the university to achieve its educational strategies and goals of quality, efficiency, and cost-effectiveness. Equally, it would be helpful for the administrators and management in the application of leadership style and maintaining the organizational climate.

1.7.2. Organizational Level. The findings of this study would highlight the role played by transformational leadership and organizational climate in technology acceptance by university teachers. Thus, results would provide university administrators

with a basis for decision-making in the areas of planning, teacher training, and staffing. It would be equally helpful for policymakers and administrators to identify the type of climate to flourish technology embedded teaching at HEIs. Moreover, guidelines for university managers would be available to modify their leadership style and improve their organizational climate augmenting the use of technology in teaching. Curriculum developers may also seek guidance to incorporate changes in teacher training programs, accordingly.

1.8. Conceptual Framework

The conceptual framework describes the relationship between the main concepts of the study. It is arranged in a logical structure to provide a picture or visual display of how ideas in the study relate to one another (Grant & Osanloo, 2014). Interestingly, it shows the series of actions the researcher intends to carry out in the research study (Dixon, Gulliver & Gibbon, 2001). The framework makes it easier for the researcher to easily specify and define the concepts within the problem of the study (Luse, Mennecke & Townsend, 2012).

The conceptual framework offers many benefits to a research e.g. it assists the researcher in identifying and constructing the point of view on the phenomenon to be investigated (Grant & Osanloo, 2014). It is the simplest way through which a researcher presents the assorted remedies to the problem being defined (Akintoye, 2015).

Ravitch and Carl (2016) stated that conceptual frameworks are generative since these reflect thinking of the entire research process. The diagrams are created to clearly define the constructs or variables of the research topic and their relationships are shown by the use of arrows. Latham (2017) explained that the entire methodology must agree with the variables as well as their relationships and context. Researchers are at liberty to

adopt existing frameworks, but may modify them to adapt to the nature of the context of their research as well as the nature of their research questions (Fisher, 2007).

In order to explore the relationship of transformational leadership and organizational climate with technology acceptance of university teachers, following conceptual framework was framed to explore the nature of the relationship that exists between main variables and their sub-components:-

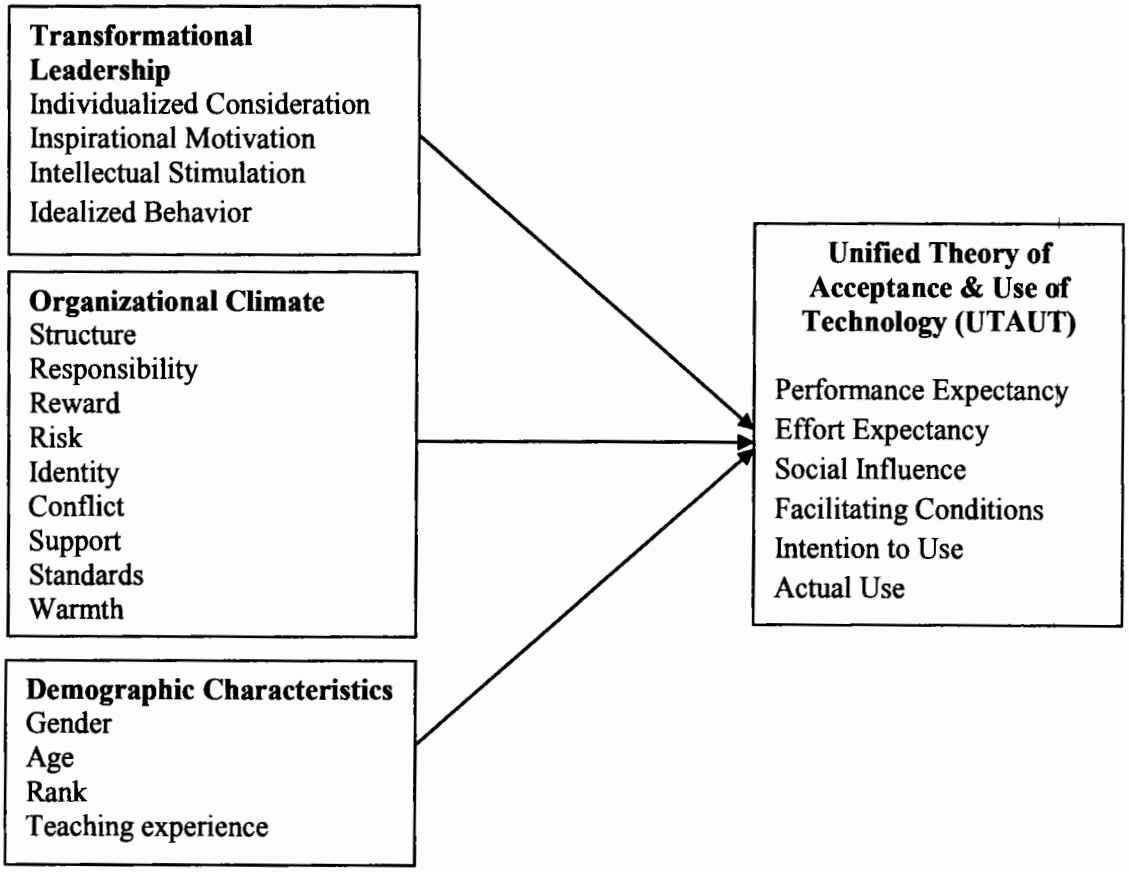


Figure 1.1 Conceptual Framework

1.9. Limitations and Delimitation of the Study

Some limitations can affect the results of this study, which may arise from the lack of participants, small sample sizes, and incorrect data collection or analysis (Creswell, 2009). One limitation is length of the survey; the survey took approximately fifteen minutes to complete; thus, few participants with time limitations may not have responded fully to all questions. In this study, the major

limitation faced by the researcher was the availability of respondents for collection of the data. However, repeated visits by the researcher resulted into complete collection of the data.

Delimitation is concerned with the study's theoretical background, objectives, research questions, variables under study, and study sample. The alternatives to these and reasons for rejecting them, e.g. the particular sampling technique is chosen out of many available, should be presented so that the reader is fully informed (Leedy & Ormrod, 2016)

Due to time constraints and the peculiar nature of the problem under investigation, the study was delimited to the departments/universities mandated with the task to launch dual-mode programs assisted with technology. Details of the Higher Education Institutions (HEIs) that offered dual-mode education programs are attached as Appendix 'E'.

1.10. Operational Definition of Major Terms

1.10.1. Educational Technology. Educational technology means, technology as technological tools and media. It assists in the communication of knowledge, and its development and exchange.

1.10.2. Organizational Climate. Organizational-climate is the human behavior at the workplace in order to motivate employees to work towards their organizations' goals (Brown & Brooks, 2002).

1.10.3. Transformational Leadership. Transformational leadership occurs when leaders broaden and elevate the interests of their employees; when they generate awareness and acceptance of the purposes and mission of the group and when they stir their employees to look beyond their self interest for the good of the group, organization

or society (Bass, 1999).

1.10.4. Technology Acceptance. In the field of information systems research, employees' use of a new technology may be referred to as: "technology acceptance," "technology adoption". So the teachers' use of technology for teaching purposes is referred to as technology acceptance.

1.10.5. Dual-mode University. Universities that offer education through conventional and non-conventional modes, or both are termed as dual-mode. Universities, that teach concurrently on-campus and off-campus students, are termed as dual-mode universities.

1.10.6. Technology. In this study, technology is termed as internet, social media, and various software applications i.e. Learning/Campus Management System, Skype, Facebook, Whatsapp, Audio / Video Conferencing, e-mails, etc.

1.11. Methodology. A sequential explanatory design using mixed-methods approach was followed to conduct this study. The mixed-methods research is defined as "a class of research where researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson, Onwuegbuzie, & Turner, 2007).

Mixed-methods research design combines quantitative and qualitative approaches by including both quantitative and qualitative data in a single study. The purpose of mixed-methods research is to build on the synergy and strength that exists between quantitative and qualitative research methods to understand a phenomenon insightfully than it is possible using either quantitative or qualitative method alone (Gay, Mills & Airasian, 2012).

Survey questionnaire was used for quantitative data collection and semi-structured interviews questionnaire was used for interviews to collect qualitative data. Validation and pilot testing of the tools was ensured properly. Moreover, reliability of the questionnaire items was also checked through Cronbach's alpha. All faculty members working in dual-mode universities were the population of the study. A sample of 300 teachers was selected through stratified random sampling technique for survey data collection. In the 1st phase, quantitative data was collected and analyzed for percentages, means scores, Pearson correlation, t-test and ANOVA, etc. with SPSS. In the 2nd phase, 20 outliers preferable having administrative experience were selected through purposive sampling technique from survey questionnaire respondents. Interviews were conducted by researcher in person and the data was analyzed through thematic analysis techniques. Results and findings of both phases were merged during integrated analysis phase.

CHAPTER 2
LITERATURE REVIEW

2.1. Introduction

Acceptance of technology in education is often considered as a utopian perspective without proper research to comprehend the context and peculiar technological skills for teachers in classroom teaching (Marshal, 2018). In order to accomplish an effective and advanced level of teaching, university teachers in Pakistan are required to incorporate innovative and advanced technology in classroom teaching. Adoption of modern technological devices can transform their traditional teaching into modern teaching styles (Irum, Munshi, Bhatti & Awan, 2018)

Sharma (2018) has argued that educational technology defines teaching objectives in behavioral terms. When teaching objectives are determined, then educational technology comes into existence to achieve them. Further, highlighting the significant role of technology, he elaborated that it creates conditions by interpreting the input during teaching processes. It selects and applies appropriate strategy for achieving teaching objectives. Educational technology is often imagined as hardware only; however, in fact, important is the software; that is, material and the procedures that determine the way hardware is being used for the purpose towards it is desired (Sharma, 2018).

The word 'Educational Technology' was recognized in 1967 with the establishment of the national council for Educational Technology in the United Kingdom. Now, it has been permanently established as a field of study. Instructional development educational communication and educational resources are the names that describe the field (Venkataiah, 2008).

Lewis, Fretwell, Ryan, and Parham, (2013) suggested few emerging technologies to be used in higher education i.e. Course Management System (Blackboard, Moodle,

etc), Facebook, Twitter, and LinkedIn, which at this time can be considered a novelty for classroom use. High fluency can be attained by repeated performance of a behavior (Phillips & Chapman, 2012), and we expect that the more fluent instructors become at utilizing these emerging technologies, the more they will prefer to continue including these components as a part of their course preparation and classroom experience (Lewis et. all, 2013).

However, Lidtke (2019) in his research traced few impediments in acceptance and use of technology by teachers: (a) little concrete evidence of the effectiveness of the use of these media; (b) teacher resistance to change; (c) lack of training in the use of equipment; (d) lack of adequate hardware, software, and courseware; (e) need to change teaching style to use the technology; and (f) fact that extra time and preparation are required while using technology in teaching. However, Yoo, Haung and Lee (2012), in their research, identified that a strong correlation was observed between organizational climate and technology acceptance of the teachers.

Similarly, Moerschell (2009) pointed out several reasons for resistance: (a) limited vision of the future, (b) comfort with the way things are, (c) deficits in information and communication, (d) individual's nature to be uncooperative and (e) teachers do not have the skills to do what the leader is proposing. He further highlighted that the culture in academia is a serious factor of resistance to technology and this .epitomizes this behavior, and is 'a necessary systemic component of implementing technological change' (Moerschell, 2009).

Wells, Campbell, Valacich, and Featherman (2010) identified that perceived novelty plays a significant role in the adoption of technological innovations framed the 'concept of innovation novelty as not only an effective belief, but one that is positive in its orientation'. Perceived novelty may be defined as 'the degree to which a user

perceives an innovation to be a new and exciting alternative to an existing technology' (Wells et al., 2010).

Schoonenboom, (2014) argued that instructors in higher education perform some instructional tasks through the learning management system (LMS). Similarly, Teixeira, Costa, and Alvelos, (2019) analyzed the use and acceptance of technology by professors in teaching and learning and revealed that the highest used technologies were Moodle, Facebook, and YouTube. However, findings of the research conducted by Shana & Abulibdeh (2017) revealed that teachers' perceived ease of use affected the intention to use technology in the future and intention to use was demonstrated through the actual use.

The study further provided to the educational institutions and cloud service providers a better understanding of cloud computing adoption issues. It also supports the foundation for upcoming research focuses at improving our awareness of technology adoption and continued-use factors for innovation especially in instructional technologies (Shana & Abulibdeh, 2017).

Highlighting the role of teacher and technology, Sharma (2018) argued that "some people assume that educational technology will replace the teacher which will make the teacher unemployed one day. They are mistaken, as educational technology can never replace the teacher. It is because of three aspects of educational technology i.e. (a) Input, (b) Process, and (c) Output. Since the input is the teacher's job hence; educational technology cannot snatch the place of a teacher.

According to Januszewski and Molenda (2008), technology has a wide variety of definitions, but in general, it is defined as the application of knowledge in a particular area e.g. information technology is one type of technology that involves the development and use of computer-based systems to process various types of data. In particular,

instructional technology may be defined as the study and practice of facilitating learning by using appropriate technological processes and tools. Khalil (2013) suggested that the most important antecedents to resistance to change our employees' sense of autonomy, challenge, stimulation such as intrinsic motivation, and trust in management.

Similarly, Oreg (2006) stated that resistance to change is decreased when employees have trust in their management. The author recommended that managers should be aware that people's feelings about change may 'predict how they will feel about their jobs... that what they do as the change takes its course could help anticipate their willingness to remain in the organization' (Oreg, 2006). He further explained that 'trust in management is a dominant factor in its association with all three resistance components'. Hence, management should invest in building and maintaining the trust of their employees. Lidtke (2019) offered few suggestions for overcoming the factors that influence teachers' use of technology: (a) providing a specialist to consult with teachers on computer applications in the classroom, (b) conducting training sessions for teachers on computers, and (c) rewarding the innovative teachers.

In one of his studies, Prensky (2001) argued that educators are not successful at educating children and the workforce because they are working hard to educate a new generation in old ways, using tools that ceased to be effective anymore. Therefore, by responding to the voices of this highly technological generation, the educational methodologies are shifting from a "stop telling" approach to inventing new teaching and learning practices in interesting ways. Educational technology provides tools and functions like course management tools, online group chats and discussions, documents i.e. lecture materials, homework, assignments, etc., power points, video clips uploading, grading, and course evaluations to support teaching and learning. Since, the technology has evolved in a complex way in terms of

educational contents, technological resources, and interaction possibilities; there is an increasing concern regarding the quality of the interface and how tasks are completed in these systems (Freire, Arezes, Campos, Jacobs & Soares, 2012).

Mishra and Koehler (2006) claimed that there is a consistent tendency to look only at the technology and not how it is used. This is often carried out by merely introducing technology to the educational processes and not for enforcing its effective use. Moreover, teachers, today are not well informed or knowledgeable enough to appropriately integrate technology into their teaching (Knezek, Christensen & Fluke, 2003).

Fathema and Sutton (2013) found the documents uploading; grade posting and assignments most frequently used features of the Blackboard learning management system by the faculty members. Further reported the faculty members' specific challenges including system problems and design flaws reduce overall utilization of the LMS by faculty. Holden and Rada (2011) indicated that teachers' technology self-efficacy affects their use of technology. Panda and Mishra (2007) found significant barriers for e-learning adoption as perceived by faculty members were: 'poor internet access', 'lack of training', followed by institutional policy on and instructional design for e-learning. It was further revealed that personal interest to use technology; intellectual challenge and sufficient provision for technology infrastructure were the important motivators in e-learning adoption by faculty members.

Al-alak and Alnawas (2011) highlighted that e-learning users have to change their attitudes, beliefs, behavior, perspective, and habits to successfully adopt the use of technology. It represented the association between technology users' attitude and perception/adoption. Teachers' fear and unwillingness to adopt e-learning as a new

way of teaching were attributed to their feeling disempowered by the approach. The argument was that to teach, they have to touch students and be close to them, therefore, using e-learning may dramatically change the way they teach which is mainly based on getting in contact with learners (Al-alak & Alnawas, 2009).

Davis (2018) suggested that teacher education programs can use the technology acceptance model (TAM) to facilitate students' positive perceptions of technology usage in the classroom and thus have a greater impact on pre-service teachers' intention and ability to effectively use Information and Communication Technologies (ICT) for teaching and learning in their classrooms. Different skills that instructors need to be equipped with are also found to influence their attitude towards the adoption of the e-learning system. Bonk (2000) emphasized that instructors should have different skills and play different roles to be able to adapt to the use of technology in teaching.

2.2. Educational Technology

Distance learning is gaining popularity in the educational milieu as the online teaching-learning has gained a lot of momentum as students need alternatives to traditional face-to-face classroom training. Time constraints on today's students coupled with the need for education to keep up with advances in technology, in all fields forced the educators, today, to facilitate training avenues other than traditional methods (Schneiderheinze, 2011). However, a learning management system, massive open online courses (MOOCs), cloud-based multimedia applications, and various mobile applications represent tools and language of academia in the 21st century (Salas, 2016).

According to Newhouse, Trinidad, and Clarkson (2002), educational technology is the "use of any technology to support the processes of teaching and

learning". Educational technology is a wide field and there are many definitions from different disciplines based on theoretical knowledge. According to Cifuentes, Maxwell, and Bulu (2011) the educational technology is 'a combination of processes and tools involved in addressing educational needs and problems, with an emphasis on applying the most current tools i.e. computers, software applications and other electronic devices, etc.

Ellington and Percival (1993) elaborated that "educational technology is to help improve the overall efficiency of the teaching/learning processes." In education and training, improved efficiency can manifest itself in many ways e.g. (a) increasing the quality of learning or the degree of mastery; (b) decreasing the time taken for learners to attain desired goals; (c) increasing the capacity of teachers in terms of numbers of learners taught, without reducing the quality of learning; (d) reducing cost, without affecting quality (Ellington & Percival, 1993). Educational technology is a 'systematic way of designing, implementing and evaluating the total process of learning and teaching in terms of specific objectives based on research in human learning and communication and employing and combination of human and non-human resources to bring about more effective instruction' (Ellington & Percival, 1993).

2.2.1 World Wide Web. World Wide Web is a hypertext system the uses internet as the transport mechanism. (Akir, 2006). Users try to navigate the world by clicking hyperlinks that are connected through multiple connections and display another document. Integration of different forms of multimedia through hypertext, the Web has turned into a perfect medium for sharing the content on the internet (McIsaac & Gunawardena, 2001). Ko and Rossen (2017) explained that it is an internet-based location that allows users to share common protocols, display graphics, texts, videos, and

audio, etc. Internet Explorer, Firefox, Google Chrome, and Safari are few common popular software programs that support and deliver the World Wide Web.

World Wide Web and internet technology can be used for multiple ideas and especially for educational processes. Akir (2006) has also enlisted several benefits of the world wide web that are: (a) delivery of electronic copies of learning material, (b) collaboration on group projects, (c) sharing the information and organizing the group presentations between online learners; (d) an excellent tool to provide access to an extensive variety of information i.e. libraries use the W3 to deliver electronic materials to patrons. It may also be used as a social environment for learning, such as by using Facebook to share information. In addition, it allows the educationists to use an array of tools that support different learning materials.

2.2.2 Learning Management Systems. Learning Management Systems (LMSs) in higher education are becoming primary gears for distance learning in colleges and higher education institutions around the globe. These tools may be used to offer a diverse set of self-paced, blended or fully online classes that can be facilitated by an instructor. The learning management systems play a significant role in university and college campuses as it is a modern concept for teaching and learning to discover in assorted and distributed educational settings (Akir, 2006).

Narwani and Arif (2008) highlighted that Learning Management Systems are 'most commonly used systems that design, organize, and provide access to educational materials for students, instructors, and administrators'. Moreover, it does not need any Hypertext language or Java programming. Similarly, LMSs assist instructors in the creation, interaction, storage, distribution, and online management of the content (Akir, 2006). Several Learning Management Systems are available in the market e.g. Blackboard, Desire2Learn, Moodle and Sakai, etc. Although these tools may vary in their

characteristics and peculiar features, however; in general, they all focus on learners and teachers. LMSs have changed many forms of social interactions and have a great influence on educational environments (Chang, 2008).

Specifically, learning management systems offer different functions to assist in improving online learning; these contain user-friendly interfaces, simple and useful course planning, communication, and tools for learning evaluation and management (Akir, 2006; Chang, 2008). Akir (2006) Chang (2008) and Petherbridge (2007) provided various uses and benefits of LMSs. It contains synchronous and asynchronous communication tools, for example, discussion forums, e-mail, chat, and whiteboards. It may comprise also the assessment tools, for example, assignment submission, testing, and online grade books. In addition, it may comprise students' management tools i.e. student profiles and tracking information.

2.2.3 Electronic Mail (e-mail). E-mail is an asynchronous communication tool that is the most widely used mode of communication in education (Gasaymeh, 2009). According to Akir (2002), some peculiar benefits of e-mail are: Communication between Students and Instructors anytime and anywhere; it reduces the face-to-face meetings between students and their instructors; it allows teachers sending any type of announcement to students to ensure that the announcements are read; and improves the delivery of learning materials. It also allows the users in attaching learning material files such as presentations, graphics, or any type of files that may lend support during courses.

Gasaymeh (2009) argued that e-mail can be used for different purposes including teaching and learning. E-mail may also be used for questions and answers, feedback, and assessment. He further endorsed that intelligent and organized use of e-mail may help in achieving great value within the teaching and learning processes. Teachers may stimulate students' thinking abilities through effective e-mail communication and negotiate certain

concepts and learning goals with the students.

2.2.4 Discussion Bulletin Boards. Discussion bulletin boards are very important modes of asynchronous communication (Akir, 2006). It is a useful software program for sending and receiving messages (Ko & Rossen, 2010). The term, 'discussion bulletin boards' may also be used interchangeably with 'discussion forum', 'e-bulletin board', 'conference area', 'Web forum', 'discussion group', 'interactive message' and 'newsgroup' (Ko & Rossen, 2010).

There are numerous advantages of using a discussion bulletin board in distance education. For example, learners are encouraged to discuss certain issues together and learn from each other. Discussion boards can help students realize the collaborative mode of learning since forums enable learners to work together to debate and argue about certain learning issues. Students may collaborate by discussing projects and working together to solve certain problems for those projects (Bikowski & Kessler, 2002).

2.2.5 Audio and Video Conferencing. Audio and Video conferencing has become a viable option for distance learning to enhance communication between students and their instructors. However, according to Hu and Wong (2006), the biggest problem with asynchronous tools is that students and instructors are unable to see and hear each other's gestures and expressions. Audio and video conferencing is an asynchronous (real-time) software program that allows one-to-one or even groups audio and video communication (Ko & Rossen, 2010). The term audio and video conferencing are used interchangeably with video conference or video teleconference. There are several benefits of using video conferencing in internet-based distance education. For example, video conferencing allows instructors to keep in touch with their students; instructors may bring guest lecturers to class from other institutions as well, allows the academics to participate in thesis defenses at remote campusess and enables interaction between instructors and their

students (Ko & Rossen, 2010). Currently, there are many programs available that support audio and video conferencing services; for example, Skype, Centra, and .IVocalize that instructors may use in distance education.

2.2.6 Wiki. A wiki is a software that allows for the collaborative creation and editing of content in Web page format without basic knowledge of programming codes (Ko & Rossen, 2010) Wiki is a short word form of the Hawaiian, Wiki-Wiki, which means 'fast' or 'quick' (Richardson, 2010). Wiki web was the first wiki created by Ward Cunningham in 1995 (Kessler, 2009). Leuf and Cunningham (2001) described Wiki as "an easy online database that can possibly work and play". Similarly, Encyclopedia, Wikipedia, Wiki spaces and the Peanut Butter Wiki are famous examples of the wiki format. Wiki is an internet-based distance education tool for enhancing collaborative writing (Kessler, 2009).

Franklin and Thankachan (2012) identified several benefits of using Wiki. These include allowing students to develop, and create their Web sites and share information with their colleagues. Moreover, Wiki allow students to write, revise and submit their projects or assignments. It also facilitates the teachers to evaluate their students' work and help them when they have trouble staying on target and suggest other resources or ideas based on what other students found.

A wiki is a wonderful collaborative tool in distance education. It allows group users to build, edit and gain equal access to the most recent version of the document. Wikis allows students, teachers, and researchers to collect data from any group around the world. It further allows students to review and evaluate courses they have taken during the academic year (Kessler, 2009; Chiu, Chen, Wu & Chen, 2010; Richardson, 2010).

2.3. Strengths of Educational Technology

Academic institutions around the world are shifting towards the use of internet-based distance learning for the delivery of instruction in traditional classes as well as in online courses. Pursuant to this end, perception must exist that using Internet-based distance learning provides both benefits and drawback for both, students and teachers (Akir, 2006; Young & Norgard, 2006).

The available literature has identified both strengths and weaknesses inherent in using technology-based distance education. Among the strengths, technology-based distance education provides convenience and flexibility, encourages interaction between students and instructors, improves performance, improves collaborative learning, provides better learning opportunities, and creates a positive and healthy learning experience.

A detailed review of the literature revealed that the majority of articles about online learning courses focus on the flexibility and convenience of online courses. The study of Young and Norgard (2006) highlighted the common reasons why students take convenient online courses and flexibility for their time and place. Results also revealed that students' family and job responsibilities, as well as their distance from a university campus, made technology based distance education a convenient option and would allow them flexibility to continue with their education amidst their hectic lives (Young & Norgard, 2006).

In addition, many students noted that online learning courses can be substantial time savers and make their life much easier. In a study conducted by Song, Singleton, Hill, and Kohs (2006), 76 graduate learners reported the flexibility of completing learning activities anytime and anywhere was the most helpful attribute of online learning. However, Usman (2014) reported that male and female faculty members were using instructional technology equally and there was no significant difference found. Moreover,

climate of university was also very supportive of teaching technology.

Al-Arfaj (2007) identified that the majority of male and female undergraduate students enrolled at King Faisal University in Saudi Arabia participated in the survey found that Web-based learning offered them a convenient way of learning not available in traditional or face-to-face classroom. Merely adding technology in classrooms do not translate into better teachers or better educational outcomes (Moeller & Reitzes, 2011). However, teachers are inspired to use technology effectively the outcomes tend to improve (Sharma 2018). Yet, teachers can utilize technology applications as a simulation of the real-world, creating the opportunity for students to explore authentic tasks, such as interacting with people in different cultures, exploring various locations around the world, and gathering information to solve the problems (Dunleavy, Dede, & Mitchell, 2009).

2.4. Technology Acceptance

Universities could reap benefits from teachers' moving beyond the lecture format of college teaching by engaging students in active learning through established and emerging technologies including social networking technologies and other communication tools. Social networks can provide new opportunities and innovative methods to connect with students digitally and provide a multi-sensory learning environment (Lewis, et. al, 2013).

Saifi (2016) highlighted that the faculty members did not have access to technology and distance learners did not have the required technology necessary for their education in their respective areas. Technology acceptance is critical to the success of any organization. Many researchers have paid attention to the acceptance and adoption of new technologies in the workplace. In the field of information systems research, employees' use of a new technology may be referred to as: "technology acceptance," "technology adoption," or "information system implementation"

(Agarwal & Prasad, 1998). For consistency, this study will use the term "technology acceptance" to refer to this issue.

Davis (2018) pointed out that most of the time employees are unwilling to use new technology even though it will significantly increase their performance. Addressing employees' adoption of new technologies, Davis (2018) suggested that researchers and practitioners need to understand why employees resist new technologies to invent practical systems that predict how employees will respond and accept new technology. Some of the faculties in many institutions resist learning about and using technology (Khalil, 2013).

There is a body of research probing the ways how teachers' social, demographic and personal characteristics influence technology acceptance within educational settings. Bayhan, Olgun, and Yelland (2002) found that 82 % of teachers do not use computers by any means in classrooms. They assert that teachers' low level of confidence and lack of professional development opportunities substantially contribute to this outcome. Aypay (2010) investigated teachers' attitudes towards computers and found that demographics, motivational factors, experience, teaching methods and other in-school factors influence teachers' use of technology. An interesting finding of the same study revealed that two-thirds of teachers whose computer literacy level is very low do not use computers in classrooms at all in comparison to teachers with a medium level computer literacy, commonly, use the computers indicating that the level of computer literacy directly relates to technology integration into educational settings.

Numerous researchers delved into the Information and Communication Technology related cognitions and practices of higher education teachers. Wang and Wang (2009) found, perceived ease of use did not significantly affect intention to use

web-based learning systems, however, perceived usefulness did. Petko's (2012) research found that instructors did not choose to use e-learning simply because they thought it would be simple to use. These results were supported in another study conducted by Motaghian, Hassanzadeh and Moghadam, (2013) about instructors at technology universities in Iran. It was found that perceived usefulness was the biggest factor influencing instructors' intentions to use and adoption of web-based learning systems.

The teachers must understand how to connect technology with pedagogy and curriculum standards. Focusing on how teachers integrate technology into their teaching is more important than focusing on what tool teachers integrate into their practice (Koehler, Mishra, Akcaoglu, & Rosenberg, 2013). There is a myriad of factors for the integration of technology into student learning. It can be measured in multiple ways such as by student access and student achievement. With high stakes testing and pressure to use technology, it is beneficial to look at the connection between technology integration, teaching, learning and student performance data.

2.5. Theories and Models of Technology Acceptance

Since, the information technology acceptance research has developed several competing models, each with a different set of acceptance determinants. These models were evolved over the years and came as a result of persistent efforts to validate and extend the models during the period each was presented. This section presents the most distinguished theories and models in Information Systems researches i.e. Theory of Reasoned Action (TRA) by Ajzen & Fishbein (1980), Theory of Planned Behavior (TPB) by Ajzen (1985), Technology Acceptance Model (TAM) by Davis (1989), The Extension of Technology Acceptance Model (TAM2) by Venkatesh & Davis (2000), Diffusion of Innovation Model (DoI) by Rogers

(2005) and Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003).

2.5.1. Theory of Reasoned Action. Theory of Reasoned Action (TRA) was developed by Ajzen and Fishbein (1980) to 'organize and integrate research in the attitude area within the framework of a systematic theoretical orientation'. They aimed to develop a theory that could predict, explain, and influence human behavior. The framework provided a distinction between beliefs, attitudes, subjective norms, intention, and behaviors; the major concern was the relationships between these variables. These concepts form a model for the prediction of specific intentions and behaviors. Ajzen and Fishbein (1980) insisted that the TRA is an appropriate model for the study of the determinants of user behavior as a theoretical foundation since it predicts and explains behavior across a wide variety of domains. According to the TRA, the primary determinant of behavior is not the person's attitude towards the behavior, but his or her intention to perform the behavior. Behavioral intention is, in turn, determined by two factors. The first factor is the person's attitude towards the behavior, which is the extent to which the person has a favorable or unfavorable evaluation of the behavior. The second factor is the subjective norm, or perceived social pressure to perform or not to perform the behavior. These two factors are underpinned by sets of beliefs. For the attitude component, the beliefs are behavioral beliefs concerned with perceived likelihood that performing the behavior will lead to certain outcomes and the extent to which these outcomes are valued. For the subjective norm component, the beliefs are normative beliefs focusing on the perceived social pressure from certain referents and the person's motivation to comply with these referents. The theory looks at behavioral intention (BI), rather than an attitude as the main predictor of behavior (Ajzen & Fishbein, 1980).

Ajzen (1985) noted that the theory was limited by what is called correspondence. In order for the theory to predict specific behavior, attitude and intention must agree on action, target, context, time frame and specificity (Sheppard, Hartwick & Warshaw, 1988). The greatest limitation of the theory stems from the assumption that behavior is under volitional control. It is the theory, only applied to behavior that is consciously thought out beforehand. Irrational decisions, habitual actions, or any behavior that is not consciously considered cannot be explained by this theory.

2.5.2. Theory of Planned Behavior. Ajzen (1985) propounded an extension of TRA to address the problem of incomplete volitional control. This extended TRA became known as the theory of planned behavior (TPB). TPB is the model widely used to predict and explain human behavior while also considering the roles of individual organizational members and social systems in this process (Ajzen, 1991). Theory of Planned Behavior (Ajzen, 1991) was designed to predict behaviors not entirely under volitional control by including measures of perceived behavioral control. In fact, the TPB differs from TRA in its addition of the perceived behavioral control (PBC) component that accounts for situations where an individual has less than complete control over the behavior. This can vary across situations and actions (Ajzen, 1991). The TPB places the construct of PBC within a more general framework of relationships among beliefs, attitudes, intentions and behavior. PBC is held to influence both intention and behavior. The effect of PBC on behavior can be direct or interactive, through behavioral intentions. As specified in TRA, when situation or behavior affords a person complete control over behavioral performance, intentions alone should be sufficient to predict behavior. Ajzen (1991) argued that under conditions where behavioral intention (BI) alone would account for only a

small amount of variance in behavior, PBC should be independently predictive of behavior. Both intentions and PBC are important to predict behavior, but one may be more important than the other given the prevalence of certain conditions. In order to explain and predict behavior, TPB deals with the antecedents of attitude, subjective norms and perceived behavioral control. The TPB postulates that behavior is a function of salient beliefs relevant to that behavior. These salient beliefs are considered as the prevailing determinants of a person's intentions and actions.

Criticism of the Theory of Planned Behaviour is that the model does not investigate the relation of intention and behavior, where there are often large amounts of unexplained variance. As a psychological model focuses on internal processes, TPB does not include demographic variables and assumes that everyone would experience the model's processes in the same manner. It also does not account well for change in behavior (Armitage & Conner, 2010). Taylor and Todd (1995) criticized TPB for its use of one variable (PBC) as a preventative to all non-controllable elements of the behavior. Beliefs behind the PBC were aggregated to create a measure for it. This aggregation has been criticized for not identifying specific factors that might predict behavior, as well as for the biases it may create.

2.5.3. Technology Acceptance Model. Technology Acceptance Model (TAM) developed by Davis (1989) was one of the most well-known and influential models pertaining to the acceptance and use behavior of information technology and information systems. TAM is an adaptation of the theory of reasoned action (TRA) by Ajzen and Fishbein (1980) and was designed to explain why users accept and use technology and what influencing factors are involved in the processes. TAM uses two perceptions 'perceived usefulness' and 'perceived-ease-of-use'. The first one is 'perceived usefulness', which is defined as "the degree to which a person believes

that using a particular system would enhance his or her job performance" (Davis, 1989). The second one is 'perceived ease of use', which is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). The TAM has emerged as a powerful way to represent the antecedent of system usage through beliefs about these two factors (Davis, Bagozzi, & Warshaw, 1992). Computer usage was determined by intention, which is viewed as being jointly determined by the person's attitude towards using the system and its perceived usefulness. Original TAM proposes that attitude, positive response and usefulness may have the potential to influence the intention to use the system. Particularly, the relationship between usefulness and intention implies that the person believes that his or her job performance is enhanced, regardless of positive or negative feelings (Davis et al., 1992). The external variables in the model refer to a set of variables such as objective system design characteristics, training, computer self-efficacy, user involvement in the design, and the nature of the implementation process (Davis & Venkatesh, 1996). However, as long as TAM continued to evolve, new variables were introduced as external variables affecting PU, PEOU, and actual use or behavior. Among the most frequently referenced are system quality, compatibility, computer anxiety, enjoyment, computing support, and experience (Lee, Kozar & Larsen, 2003). According to Davis (1989), the goal of the TAM is to explain the determinants of computer acceptance that are generally capable of explaining user behavior across a broad range of end-user technology and user populations. However, TAM2 has proven to be a successful framework in predicting and explaining usage across a variety of systems (Venkatesh & Davis, 2000).

The most commonly reported limitation of the TAM is that of relying on respondents' self-reporting and assuming that self-reported usage reflects actual

usage (Legris, Ingham, & Collerette, 2003). The second limitation is related to the type of respondents, examined systems, or the sample choice. In some studies, it was student samples or samples from professional users, generalized the findings difficult (Legris et. al., 2003). Moreover, Venkatesh (2000) highlighted one of the limitations of TAM that provides limited guidance about how to influence usage through design and implementation, which does not help understand or explain acceptance in ways that guide development beyond the suggestion that system characteristics impact ease of use. Sun and Zhang (2006) stated two of the TAM; (a) explanatory power of the model, (b) inconsistencies between prior studies.

2.5.4. Extension of Technology Acceptance Model. Venkatesh and Davis (2000) extended the TAM to include additional key determinants of the TAM's perceived usefulness and user intention in terms of social influence and cognitive instrumental processes. The modified model referred to as TAM2, adds additional concepts covering social influence processes i.e. subjective norm, voluntariness and image, and cognitive instrumental processes i.e. job relevance, output quality, result demonstrability, and perceived ease of use in the original TAM model.

Venkatesh and Davis (2000) did not categorize the experience as a social influence process but related it to this group of processes. The model assumed that, in an organization with mandatory system use, the subjective norm will directly influence the intention to use in the early stages of the implementation and, thus, usage of the system. Over time, however, the influence of subjective norms on the intention to use will decrease and be replaced by experience in using the system (Venkatesh & Davis, 2000). TAM2 theorizes that in a computer usage context, the direct compliance-based effect of subjective norm on intention over and above perceived usefulness and perceived ease of use will occur in mandatory, but not

voluntary, system usage settings (Venkatesh & Davis, 2000). The model posited voluntariness as a moderating variable to distinguish between mandatory versus voluntary compliance with organizational settings. Nevertheless, subjective norms can influence intention through PU or what is called internalization. In addition, TAM2 theorizes that internalization, rather than compliance, will occur no matter whether the usage context is voluntary or mandatory. Finally, the findings reported that all the social influences and cognitive instrumental processes have a significantly strong effect on and influence users regarding the acceptance of technology (Venkatesh & Davis, 2000).

2.5.5. Diffusion of Innovation Theory. The Diffusion of Innovation (DoI) theory by Rogers (2003) elaborated how innovations diffuse through society and how organizations and individuals accept innovations. Rogers differentiated the adoption process from the diffusion process in that the diffusion process occurs within society, as a group process, whereas the adoption process is related to an individual. According to Rogers (2003), diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system", while adoption is "a decision to make full use of an innovation as the best course of action available" (Rogers, 2003). Rogers's diffusion of innovation theory contains an innovation-decision process, innovation characteristics, adopter characteristics, and opinion leadership (Rogers, 2003). This model has five stages in the innovation-decision process, which describe the different phases an individual or any decision-making unit must go through in the process of adopting or rejecting an innovation. Detailed stages are elaborated as (a) at first stage, knowledge, occurs when an individual or other decision-making unit discovers the existence of innovation and then learns to understand how it functions. (b) In the persuasion phase, perceived characteristics of the innovation give

rise to a favorable or unfavorable attitude on the part of the potential adopter. (c) In the decision stage, the individual (or unit) interacts in activities that lead to a choice to adopt or reject the innovation. This may include confronting forces of support or opposition that influence the process, (d) in the implementation phase, individual (or unit) decides to use an innovation. The implementation contains an overt behavior change as the new idea is put into practice, (e) final stage is confirmation; here the decision of adoption or rejection of innovation is reflected, and might even be changed if doubts or problems with the innovation occur (Rogers, 2003).

However, researchers highlighted a few limitations of the theory. Clarke (1999) stated that classical DoI theory in the context of the Information Systems discipline is "at its best a descriptive tool, less strong in its explanatory power and less useful still in predicting outcomes and providing guidance as to how to accelerate the rate of adoption". There is also some doubt about the extent to which DoI theory can give rise to readily refutable hypotheses. On top of this diffusion of innovation theory has been criticized for the fact that "many of its elements may be specific to the culture in which it was derived" and that it is "less relevant in, for example, East Asian and African countries" (Clarke, 1999). DoI theory has also been criticized for focusing on innovation demand, rather than on innovation supply (Attewell, 1992). The underlying assumption of the demand view is that adoption will occur at a rate governed by the spread of knowledge about the innovation and by the time it takes for adopters to hear about the benefits of adoption. Attewell (1992) further argued that innovation suppliers can influence diffusion because they often focus their marketing and educational initiatives on particular types of businesses.

2.5.6. Unified Theory of Acceptance and Use of Technology. Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the most popular frameworks in

the field of general technology acceptance models. Like earlier acceptance models, it aimed to explain user intentions to the use of information system and further usage behavior. Venkatesh, Morris, Davis, and Davis, (2003) created this synthesized model to present a more complete picture of the acceptance process than was possible with any previous models. Eight models previously used in the field of information systems were merged in an integrated model, all of which had their origins in psychology, sociology, and communication. Each of the earlier developed models attempted to predict and explain user behavior using a variety of independent variables. This unified model was created based on the conceptual and empirical similarities across those eight models. The theory based on four key constructs i.e. performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior as indicated in the figure below. Moreover, the UTAUT model attempted to explain how individual differences influence technology usage. Specifically, the relationship between perceived usefulness, ease of use, and intention to use can be moderated by age, gender, and experience. For example, the strength between perceived usefulness and intention to use varies with age and gender such that it is more significant for male and younger workers. The effect of perceived ease of use on intention was also moderated by gender and age, such that it is more significant for female and older workers, and these effects decrease with experience (Venkatesh et al., 2003). The UTAUT has four predictors of behavioral intention or usage: performance expectancy, effort expectancy, social influence, and facilitating conditions. The predictors are as follows:-

Performance Expectancy. It is the degree to which an individual believes that using the system will help him or her to attain gains in job performance.

Effort Expectancy. It is the degree of ease associated with the use of the systems.

Social Influence. It is the level to which an individual perceives that it is an important belief of others that he/she should use the new system.

Facilitating Conditions. Facilitating condition is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the new system.

Performance expectancy (PE) in the UTAUT model was derived from a combination of five similar constructs, including perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations. Performance expectancy is the strongest predictor of intention within each of the individual models reviewed and was found significant at all points for both voluntary and mandatory settings in the model-validation of Venkatesh et al. (2003). In the UTAUT model, effort expectancy (EE) captures the notions of perceived ease of use and complexity. Ease of use is the second component in the classic study by Davis (1989) and is generally believed to have a significant influence on technology acceptance as well as the perception of usefulness. In the validation of UTAUT, effort expectancy was significant in both voluntary and mandatory usage contexts, although only for the first period of usage. Since practice increases one's comfort with software, effort-oriented constructs would become, logically, less salient after learning hurdles are overcome. Social influence includes consideration of the person's perception of the opinion of others, his or her reference group's subjective culture and specific interpersonal agreements with others, as well as the degree to which use of an innovation is perceived to enhance one's image or status in one's social system (Venkatesh et al., 2003). This encompasses constructs from previous models such as subjective norm, social factors and image. This construct suggests that an auditor would be sensitive to the opinion of others, resulting in decisions

consistent with the social norms around them. In their validation tests, Venkatesh et al. (2003) found that social influence was not significant in voluntary contexts, but becomes important when its use is mandated. Facilitating Conditions (FC) represents organizational support and includes the constructs of perceived behavioral control, facilitating conditions and compatibility from prior models. Results from the UTAUT validation suggest that FC was significant in both voluntary and mandatory settings in the initial usage period, but its influence on usage intentions disappeared after this (Venkatesh et al., 2003).

2.6. UTAUT in Educational Context

The UTAUT model has been employed in many studies in education due to momentum of technology that has emerged in the last few decades; however, some studies claim that the UTAUT has received limited validation in the context of education (Wong, Teo, & Russo, 2014). Literature shows that educational technology applications give the UTAUT model applicability with many technologies. Since, the emergence of the interactive whiteboard, Raman, Don, Khalid, Hussin, et al. (2014); in another study, Wong et al. (2013) investigated the acceptance among teachers and student teachers through applying the UTAUT model. Their studies revealed mixed findings where the performance expectancy significantly influenced the behavioral intention in both studies, but no effort expectancy had a significant effect in one study while social influence and facilitating conditions had no significance in both studies. It is important to note the moderators' role in interpreting such study findings and in this sense, another study conducted by Wong et al. (2013) included only experience moderator where the finding supported the influence of effort of expectancy on behavioral intention among less experienced teachers. More information, such as age, gender, and voluntariness of use was needed regarding the samples in both studies to interpret the findings with UTAUT hypotheses. Acceptance of the Moodle,

a learning management system was investigated by Raman et al. (2014) and findings asserted the influence of performance expectancy and social influence on behavioral intention.

With a broader term of technology, Attuquayefio & Addo (2014) and Oye, Iahad and Rahim, (2014) investigated Information and Communication Technology (ICT) acceptance and the findings were found inconsistent with each other. Oye et al., (2014) found that all UTAUT constructs had a positive influence on behavioral intention whereas Attuquayefio and Addo (2014) found that the effort expectancy construct was the only construct that has a positive influence on behavioral intentions. Another important note from the literature was observed the use of mobile learning adoption or acceptance rather than mobile technology acceptance or adoption. Such use is not consistent with the literature of acceptance and adaptation in the information system discipline where this theory originated (Venkatesh et al., 2003).

UTAUT has undergone many modifications in mobile learning studies whether due to the nature of mobile technology that differs from any other technology or due to the local context of each study. Wang, Wu, and Wang (2009) proposed two constructs to UTAUT in regards to mobile technology: perceived playfulness and self-management of learning. Perceived playfulness refers to the degree of interest, curiosity and enjoyment with mobile learning while self-management of learning refers to the extent of an individual's self-discipline and engagement in autonomous learning. These two activities/constructs are assumed to positively influence individuals' intentions to use mobile learning or mobile technology. The two newly proposed constructs were found significant in predating an individual's intentions to use mobile learning and in both studies, they were found to be stronger predictors than UTAUT conventional constructs.

However, in the context of developing countries, the perceived playfulness construct has no significant effect on individual attention to use mobile learning.

Socioeconomic factors as well as demographic variables explain the inconsistent findings between developing countries and other countries. Likewise, the social influence construct was found to be negative but insignificant in affecting individuals' intentions to use mobile learning in developing countries (Iqbal & Qureshi, 2012).

Features of mobile learning have encouraged more studies to investigate individual traits such as variables of UTAUT to fit specific contexts. Arpaci (2015) investigated personal innovativeness as a construct of UTAUT in two different cultures: Turkey and Canada. The personal innovativeness construct refers to the degree of an individual's early adoption of a specific technology. Personal innovativeness affects the acceptance of mobile learning in developed countries more than in developing countries where cultures in developed countries are more likely to accept new ideas and try them in the early stages. Interestingly, the social influence construct has more effect on the individuals' intention to use mobile learning technology in developing countries than in developed countries (Arpaci, 2015; Iqbal & Qureshi, 2012). Therefore, cultural differences play a significant role in accepting mobile learning technology due to various cultural factors that distinguish cultures.

2.6.1. Rationale for Using the UTAUT. Technology acceptance refers to "a user's willingness to employ technology for the tasks it is designed to support" (Teo, 2012). The literature on UTAUT found it a robust tool of analysis in investigations of users' technology acceptance (Oye, Iahad, & Rahim, 2014). In longitudinal field studies of organizations, the UTAUT explained approximately 70% of the variance in behavioral intention to use and around 50% of the variance in actual technology use (Venkatesh, Thong, & Xu, 2012). The UTAUT helps to build on the complex technology adoption case of teachers; because they work both as employees of an organization and as individual professionals free to choose any of the technologies

they adopt in their classrooms, they straddle two user profiles.

Based on the arguments presented in this section and from the critically reviewed existing literature, the researcher believes that the UTAUT model would be the best model to be adopted for this study in order to explore and investigate the factors affecting the acceptance of technology by university teachers in Pakistan.

2.7. Barriers in Technology Acceptance

Several studies highlighted the barriers in the adoption of technology, few major barriers surfaced as lack of interest, job relevance, and personal contribution (Beggs, 2000). Another study found that lack of organizational support, monetary support, and time needed were the main barriers to adoption of the technology (Chizmar & Williams, 2001). Cost, legality, time, fear, usefulness and complexity were found to be the main barriers towards adopting technology in rural hospitals (Garrett, Brown, Hart-Hester, Hamadain, Dixon, Pierce, & Rudman, 2006). For instance, physicians were found to be reluctant to readily adopt the technology due to eleven major reasons, some of them including lack of support, lack of user-friendly technology, and inadequate training provided (Treister, 1998). Internal barriers included teachers' attitudes and perceptions while external barriers included accessibility and support (Rogers, 2000). According to Becker (2000), the factors influencing teachers' adoption of technology were found to include access to technology, schedule, efficacy, content requirements, and pedagogical values. All these studies suggest that barriers to technology adoption in an organization can be personal as well as job-related. This was also evident in a study conducted at Virginia Tech with faculty members of a department that readily adopted instructional technology (Kothaneth, Amelink & Scales, 2011). According to John (2015), faculty members have tendencies toward the integration of modern

technology in their instructional processes.

Accordingly, research also documents that institutional and structural characteristics of educational settings have an impact on integrating technology into classrooms such as professional training opportunities, access to computers in schools, technical support, and providing computers to all teachers (Aypay, 2010). Some researchers suggest that it is also an important factor to what extent one has been exposed to technology and/or used technological products throughout his/her life course.

Significantly, the UTAUT is an empirically validated model that combines eight major models of technology acceptance and their extensions. Although the UTAUT model is quite a new model since its inception in 2003 researchers are increasingly testing its suitability, validity, and reliability to explain technology adoption in different contexts (Oshlyansky, Cairns, & Thimbleby, 2007). Anderson (2006) used UTAUT to find the drivers and modifiers of user acceptance of tablet PCs among business faculty in higher education. Their results validated UTAUT constructs with performance expectancy (PE) as the most important driver for PC tablet adoption. Carlsson et al. (2006) used UTAUT to explain the acceptance of mobile devices/services in Finland and found that Performance Expectancy and Effort Expectancy were significant, but the social influence was not. Li and Kishore (2006) validated UTAUT construct scales in the context of acceptance of an online community weblog system and found that PE and EE scales are comparable among different groups; in contrast, Social Influence (SI) scores may not be comparable among users with a high or low frequency of using a weblog. They recommend caution when interpreting results from studies conducted using UTAUT scales. Wang and Yang (2005) examined the role that personality traits play in the UTAUT

model in the context of online stock investments and found a lot of support.

2.8. Transformational Leadership

Transformational leaders inspire and motivate their workforce without micromanaging. Since, the growth and change are inevitable, but transformational leadership can inspire workers to embrace the change by fostering a culture of accountability, ownership and workplace autonomy (White, 2018). Transformational leaders promote followers' maturity and conviction to ideals. They promote concern for others and society; they encourage independent, critical thinking; and they enhance followers' sense of self-efficacy and self-worth (Bass & Riggio, 2006). When talking about leaders, Litwin and Stringer (1968) described it as "his actions, his personality, his leadership style all act to generate certain patterns of motivation". The leader and follower relationship is essential to organizational success (Zhu, Avolio, & Walumbwa, 2009).

The concept of transformational leadership was first introduced by Burns (1978). Before Burns' work, the predominant research method was to examine the approaches that leaders take to successfully improve organizations. Burns, on the other hand, analyzed political leaders themselves. He stated that when a leader engages with employees, their morale is amplified and they are motivated to perform better, the leader is demonstrating transformational leadership. Building on Burns' original work, Bass (2009) argued that by raising employees' awareness of a job's significance, transformational leaders motivate employees to achieve more. Bass (2009) argued that his approach differs from Burns (1978) in that it expands on the followers' needs and wants. Bass (2009) differs from Burns' (1978) approach; Burns saw transformational leaders as the one who promote what is good rather than evil while Bass approach argues that the transformational leaders can cause good or bad transformations in their followers.

Bass (2009) stated "conceptually, we put emphasis on the observed change in followers and argued that the same dynamics of leaders' behavior can be of short or long-term benefit or cost to the followers". Building on the modern works of Burn (1978), Bass (2009) enhanced the theory of transformational leadership. In his model, Bass (2009) stated that transformational leadership has four dimensions: charisma, inspirational, intellectual stimulation and individualized consideration.

Study conducted by Saifi (2016) revealed that the head of the department do not have adequate administrative skills to satisfy needs of distance learners. Bass (2009) called for a paradigm shift by introducing the concept of transformational leadership as part of his Full-Range Leadership Theory. Bass (2009) stated that 'changes in the marketplace and workforce over the two decades have resulted in the need for leaders to become more transformational'. Bass propounded the concept of transformational leadership that consists of four behavioral components: individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence (Smith, Montagno, & Kuzmenko, 2004). Idealized influence is also known as "attributed charisma." The key behaviors are:-

2.8.1. Individualized Consideration. The individualized consideration is displayed when leaders work to develop their employees' strengths, support employee needs and delegate tasks as opportunities for their employees' growth (Bass, 2009).

2.8.2. Intellectual Stimulation. The intellectual stimulation is displayed when leaders encourage employees to think critically, break from their old ways of thinking and be more inventive and creative (Bass, 2009).

2.8.3. Inspirational Motivation. Inspirational motivation is shown by leaders who set higher standards for themselves; this motivates and inspires followers since it increase

their level of awareness (Bass, 2009).

2.8.4. Idealized Behavior. The idealized behavior is exemplified by charismatic leaders who build relationships with their followers that are based on personal understanding; this inspires and arouses their followers (Bass, 2009).

According to (Bass, 2009) attributed charisma looks at charisma as a trait. The charismatic leader inspires and arouses their followers and builds a relationship based on personal understanding, but not guided by organizational rules. Weber (1947) introduced the concept of charisma as a constitutive characteristic of a leader; Weber's contention had a profound impact on the field of sociology (Antonakis, 2012). Bass (1997) argued that, "Weber saw charismatic leaders as being extremely highly esteemed persons who are gifted with exemplary qualities." Gardner and Avolio (1998) described a charismatic leader as an extremely gifted individual who communicates the vision and the mission of the organization to their follower and gain the trust, respect, and confidence of his or her employees. To have charisma, a leader must have complete faith of his or her employees (Bass, 1997).

Transformational leadership often includes the creation of a school / college / university improvement vision. By generating positive emotions in others and supporting a belief in their abilities, educational leaders can affect change (Kurland, Peretz, Hertz-Lazarowitz, 2010). These two strategies, generating positive emotions in others and supporting a belief in their abilities, create a pathway to which change can take place in an optimistic and goal focused direction, transforming the school through a shared school improvement vision.

Transformational leadership increases the effort and commitment of teachers and others, towards achieving a school/college/university improvement vision (Leithwood & Sun, 2012). In their findings, Leithwood and Sun (2012) argued that teachers and

administrators become motivated by inspiration and goals associated with the values and beliefs of the school's vision. Much like Kurland et al. (2010), Leithwood and Sun identify with transformational leaders who possess attributes for motivating their staff in positive ways to create a transformational school improvement vision.

In a study examining the correlation between leadership, vision, and learning in schools, Kurland et al., (2010) revealed that articulating a vision is an aspect of the principal's leadership style and vision creation can be used as a predictor of the learning that takes place within the school. When school leaders communicate a shared school vision, a sense of purpose is created among staff members that create motivation. Another conclusion from the study discovered that teachers see value in principals who give them individual attention and inspire them to look for solutions in new ways.

Strong transformational leadership from the principal is crucial in supporting the commitment and assurance of teachers (Tengi, Mansor & Hashim, 2017). Sometimes teachers themselves can be barriers to the development of teacher leadership and transformational principals are needed to encourage teachers to share leadership functions (Hallinger, 2003). When teachers perceive principals' instructional leadership actions to be appropriate and in the best interest of the school, their level of commitment, professional involvement, and willingness to innovate grows (Sheppard, 1996). The more transformational leadership, the more teachers become task oriented and engaged (Kurland et al., 2010). Instructional leadership can itself be transformational and both can go hand in hand.

Transformational leadership has been proved to influence many variables such as employees' performance (Sosik, 2006). Transformational leadership received great support from the literature and is considered a strong influencing factor in companies and organizations. Investigating the relationship of transformational leaders and technology

acceptance might give organizations specificity when dealing with technophobic teachers who might be avoiding the use of technology in educational settings. The current study will add insight into the relationship of transformational leadership and technology acceptance of university teachers.

2.9. Organizational Climate

Organizational climate is very important because it is a person's perception of what is given by the organization and is used as the basis for determining the next member behavior. Climate is determined by how well members are directed, built and valued by the organization (Soetjipto, Priyohadi, Sulastri & Riswanto, 2020).

In 21st century, the organizations are confronted with more challenges than ever before. These challenges are not unique to any specific organization or industry, but affect all organizations regardless of their structure and size. An organizational climate in a particular organization is constantly challenged by the increasing number of changes impacting on organizations today (Nair, 2006). These changes relate to restructures, mergers and acquisitions, technological trends, political and international trends, increased competition as well as the local and international economy. If these changes are not managed appropriately by the organization, they could result in a change in the behavior and perception of individuals employed in the organization, which could lead to, inter-alia, decreased motivation and employee satisfaction, increased turnover and absenteeism and hence a decline in organizational performance (Gray, 2007).

The term "climate" is most commonly associated with the study of meteorology, and more specifically aims to observe, describe and measure the various physical characteristics of the atmosphere such as rainfall, temperature, changes in season and so on (Gray, 2007). When the term "climate" is transplanted into the context of the organization, it becomes more complex because it is not so easy to observe and measure

and is constantly changing and as such is not necessarily enduring (Gelfand, 1972). Various researchers define organizational climate on the basis of their viewpoint on how climates are formed. There is a clear distinction between those who highlight objective characteristics and those who emphasize subjective elements. Schneider and Hall (1972) highlighed that organizational climate exists in individuals' perceptions of their organizational environment. These perceptions are formed by the individual using inputs of objective events and characteristics of the organization, as well as characteristics of the individual.

The organizational climate has four dimensions - first dimension is the interpersonal relationship between the employees which indicates trust, cooperation-based climate, and competition-based climate, quality of relationships in different sections of the organization, and support or rejection behaviors towards new employees. Other dimensions of organizational climate include hierarchical nature of organization, challenging or boring nature of the work, and focus on support and incentives of employees (Seyedmoharrami et al, 2019).

Schneider and Snyder (1975) stated the organizational climate as the summary or global perception that people have about an organization. According to them, individuals perceive the organization in various ways, depending on their specific situation and the information available to them. Along these lines, organizational climate can be described as personality (Schneider, 1975) whereby what is important to the individual is the way in which he / she perceive the organization and not how others describe it.

The concept of organizational climate originated in late 1950s as social scientists studied variations in work environment. Although researchers interested in educational organizations (Halpin & Croft, 1963) made the initial efforts to define and measure dimensions of organizational climate, the usefulness of the concept was soon recognized

by scholars of business organizations as well (Tagiuri, 1968). Climate was initially used as a general notion to express the enduring quality of organizational life. Tagiuri (1968) observed that "a particular configuration of enduring characteristics of the ecology, milieu, social system and culture would constitute a climate, as much as particular configuration of personal characteristics constitute a personality." Gilmer (1966) stated the organizational climate as "those characteristics which distinguish the organization from other organizations and that influence the behavior of people in the organization." According to Ahmed (2008), the term "climate" was originated from organizational theorists such as Kurt Lewin and Douglas McGregor, who used the term to refer to social climate and organizational climate respectively. Climate of the organization is based upon its employees' feelings and perceptions regarding organization's practices, procedures and reward systems. Organizational climate can be defined in a number of ways. One of the most widely accepted definitions is that of Litwin and Stringer (1968) who defined the organizational climate as a set of measurable properties of the work environment that is directly or indirectly perceived by the people who live and work in a particular environment and is assumed to influence their motivation and behavior.

Organizational climate has a long history in industrial and organizational psychology and organizational behavior. Its roots lie in the work of Kurt Lewin, in the late 1930s, in which the concept of psychological climate was initially addressed. In order to explain the concept of psychological climate, Lewin identified certain elements that had to be taken into account. These included goals, stimuli, needs, social relations, a friendly or hostile environment or the amount of freedom in an organization (Litwin & Stringer, 1968). According to Lewin, the climate acts as an essential functional link between person and environment. This view was demonstrated in a study by Lewin, Lippitt and White, in which climate exhibited a more powerful influence on individuals

than previously acquired behavioral tendencies, and in addition, was able to change the observed behavior patterns of group members (Litwin & Stringer, 1968).

2.9.1. Classifications of Organizational Climate. Halpin and Croft (1966) categorized the organizational climate into six distinct profiles of configurations. The six organizational climate profiles that are found in the organizations are: Open, Autonomous, Controlled, Familiar, Paternal and Closed.

Open. Openness and authenticity of interaction that exists between the super-ordinates and their sub-ordinates is called open climate. Hoy and Sabo (1998) stated that "an open climate reflects the manager and subordinates' cooperative, supportive and receptive attitudes to each other's ideas and their commitment to work." Manager shows genuine concern for employees; motivates and encourages staff members. He / she give staff freedom to carry out their duties in the best way they know. S/he does not allow routine duties to disrupt employees' operational responsibilities (low hindrance). Moreover, in an organization characterized with open climate, employees are portrayed as tolerant, helpful and respectful professionals (low disengagement). They are caring and willing to assist customers when needed. Employees work hard so that customers succeed (high commitment). They care, respect and help one another as colleagues and even at personal level (highly collegial relations). As a team they work for the success of customers. Both the management and low level employees are accessible and approachable they maintain close relationship with customers (Halpin, 1966).

Autonomous. Autonomous climate portray an atmosphere where employees are given a good measure of freedom to operate within organization. Manager arouses enthusiasm and diligence and there is no external threat or influence. Employees have great desire and motivation to work. The close relationship between management and staff members creates an autonomous climate in the institution (Halpin, 1966).

Controlled. Major characteristics of controlled climate are diligence and hard work. Even though the manager may not model commitment, hard work is overemphasized to the extent that little or no time is given to social life. Nonetheless, employees are committed to their work and spend considerable time on paper work. Thus, in most cases, there is little time to interact with one another. Manager often employs a direct approach, keeps distance from staff, in order to avoid familiarity (Halpin, 1966).

Familiar. Familiar climate depicts a laissez-faire atmosphere. The manager is concerned about maintaining friendly atmosphere at the expense of task accomplishment. Thus, a considerable percentage of employees are not committed to their primary assignment. Few, who are committed, resent the way the manager runs the organization and do not share same views with the manager / supervisor. As a result, those who are not committed, form a clique because they are of the same attitude, they become friends (Silver, 1983).

Paternal. It depicts the atmosphere where manger is very hardworking, but has no effect on staff; to them hard work is not a popular term. All the same, he/she is considerate and energetic, but his/her leadership approach is benevolently autocratic. As a result, most employees prefer to maintain distance from the manager (Costley & Todd, 1987).

Closed. Closed climate represents 'antithesis of the open climate'. Main characteristic of this type of climate identified by Halpin (1966) is lack of commitment or unproductive disengagement. There is no commitment, especially on the part of manager and staff. There is no emphasis on task accomplishment; rather the manager stresses on routine, trivial and unnecessary paper work to which staff minimally respond. The manger is strict and rigid in behavior. He/she is in-considerate, un-supportive and un-responsive. Consequently, most of the employees feel frustrated and dissatisfied, which makes the

atmosphere tense. There is lack of respect among the staff and manager (Hoy and Sabo, 1998). Some scholars like Hoy and Miskel (2001) asserted that each organization has its own unique climate. This is because organizations operate in different ways. The type of climate that prevails in an organization is the blend of behavior of the managers, supervisors and customers in that organization. Therefore, climate differs from organization to organization. Freiberg (1999) opined that climate is an ever-changing factor in organizations. This is because manager may choose on specific occasions to adapt a different leadership style, which may have great impact on the climate that will lead to a change. Again, a new manager may bring some unfamiliar ideas that may change the existing climate. New employees in an organization may equally have a noticeable effect on the prevailing climate of an organization.

Brown and Brooks (2002) emphasized the importance of understanding characteristics of an organization when diagnosing its problems and dysfunctions. Theories pertaining to organizational climate aim at understanding the human behavior at workplace in order to motivate employees to work toward achievement of the organizational goals. Forehand and Gilmer (1964) believe that organizational climate characteristics have a lasting effect that influences employees' behavior. In order to gauge the effective organizational climate, Litwin and Stringer's Organizational Climate Questionnaire (LSOCQ) scale remained focus of many studies and listed as one of the most frequently used scales for measuring organizational climate (Woodman, 2013). Hence, Litwin and Stringer's organizational climate questionnaire was adopted and statements were rephrased to meet the specific objectives of study.

According to Litwin and Stringer (1968), the scale was developed by applying McClelland and Atkinson's motivation theories in organizational environment. The collective work of McClelland and Atkinson provided backbone for the Litwin and

Stringer's organizational-climate questionnaire. Atkinson's work (1998) focused on three intrinsic needs: (a) need for achievement to surpass expectations to reach higher internal standards; (b) need for power to influence and have control over others; (c) need for affiliation for friendly relationship and warmth.

Litwin and Stringer (1968) stressed that organizational climate provides a bridge between organizational theories, human motivation and behavior theories. According to Pena-Suarez et al. (2013), organizational climate affects a variety of variables: job satisfaction, commitment, absenteeism, psychological well-being, psychological risk, violence at the workplace, and employees' behavior within organizations. Brown and Brook (2002) stated that when working with organizations, employees gain emotional and social benefits in addition to money. Previous studies have revealed the influence of organizational climate on employees' behavior.

2.9.2. Essential Components of Organizational Climate. The essential components of the climate construct can be seen as the characteristics that define an organization and differentiate it from others (Steers, 1977) and which can be measured and controlled (Litwin & Stringer, 1968). The above discussion concludes that definitions and approaches to organizational climate are diverse. In literature, it is evident that the same applies to dimensions and measurement of organizational climate because a wide variety of dimensions are used by various researchers to assess organizational climate (Davidson, Jackson & Kalin 2000).

According to Patterson et al. (2005) and Jones & James (1979), one of the basic assumptions of the study of organizational climate is that social environments can generally be described by a limited number of dimensions. For example, one of the most commonly referred set of dimensions measuring organizational climate is that of Litwin and Stringer (1968). They identified the dimensions based on organizations that are

mainly task orientated and that will describe a particular situation. As per Litwin and Stringer (1968), the main dimensions of organizational climate are as follows:-

Structure. Feeling that employees have about constraints in the group, such as how many rules, regulations, and procedures there are; is there an emphasis on 'red tape' and going through channels, or is there a loose and informal atmosphere?

Responsibility. The feeling of being your own supervisor; not having to double check all your decisions; when you have a job to do, knowing that it is your job.

Reward. It is the feeling of being rewarded for a job well done; emphasizing positive rewards rather than punishments; perceived fairness of the pay and promotion policies.

Risk. The sense of riskiness and challenge in the job and in the organization; is there an emphasis on taking calculated risks, or is playing it safe the best way to operate?

Warmth. It is the feeling of general good fellowship that prevails in the work group atmosphere. The emphasis is on being well-liked, the prevalence of friendly and informal social groups.

Support. It is the perceived helpfulness of the managers and other employees in group; emphasis on mutual support from above and below.

Standards. Perceived importance of implicit and explicit goals and performance standards; the emphasis on doing a good job; the challenge represented in personal and group goals.

Conflict. The feeling that managers and other workers want to hear different opinions; the emphasis placed on getting problems out in the open, rather than smoothing them over or ignoring them.

Identity. Feeling that you belong to a company and you are a valuable member of a working team; the importance is placed on this kind of spirit.

If teachers' perceptions of climate influence their behaviors, it seems natural to assume that the organizational climate can be an important antecedent to their acceptance towards technology. If employees realize that organizations put forth a substantial amount of effort to implement a technology, a climate is created which influences employees' behaviors by altering their attitudes and perceptions within the organization (Hofmann & Stetzer, 1996). Kozlowski and Hults (1987) investigated the relationship between organizational climate and technological innovation and revealed that appropriate organizational climate is an important element for fostering employees' innovative behaviors. The research by Kozlowski and Hults (1987) has shown that employees produce a positive response towards new technology when an organization focuses on updating technology. Therefore, a positive organizational climate created by an organization's efforts to update technology can influence employees' willingness to accept new technology systems (Kozlowski & Hults, 1987).

2.10. Related Researches

In the past, various studies were conducted regarding technology acceptance by academicians and its relationship with transformational leadership and organizational climate. A study was conducted, "The relationship between transformational leadership and instructional coaching" by Cassidy Beckom Arrington in 2010 and findings revealed, that a small positive correlation was found between transformational leadership domain of building school vision and goals and instructional coaching domains of planning, teaching, analyzing, and applying. Research found that one of the ways performance was linked to transformational leadership in organizations was through the alignment of goals and values. Transformational leaders have the ability to shift needs of the organization and a common mission above self needs (Jung & Sosik, 2002). Moreover, no relationship was found between the transformational leadership domain of establishing

effective staff practices and any of instructional coaching domains of planning, teaching, analyzing, and applying.

Another study titled as "The integration of information technology in higher education: a study of faculty's attitude towards I.T adoption in teaching process by Suresh P. John was conducted in year 2015. Findings of the study provide key information to the management of educational institutions to improve the rate of return of their IT investments. Steps should be taken to improve computer self-efficacy of the faculty members. Results revealed that compatibility and experience are the key determinants of whether or to what extent teachers used computer technology for instructional needs. Adequate professional trainings on various computer applications will increase computer self-efficacy of the faculty members. The more an individual is familiar with information technology, the more likely he will use it for his/her job. Universities should provide adequate workshops allowing to their faculty members as it allows them to experience the usefulness of information technology in teaching processes. Educational technology and tools are improving day by day and hence the faculties are required to update their I.T skills over time. Hence, the management should recognize the importance of providing long term professional development programs.

A study was conducted by Yoo et al, (2012), "The impact of employee's perception of organizational climate on their technology acceptance toward e-learning in South Korea". The findings of this study were able to empirically substantiate previous conceptual suggestions on the relationship between organizational climate and employees' perceptions of using technologies. It is important because it demonstrates the critical role of organizational climate in promoting use of technology so that it could be informative for a successful integration of technology at workplace. This study identified some significant relationships between two sets of variables. One set was to explain the

level of technology acceptance (UTAUT); the other set explain the perceived organizational climate. Situated in a South Korean workplace, the results suggest a strong underlying relationship between the two variable sets.

In terms of the original variables' importance in predicting the identified canonical correlation, Reward, Structure, Identity, and Support from organizational climate, and Performance Expectancy, and Social Influence from UTAUT were found positively contributing to the canonical correlation. These are variables that could significantly affect the outcomes of promoting e-learning usage by the means of improving organizational climate. Finding reported that the first canonical variable of the technology acceptance has some predictive power for Identity, Support, Structure, Reward, and Warmth.

The organizational climate is a fairly good predictor of performance expectancy and social influence, a poorer predictor for effort expectancy and attitude towards e-learning, and nearly useless for predicting anxiety and intention to use e-learning. Empirical findings of this study strongly suggest that professionals have to consider how to influence their employees' acceptance towards e-learning in context of organizational climate in order to promote utilization of e-learning at workplace.

2.11. Summary

Educational technology was framed in late seventies however with every passing day it went through several phases of transition and now it has become an established field of research. In this regard several definitions of educational technology were coined by the researchers however, it is the development, application and evaluation of systems, techniques and aids to improve the processes of teaching. In past several studies were conducted regarding acceptance and use of educational technology Susilo (2014) highlighted that teachers' and students' intentions to use the educational

technology in e-learning system in distance learning is relatively low.

In due course of time, several theories were propounded by different researches, for example; Theory of Reasoned Action, Theory of Planned Behaviour, Technology Acceptance Model, Extension of Technology Acceptance Model, Diffusion of Innovation Theory, Unified Theory of Acceptance and Use of Technology, etc. UTAUT was one of the most popular frameworks in the field of general technology acceptance models. Like earlier acceptance models, it aimed to explain user intentions to the use of information systems and further usage behavior and it was widely acknowledged and implemented in educational settings.

Similarly, the concept of organizational climate was also introduced and all social scientists studied variations in the climates of differing contexts. Studies were conducted in educational organizations (Halpin & Croft, 1963) which helped define different dimensions of organizational climate. Hence, the climate was used as a general notion to express the enduring quality of organizational life. Gilmer (1966) framed the organizational climate as the salient characteristics that distinguish an organization from other organizations and influence the behavior of people in that organization. However, it was originated from organizational theorists Kurt Lewin and Douglas McGregor, who used the term to refer to the social climate and organizational climate. The climate of the organization is based upon its employees' feelings and perceptions regarding an organization's practices, procedures, and reward systems. One of the most widely accepted definition, that was explained by Litwin and Stringer (1968) is that organizational climate is a 'set of measurable properties of the work environment that is directly or indirectly perceived by the people who live and work in a particular environment and is assumed to influence their motivation and behavior' It spans over nine sub-components and same is used to develop the measure of the study.

Another important variable of the study is transformational leadership that was initially introduced by Burns in 1978. Burns analyzed political leaders themselves and stated that when a leader engages with employees their morale is amplified and they are motivated to perform better, that leader demonstrates transformational leadership. Similarly, Bass (2009) argued that by raising employees' awareness of a job's significance, transformational leaders motivate employees to achieve more. He further stated that 'conceptually, we put emphasis on the observed change in followers and argue that the same dynamics of leader's behavior can be of short or long-term benefit or cost to the followers. Bass enhanced the theory of transformational leadership which stated that transformational leadership has four dimensions: charisma, inspirational motivation, intellectual stimulation, and individualized consideration.

Saifi (2016) argued, the head of the department does not have adequate administrative skills to satisfy the needs of distance learners that is why Bass (2009) called for a paradigm shift by introducing the concept of transformational leadership. Findings of MLR analysis were consistent on technology competencies as having the greatest weight on predicting instructors' and students' intentions to use technology (Susilo, 2014)

Ellahi & Zaka (2014) highlighted that teachers resist new technology that may hinder the potential of e-Learning. Some of them might become victims of a growing menace of technophobia, which may inhibit them to fully utilize eLearning systems. While others remain skeptical about the necessity of integration of technology into learning, hence, they don't appreciate paradigm shift in pedagogy settings. Findings from the study by Davis (2010) revealed no significant correlation between organizational climate and technology acceptance in Higher Education. However, demographic data for the cultural means revealed significant results. Moreover, results suggest that there is a

connection between the affiliation subjects have with their specific school and attitudes toward the usefulness and usage of technology.

There are no clear set of preconditions that could guide the teachers to adopt technology in teaching (Ely & Thomas, 2001). In different researches, some factors were explored such as intention, attitude, and self-efficacy. Some others focused on attitude mediated by gender and suggested extension to include computer anxiety and intention. Insight into the literature revealed that further research is necessary to identify the factors related to teachers' technology usage within an educational environment. Hence, this study was embarked to check the relationship of transformational leadership and organizational climate with technology acceptance by university teachers.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

Methodology is defined as the systematic method to resolve a research problem through data gathering using various techniques, providing an interpretation of data gathered and drawing conclusions about the research data. Essentially, a research methodology is the blueprint of a research or study (Murthy & Bhojanna, 2009). Methodology is about the overall approaches and perspectives of the research process (ESOMAR, 2019). This chapter furnishes information regarding the research design, research tools, participants of the study and their selection techniques, processes of the data collection and framework for the data analysis.

3.2. Research Design

Research designs are procedures for collecting, analyzing, interpreting, and reporting data in research studies. Different models for doing research have been introduced, and these models have distinct names and procedures associated with them. The sequential explanatory design using mixed-methods approach was adopted to conduct this study. The mixed-methods research is a "class of research where researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson, Onwuegbuzie, & Turner, 2007). Amalgamating the statistics with thematic approaches can help avoid over-reliance on the former and can also capture "soft-core views and experiences" (Jogulu & Pansiri, 2011).

Cresswell (2009) articulated, "mixed-methods research provides deep insight into the phenomena by combination of both quantitative and qualitative research than either form, by itself". It combines quantitative and qualitative approaches by including both quantitative and qualitative data in a single study. The purpose of the mixed-methods

research is to build on the synergy and strength that exists between quantitative and qualitative research methods to understand a phenomenon insightfully than it is possible using either quantitative or qualitative method alone (Gay, Mills & Airasian, 2012). It was further elaborated that despite the potential limitations, the mixed-methods can be used to build on the findings of a qualitative study by pursuing a quantitative phase of the research, or vice versa.

In this study, researcher collected quantitative survey data in the first phase and then followed up with qualitative data in the second phase. Since the aim was to investigate the relationship of transformational leadership and organizational climate with technology acceptance of university teachers. For this purpose, mixed-methods research was embarked upon by following the sequential explanatory design.

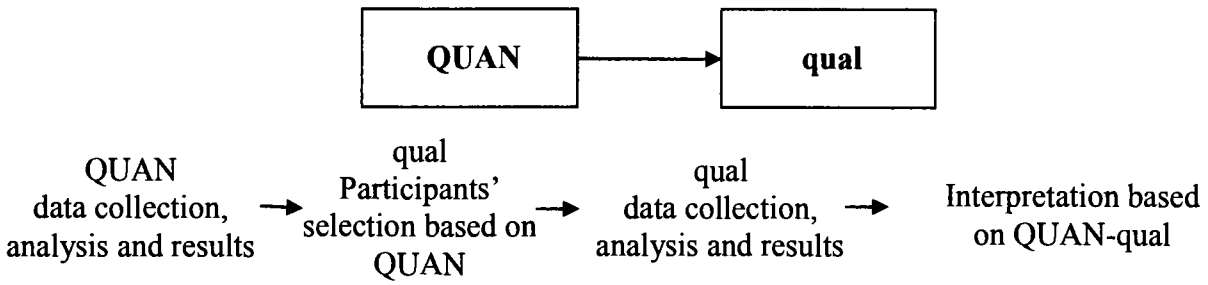


Figure 3.1 Explanatory design; Adopted from Creswell and Plano Clark (2007)

Mixed-methods sequential explanatory design consists of two distinct phases i.e. quantitative followed by qualitative (Creswell, Vicki & Clark, 2011). In this design, the researcher first collects and analyzes the quantitative data and in second phase, qualitative data are collected and analyzed which further helps to explain, or elaborate on, the quantitative results obtained in the first phase. The second, qualitative, phase builds on the first, quantitative, phase, and the two phases are connected in the intermediate stage in the study. The rationale for this approach is that the quantitative data and its subsequent analysis provide a general understanding of the research problem. The

qualitative data and its analysis refine and explain those statistical results by exploring participants' views in more depth (Creswell, et al., 2011).

Connecting the data occurs when the analysis of one type of data leads to a need for other types of data. The researcher may obtain quantitative results that lead to the subsequent collection and analysis of qualitative data. Mixing occurs in the way, the two data types are connected. This connection can occur in different ways, such as in specifying research questions, selecting participants, or developing an instrument or other materials (Cresswell, 2009).

In sequential explanatory design, researcher typically connects the two phases while selecting the participants for the qualitative follow-up analysis based on the quantitative results from the first phase (Creswell et al. 2003). Another connecting point might be the development of the qualitative data collection protocols, grounded in the results from the first, quantitative, phase, to investigate those results in more depth through collecting and analyzing the qualitative data in the second phase of the study.

In the 1st phase, survey design was employed. The quantitative data was collected through questionnaire and analyzed with SPSS version-20. Quantitative data was analyzed through statistical tests i.e. Pearson correlation, percentages, arithmetic means, standard deviation t-test, ANOVA and post-hoc multiple comparisons. On the basis of quantitative findings, participants' selection for qualitative phase was carried out. In the 2nd phase, qualitative data was collected through semi-structured interviews. One-on-one interview method was adopted to collect data from the respondents and each interview lasted for duration of 30-40 minutes. In order to conduct interviews, 20 outliers were selected from the survey participants through purposive sampling technique. On the basis of technology acceptance scores of teachers, these outliers were selected. 10 teachers were those who had high acceptance of technology and other 10 were those who had least

acceptance of technology as per quantitative analysis. The qualitative data was analyzed through thematic analysis technique by identifying the codes, patterns, themes and final report writing. Mixing of the results of both phases was accomplished during integrated analysis phase.

3.3. Population

According to Gay (2012), population is the group of interest to the researcher to which he/she would like the results of study to be generalized. The population may be classified as a general population and target population. The general population is one, in which research takes place and the target population is the object of research.

In the revitalization process of higher education in Pakistan, HEC established several public and private sector universities in the country. Total 171 universities were established in Pakistan out of which 13 universities were mandated with the task to launch distance education programs assisted with technology. These universities were termed as dual-mode universities and the faculty members working in dual-mode universities were the population of study. Province wise regular universities vis-e-vis dual-mode universities is tabulated below:-

Table 3.1. Province-wise University Status

Province	Total Universities	Dual-mode Universities
Punjab	57	06
Khyber Pakhtunkhwa	33	01
Sindh	52	03
Baluchistan	08	01
Federal Capital	21	02
Total	171	13

(www.hec.gov.pk)

In all dual-mode universities, distance education programs were offered in almost 15 different departments i.e. Education, History / Pakistan Studies, English, Mathematics, Economics, Psychology, Mass Communication, Business Administration, Urdu, Islamic Studies / Arabic, Sociology, Political Science / International Relations, Computer Science, Islamic Culture and Sindhi. However, keeping in view the maximum number of teachers in the departments that were also common in maximum universities, department wise strata were formulated and study was further delimited to seven departments. Hence, the department wise detail of population is tabulated below:-

Table 3.2. University-wise Target Population

University	Education	History / Pakistan Studies	English	Economics	Business Admin	Urdu	Islamic Studies / Arabic	Total Population
University of Peshawar, Peshawar	12	0	16	8	0	6	9	51
University of Sindh, Jamshoro	0	0	8	8	0	0	8	24
Shah Abdul Latif University, Khair Pur	0	0	20	15	0	0	0	35
Sukkur Institute of Business Administration, Sukkur	12	0	0	0	0	0	0	12
Gomal University, Dera Ismail Khan	15	8	14	9	15	6	12	79
The Islamia University of Bahawalpur	37	18	8	8	0	8	10	89
Bahauddin Zakaria University, Multan	10	6	13	7	0	6	5	47
GC University, Faisalabad	76	36	210	0	227	90	68	707
International Islamic University, Islamabad	10	6	0	0	0	0	0	16
University of Agriculture, Faisalabad	16	0	15	12	13	0	0	56
University of Balochistan, Quetta	20	0	5	10	30	10	0	75
COMSAT Institute of Information Technology, Islamabad	0	0	15	8	0	0	0	23
	208	**74**	**324**	**85**	**285**	**126**	**112**	**1214**

(Secretariats of Directorates of Distance Education)

3.4. Sample

The sample is a group of people, objects, or items that are taken from a larger population for measurement. A sample should be representative of the population to

ensure that we can generalize the findings from the research sample to the population as a whole (Gay, 2012). If the population is about 1000 a sample size of 300 is appropriate and the same was calculated with a sample calculator, as well. Through proportionate stratified random sampling, a sample of 300 teachers was selected by following the table of random numbers.

3.5. Sampling

In order to collect quantitative data, proportionate stratified random sampling technique was employed and 25% of teachers from each department were selected. 20 outliers, based on technology acceptance results, were selected using purposive sampling technique from the participants who had already participated in the quantitative survey to validate the information collected through survey questionnaire (Bullock, 2017). Department wise quantitative sample detail is as follows:-

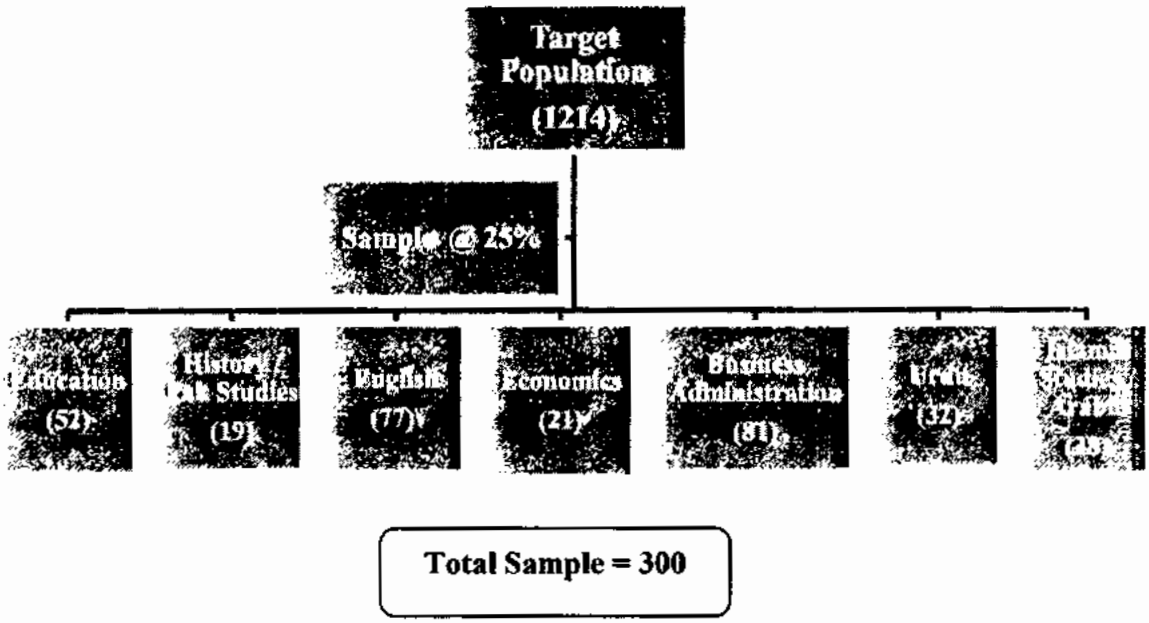


Figure 3.2 Department wise sample selection

3.6. Research Instruments

Quantitative data were collected through a 5 point Likert scale questionnaire

and qualitative data were obtained through semi-structured interviews from the participants. The survey questionnaire items were adopted from different measures used in previous researches e.g. Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003), Multifactor Leadership Questionnaire (MLQ) Scale by Bass & Avolio (1995), and Organizational Climate Questionnaire (LSOCQ) by Litwin & Stringer (1968). However, the items were re-worded and re-phrased to make them relevant to the specific context of the study.

Initially 03 separate questionnaires were developed for each variable i.e. technology acceptance questionnaire comprised of 24 items, transformational leadership measure was formulated of 18 items and organizational climate questionnaire had 36 items. However, after experts' validation, necessary amendments were incorporated in the form of deletion/addition and following the experts' recommendations one single questionnaire comprising of 57 items was finalized encompassing all variables. Since, the core objective of the qualitative phase was to explore and enrich the results of the statistical data (Creswell & Plano Clark, 2011). Quantitative analysis revealed that all hypotheses were rejected; hence, there was a further need to understand 'how' and 'why' the transformational leadership and organizational climate have association with technology acceptance and why there was less technology acceptance by university teachers. In order to collect qualitative data semi-structured interviews were conducted. The semi-structured interviews were undertaken in this study as structured interviews would not allow sufficient flexibility and unstructured interviews would be too flexible. Willig (2008) explains that semi-structured interviews combine features from formal and informal interviews focusing on personal experience that can lead to unexpected

results coming to light that may enhance findings (Hair, Celsi, Money, Samouel and Page, 2011).

3.6.1. Validity of instrument. The validity of the research tools was sufficiently ensured. Initially, the developed questionnaire was comprised of 75 items, and to ascertain the validity it was shared with experts in the field and their feedback was obtained. Valuable suggestions and recommendations i.e. re-phrasing of a few statements and substitution of difficult words to make the questionnaire easily understandable for respondents were incorporated in the questionnaire. Feedback of the worthy experts in the form of suggestions, additions, and modifications was carefully considered and included in the questionnaire, which was found appropriate.

3.6.2. Reliability of Instrument. A measurement is termed as reliable when it can be used by several different researchers under stable conditions, with consistent results and the results not varying. Reliability reflects consistency and reliability over time; furthermore, reliability is seen as the degree to which a test is free from measurement errors since the more errors occur the less reliable the measurement would be (Creswell, 2009).

Table 3.3. Reliability Calculation of Instrument

S No	Variables	Reliability
1	Acceptance of Technology	0.82
2	Transformational Leadership	0.87
3	Organizational Climate	0.79
Overall Reliability of Instrument		0.83

Internal consistency and reliability of the survey questionnaire were checked through Cronbach's alpha and the overall reliability was found as 0.83.

3.6.3. Pilot Testing. To further ascertain, the questionnaire was put to random check through pilot testing. Questionnaire was distributed among 20 teachers which were randomly selected from the target population their valuable feedback and responses were collected and again some improvements were incorporated wherever warranted. Initially, the questionnaire was comprised of 75 items and after refinement; it was made up of 57 items. According to each variable, 12 items were formulated regarding transformational leadership, 27 items were about organizational climate and 18 items were included on the technology acceptance. Similarly, the validity of the interview protocol was pilot tested by interviewing 02 of the participants who had already responded in quantitative survey data collection but were not part of the qualitative respondents.

3.7. Objectivity and Authenticity

Objectivity is the neutrality and attitude of researcher, that accepts the results of tested hypothesis (Harding, 1995). The term may be used as practice and ambition; as practice, it depicts the procedure ensuring valid research findings and as ambition it draws an epistemological trajectory by which the social and humanistic disciplines might prove worthy in comparison to physical science (Natter, Schatzkiv & Johnes, 1995). Social scientists seek to establish the universal validation which is used by natural scientists, but it is not as easy for them as for the natural scientists. Because natural sciences study 'objects', which are not dynamic while social sciences study human minds, actions and behaviors, which are ever changing. Myrdal (1969) warned that entire objectivity in social research is an illusion, which can never be accomplished because certain viewpoints guide altogether research and viewpoints involve subjectivity.

Objectivity is such a concept which may not completely but somehow binds the social researcher to be 'objective' in his/her studies. Various aspects that may undermine objectivity in social research are; researcher's interest in selection of topic; researcher's

self-interest, self-experience and cultural values; observed group's cultural values; researcher's compassion with observed community; researcher's faculty of perception, observation and interpretation; having no peculiar method of research in social science; problem of tainted and insufficient evidence; and problem of neutral assessment of data (Khatwani & Panhwar, 2020).

Thus, researcher ensured the objectivity and authenticity by using mixed-methods approach to cross check and validate the results deduced from the quantitative survey with qualitative interviews. Absolute impartiality was exercised during interpretation of quantitative data and the findings were cross validated by conducting qualitative interviews from the sampled survey participants. Moreover, researcher applied reflexivity technique to accomplish the research and overall protocols of research. Researcher made the research process itself a focus of inquiry by laying open pre-conceptions and becoming aware of situational dynamics in which the researcher and respondent were jointly involved in knowledge production.

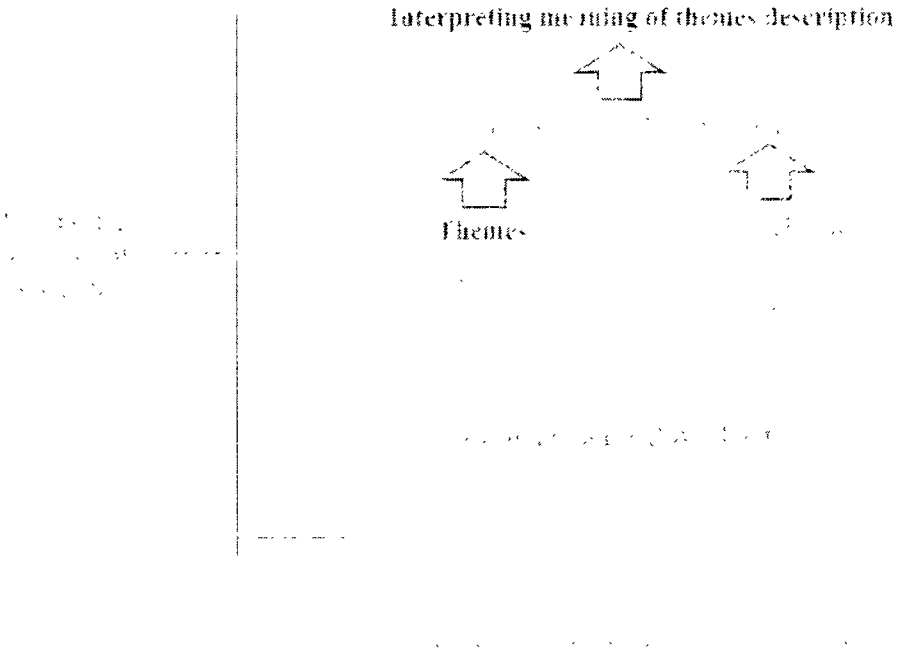
3.8. Data Collection

The refined questionnaire with its coded statements was administered in-person to the sampled population. The sample consisted of 300 respondents in all, out of which 287 questionnaires were collected with a response rate of 95%, a few of the participants did not respond properly and few of the statements were left unanswered. Interviews were conducted from the 20 twenty participants which were purposively selected from those who had already participated in the quantitative survey.

3.9. Data Analysis

Data was collected through accurate, reliable, valid, and well-designed tools. It was properly organized, tabulated, analyzed, and interpreted through modern statistical methods i.e. Percentages, Arithmetic Mean, Standard Deviation, Pearson correlation,

ANOVA, t-test, and posthoc comparisons, etc. During analysis, due care and attention was given to not only mathematical precision but also to objectivity and intellectual integrity. This multiple-analysis approach paved way for the researcher to explore some thrilling findings of the research problem. Thematic analysis technique was employed for qualitative data analysis. It is an accessible, flexible, and most popular method of qualitative data analysis. It is a method for systematically identifying, organizing, and offering insight into, patterns of meaning (themes) across a dataset (Braun & Clarke, 2012). There are six phases in thematic analysis i.e. (a) familiarizing yourself with the data, (b) generating initial codes, (c) searching for themes, (d) reviewing potential themes, (e) defining and naming themes, (f) producing the report. The study identified common themes (repetition) (Shaw, 2010) where similarities as well as differences were identified (Ryan and Bernard, 2003). The initial analysis undertaken identified broad themes (free nodes) that were subsequently developed and refined to produce sibling nodes; nodes that provided hierarchical categorization of the broad themes.



Qualitative Data Analysis Process: Adopted from Creswell (2009).

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

Information collected from university teachers regarding transformational leadership, organizational climate, and technology acceptance was analyzed and presented in four sections of this chapter. Section I discussed the demographic information of the respondents, section II states the transformational leadership, section III depicts responses about organizational climate, and section IV expresses the acceptance and use of technology by the university teachers.

4.2 Analysis of Demographic Description of Participants

Table 4.1. Respondents' description in Terms of University Status

Status	Frequency	Percent
Public	253	88.0
Private	34	12.0
Total	287	100.0

Table 4.1 shows that 88% of the respondents were from public sector universities and 12% are from private sector universities. It can be concluded that the greater majority of the respondents belonged to the Public sector universities.

Table 4.2. Province Wise Details of Respondents

Location	Frequency	Percent
Punjab	126	44.0
Sindh	109	38.0
Baluchistan	12	4.0
KP	27	9.0
Islamabad	13	5.0
Total	287	100.0

Table 4.2 depicts that 44% of the respondents were from the Punjab province, 38% from Sindh, 4% from Baluchistan, 9% from Khyber Pakhtoonkhwa, and 5% respondents were from Islamabad Capital Territory. It can be concluded that greater majority of the respondents belonged to province of the Punjab.

Table 4.3. Department wise Description of Participants

Department	Frequency	Percent
Education	77	26.8
History / Pak Studies	18	6.3
Islamic Studies / Arabic	22	7.7
Economics	14	4.9
English	68	23.7
Urdu	27	9.4
Business Administration	61	21.3
Total	287	100.0

Table 4.3 shows that 26.8% of respondents were from the Education department, 6.3% from History / Pak Studies, 7.7% from Islamic Studies / Arabic, 4.9% from Economics, 23.7% were from English, 9.4% from Urdu, and 21.3% of the respondents were from Business Administration department. It can be concluded that the greater majority of the respondents were from the Department of Education.

Table 4.4. Gender-wise Description of Participants

Department	Frequency	Percent
Male	157	54.7
Female	130	45.3
Total	287	100.0

Table 4.4 shows that 54.70% of the respondents were male and 45.30% were female. It can be concluded that the greater majority of the respondents were male teachers.

Table 4.5. Age-wise Description of Participants

Present Age	Frequency	Percent
< 30	52	18.1
31-40	106	36.9
41-50	80	27.9
51-60	45	15.7
> 60	04	1.4
Total	287	100.0

Table 4.5 presents age-wise description of the participants. It is shown that 18.1% of the respondents were less than 30 years old, 36.6% were between 31-40 years, 27.9% were between 41-50 years, 15.7% were between 51-60 years, and 1.4% of respondents were greater than 60 years. It can be concluded that greater majority of the respondents were having age between 31-40 years.

Table 4.6. Rank wise Description of Participants

Present Age	Frequency	Percent
TA / RA/Tutor	30	10.5
Lecturer	71	24.7
Assistant Professor	114	39.7
Associate Professor	48	16.7
Professor	24	8.4
Total	287	100.0

Table 4.6 depicts rank wise respondents of the study. It is shown that 10.5% of the respondents were Teaching/Research Assistant/Tutors, 24.7% were Lecturer, 39.7% were Assistant Professors, 16.7% Associate Professors, and 8.4% were Professors. It can be concluded that majority of the respondents were Assistant Professors.

Table 4.7. Description of Academic Qualification of Participants

Academic Qualification	Frequency	Percent
BS/B Ed	27	9.4
MA/M Ed	57	19.9
M Phil/MS	111	38.7
Ph. D	92	32.0
Total	287	100.0

Table 4.7 portrays the number of respondents according to their academic qualifications. It shows that 9.4% of respondents were BS/B. Ed graduates, 19.9% of respondents were having M.Sc/MA/M Ed qualifications, 38.7% of the respondents were M Phil/MS and 32% of the respondents were Ph. D qualified. It can be concluded that the majority of the respondents were having M Phil/MS qualification.

Table 4.8. Description of Respondents in terms of Teaching Experience

Teaching Experience	Frequency	Percent
1-5	22	7.7
6-10	60	20.9
11-15	96	33.4
16-20	90	31.4
20+	19	6.6
Total	287	100.0

Table 4.8 presents data regarding teaching experience of the participants. It shows that 7.7% of the respondents were having 1-5 years teaching experience, 20.9% of respondents were having 6-10 years experience, 33.4% of respondents were having 11-15

years experience, 31.4% were having 16-20 years experience, and 6.6% of the respondents were having more than 20 years teaching experience. It can be concluded that majority of the respondents were having 11-15 years of teaching experience.

4.3 Analysis of Transformational Leadership

This section presents analysis of the participant's responses regarding transformational leadership. Since the transformational leadership has four basic components and detailed analysis according to each component is depicted below:-

4.3.1. Individualized Consideration.

Table 4.9. Development of Teachers' Potential

Scale	Frequency	Percent
SDA	51	17.7
DA	79	27.5
N	5	1.7
A	93	32.4
SA	59	20.6
Total	287	100.0

Table 4.9 shows that 17.7% of the participants strongly disagreed, 27.5% disagreed, 1.7% remained neutral, 32.4% agreed, and 20.6% were strongly agreed with the statement that head of the department gives confidence in development of their potential. It can be concluded that majority of the participants were agreed that the head of the department gives confidence in the development of his/her potential.

Table 4.10. Diversity and Head of Department

Scale	Frequency	Percent
SDA	61	21.2
DA	74	25.8

A	60	20.9
SA	92	32.1
Total	287	100.0

Table 4.10 shows that 21.2% of the participants were strongly disagreed, 25.8% disagreed, 20.9% agreed and 32.1% were strongly agreed with the statement that the head of department welcomes diversity from staff members. It can be concluded that majority of the participants were strongly agreed that his/her head of department welcomes diversity from staff members.

Table 4.11. The behavior of the Head of Department

Scale	Frequency	Percent
SDA	51	18.2
DA	76	26.8
N	8	2.8
A	89	31.0
SA	63	22.0
Total	287	100.0

Table 4.11 shows that 18.2% of participants were strongly disagreed, 26.8% disagreed, 2.8% remained neutral, 31% agreed, and 22% were strongly agreed with statement that head of the department behaves us as if we are special people. It can be concluded that majority of the participants were agreed that head of the department behaves us as if we are special people.

Table 4.12. Cumulative results regarding Individualized Consideration

S No	SDA	DA	N	A	SA
1	17.7	27.5	1.7	32.4	20.6
2	21.2	25.5	0	20.9	32.1

3	18.2	26.8	2.8	31.0	22.0
Average %	19	26.5	1.5	28.1	24.9

Table 4.12 shows that 19% of the participants were strongly disagreed, 26.5% disagreed, 1.5% remained neutral, 28.1% agreed, and 24.9% were strongly agreed that our head of department is highly considerate about his staff. It can be concluded that the majority of the participants were agreed that his/her head of the department is highly considerate.

4.3.2. Intellectual Stimulation.

Table 4.13. Creativity for Head of Department

Scale	Frequency	Percent
SDA	51	17.7
DA	69	24.3
N	3	1.00
A	72	25.0
SA	92	32.0
Total	287	100.0

Table 4.13 shows that 17.7% of the participants strongly disagreed, 24.3% disagreed, one percent remained neutral, 25% agreed, and 32% were strongly agreed with statement that our head of department encourages creativity and new implementations. It can be concluded that majority of the participants were strongly agreed that head of the department encourages creativity and new implementations.

Table 4.14. New Ideas for Head of Department

Scale	Frequency	Percent
SDA	41	14.7
DA	69	24.3
N	3	1.00

A	99	34.5
SA	75	25.5
Total	287	100.0

Table 4.14 shows that 14.7% of the participants strongly disagreed, 24.3% disagreed, one percent remained neutral, 34.5% agreed and 25.5% were strongly agreed with statement that our head of department supports new solutions to teaching problems. It can be concluded that majority of the participants were agreed that head of the department supports new solutions to teaching problems.

Table 4.15. Technology and Head of Department

Scale	Frequency	Percent
SDA	45	15.7
DA	51	17.8
A	66	23.0
SA	125	43.6
Total	287	100.0

Table 4.15 shows that 15.7% of the participants were strongly disagreed, 17.8% disagreed, 23.0% agreed, and 43.6% were strongly agreed with the statement that our head of department wants us to think more about technology and its application in classroom. It can be concluded that greater the majority of the participants were strongly agreed that his/her head of department wants him/her to think more about technology and its application in classroom.

Table 4.16 Cumulative results regarding Intellectual Stimulation

S No	SDA	DA	N	A	SA
1	17.7	24.3	1.0	25.0	32.0

2	14.7	24.3	1.0	34.5	25.5
3	15.7	17.8	0	23.0	43.6
Average %	16	22.1	0.7	27.5	33.7

Table 4.16 depicts that 16% of the participants were strongly disagreed, 22.1% disagreed, 0.7% remained neutral, 27.5% agreed and 33.7% were strongly agreed that our head of the department creates intellectual stimulation. It can be concluded that majority of the participants were strongly agreed that head of the department creates intellectual stimulation.

4.3.3. Inspirational Motivation

Table 4.17. Enthusiasm and Head of Department

Scale	Frequency	Percent
SDA	47	16.3
DA	51	17.7
N	5	2.00
A	80	28.4
SA	104	35.6
Total	287	100.0

Table 4.17 shows that 17.7% of participants were strongly disagreed, 16.3% disagreed, 2% remained neutral, 28.4% agreed, and 35.6% were strongly agreed with statement that our head of the department creates enthusiasm for technology among teachers. It can be concluded that a greater majority of the participants were strongly agreed that his/her head of the department creates enthusiasm for technology among teachers.

Table 4.18. Vision and Head of Department

Scale	Frequency	Percent
SDA	61	21.3
DA	36	12.5
N	3	1.00
A	64	22.3
SA	123	42.9
Total	287	100.0

Table 4.18 depicts that 21.3% of the participants were strongly disagreed, 12.5% disagreed, one percent remained neutral, 22.3% agreed, and 42.9% were strongly agreed with the statement that our head of the department has the vision to make us work in teams. It can be concluded that a greater majority of the participants were strongly agreed that their head of the department has the vision to make them work in teams.

Table 4.19. Working conditions and Head of Department

Scale	Frequency	Percent
SDA	45	15.7
DA	51	17.8
A	97	33.8
SA	94	32.7
Total	287	100.0

Table 4.19 shows that 15.7% of the participants were strongly disagreed, 17.8% disagreed, 33.8% agreed, and 32.7% were strongly agreed with the statement that our head of department establishes working conditions that exhibit staff collaboration for professional development. It can be concluded that the majority of the participants were agreed that their head of department establishes working conditions that exhibit staff collaboration for professional development.

Table 4.20. Overall results regarding Inspirational Motivation

S No	SDA	DA	N	A	SA
1	16.3	17.7	2.0	28.4	35.6
2	21.3	12.5	1.0	22.3	42.9
3	15.7	17.8	0	33.8	32.7
Average %	17.8	16.0	1.0	28.1	37.1

Table 4.20 shows that 17.8% of the participants were strongly disagreed, 16% disagreed, 01% remained neutral, 28.1% agreed, and 37.1% were strongly agreed that our head of the department is a source of inspirational motivation. It can be concluded that a greater majority of the participants were strongly agreed that their head of the department is a source of inspirational motivation.

4.3.4. Idealized Behavior

Table 4.21. Preferences for Head of Department

Scale	Frequency	Percent
SDA	51	17.8
DA	74	23.2
N	5	1.7
A	55	19.2
SA	102	38.1
Total	287	100.0

Table 4.21 shows that 17.8% of participants were strongly disagreed, 23.2% disagreed, 1.7% remained neutral, 19.2% agreed, and 38.1% were strongly agreed with the statement that our head of department prefers our needs before his own. It can be concluded that a greater majority of the participants were strongly agreed that their head of department prefers their needs before his.

Table 4.22. Democratic Behavior for HoD

Scale	Frequency	Percent
SDA	86	30.4
DA	39	13.6
N	3	1.00
A	90	31.4
SA	69	23.6
Total	287	100.0

Table 4.22 shows that 30.4% of the participants were strongly disagreed, 13.6% disagreed, one percent remained neutral, 31.4% agreed, and 23.6% were strongly agreed with the statement that our head of department is democratic and treats us as respectful members of the department. It can be concluded that the majority of the participants were strongly agreed that their head of department is democratic and treats them as respectful members of department.

Table 4.23. Credibility and Head of Department

Scale	Frequency	Percent
SDA	57	19.9
DA	39	13.6
N	3	1.00
A	96	33.4
SA	92	32.1
Total	287	100.0

Table 4.23 shows that 19.9% of the participants were strongly disagreed, 13.6% disagreed, 1% remained neutral, 33.4% agreed and 32.1% were strongly agreed with statement that we have trust in head of the department as he values our ideas. It can be

concluded that majority of participants were agreed that they fully trust their head of department as he values their ideas.

Table 4.24. Overall results regarding Idealized Influence

S No	SDA	DA	N	A	SA
1	17.8	23.2	1.7	19.2	38.1
2	33.4	13.6	1.0	31.4	33.4
3	19.9	13.6	1.0	33.4	32.1
Average %	23.7	16.8	1.2	28	34.5

Table 4.24 depicts that 23.7% of participants were strongly disagreed, 16.8% disagreed, 1.2% remained neutral, 28% agreed, and 34.5% were strongly agreed. It can be concluded that a greater majority of the participants were strongly agreed that their head of department has idealized behavior.

Table 4.25. Cumulative results regarding Transformational Leadership

S No	Indicators	SDA	DA	N	A	SA
1	Individualized consideration	24.9	26.5	1.5	28.1	19
2	Intellectual stimulation	33.7	22.1	0.7	27.5	16
3	Inspirational motivation	37.1	16.0	1.0	28.1	17.8
4	Idealized influence	34.5	16.8	1.2	28.0	23.7
	Overall Average	32.6	20.4	1.1	26.8	19.1

Table 4.25 portrays that 24.9% of the participants strongly disagreed, 26.5% disagreed, 1.5% remained neutral, 28.1% were agreed, and 19% were strongly agreed. It may be concluded that the majority of the participants were agreed that their head of the department is highly considerate.

33.7% of the participants were strongly disagreed, 22.1% disagreed, 0.7% remained neutral, 27.5% agreed, and 16% were strongly agreed. It can be concluded that a greater majority of participants were strongly disagreed that their head of department creates intellectual stimulation. 37.1% of the participants were strongly disagreed, 16% disagreed, 1% remained neutral, 28.1% agreed, and 17.8% were strongly agreed. It can be concluded that the greater majority of the participants were strongly disagreed that their head of department gives inspirational motivation.

34.5% of the participants were strongly disagreed, 16.8% disagreed, 1.2% neutral, 28% agreed, and 23.7% were strongly agreed. It can be concluded that the greater majority of the participants were strongly disagreed that their head of department has idealized behavior.

It is evident from overall responses that 32.6% of the participants were strongly disagreed, 20.4% agreed, 1.1% remained neutral, 27.9% were agreed, and 19.1% were strongly agreed that their head of department is transformational. So it can be concluded that the greater majority of the participants were strongly disagreed that their head of department is a transformational leader.

4.4 Analysis of Organizational Climate

This section discusses the responses of participants regarding organizational climate of the department/university.

4.4.1. Structure.

Table 4.26. Job descriptions in Department

Scale	Frequency	Percent
SDA	53	18.5
DA	84	29.3

N	25	9.8
A	58	20.2
SA	67	22.2
Total	287	100.0

Table 4.26 shows that 18.5% of the participants were strongly disagreed, 29.3% disagreed, 9.8% remained neutral, 20.2% agreed, and 22.2% were strongly agreed with the statement that job descriptions are clearly defined in our department. It can be concluded that majority of the participants disagreed that job descriptions are clearly defined in their department.

Table 4.27. Departmental Policies about Technology

Scale	Frequency	Percent
SDA	51	17.8
DA	84	29.3
N	4	1.4
A	91	31.7
SA	57	19.9
Total	287	100.0

Table 4.27 shows that 17.8% of the participants were strongly disagreed, 29.3% disagreed, 1.4% remained neutral, 31.7% agreed, and 19.9% were strongly agreed with the statement that departmental policies emphasize on use of educational technology. It can be concluded that majority of the participants were agreed that departmental policies emphasize on use of the educational technology.

Table 4.28. Curriculum and Educational Technology

Scale	Frequency	Percent
SDA	71	24.8

DA	69	23.0
N	4	1.4
A	56	19.5
SA	87	31.3
Total	287	100.0

Table 4.28 shows that 24.8% of the participants were strongly disagreed, 23% disagreed, 1.4% remained neutral, 19.5% agreed, and 31.3% were strongly agreed with the statement that curriculum compels teachers to teach through educational technology. It can be concluded that majority of the participants were strongly agreed that curriculum compels teachers to teach through educational technology.

Table 4.29. Overall results regarding Structure component

S No	SDA	DA	N	A	SA
1	18.5	29.3	9.8	20.2	22.2
2	17.8	29.3	1.4	31.7	19.9
3	24.8	23.0	1.4	19.5	31.3
Average %	20.3	27.2	4.2	23.8	24.5

Table 4.29 depicts that 20.3% of the participants were strongly disagreed, 27.2% disagreed, 4.2% remained neutral, 23.8% agreed, and 24.5% were strongly agreed that organizational structure is supportive. It can be concluded that the greater majority of the participants have disagreed that the structure of the organization is supportive of technology acceptance.

4.4.2. Responsibility.

Table 4.30. Responsibility and Educational Technology

Scale	Frequency	Percent

SDA	21	7.3
DA	66	23.0
N	39	13.6
A	118	41.1
SA	43	15.0
Total	287	100.0

Table 4.30 shows that 7.3% of the participants were strongly disagreed, 23% disagreed, 13.6% remained neutral, 41.1% agreed, and 15.0% were strongly agreed with the statement that he/she holds himself/herself accountable to deliver results. It can be concluded that the greater majority of the participants were agreed that he/she holds himself/herself accountable to deliver results.

Table 4.31. Ownership for Educational Technology

Scale	Frequency	Percent
SDA	27	8.3
DA	60	22.0
N	41	14.3
A	87	30.3
SA	72	25.1
Total	287	100.0

Table 4.31 shows that 8.3% of the participants were strongly disagreed, 22% disagreed, 14.3% remained neutral, 30.3% agreed, and 25.1% were strongly agreed with the statement that in their department everyone ensures that lesson plans are coupled with appropriate technology. It can be concluded that the majority of the participants were agreed with the statement that in their department everyone ensures that lesson plans are coupled with appropriate technology.

Table 4.32. Decision Making

Scale	Frequency	Percent
SDA	21	7.3
DA	66	23.0
N	39	13.6
A	122	42.5
SA	39	13.6
Total	287	100.0

Table 4.32 shows that 7.3% of the participants were strongly disagreed, 23% disagreed, 13.6% remained neutral, 42.5% agreed and 13.6% were strongly agreed with the statement that in our department, one can make difficult decisions even when the right choice is not easy. It can be concluded that a greater majority of the participants were agreed that in their department, one can make difficult decisions even when the right choice is not easy.

Table 4.33. Overall results regarding Responsibility component

S No	SDA	DA	N	A	SA
1	7.3	23.0	13.6	41.1	15.0
2	8.3	22.0	14.3	30.3	25.1
3	7.3	23.0	13.6	42.5	13.6
Average %	7.6	22.7	13.8	38.0	17.9

Table 4.33 portrays that 7.6% of the participants were strongly disagreed, 22.7% disagreed, 13.8% remained neutral, 38% agreed and 17.9% were strongly agreed. It can be concluded that the greater majority of the participants were agreed that responsibility prevails in their departmental climate.

4.4.3. Reward

Table 4.34. Recognition and Acknowledgment

Scale	Frequency	Percent
SDA	31	9.7
DA	56	21.3
N	21	11.3
A	105	36.6
SA	74	21.1
Total	287	100

Table 4.34 shows that 9.7% of the participants were strongly disagreed, 21.3% disagreed, 11.3% remained neutral, 36.6% agreed, and 21.1% were strongly agreed with the statement that good work is recognized and acknowledged in our department. It can be concluded that the greater majority of the participants were agreed with the statement that good work is recognized and acknowledged in the department.

Table 4.35. Performance Benchmarks

Scale	Frequency	Percent
SDA	15	5.2
DA	42	14.6
N	40	13.8
A	74	25.8
SA	116	40.4
Total	287	100.0

Table 4.35 shows that 5.2% of the participants were strongly disagreed, 14.6% disagreed, 13.8% remained neutral, 25.8% agreed, and 40.4% were strongly agreed with the statement that our head of department is too tolerant of poor performers. It can be

concluded that the greater majority of the participants were strongly agreed that their head of department is too tolerant of poor performers.

Table 4.36. Job Satisfaction

Scale	Frequency	Percent
SDA	35	8.7
DA	51	20.3
N	29	11.6
A	125	43.6
SA	46	14.5
Total	287	100.0

Table 4.36 shows that 8.7% of the participants were strongly disagreed, 20.3% disagreed, 11.6% remained neutral, 43.6% agreed, and 14.5% were strongly agreed with the statement that in our department, one feels a strong sense of job satisfaction. It can be concluded that the greater majority of the participants were agreed with statement that in their department, he/she feels a strong sense of job satisfaction.

Table 4.37. Cumulative results regarding Reward component

S No	SDA	DA	N	A	SA
1	9.7	21.3	11.3	36.6	21.1
2	5.2	14.6	13.8	25.8	40.4
3	8.7	20.3	11.6	43.6	14.5
Average %	7.9	18.7	12.2	35.3	25.3

Table 4.37 depicts that 7.9% of the participants were strongly disagreed, 18.7% disagreed, 12.2% remained neutral, 35.3% agreed and 25.3% were strongly agreed that the reward system prevails in our department. It can be concluded that a greater majority of the participants were agreed that the reward system prevails in the department.

4.4.4. Risk

Table 4.38. Technology in Classrooms

Scale	Frequency	Percent
SDA	41	14.3
DA	66	23.0
N	14	4.8
A	43	15.1
SA	123	42.8
Total	287	100.0

Table 4.38 shows that 14.3% of participants were strongly disagreed, 23% disagreed, 4.8% remained neutral, 15.1% agreed, and 42.8% were strongly agreed with the statement that he/she enjoys bringing new technologies into the classroom. It can be concluded that the greater majority of the participants were strongly agreed that he/she enjoys bringing new technologies into the classroom.

Table 4.39. Culture of risk-taking

Scale	Frequency	Percent
SDA	21	7.3
DA	70	24.4
N	24	8.3
A	106	37.0
SA	66	23.0
Total	287	100.0

Table 4.39 shows that 7.3% of the participants were strongly disagreed, 24.4% disagreed, 8.3% remained neutral, 37.0% agreed, and 23% were strongly agreed with the statement that administration creates a risk-taking culture that encourages exploration of new ideas.

It can be concluded that the greater majority of the participants were agreed that the administration creates a risk-taking culture that encourages the exploration of new ideas.

Table 4.40 Engaging Students in Classroom

Scale	Frequency	Percent
SDA	87	30.3
DA	60	21.0
N	9	3.1
A	70	24.3
SA	61	21.3
Total	287	100.0

Table 4.40 shows that 30.3% of the participants were strongly disagreed, 21% disagreed, 3.1% remained neutral, 24.3% agreed, and 21.3% were strongly agreed with the statement that risk-taking strategy improves student engagement in classroom. It can be concluded that the greater majority of the participants strongly disagreed that risk-taking strategy improves student engagement in his/her classroom.

Table 4.41. Overall results regarding Risk component

S No	SDA	DA	N	A	SA
1	14.3	23.0	4.8	15.1	42.8
2	7.3	24.4	8.3	37.0	23.0
3	30.3	21.0	3.1	24.3	21.3
Average %	17.3	22.8	5.4	25.5	29.0

Table 4.41 shows that 17.3% of the participants strongly disagreed, 22.8% disagreed, 5.4% remained neutral, 25.5% agreed, and 29% were strongly agreed that risk-taking prevails in the department. It can be concluded that the majority of the participants are strongly agreed that risk-taking prevails in the department.

4.4.5. Conflict

Table 4.42. Conflicts Management

Scale	Frequency	Percent
SDA	21	7.3
DA	70	24.4
N	39	13.6
A	104	36.2
SA	53	18.5
Total	287	100.0

Table 4.42 shows that 7.3% of the participants were strongly disagreed, 24.4% disagreed, 13.6% remained neutral, 36.2% agreed, and 18.5% were strongly agreed with the statement that managing student conflicts peacefully is an important part of our job. It can be concluded that the greater majority of the participants were agreed that managing student conflicts peacefully is an important part of his/her job.

Table 4.43. Problem-solving and Teachers

Scale	Frequency	Percent
SDA	91	31.7
DA	84	29.3
N	13	4.5
A	57	19.9
SA	42	14.6
Total	287	100.0

Table 4.43 shows that 31.7% of participants were strongly disagreed, 29.3% disagreed, 4.5% remained neutral, 19.9% agreed, and 14.6% were strongly agreed with statement that organizational climate encourages teachers to role-play in problem-solving situations. It can be concluded that the majority of the participants strongly disagreed that

the organizational climate encourages teachers to role-play in situations of problem-solving.

Table 4.44. Course Objectives and Grading Criteria

Scale	Frequency	Percent
SDA	41	14.3
DA	66	23.0
N	9	3.1
A	118	41.1
SA	53	18.5
Total	287	100.0

Table 4.44 shows that 14.3% of the participants were strongly disagreed, 23% disagreed, 3.1% remained neutral, 41.1% agreed and 18.5% were strongly agreed with the statement that course objectives and grading criteria are clearly stated to them. It can be concluded that a majority of the participants have agreed that course objectives and grading criteria are clearly stated to teachers.

Table 4.45. Overall results regarding Conflict component

S No	SDA	DA	N	A	SA
1	7.3	24.4	13.6	36.2	18.5
2	31.7	29.3	4.5	19.9	14.6
3	14.3	23.0	3.1	41.1	18.5
Average %	17.8	25.6	7.0	32.4	17.1

Table 4.45 depicts that 17.8% of the participants strongly disagreed, 25.6% disagreed, 7.4% were neutral, 32.4% agreed, and 17.1% were strongly agreed that conflict management prevails in the departmental climate. It can be concluded that a greater

majority of the participants were strongly agreed that conflict management prevails in the departmental climate.

4.4.6. Identity

Table 4.46. Identity and professional knowledge

Scale	Frequency	Percent
SDA	39	13.6
DA	76	26.5
N	6	2.1
A	43	15.0
SA	123	42.8
Total	287	100.0

Table 4.46 shows that 13.6% of the participants strongly disagreed, 26.5% have disagreed, 2.1% remained neutral, 15.0% agreed, and 42.8% were strongly agreed with the statement that my identity as a teacher is based on my professional knowledge. It can be concluded that a greater majority of the participants were strongly agreed that his/her identity as a teacher is based on professional knowledge.

Table 4.47. Teaching thru Technology

Scale	Frequency	Percent
SDA	21	7.3
DA	86	30.0
N	19	6.6
A	114	39.7
SA	47	16.4
Total	287	100.0

Table 4.47 shows that 7.3% of the participants were strongly disagreed, 30% disagreed, 6.6% remained neutral, 39.7% agreed, and 16.4% were strongly agreed with the

statement that technology-based teaching is very pertinent in our organization. It can be concluded that a greater majority of the participants were agreed that technology based teaching is very pertinent in the organization.

Table 4.48. Teachers and Decision Making

Scale	Frequency	Percent
SDA	23	8.0
DA	70	24.4
N	21	7.3
A	44	15.3
SA	129	45.0
Total	287	100.0

Table 4.48 shows that 8% of the participants have strongly disagreed, 24.4% disagreed, 7.3% remained neutral, 15.3% agreed, and 45% were strongly agreed with the statement that teachers have opportunities to contribute to decision making in this organization. It can be concluded that a greater majority of the participants have strongly agreed that teachers have opportunities to contribute to decision-making in the organization.

Table 4.49. Overall responses regarding Identity component

S No	SDA	DA	N	A	SA
1	13.6	26.5	2.1	15.0	42.8
2	7.3	30	6.6	39.7	16.4
3	8.0	24.4	7.3	15.3	45.0
Average %	9.6	27.0	5.3	23.3	34.7

Table 4.49 portrays that 9.6% of the participants were strongly disagreed, 27% disagreed, 5.3% remained neutral, 23.3% agreed, and 34.7% were strongly agreed that employees are identified with performance. It can be concluded that a greater majority of

participants were strongly agreed that teachers are being identified with their performance.

4.4.7. Support

Table 4.50. Collaboration and Team Work

Scale	Frequency	Percent
SDA	66	20.0
DA	81	31.2
N	6	2.1
A	85	29.6
SA	49	17.1
Total	287	100.0

Table 4.50 shows that 20% of the participants were strongly disagreed, 31.2% disagreed, 2.1% remained neutral, 29.6% agreed, and 17.1% were strongly agreed with the statement that we are given time to work together in a collaborative effort. It can be concluded that the majority of the participants were disagreed that teachers are given time to work together in collaborative effort.

Table 4.51. Freedom of Expression

Scale	Frequency	Percent
SDA	69	24.0
DA	79	27.5
N	14	4.8
A	55	19.3
SA	70	24.4
Total	287	100.0

Table 4.51 shows that 24% of the participants were strongly disagreed, 27.5% disagreed, 4.8% remained neutral, 19.3% agreed and 24.4% were strongly agreed with the statement

that we are provided with a platform to express our suggestions. It can be concluded that the majority of the participants have disagreed that teachers are provided with a platform to express their suggestions.

Table 4.52 Trust in Management

Scale	Frequency	Percent
SDA	41	14.3
DA	102	35.3
N	21	7.3
A	87	30.5
SA	36	12.6
Total	287	100.0

Table 4.52 shows that 14.3% of the participants were strongly disagreed, 35.3% disagreed, 7.3% remained neutral, 30.5% agreed, and 12.6% were strongly agreed with the statement that we have trust that problems highlighted to the management will be helped out. It can be concluded that the majority of the participants disagreed that in their department, teachers have trust that problems highlighted to the management will be helped out.

Table 4.53. Overall results regarding Support component

S No	SDA	DA	N	A	SA
1	23.0	28.2	2.1	29.6	17.1
2	24.0	27.5	4.8	19.3	24.4
3	14.3	35.3	7.3	30.5	12.6
Average %	20.4	30.3	4.7	26.5	18.1

Table 4.53 shows that 20.4% of the participants were strongly disagreed, 30.3% disagreed, 4.7% remained neutral, 26.5% agreed, and 18.1% were strongly agreed that

supportive climate prevails in our department. It can be concluded that the greater majority of the participants are strongly disagreed that a supportive climate prevails in their department.

4.4.8. Standards

Table 4.54. Performance Assessment of Teachers

Scale	Frequency	Percent
SDA	90	31.4
DA	80	27.9
N	7	2.3
A	51	17.8
SA	59	20.6
Total	287	100.0

Table 4.54 shows that 31.4% of the participants were strongly disagreed, 27.9% disagreed, 2.3% remained neutral, 17.8% agreed, and 20.6% were strongly agreed with the statement that annual performance appraisal of teachers includes grading criteria regarding technology competency. It can be concluded that the majority of the participants have strongly disagreed with the statement that the annual performance appraisal of teachers includes grading criteria regarding technology competency.

Table 4.55. Technology infused Teaching

Scale	Frequency	Percent
SDA	36	12.6
DA	117	40.8
N	15	5.2
A	83	28.9
SA	36	12.5
Total	287	100.0

Table 4.55 shows that 12.6% of participants were strongly disagreed, 40.8% disagreed, 5.2% remained neutral, 28.9% agreed and 12.5% were strongly agreed with statement that technology engaged teaching environment is available at the department. It can be concluded that the greater majority of participants have disagreed that technology engaged teaching environment is available at his/her department.

Table 4.56. Assessment Procedures

Scale	Frequency	Percent
SDA	49	17.1
DA	66	23.0
N	11	3.8
A	108	37.6
SA	53	18.5
Total	287	100.0

Table 4.56 shows that 17.1% of the participants were strongly disagreed, 23% disagreed, 3.8% remained neutral, 37.6% agreed and 18.5% were strongly agreed with the statement that formative and summative assessment procedures are available for teachers. It can be concluded that a greater majority of the participants have agreed that formative and summative assessment procedures are available for teachers.

Table 4.57 Overall results regarding Standards component

S No	SDA	DA	N	A	SA
1	31.4	27.9	2.3	17.8	20.6
2	12.6	40.8	5.2	28.9	12.5
3	17.1	23.0	3.8	37.6	18.5
Average %	20.4	30.6	3.8	28.1	17.2

Table 4.57 shows that 20.4% of the participants strongly disagreed, 30.6% disagreed, 3.8% remained neutral, 28.1% agreed, and 17.2% were strongly agreed that standards are available in our department. It can be concluded that the majority of the participants have strongly disagreed that standards are available in the department.

4.4.9. Warmth

Table 4.58. Atmosphere of Department

Scale	Frequency	Percent
SDA	55	19.2
DA	66	23.0
N	5	1.7
A	98	34.1
SA	63	22.0
Total	287	100.0

Table 4.58 shows that 19.2% of the participants were strongly disagreed, 23% disagreed, 1.7% remained neutral, 34.1% agreed, and 22% were strongly agreed with the statement that a friendly atmosphere prevails among teachers at our department. It can be concluded that the greater majority of the participants agreed that a friendly atmosphere prevails among teachers at his/her department.

Table 4.59. Peer Support and Guidance

Scale	Frequency	Percent
SDA	66	23.0
DA	55	19.2
N	5	1.7
A	110	38.3
SA	51	17.8
Total	287	100.0

Table 4.59 shows that 23% of the participants were strongly disagreed, 19.2% disagreed, 1.7% remained neutral, 38.3% agreed, and 17.8% were strongly agreed with the statement that peer support and guidance is available for technology integration at our department. It can be concluded that the greater majority of the participants were agreed that peer support and guidance are available for technology integration at his/her department.

Table 4.60. Atmosphere of Caring and Trust

Scale	Frequency	Percent
SDA	68	23.7
DA	51	17.8
N	11	3.8
A	121	42.2
SA	36	12.5
Total	287	100.0

Table 4.60 shows, 27.3% of the participants were strongly disagreed, 17.8% disagreed, 3.8% remained neutral, 42.2% agreed, and 12.5% were strongly agreed with the statement that management promotes an atmosphere of caring and trust among staff. It can be concluded that a greater majority of the participants have agreed that management promotes an atmosphere of caring and trust among staff.

Table 4.61. Overall responses regarding Warmth component

S No	SDA	DA	N	A	SA
1	19.2	23.0	1.7	34.1	22.0
2	22.8	19.2	1.9	38.3	17.8
3	23.7	17.8	3.8	42.2	12.5
Average %	21.9	20.0	2.5	38.2	17.4

Table 4.61 depicts that 21.9% of the participants were strongly disagreed, 20% disagreed, 2.5% remained neutral, 38.2% agreed and 17.4% were strongly agreed that warmth prevails in our department. It can be concluded that the greater majority of the participants strongly agreed that warmth prevails in his/her department.

Table 4.62. Cumulative results regarding Organizational Climate

S No	Indicators	SDA	DA	N	A	SA
1	Structure	23.8	27.2	4.2	20.3	24.5
2	Responsibility	38.0	22.7	13.8	7.6	17.9
3	Reward	35.3	18.7	12.2	7.9	25.3
4	Risk	25.5	22.8	5.4	17.3	29.0
5	Conflict	32.4	25.6	7.0	17.8	17.1
6	Identity	23.3	27.0	5.3	9.6	34.7
7	Support	26.5	30.3	4.7	20.4	18.1
8	Standards	28.1	30.6	3.8	20.4	17.2
9	Warmth	38.2	20.0	2.5	19.1	17.4
Overall Percentage		30.1	25.0	6.5	16.0	22.4

Table 4.62 portrays that 23.8% of the participants were strongly disagreed, 27.2% disagreed, 4.2% remained neutral, 20.3% agreed and 24.5% were strongly agreed with the structure of the organization. It can be concluded that a greater majority of the participants were not satisfied with the structure of the organization.

38% of the participants were strongly disagreed, 22.7% disagreed, 13.8% remained neutral, 7.6% agreed and 17.9% were strongly agreed that the responsibility prevails in the climate of their department. It can be concluded that a greater majority of the participants were strongly disagreed that responsibility prevails in the climate of the

department. 35.3% of the participants were strongly disagreed, 18.7% disagreed, 12.2% remained neutral, 7.9% agreed, and 25.3% were strongly agreed that the reward system prevails in the department. It can be concluded that a greater majority of the participants were strongly disagreed that the reward system prevails in the department.

25.5% of the participants strongly disagreed, 22.8% disagreed, 5.4% remained neutral, 17.3% agreed, and 29% were strongly agreed that risk-taking prevails in the department. It can be concluded that the majority of the participants were strongly disagreed that risk taking prevails in his/her department. 32.4% of the participants were strongly disagreed, 25.6% disagreed, 7.4% remained neutral, 17.8% were agreed, and 17.1% were strongly agreed that conflict management prevails in departmental. It can be concluded that the greater majority of the participants were strongly disagreed that conflict management prevails in his/her department.

23.3% of the participants were strongly disagreed, 27% did disagree, 5.3% remained neutral, 9.6% agreed, and 34.7% were strongly agreed that teachers are identified with their performance. It can be concluded that the greater majority of the participants were strongly agreed that teachers are identified with his/her performance. 26.5% of the participants were strongly disagreed, 30.3% disagreed, 4.7% were neutral, 20.4% agreed, and 18.1% were strongly agreed that the department has a supportive climate. It can be concluded that a greater majority of the participants disagreed that his/her department has a supportive climate.

28.1% of the participants were strongly disagreed, 30.6% disagreed, 3.8% were neutral, 20.4% agreed, and 17.2% were strongly agreed that standards are available in our department. It can be concluded that the majority of the participants were strongly disagreed that standards are in place in his/her department. 38.2% of the participants were strongly disagreed, 20% disagreed, 2.5% remained neutral, 19.1% agreed, and 17.4%

were strongly agreed that warmth prevails in our department. It can be concluded that a greater majority of the participants were strongly disagreed that warmth prevails in his/her department.

It is evident from the cumulative results that 30.1% of the participants were strongly disagreed, 25% agreed, 6.5% remained neutral, 16% were agreed, and 22.4% were strongly agreed that the climate of the department is good. So it can be concluded that a greater majority of the participants have disagreed that the climate of his/her department is conducive.

4.5 Analysis regarding Technology Acceptance

This section discusses responses of the participants regarding acceptance and use of technology by university teachers.

4.5.1. Performance Expectancy

Table 4.63. Increase in Learning Outcomes

Scale	Frequency	Percent
SDA	10	3.7
DA	15	5.2
N	5	1.7
A	88	30.5
SA	169	58.9
Total	287	100.0

Table 4.63 shows that 3.7% of the participants were strongly disagreed, 5.2% disagreed, 1.7% remained neutral, 30.5% agreed, and 58.9% were strongly agreed with the statement that learning outcomes are enhanced when a lesson is coupled with appropriate technology. It can be concluded that the greater majority of the participants were strongly agreed that learning outcomes are enhanced when lesson is coupled with appropriate technology.

Table 4.64. Support in Teaching Activities

Scale	Frequency	Percent
SDA	21	7.3
DA	83	28.9
N	10	3.5
A	127	44.3
SA	46	16.0
Total	287	100.0

Table 4.64 shows, 7.3% of the participants were strongly disagreed, 28.9% disagreed, 3.5 remained neutral, 44.3% agreed, and 16.0% were strongly agreed with the statement that educational technology helps in accomplishing teaching activities efficiently. It can be concluded that a greater majority of the participants were agreed that educational technology helps in accomplishing teaching activities efficiently.

Table 4.65. Constructive Teaching and Technology

Scale	Frequency	Percent
SDA	51	17.8
DA	64	22.3
N	18	6.2
A	91	31.7
SA	63	22.0
Total	287	100.0

Table 4.65 shows, 17.8% of the participants were strongly disagreed, 22.3% disagreed, 6.2% remained neutral, 31.7% agreed, and 22% were strongly agreed with the statement that constructive teaching outcomes are achieved through educational technology. It can be concluded that greater majority of participants were agreed that constructive teaching outcomes are achieved through educational technology.

Table 4.66. Overall results regarding Performance Expectancy

S No	SDA	DA	N	A	SA
1	3.7	5.2	1.7	30.5	58.9
2	7.3	28.9	3.5	44.3	16.0
3	17.8	22.3	6.2	31.7	22.0
Average %	9.6	18.8	3.8	35.5	32.3

Table 4.66 shows that 9.6% of the participants were strongly disagreed, 18.8% disagreed, 3.8% remained neutral, 35.5% agreed and 32.3% were strongly agreed that teaching performance may increase with technology. It can be concluded that majority of the participants were agreed that teaching performance increases while using educational technology.

4.5.2. Effort Expectancy

Table 4.67. Handling of Educational Technology

Scale	Frequency	Percent
SDA	51	17.8
DA	92	32.0
N	14	4.9
A	83	28.9
SA	47	16.4
Total	287	100.0

Table 4.67 shows that 17.8% of the participants were strongly disagreed, 32% disagreed, 4.9% remained neutral, 28.9% agreed, and 16.4% were strongly agreed with statement that it is easy to become skillful at handling educational technology in teaching. It can be concluded that majority of the participants have disagreed that it is easy to become skillful at handling educational technology in teaching.

Table 4.68. Lesson objectives and Educational Technology

Scale	Frequency	Percent
SDA	21	7.3
DA	45	15.7
N	10	3.5
A	98	34.1
SA	113	39.4
Total	287	100.0

Table 4.68 shows that 7.3% of the participants were strongly disagreed, 15.7% disagreed, 3.5 remained neutral, 34.1% agreed and 39.4% were strongly agreed with the statement that educational technology is supportive in achieving the lesson objectives. It can be concluded that majority of the participants have strongly agreed that educational technology is supportive in achieving the lesson objectives.

Table 4.69. Skills to incorporate Technology

Scale	Frequency	Percent
SDA	34	11.8
DA	78	27.2
N	12	4.2
A	90	31.4
SA	73	25.4
Total	287	100.0

Table 4.69 shows, 11.8% of participants were strongly disagreed, 27.2% disagreed, 4.2% remained neutral, 31.4% agreed, and 25.4% were strongly agreed with statement that technology embedded lesson requires peculiar skills to accomplish the objectives. It can be concluded that the majority of the participants have agreed that technology embedded lesson requires peculiar skills to accomplish its objectives.

Table 4.70. Overall results regarding Effort Expectancy

S No	SDA	DA	N	A	SA
1	17.8	32.0	4.9	28.9	16.4
2	7.3	15.7	3.5	34.1	39.4
3	11.8	27.2	4.2	31.4	25.4
Average %	12.3	25.0	4.2	31.5	27.0

Table 4.70 shows that 12.3% of the participants were strongly disagreed, 25% disagreed, 4.2% remained neutral, 31.5% agreed and 27% were strongly agreed that peculiar efforts are required for technology integration. It can be concluded that the majority of the participants were agreed that peculiar efforts are required for use of technology in teaching.

4.5.3. Social Influence

Table 4.71. Near and dear ones' Ideas

Scale	Frequency	Percent
SDA	49	17.0
DA	78	27.2
N	8	2.8
A	93	32.4
SA	59	20.6
Total	287	100.0

Table 4.71 shows that 17% of the participants were strongly disagreed, 27.2% disagreed, 2.8% remained neutral, 32.4% agreed, and 20.6% were strongly agreed with the statement that my near and dear ones suggest me to use technology in teaching. It can be concluded that a majority of the participants agreed with the statement that my near and dear ones suggest me to use technology in teaching.

Table 4.72. Technology embedded Lessons

Scale	Frequency	Percent
SDA	51	17.7
DA	47	16.4
N	12	4.2
A	97	33.8
SA	80	27.9
Total	287	100.0

Table 4.72 shows that 17.7% of the participants were strongly disagreed, 16.4% disagreed, 4.2% remained neutral, 33.8% agreed, and 27.9% were strongly agreed with the statement that students' participation is enhanced in technology embedded lessons. It can be concluded that a majority of the participants were agreed that students' participation is enhanced in technology embedded lessons.

Table 4.73. Peer pressure and Technology

Scale	Frequency	Percent
SDA	53	18.5
DA	70	24.3
N	10	3.5
A	109	38.0
SA	45	15.7
Total	287	100.0

Table 4.73 shows that 18.5% of the participants were strongly disagreed, 24.3% disagreed, 3.5% remained neutral, 38% agreed, and 15.7%were strongly agreed with the statement that my colleagues/peers advise me to embed modern technology in lesson plans. It can be concluded that a greater majority of the participants were agreed that his/her colleagues/peers advise to embed modern technology in lesson plans.

Table 4.74. Overall results regarding Social Influence

S No	SDA	DA	N	A	SA
1	17.0	27.2	2.8	32.4	20.6
2	17.7	16.4	4.2	33.8	27.9
3	18.5	24.3	3.5	38.0	15.7
Average %	17.7	22.6	3.5	34.7	21.4

Table 4.74 depicts that 17.7% of the participants were strongly disagreed, 22.6% disagreed, 3.5% remained neutral, 34.7% agreed, and 21.4% were strongly agreed that he/she was socially influenced for the use of technology. It can be concluded that the greater majority of the participants have agreed that he/she was socially influenced by the use of technology in teaching.

4.5.4. Facilitating Conditions

Table 4.75. Availability of Wifi/Internet Connection

Scale	Frequency	Percent
SDA	84	29.3
DA	93	32.4
A	59	20.6
SA	51	17.7
Total	287	100.0

Table 4.75 shows that 29.3% of participants were strongly disagreed, 32.4% disagreed, 20.6% agreed and 17.7% were strongly agreed with the statement that un-interrupted wifi/internet connection is available all time in our classrooms. It can be concluded that a majority of participants disagreed that an un-interrupted wifi/internet connection is available all the time in classrooms.

Table 4.76. Digital Libraries and Journals

Scale	Frequency	Percent
SDA	74	25.8
DA	98	34.1
N	10	3.5
A	61	21.3
SA	44	15.3
Total	287	100.0

Table 4.76 shows that 25.8% of the participants were strongly disagreed, 34.1% disagreed, 3.5% remained neutral, 21.3% agreed, and 15.3% were strongly agreed with the statement that access to digital libraries and online journals is available in our department. It can be concluded that the greater majority of the participants have disagreed that access to digital libraries and online journals is available in his/her department.

Table 4.77. Organizing Workshops and Seminars

Scale	Frequency	Percent
SDA	93	32.4
DA	84	29.3
N	0	0.00
A	59	20.6
SA	51	17.7
Total	287	100.0

Table 4.77 shows that 32.4% of the participants were strongly disagreed, 29.3% disagreed, 20.6% agreed, and 17.7% were strongly agreed with the statement that workshops and seminars are conducted for imparting training to teachers regarding technology integration. It can be concluded that the majority of the participants were

strongly disagreed that workshops and seminars are conducted for imparting training to teachers regarding technology integration.

Table 4.78. Overall results regarding Facilitating Conditions

S No	SDA	DA	N	A	SA
1	29.3	32.4	00	20.6	17.7
2	25.8	34.1	3.5	21.3	15.3
3	32.4	29.3	00	20.6	17.7
Average %	29.2	32.0	1.2	20.7	16.9

Table 4.78 shows that 29.2% of the participants were strongly disagreed, 32% disagreed, 1.2% remained neutral, 20.7% agreed, and 16.9% were strongly agreed that we are facilitated for the integration of technology. It can be concluded that the majority of the participants disagreed that they are facilitated for the integration of technology in teaching.

4.5.5. Intention to Use

Table 4.79. Teaching with Educational Technology

Scale	Frequency	Percent
SDA	47	16.4
DA	64	22.3
N	7	2.4
A	98	34.1
SA	71	24.7
Total	287	100.0

Table 4.79 shows that 16.4% of the participants were strongly disagreed, 22.3% disagreed, 2.4% remained neutral, 34.1% agreed, and 24.7% were strongly agreed with the statement that educational technology makes teaching interesting. It can be concluded

that a greater majority of the participants were agreed that educational technology makes teaching interesting.

Table 4.80. Amusement and Educational Technology

Scale	Frequency	Percent
SDA	54	18.8
DA	49	17.1
N	8	2.8
A	95	33.1
SA	81	28.2
Total	287	100.0

Table 4.80 shows that 18.8% of the participants were strongly disagreed, 17.1% disagreed, 2.8% remained neutral, 33.1% agreed and 28.2% were strongly agreed with the statement that teaching with educational technology is fun. It can be concluded that a greater majority of participants were agreed that teaching with educational technology is fun.

Table 4.81. Teaching and Social Media

Scale	Frequency	Percent
SDA	51	17.8
DA	56	19.5
N	19	6.6
A	97	33.8
SA	64	22.3
Total	287	100.0

Table 4.81 shows that 17.8% of the participants were strongly disagreed, 19.5% disagreed, 6.6% remained neutral, 33.8% agreed, and 22.3% were strongly agreed with the statement that I plan to use social media for group discussion with my students. It can

be concluded that a greater majority of the participants were agreed that he/she plans to use social media for group discussion with students.

Table 4.82. Overall results regarding Intention to Use

S No	SDA	DA	N	A	SA
1	16.4	22.3	2.4	34.1	24.7
2	18.8	17.1	2.8	33.1	28.2
3	17.8	19.5	6.6	33.8	22.3
Average %	17.7	19.6	4.0	33.7	25

Table 4.82 depicts that 17.7% of the participants were strongly disagreed, 19.6% disagreed, 4.0% were neutral, 33.7% agreed, and 25% were strongly agreed that I intend to use technology. It can be concluded that greater majority of the participants agreed that he/she intends to use technology in teaching.

4.5.6. Actual Use.

Table 4.83. Use of Learning Management System

Scale	Frequency	Percent
SDA	71	24.7
DA	98	34.1
N	7	2.4
A	64	22.3
SA	47	16.4
Total	287	100.0

Table 4.83 shows that 24.7% of the participants were strongly disagreed, 34.1% disagreed, 2.4% remained neutral, 22.3% agreed, and 16.4% were strongly agreed with the statement that I use Learning Management System for teaching activities. It can be

concluded that a greater majority of the participants have strongly disagreed that he/she uses Learning Management System for teaching activities.

Table 4.84. Group Discussions thru Social Media

Scale	Frequency	Percent
SDA	81	28.2
DA	95	33.1
N	11	3.8
A	51	17.8
SA	49	17.1
Total	287	100.0

Table 4.84 shows that 28.2% of the participants were strongly disagreed, 33.1% disagreed, 3.8% remained neutral, 17.8% agreed, and 17.1% were strongly agreed with the statement that I use social media for group discussion with students. It can be concluded that a greater majority of the participants were not agreed that he/she uses social media for group discussion with students.

Table 4.85. Presentations through Video Conferencing

Scale	Frequency	Percent
SDA	64	22.3
DA	97	33.8
N	21	7.6
A	56	19.5
SA	48	16.8
Total	287	100.0

Table 4.85 shows that 22.3% of the participants were strongly disagreed, 33.8% disagreed, 7.6% remained neutral, 19.5% agreed, and 16.8% were strongly agreed with the statement that I allow my students to present assignments through video

conferencing. It can be concluded that a greater majority of the participants have disagreed that he/she allows students to present assignments through video conferencing.

Table 4.86. Overall results: Actual Use

S No	SDA	DA	N	A	SA
1	24.7	34.1	2.4	22.3	16.4
2	28.2	33.1	3.8	17.8	17.1
3	22.3	33.8	7.6	19.5	16.8
Average %	25.1	33.7	4.6	19.9	16.8

Table 4.86 depicts that 25.1% of the participants were strongly disagreed, 33.7% disagreed, 4.6% remained neutral, 19.9% agreed, and 16.8% were strongly agreed with statement that 'I use technology for teaching. It can be concluded that the greater majority of the participants disagreed that he/she uses technology for teaching.

Table 4.87. Mean value, Std. Deviation and Std. Error of mean of sub-components of Transformational Leadership

Variables	N	Mean	Std. Deviation	Std. Error Mean
Individualized Consideration	287	4.32	1.402	.084
Intellectual Stimulation	287	3.96	1.410	.071
Inspirational Motivation	287	3.73	1.191	.069
Idealized Influence	287	4.04	1.339	.077

It is evident from table 4.87 that the mean value of the Individualized consideration component is 4.32, Intellectual stimulation 3.96, Inspirational motivation 3.73, and Idealized influence is 4.04. So it can be concluded that Individualized consideration and Idealized influence were stronger components in Transformational Leadership as compared to Intellectual stimulation and Inspirational motivation.

Table 4.88. Mean values, Std. Deviation and Std. Error of mean regarding sub-components of Organizational Climate

Variables	N	Mean	Std. Deviation	Std. Error Mean
Structure	287	3.11	1.432	.084
Responsibility	287	3.36	1.208	.071
Reward	287	3.49	.947	.055
Risk	287	3.46	1.309	.077
Conflict	287	3.42	1.251	.073
Identity	287	3.51	1.319	.077
Support	287	3.28	1.238	.073
Standards	287	3.39	.728	.046
Warmth	287	3.34	1.198	.0707

Table 4.88 shows that the mean value of the Structure component was 3.11, Responsibility 3.36, Reward 3.49, Risk, 3.46, Conflict 3.42, Identity 3.51, Support 3.28, Standards 3.39, and Warmth was 3.34. So it can be concluded that Identity, Reward, Risk, and Conflict were stronger components in organizational climate as compared to other components. It is evident that the structure was the weakest component in the organizational climate variable.

H_{01}: Transformational leadership and organizational climate have no significant relationship with the technology acceptance of university teachers.

Table 4.89 Correlation results of Transformational leadership and Organizational climate with Technology acceptance

		Technology Acceptance	Transformational Leadership & Organizational Climate
Technology Acceptance	Pearson Correlation	1	.626
	Sig. (2-tailed)		.024*
	N	287	287
Transformational Leadership & Organizational Climate	Pearson Correlation	.626	1
	Sig. (2-tailed)	.024	

	N	287	287

**Correlation is significant at 0.05 level (2 tailed)*

Table 4.89 shows that the correlation coefficient (r) equals 0.626, indicating a moderate positive association. The P-value is also less than 0.05 and indicates that coefficient of correlation is significant. It may be concluded that transformational leadership, organizational climate have a significant moderate positive correlation with technology acceptance. Therefore null hypothesis is rejected that the transformational leadership and organizational climate have no significant relationship with technology acceptance of university teachers.

H_{02}: There is no significant relationship between transformational leadership and technology acceptance of university teachers.

In order to explore the strength and level of correlation between transformational leadership and technology acceptance, the cases were sorted out on the basis of transformational leadership to identify the high-transformational cases and less-transformational based on the mean scores of the respondents. Out of 287 respondents, 136 cases were found high-transformational and 151 were found less-transformational. The relationship of both categories was checked separately in the following paragraphs:-

Table 4.90. Correlation results between high-transformational leadership and technology acceptance

		Technology Acceptance	Transformational Leadership
Technology Acceptance	Pearson Correlation	1	.724
	Sig. (2-tailed)		.034*
	N	136	136
Transformational Leadership	Pearson Correlation	.724	1
	Sig. (2-tailed)	.034	
	N	136	136

**Correlation is significant at 0.05 level (2 tailed)*

Table 4.90 depicts that the correlation coefficient (r) equals 0.724, indicating a strong positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. It may be concluded that there is a significant strong positive correlation between transformational leadership and technology acceptance. Therefore null hypothesis is rejected that there is no significant relationship between transformational leadership and technology acceptance of university teachers.

Table 4.91 Correlation results between less-transformational leadership and technology acceptance

		Technology Acceptance	Transformational Leadership
Technology Acceptance	Pearson Correlation	1	.134
	Sig. (2-tailed)		.044*
	N	151	151
Transformational Leadership	Pearson Correlation	.134	1
	Sig. (2-tailed)	.044	
	N	151	151

**Correlation is significant at 0.05 level (2 tailed)*

Table 4.91 depicts that correlation coefficient (r) equals 0.134, indicating a weak positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. It may be concluded that there is a significant week positive correlation between less-transformational leadership and technology acceptance. Therefore the null hypothesis is rejected that there is no significant relationship between transformational leadership and technology acceptance of university teachers.

H_{03} There is no significant relationship between organizational climate and technology acceptance of university teachers.

In order to explore the strength and level of correlation between organizational climate and technology acceptance, cases were sorted out on the basis of organizational climate to identify the conducive climate and non-conducive climate based on the mean scores. Out of 287 respondents, 122 cases admitted a conducive climate and 165 cases endorsed

a non-conducive climate. The relationship of the both cases was checked separately in the following paragraphs:-

Table 4.92. Correlation results between conducive climate and technology acceptance

		Technology Acceptance	Organizational Climate
Technology Acceptance	Pearson Correlation	1	.882
	Sig. (2-tailed)		.003*
	N	122	122
Organizational Climate	Pearson Correlation	.882	1
	Sig. (2-tailed)	.003	
	N	122	122

**Correlation is significant at 0.05 level (2 tailed)*

Table 4.92 shows that the correlation coefficient (r) equals 0.882, indicating a strong positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. It may be concluded that there is a significant strong positive correlation between the conducive organizational climate and technology acceptance. Therefore the null hypothesis is rejected that there is a significant relationship between organizational climate and technology acceptance of university teachers.

Table 4.93 Correlation results between non-conducive climate and technology acceptance

		Technology Acceptance	Organizational Climate
Technology Acceptance	Pearson Correlation	1	.225
	Sig. (2-tailed)		.004*
	N	165	165
Organizational Climate	Pearson Correlation	.225	1
	Sig. (2-tailed)	.004	
	N	165	165

**Correlation is significant at 0.05 level (2 tailed)*

Table 4.93 shows that the correlation coefficient (r) equals 0.225, indicating a weak positive association. The P-value is also less than 0.05 and indicates that the coefficient is

significant. It may be concluded that there is a significant but weak positive correlation between non-conducive organizational climate and technology acceptance. Therefore null hypothesis is rejected that there is no significant relationship between non-conducive organizational climate and technology acceptance of university teachers.

H_{04} There is no significant relationship between sub-dimensions of transformational leadership and technology acceptance of university teachers.

Table 4.94 Correlation results between sub-dimensions of transformational leadership and technology acceptance

		Technology Acceptance
Technology Acceptance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	287
Individualized Consideration	Pearson Correlation	.750*
	Sig. (2-tailed)	.001
	N	287
Intellectual Stimulation	Pearson Correlation	.417*
	Sig. (2-tailed)	.031
	N	287
Inspirational Motivation	Pearson Correlation	.319*
	Sig. (2-tailed)	.044
	N	287
Idealized Behavior	Pearson Correlation	.273*
	Sig. (2-tailed)	.003
	N	287

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

Table 4.94 shows that the correlation coefficient between technology acceptance and individualized consideration (r) equals 0.750, indicating a strong positive association. The P-value is also less than 0.001 and indicates that the coefficient is significant. The correlation coefficient between intellectual stimulation and technology acceptance (r) equals 0.417, indicating a moderate positive correlation. The P-value is also less than 0.05 and indicates that the coefficient is significant. The correlation coefficient between inspirational motivation and technology acceptance (r) equals 0.319, indicating a moderate positive correlation. The P-value is also less than 0.05 and indicates that the

coefficient is significant. The correlation coefficient between idealized behavior and technology acceptance (r) equals 0.273, indicating a week positive correlation. The P-value is also less than 0.05 which indicates that the coefficient is significant. It may be concluded that there is a significant positive correlation between the sub-dimensions of transformational leadership and the technology acceptance of university teachers. Therefore the null hypothesis is rejected that the there is no significant relationship between sub-dimensions of transformational leadership and technology acceptance of university teachers.

H_{05} There is no significant relationship between sub-dimensions of organizational climate and technology acceptance of university teachers.

Table 4.95. Correlation results regarding sub-dimensions of organizational climate and technology acceptance

		Technology Acceptance
Technology Acceptance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	287
Structure	Pearson Correlation	-.217*
	Sig. (2-tailed)	.047
	N	287
Responsibility	Pearson Correlation	.472*
	Sig. (2-tailed)	.003
	N	287
Reward	Pearson Correlation	.299*
	Sig. (2-tailed)	.037
	N	287
Risk	Pearson Correlation	.017
	Sig. (2-tailed)	.779
	N	287
Conflict	Pearson Correlation	-.345*
	Sig. (2-tailed)	.014
	N	287
Identity	Pearson Correlation	.761*
	Sig. (2-tailed)	.023
	N	287
Support	Pearson Correlation	-.243*
	Sig. (2-tailed)	.023

	N	287
Standards	Pearson Correlation	-.288*
	Sig. (2-tailed)	.000
	N	287
Warmth	Pearson Correlation	.313*
	Sig. (2-tailed)	.000
	N	287

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

Table 4.95 shows that the correlation coefficient between structure component and technology acceptance (r) equals -0.217, indicating a week negative association. The P-value is less than 0.05 which indicates that coefficient is significant. The correlation coefficient between the responsibility component and technology acceptance (r) equals 0.472, indicating a moderate positive correlation. The P-value is less than 0.05 which indicates that coefficient is significant.

The correlation coefficient between the reward component and technology acceptance (r) equals 0.299, indicating a moderate positive correlation. The P-value is less than 0.05 which indicates that the coefficient is significantly different. The correlation coefficient between the risk component and technology acceptance (r) equals 0.017, indicating a week positive correlation. The P-value is more than 0.05 which indicates that the coefficient is not significant.

The correlation coefficient between the conflict component and technology acceptance (r) equals -0.345, indicating a moderate negative association. The P-value is less than 0.05 which indicates that the coefficient is significant. The correlation coefficient between the identity component and technology acceptance (r) equals 0.761, indicating a strong positive correlation. The P-value is also less than 0.05 which indicates that the coefficient is significantly different.

The correlation coefficient between the support component and technology acceptance (r) equals -0.243, indicating a week negative correlation. The P-value is also less than 0.05

which indicates that the coefficient is significantly different. The correlation coefficient between the standards component and technology acceptance (r) equals -0.288, indicating a moderate negative association. The P-value is less than 0.05 which indicates that the coefficient is significant.

The correlation coefficient between the warmth component and technology acceptance (r) equals 0.313, indicating a moderate positive correlation. The P-value is also less than 0.05 which indicates that the coefficient is significant. It may be concluded that there is a significant correlation between the sub-components of organizational climate and technology acceptance of university teachers. Therefore the null hypothesis is rejected that there is no significant relationship between sub-dimensions of organizational climate and technology acceptance of university teachers.

H_{06} There is no significant relationship between demographic characteristics and Technology acceptance of university teachers.

Table 4.96 Gender wise t-test results of Participants on Technology Acceptance

Gender	N	Mean	Std. Deviation	Std. Error Mean	Degree of freedom	t Value	P Value
Male	157	3.99	.174	0.013	285	4.362	0.0001
Female	130	3.77	.141	0.012			

Significance Level 0.05

Table 4.96 depicts that the mean scores of male respondents on technology acceptance is higher than their counterpart female teachers and the t value (4.362) is significant at 0.05 level of significance and there is a significant difference between the mean scores in favor of male participants. So it can be concluded that male teachers are significantly better in using the modern technology at the university level.

Table 4.97. t-test results of Technology Acceptance in terms of University Status

Gender	N	Mean	Std. Deviation	Std. Error Mean	Degree of Freedom	t value	P-value
Public	253	5.12	1.580	0.123	285	5.895	0.0001
Private	34	4.02	1.844	0.137			

Significance Level 0.05

According to table 4.97, the mean scores of respondents from public sector universities on technology acceptance is higher than their counterparts from private sector universities and t value (5.895) is significant at 0.05 level of significance and there is a significant difference between the mean scores in favor of teachers from public sector universities. So it is concluded that teachers from public sector universities are significantly better on technology acceptance as compared to the teachers from private sector universities.

Table 4.98. One way ANOVA results of Technology acceptance in terms of University Location

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.217	4	.554	18.596	0.000
Within Groups	8.406	282	.030		
Total	10.624	286			

Significance Level 0.05

According to table 4.98, the P-value is less than 0.05, which shows that there is a significant difference in technology acceptance in terms of university location and it is decided to run posthoc multiple comparisons.

Table 4.99. Post-hoc multiple comparisons on Technology Acceptance in terms of University Location

Variables	Mean difference	P-value
Baluchistan vs Punjab	0.226	0.0001

Baluchistan vs Sindh	0.259	0.0001
Baluchistan vs KP	0.192	0.001
Islamabad vs Punjab	0.342	0.0001
Islamabad vs Sindh	0.375	0.0001
Islamabad vs KP	0.308	0.0001

Table 4.99 shows that participants from universities located in Baluchistan were significantly using more technology than respondents from the Punjab, Sindh, and KP. Moreover, respondents from Islamabad were using more technology than respondents from universities located in Punjab, Sindh, and KP. So, it can be concluded that respondents from universities located in Baluchistan and Islamabad were significantly better among the group on technology acceptance.

Table 4.100. One way ANOVA results of Technology Acceptance in terms of different Departments

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.516	6	.086	2.383	0.029
Within Groups	10.108	280	.036		
Total	10.624	286			

Significance Level 0.05

According to table 4.100, the P-value is less than 0.05, which shows that there is a significant difference in the technology acceptance of university teachers in terms of different departments and it is decided to run posthoc multiple comparisons.

Table 4.101. Posthoc multiple comparisons on Technology Acceptance in terms of different Departments

Variables	Mean difference	P value
Education vs History / Pak Studies	0.179	0.001
Education vs Islamic Studies	0.127	0.036

Education vs Economics	0.175	0.001
Education vs English	0.131	0.009
English vs History / Pak Studies	0.139	0.023
English vs Economics	0.127	0.026
English vs Urdu	0.175	0.001
Business Administration vs Economics	0.131	0.009

Table 4.101 shows that participants from the Department of Education were using significantly more technology than respondents from History / Pakistan Studies, Islamic Studies, Economics, and English departments. Respondents from the department of English were also using significantly more technology than the respondents from History Pak Studies, Economics, and Urdu departments. Respondents from the department of Business Administration were also significantly better in technology usage than the respondents from Economics department. So it is concluded that the respondents from the departments of Education and English are significantly better among the group on technology acceptance.

Table 4.102. One way ANOVA results of Technology Acceptance in terms of Teachers' Rank/Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.368	4	.342	10.419	0.0001
Within Groups	9.256	282	.033		
Total	10.624	286			

Significance Level 0.05

According to table 4.102, the P-value is less than 0.05, which shows that there is a significant difference in technology acceptance in terms of teachers' ranks and it is decided to run posthoc multiple comparisons.

Table 4.103. Posthoc multiple comparisons on Technology Acceptance in terms of Teachers' Ranks/Status

Variables	Mean difference	P-value
Associate Professor vs Lecturer	0.098	0.004
Associate Professor vs Assistant Professor	0.171	0.0001
Professor vs Lecturer	0.099	0.021
Professor vs Assistant Professor	0.173	0.0001

According to table 4.103, the participants having the rank of Associate Professor are using more technology than Lecturers and Assistant Professors. Similarly respondents having the rank of Professor are significantly using more technology than Lecturers and Assistant Professors. So it is concluded that respondents who had rank of Associate Professor and Professor were significantly better among the group in technology acceptance.

Table 4.104. One way ANOVA results of Technology Acceptance in terms of Participants' Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.794	4	.199	5.696	.0001
Within Groups	9.830	282	.035		
Total	10.624	286			

Significance Level 0.05

According to table 4.104, the P-value is less than 0.05, which shows that there is a significant difference in technology acceptance in terms of respondents' Age and it is decided to run posthoc multiple comparisons.

Table 4.105. Posthoc multiple Comparisons on Technology Acceptance in terms of respondents' Age

Variables	Mean difference	P value
31-40 vs < 30	0.722	0.003

31-40 vs 51-60	0.155	0.0001
41-50 vs 31-40	0.120	0.001
41-50 vs 51-60	0.707	0.004

Table 4.105 depicts that respondents having age between 31-40 years are significantly using more technology than the respondents having age <30 and between 51-60 years. Similarly, respondents having age between 41-50 years are significantly using more technology than the respondents having age bracket 31-40 and 51-60 years. So it is concluded that respondents having age between 31-50 years were significantly better among the group in technology acceptance.

Table 4.106. One way ANOVA results on Technology Acceptance in terms of Academic Qualification

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.241	3	0.080	2.193	0.089
Within Groups	10.383	283	0.037		
Total	10.624	284			

Significance Level 0.05

Table 4.106 depicts that P-value is greater than 0.05 which shows that there is no significant difference in technology acceptance in terms of academic qualification of the respondents.

Table 4.107. One way ANOVA results on Technology Acceptance in terms of Teaching Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.770	4	0.192	5.505	0.0001
Within Groups	9.854	282	0.035		
Total	10.624	286			

Significance Level 0.05

Table 4.107 shows, the P-value is less than 0.05, which shows that there is a significant difference in technology acceptance in terms of teaching experience and it is decided to run posthoc multiple comparisons.

Table 4.108. Posthoc multiple comparisons on Technology Acceptance in terms of participants' Teaching Experience (Years)

Variables	Mean difference	P value
11-15 vs 6-10	0.089	0.004
11-15 vs 16-20	0.123	0.0001
11-15 vs 20+	0.094	0.045
6-10 vs 1-5	0.740	0.003

Table 4.108 shows that respondents having 11-15 years of teaching experience were significantly using more technology than the respondents having 6-10, 16-20, and 20+ years of teaching experience. Similarly, the respondents having 6-10 years of teaching experience are using more technology than respondents having 1-5 years. So, it is concluded that the respondents having 11-15 years of teaching experience are significantly better among the group in technology acceptance.

H_7 There is a significant acceptance of technology by university teachers.

Table 4.109. Cumulative results of respondents regarding Technology Acceptance

S No	Indicators	N	SDA	DA	N	A	SA
1	Performance Expectancy	287	18.8	35.5	3.8	9.6	32.3
2	Effort Expectancy	287	12.3	31.5	4.2	25.0	27
3	Social Influence	287	17.7	34.7	3.5	22.6	21.4
4	Facilitating Conditions	287	29.2	32.0	1.2	20.7	16.9
5	Intention to Use	287	27.7	19.6	4.0	23.3	25.0

6	Actual Use	287	25.1	33.7	4.6	19.9	16.8
Overall Percentage			21.8	31.2	4.2	20.1	23.2

Table 4.109 shows that 18.8% of the participants were strongly disagreed, 35.5% disagreed, 3.8% remained neutral, 9.6% agreed, and 32.3% were strongly agreed that teaching performance increases with educational technology. It can be concluded that the majority of the participants disagreed that teaching performance is increased with technology. 12.3% of the participants were strongly disagreed, 31.5% disagreed, 4.2% remained neutral, 25.0% agreed, and 27% were strongly agreed that effort is required for teaching with technology. It can be concluded that the majority of the participants have disagreed that effort is required for technology integration.

17.7% of the participants were strongly disagreed, 34.7% disagreed, 3.5% remained neutral, 22.6% agreed and 21.4% were strongly agreed that he/she was socially influenced for technology use. It can be concluded that the greater majority of the participants have disagreed that he/she is socially influenced for the use of technology in teaching.

29.2% of the participants were strongly disagreed, 32% disagreed, 1.2% remained neutral, 20.7% agreed and 16.9% were strongly agreed that he/she is facilitated for use of technology. It can be concluded that the majority of the participants disagreed that he/she is facilitated for use of technology in teaching. 27.7% of the participants were strongly disagreed, 19.6% disagreed, 4.0% remained neutral, 23.3% agreed and 25% have strongly agreed that he/she intends to use technology. It can be concluded that the majority of the participants intend to use technology for teaching.

25.1% strongly disagreed, 33.7% disagreed, 4.6% remained neutral, 19.9% agreed, and 16.8% strongly agreed that he/she uses technology for teaching. It can be concluded that the greater majority of the participants are not using technology for teaching.

It is evident from the overall results that 21.8% of the participants were strongly disagreed, 31.2% disagreed, 4.2% remained neutral, 20.1% were agreed, and 23.2% were strongly agreed that he/she uses technology for teaching. So it can be concluded that the greater majority of the participants were not using the technology for teaching.

Table 4.110. Mean scores, Std. Deviation and Std. Error of means of sub-components of Technology Acceptance

Variables	N	Mean	Std. Deviation	Std. Error Mean
Performance Expectancy	287	4.15	.487	.028
Effort Expectancy	287	3.83	.541	.031
Social Influence	287	3.84	.617	.036
Facilitating Conditions	287	3.82	.496	.029
Intention to Use	287	4.37	.210	.012
Actual Use	287	3.34	.871	.051

Table 4.110 shows that the mean value of Performance expectancy was 4.15, Effort expectancy was 3.83, Social influence was 3.84, Facilitating conditions was 3.82, Intention to use was 4.37 and Actual Use was 3.34. So it can be concluded that Performance expectancy and Intention to use the educational technology were stronger components as compared to Effort expectancy, Social influence, Facilitating conditions. However, the actual use of technology was very less.

So it can be concluded that there is significantly less acceptance of technology by university teachers.

4.5. Qualitative Data Analysis

In order to ascertain the information deduced from quantitative data analysis, interviews from selected participants were conducted. These teachers were purposively sampled, preferably outliers from the quantitative survey data. A semi-structured interview protocol was developed to clarify the 'Why' and 'How' part of the problem under investigation. There are several qualitative data analysis techniques such as content analysis, discourse analysis, grounded theory, and thematic analysis (Braun & Clarke, 2013). However, thematic analysis is widely used and is considered one of the predominant techniques for qualitative data analysis (Christofi, Nunes, & Peng, 2009). Braun and Clarke (2013) defined the thematic analysis as "a method for identifying, analyzing, and reporting the patterns within the data" (2006). This analysis method can be applied across a variety of epistemological and theoretical approaches (Braun & Clarke, 2013). As elaborated by Braun & Clarke (2013), the process of conducting thematic analysis consists of six phases i.e. familiarizing oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing a report.

Themes mention some important points regarding the research data and show a pattern of meanings related to data sets. The theme is a kind of agreement that, in comparison to the main text from which the theme is extracted, is more concise, accurate, simpler, and shorter (Braun & Clarke, 2006; Rice & Ezzy, 1999). Themes are expressed more explicitly and tacitly rather than clearly and explicitly.

Sandelowski et al. (2009) elaborated that the purpose of quantifying the qualitative data sets for integration with quantitative data in mixed-method studies 'is to answer research questions or test hypotheses addressing relationships between the independent variable and dependent variable'. In contrast, quantitizing in qualitative

research is done to 'allow the analyst to discern and to show regularities or peculiarities in qualitative data they might not otherwise see . . . or to determine that a pattern or peculiarity they thought was there is not' (p. 210).

Depending upon the sample size and composition, descriptive as well as inferential statistics can be used to extract meaning from qualitative data. Consequently, these data sets will lend themselves to transformation or translation into quantitative data sets. Tashakkori and Teddlie (1998) termed it as 'quantitizing', while Boyatzis (1998) referred to it as 'quantitative translation'.' The qualitative themes are numerically represented in scores, scales, or clusters to fully describe and/or interpret the phenomenon. Numbers can complement and enhance the narrative in qualitative data (Olson, 2000).

Hence, the themes of qualitative data that emerged were indicated in terms of frequency and percentages. After deep reading and thorough analysis of the data collected from interviews, themes, and sub-themes for each question was dig out from the statements of interviews to support the quantitative findings. Detailed analysis is delineated in following paragraphs:-

Table 4.111. Qualitative Data Analysis

Themes	Sub-themes	Coding	Frequency (f)
Influence of the leadership in technology use	Inspiration by the boss	Creates enthusiasm	15 (75%)
		Establishes working conditions	13 (13%)
	The focus of boss on staff development	Learning needs	17 (85%)
		Considers very special	15 (75%)
	Intellectual stimulation by the boss	Encourages creativity	18 (90%)
		Technology integration	15 (75%)
	Behavioral influence of the boss	Democratic enough	16 (80%)
		Values staff opinion	14 (70%)

Organizational climate factors in technology acceptance	Structure of the organization	Leads through example	17 (85%)
		Job descriptions	14 (70%)
		Teachers' satisfaction	13 (60%)
	Guidance and Support for teachers	Friendly atmosphere	16 (80%)
		Caring and trust	17 (85%)
		Peer support	15 (75%)
	Significance of the technology in department	performance appraisal	16 (80%)
		Technology engaged teaching	17 (85%)
		Acknowledgment	15 (75%)
Use of technology by university teachers	Outcomes while teaching with technology	Teaching performance	17 (85%)
		Support in teaching	18 (90%)
		Constructive teaching	14 (70%)
		Learning outcomes	10 (50%)
	Efforts required for technology integration	Require peculiar skills	17 (85%)
		Familiarity with tools/applications	15 (75%)
		Less effort oriented	11 (55%)
	Social influence	Students' Interest	17 (85%)
		Peer Pressure	13 (65%)
	Facilitation by the department	Training/seminar	11 (55%)
		Availability of wi-fi/internet	17 (85%)

Theme 1: Leadership emphasizes the use of Technology

It is a proven fact that leadership plays a very significant role in the implementation of change in an academic milieu. Transformational leadership, with its peculiar features, has a very strong influence on technology acceptance by university teachers.

Sub-theme 1: Influences of leadership in the use of technology

University leadership plays a very important role in the use of technology for teaching by the teachers and transformational leadership with its peculiar characteristics had put-in a

lot of influence in the implementation of the change process. The leader takes specific measures, establishes working conditions, and paves way for professional grooming of the staff.

One of the participants remarked that "our head of the department has taken steps to create enthusiasm among teachers regarding technology use" (Respondent-6).

Another participant told that "our head of the department has established working conditions that exhibit the use of technology for teaching. However, the availability of adequate support from the university administration is a big challenge" (Respondent-15)

"Staff collaboration is the weakest aspect at our department, however, the steps taken by our head of department has reduced the gap which resulted in the professional grooming of individuals" (Respondent-11)

Sub-theme 2: Focus of the Boss on staff development

Similarly, transformational leaders consider individual needs, pays respect to his under command staff and focus on their learning needs as well.

"Our head of the department is a very generous person as he pays a lot of respect to the individuals and welcomes diversity from the staff members" (Respondent-2).

Another respondent told that "our head of the department treats every individual very politely and treats as a special person of the department. Moreover, he understands their domestic issues and as much as possible helps them to wriggle from those problems" (Respondent-16).

One of the respondents said that "he understands our learning needs and encourages us to develop our potential he always goes one mile more for individual issues" (Respondent-9).

Sub-theme 3: Intellectual stimulation by the Boss

Almost the majority of the participants responded that our head of the department encourages creativity. Moreover, he emphasizes technology integration during classroom teaching by the teachers.

One of the respondents remarked that "Our head of the department has a very creative mind and he encourages creativity new implementations by the teacher in the use of technology for teaching" (Respondent-8)

Another respondent told that "our head of department supports modern ideas and accepts the solutions to the teaching problems provided by the staff members" (Respondent-11).

One of the respondents remarked that "He wants us to think more and more about technology and its application in classrooms" (Respondent-15).

Sub-theme 4: Behavioral influence of the Boss

Participants told that their boss is very democratic as he values the opinion of others and leads through example.

One respondent told that "our head of the department is very democratic and he always pays heed to the arguments given by the teachers and considers them while decisions making" (Respondent-9)

Another respondent said, "our boss is very exemplary as he always leads through practically performing the job first. During meetings, he values the staff opinion on different matters and shares his point of view as well to elaborate various issues" (Respondent-16).

One more respondent told me that "his boss is very caring he cares our needs before his own and I trust him a lot because he cares and loves my ideas" Respondent-2).

Theme 2: Organizational climate factors in technology acceptance

Organizational climate is an important antecedent to teachers' acceptance of the technology. When employees realize that their organization is putting forth a substantial amount of effort to implement a technology, a climate is created which influences employees' behavior by altering their attitudes and perceptions.

Sub-theme 1: Structure of the Organization

One respondent remarked that "Job descriptions, course design, acknowledgment of good work, respecting one's self-identity and acknowledgment of individual efforts are the salient determinants of good educational climate and consequently, appropriate climate leads toward acceptance of creativeness and new tools and equipment" (Respondent 19).

"Atmosphere of caring and trust, peer support and guidance and friendly atmosphere creates learning desire for individuals and subsequently it leads to acceptance and use of new systems" (Respondent 8).

Sub-theme 2: Guidance and Support for teachers

Since, the guidance and counseling is an important element of the teaching process, hence, friendly atmosphere in university, an environment of caring and trust and peer support are the important aspects of a healthy climate.

One of the respondents remarked that "an environment of caring and trust creates a sense of ownership and enhances teachers satisfaction in adopting change or use of new technology" (Respondent-5).

"Another participant stated that constructive teaching can be administered through modern technologies as learners gain more confidence and practical knowledge through graphical and video interaction of the learning material. However, due to the remoteness of the teacher engagement of the learners may not be ensured as much as required" (Respondent- 12).

Sub-theme 3: Implementation of Technology at the department level

In order to ensure the implementation of innovations or technology, it is pertinent that the annual performance appraisal of teachers should have criteria of assessment. Moreover, good initiatives by the staff must be acknowledged and technology engaged teaching must be ensured.

One respondent remarked that "their annual performance appraisals do not include grading criteria regarding technology implementation" (Respondent-17)

Another said that "initiatives taken by the staff are also not as much acknowledged as might be" (Respondent-13).

One of the participants replied that "specific training has not been imparted however, access to digital libraries is available" (Respondent-5).

Another participant said, "they are facing software compatibility issues and specific training has also not been imparted at their campus" (Respondent-16).

Theme 3: Acceptance and use of technology by university teachers

It is a universal truth that changes in any organization are always discouraged. However, human expectations and efforts compel them to adapt to that change process and make sure that the individuals implement the change on their own. A few of the determinants are performance expectance, effort expectance, social influence, and facilitating

conditions by the department and subsequently the use behavior of the individuals as well.

Majority of the participants (85%) replied that peculiar efforts and skills are required for technology use in teaching.

Sub-theme 1: Outcomes while teaching with technology

Several factors create impetuous among the individuals in the adoption of modern technology in teaching e.g. performance, support, constructive teaching, and enhancement of the learning outcomes.

One of the respondents told that "teaching outcomes are increased while teaching with technology" (Respondent-12).

Another remarked that "constructive teaching outcomes may only be achieved if the student and teachers interact frequently. However, technology supports and facilitates in visualizing the concepts in the form of objective reality" (Respondent-2).

Sub-theme 2: Efforts required for Technology integration

Training workshops and seminars may be conducted for imparting peculiar skills required for the integration of new technology.

One of the teachers told that "much effort is not required for technology use in teaching however, particular skills may do the job easy for us" (Respondents-11).

Another respondent remarked that "the majority of the teaching staff is not familiar with the use of new software and their application in teaching" (Respondent-9).

Sub-theme 3: Social influence

In the everyday life of individuals, social influence plays a very significant role in the implementation of new changes for teaching. It may be due to peer pressures or might be

to enhance the student's interest and comprehension. As the majority of the participants had a point of view that students' interest and involvement is increased.

One of the participants told that "students' participation is increased. Moreover, peers have also guided me to use appropriate technology" (Respondent-3).

Another said, "my near and dear ones suggested me to use technology and keeping in view the students' interest I have diverted my focus" (Respondent-11).

Sub-theme 4: Facilitation by department

Almost the majority of participants endorsed that wi-fi internet is available in their departments. However, specific training was not conducted for the teacher regarding technology integration during teaching few others highlighted that they are facing software compatibility issues during technology integration.

One of the participants told that "specific training for technology integration and software handling is not imparted; however, access to digital libraries is available at their department" (Respondent-5).

Another participant said, "they are facing with software compatibility issues and specific training has also not been imparted at their campus" (Respondent-16)

The fundamental aim of the research was to investigate the relationship of transformational leadership and organizational climate with technology acceptance of university teachers. In this study triangulation was undertaken following the analysis and evaluation of the quantitative and qualitative data. Denzin (1978) refers to triangulation as combining the two or more sources and examining the phenomena. The objective was to compare and contrast findings, looking for contradictions, convergence and complementariness increasing understanding of the phenomena (Courtney and McCutcheon, 2010; Robinson, David, & Hill, 2016). Hence, interviews were conducted

for qualitative data collection as the interviews give a new insight into a social phenomenon as they allow the respondents to reflect and reason on a variety of subjects in a different way (Folkestad, 2008). Thorough analysis of the data revealed that a greater majority of the participants intended to use social media as a platform for group discussion among distance education students.

Analyzing the interview data regarding transformational leadership, revealed that acceptance of the technology was more where head of the department had transformational leadership style and technology implementation was less in those departments where transformational leadership does not exist or was very less. As participants remarked that their boss encourages creativity and new implementation for technology use in teaching. They further added that the boss leads through practical examples, as he is an exemplary personality. He is democratic enough and values his staff opinions; hence the acceptance and implementation of technology have enhanced teaching practices.

Organizational climate is also a substantial antecedent in determining teachers' acceptance of new technology for teaching. When people realize that organization is putting a concerted effort to implement new technology, a climate is developed that influences employees' behaviors and attitudes. Insightfulness into the data regarding organizational climate revealed that a greater majority of participants said that an atmosphere of caring and trust prevails in their organization. They further added that good work done is acknowledged and teachers feel a thorough satisfaction in their job. Moreover, the friendly environment at their departments has resulted in the acceptance of new implementations in the form of new technologies. Microanalysis of the qualitative interviews revealed that the acceptance and implementation of technology were more where an appropriate climate was maintained by the management. The overall analysis of

qualitative data revealed that transformational leadership and organizational climate influence the acceptance, and use of technology by teachers. Hence, a strong relationship exists between transformational leadership, organizational climate and technology acceptance by university teachers.

4.6. Integrated Analysis

When the researcher takes the two data sets and explicitly brings them together or integrates them, it required to be merged. Researchers can merge the two data sets during the interpretation i.e. by analyzing them separately in a results section and then merging the two sets of results during the interpretation or discussion phase or during the analysis of the data (Cresswell, 2011).

During quantitative data analysis, a significant moderate positive correlation was found between transformational leadership and technology acceptance. Similarly, a significant strong positive correlation was revealed between organizational climate and technology acceptance by university teachers. The same was ascertained in qualitative interview analysis as the existence of transformational leadership enhanced the acceptance of technology by university teachers and the healthy climate of the university. The numeric analysis further revealed that overall technology acceptance was significantly very less and the same was validated during interviews data analysis that university teachers were not using the technology for teaching due to various reasons. Further, quantitative analysis revealed that male university teachers were significantly better in use of technology in teaching as compared to their female counterparts and the same was validated from interviews analysis that the female teachers were less prone towards the use of technology for teaching as few remarked that they were unable to handle CMS / LMS for communication with their students.

The quantitative analysis further revealed that teachers from public sector universities were using significantly more technology as compared to the teachers from private sector universities. However, this finding was not endorsed in interviews as teachers from private sectors were also using technology, and a few others from the public sector were not using technology for teaching.

To sum up, the overall analysis revealed that there is very little use of technology by university teachers. However, organizational climate and transformational leadership have a positive association with the technology acceptance of the teachers.

CHAPTER 5

SUMMARY, FINDINGS, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1. Summary

The emergence of technology has transformed the world into a global village and teaching processes have been completely revamped. Resultantly, the integration of technology in classroom instruction has gained much ground in the developed as well as developing countries. The idea of technology integration is now viewed as a fundamental aspect of successful teaching. It has expanded the interest of many researchers who investigated and explored effective ways of technology integration. So the technology acceptance has occupied a pivotal place in the literature regarding acceptance and usage of technology by faculty members of higher education. It gained momentum in the developing world and has been viewed as the urgent need for teaching in the 21st century. Despite the accessibility of technology in this modern era, the integration of technology at all tiers in higher education has not been rapid or painless. One of the major issues that surfaced in the higher education system of Pakistan is the acceptance and use of modern technology for teaching. According to the Global Information Technology Report (2015), Pakistan was at 97th number in ranking during the years 2014-15 in technology acceptance. In order to enhance technology acceptance among the younger generation, teacher educators must be focused. They must be facilitated to improve their technical skills and work on their professional development. Improvement and advancement in the capability and skills of teachers would have a sustainable effect on the overall education of the coming generations.

In 2014, a study conducted by Ellahi & Zaka revealed that university faculty members were not using technology to their fullest capabilities in Pakistan. In the last

decade, the prime concern of the Higher Education Commission of Pakistan was to improve upon the professional competency of teachers in higher education institutions. In this regard, various measures were initiated by the HEC which included teacher training, provision of technology, and much more that brought in a positive change in the teachers, but still, a few challenges and issues need to be identified and addressed. Hence, this study was launched on the belief that transformational leadership and organizational climate have a strong association with technology acceptance of the university teachers. The study mainly focused: to explore the technology acceptance by university teachers, to find out the relationship of transformational leadership and organizational climate with the technology acceptance of university teachers. Hence, the goal of this research was to provide an understanding of technology usage by the teachers from an educational perspective and thus determine the relationship between organizational climate, transformational leadership, and technology acceptance of university academia.

The study was correlational in nature and a sequential explanatory design comprising of a survey questionnaire followed by in-depth interviews was employed. Data were collected through a reliable questionnaire encompassing statements on transformational leadership, organizational climate, and technology acceptance. Qualitative data were collected through a semi-structured interview questionnaire from 20 purposively selected respondents of survey questionnaire. A total of 300 university teachers were selected from the target population. The researcher collected the data in person, elaborating the key objectives of the study to the respondents. The questionnaire was first presented to a panel of experts and the suggested changes were incorporated accordingly. Pilot- testing was the next step in which some minor adjustments and

amendments were made as recommended. The main findings, conclusions, and recommendations of the study have been discussed in the following sections.

5.2. Findings

5.2.1 Findings regarding Research Objective No.1

1. Cumulative results revealed that 32.6 % of the respondents were strongly disagreed, 20.4% did agree, 1.1% remained neutral, 27.9% were agreed, and 19.1% strongly agreed that their head of the department was a transformational leader. By and large, majority of the respondents (53%) admitted that their head of the department is not a transformational leader.
2. Findings regarding organizational climate revealed that 30.1% of the participants were strongly disagreed, 25% have disagreed, 6.5% remained neutral, 16 % were agreed, and 22.4% were strongly agreed that the climate of the department is conducive. On the whole, majority of the respondents (55%) admitted that the climate of their organization was not conducive.
3. Overall results about teachers' technology acceptance revealed that 31.7% of the participants were strongly disagreed, 26.1% did disagree, 4.1% remained neutral, 20.6% were agreed, and 17.5% were strongly agreed that they are using technology. On the whole, majority of the respondents (57.8%) admitted that they were not using modern technology.
4. There was a moderate positive (0.626) association between transformational leadership and organizational climate with technology acceptance. The P-value was also less than 0.05 and indicates that coefficient of correlation is significant. Therefore, the null hypothesis is rejected that the transformational leadership and organizational climate have no significant relationship with technology acceptance of university teachers.

It may be concluded that transformational leadership and organizational climate have a significant moderate positive relationship with technology acceptance.

5.2.2 Findings regarding Research Objective No.2

In order to explore the strength and level of correlation between transformational leadership and technology acceptance, the transformational leadership respondents were sorted out to identify the high-transformational cases and less-transformational based on the mean scores of the respondents. Out of 287 respondents, 136 cases were found high-transformational and 151 were less-transformational.

5. In case of high-transformational leadership, the correlation coefficient (r) equals 0.724, indicating a strong positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. Therefore, the null hypothesis is rejected that there is no significant relationship between transformational leadership and technology acceptance of university teachers. It may be concluded that there is a significant strong positive correlation between transformational leadership and technology acceptance.
6. In case of less-transformational leadership, the correlation coefficient (r) equals 0.134, indicating a weak positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. Therefore, null hypothesis is rejected that there is no significant relationship between transformational leadership and technology acceptance of university teachers. It may be concluded that there is a significant week positive correlation between transformational leadership and technology acceptance.

5.2.3 Findings regarding Research Objective No.3

In order to explore the strength and level of correlation between organizational climate and technology acceptance, the organizational climate responses were sorted out to identify the conducive climate and non-conducive climate based on the mean scores of the respondents. Out of 287 respondents, 122 respondents admitted that they had conducive climate and 165 endorsed that their climate is non-conducive.

7. In case of conducive climate, the correlation coefficient (r) equals 0.882, indicating a strong positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. Therefore, the null hypothesis is rejected that there is no significant relationship between organizational climate and technology acceptance of university teachers. It may be concluded that there is a significant strong positive correlation between the conducive climate and technology acceptance.
8. In case of non-conducive climate, the correlation coefficient (r) equals 0.225, indicating a weak positive association. The P-value is also less than 0.05 and indicates that the coefficient is significant. Therefore, the null hypothesis is rejected that there is no significant relationship between organizational climate and technology acceptance of university teachers. It may be concluded that there is a significant but weak positive correlation between non-conducive climate and technology acceptance.

5.2.4 Findings regarding Research Objective No.4

9. The mean scores of male teachers on technology acceptance is higher than their counterpart female teachers and the t value (4.362) is significant at 0.05 level of significance and there is a significant difference between the mean

scores in favor of male participants. So it can be concluded that male teachers are significantly better in using the modern technology at university level.

10. In case of public and private sector universities, the mean scores of teachers from public sector universities is higher than their counterparts from private sector universities regarding technology acceptance and t value (5.895) is significant at 0.05 level of significance and there is a significant difference between the mean scores in favor of teachers from public sector universities. So, it is concluded that teachers from public sector universities are significantly better on technology acceptance as compared to the teachers from private sector universities.
11. Post-hoc multiple comparison results revealed that, participants from the department of Education were using significantly more technology than respondents from History / Pakistan Studies, Islamic Studies, Economics, and English departments. Respondents from the department of English were also using significantly more technology than the respondents from History Pak Studies, Economics, and Urdu departments. Respondents from the department of Business Administration were also significantly better in technology usage than the respondents from Economics department. So, it is concluded that the respondents from the departments of Education and English are significantly better among the group on technology acceptance.
12. Rank wise multiple comparisons revealed that, the Associate Professor are using more technology than Lecturers and Assistant Professors. Similarly respondents having the rank of Professor are significantly using more technology than Lecturers and Assistant Professors. On the whole, it is

concluded that Associate Professor and Professor are significantly better among the group in technology acceptance.

13. Age wise comparisons revealed that, the teachers having age between 31-40 years are significantly using more technology than the respondents having age <30 and between 51-60 age groups. Similarly, respondents having age between 41-50 years are significantly using more technology than the respondents having age bracket 31-40 and 51-60 years. On the whole, it is concluded that teachers having age between 31-50 years are significantly better among the group on technology acceptance.
14. In case of academic qualification, the P-value was found greater than 0.05 (0.089) which shows that there is no significant difference in technology acceptance in terms of academic qualification of the university teachers.
15. As far as teaching experience is concerned, teachers having 11-15 years of teaching experience were significantly using more technology than the respondents having 6-10, 16-20, and 20+ years of experience. Similarly, the respondents having 6-10 years of experience are using more technology than respondents having 1-5 years. So, it is concluded that the teachers having 11-15 years of teaching experience are significantly better among the group in technology acceptance.

5.2.5 Findings regarding Research Objective No.5

16. The overall percentages regarding teachers' technology acceptance revealed that 21.8% of the teachers were strongly disagreed, 31.2% disagreed, 4.2% remained neutral, 20.1% were agreed, and 23.2% were strongly agreed that he/she uses technology for teaching. On the whole, it can be concluded that

(53.0%) of the teachers admitted that they were not using the technology for teaching.

17. Analysis of sub-components of technology acceptance variable revealed that the means scores of performance expectancy was 4.15, effort expectancy 3.83, social influence 3.84, facilitating conditions 3.82, intention to use 4.37 and the actual use was 3.34. On the whole, it can be concluded that the actual use of technology by university teachers was very less.

5.3 Discussion

The study was primarily concerned about the relationship of transformational leadership and organizational climate with technology acceptance of the university teachers. The research questions and hypotheses that were posed in the beginning were appraised concerning the findings of the study. The study unfolded that male teachers were significantly good in acceptance of technology as compared to their female counterparts. These findings corroborate the results of the study carried out by John (2015), who investigated the attitude of faculty members towards technology integration during the teaching process. However, it contradicts the findings of Usman (2014) who conducted a study on staff members' use of ICTs at the University of Khartoum and no statistically significant difference between genders was identified.

The findings revealed that respondents having age between 31-40 years were significantly better at technology these findings corroborated in another study conducted by Gyamfi (2017) that younger staff members make more use of ICT as compared to older ones. Moreover, findings from the study of John (2015) also corroborated these results. The study found a significant difference in acceptance of technology between teachers of different disciplines as it revealed

that teachers from the department of education were significantly better among the group in acceptance of technology which conforms with the finding of a study conducted by John and Velle (2004) that teachers from mathematics and science disciplines were more open to employing ICTs in their classrooms than educators in humanities and music. Results revealed that the respondents from public sector universities were significantly better on technology acceptance as compared to the teachers from private sector universities which contradicts with findings of a study conducted by Usman (2014) that very a significant difference was found in using ICTs for teaching among staff members of private and public universities in favor of teachers from private universities and similar finding were surfaced from the study conducted by Nour and Samia (2011). The study found that respondents having the rank of Associate Professor and Professor were significantly better on technology acceptance which is in conformity with findings of Abdulraheem and Almusawi (2003). Results found a significant moderate positive correlation was found between transformational leadership and technology acceptance which was in conformity with the finding of a study conducted by Arrington (2010) at the University of Alabama. In addition to this, a significant strong positive correlation was found between organizational climate and technology acceptance and these results are empirically substantiated by Yoo, Haung, and Lee (2012) in which a strong correlation was observed between organizational climate and technology acceptance. It was further confirmed that there is a significant correlation was found between sub-components of organizational climate and technology acceptance and these finding have also been supported by the earlier researches (Yoo, Haung & Lee, 2012) conducted on the relationship of organizational climate and technology acceptance. Similarly, another research conducted by

Kozlowski and Hults (1987) revealed a strong relationship between organizational climate and technological use and emphasized that appropriate organizational climate is an important element for fostering employees' innovative behaviors. Qualitative findings revealed that transformational leadership and technology acceptance by university teachers have an association as it was found that technology acceptance was increased in those universities/departments where heads of the departments were having transformational leadership style. These findings are in conformity with the findings of the study conducted by Arrington, (2010) which concluded that effective transformational leadership resulted in greater acceptance of the technology by a university instructor. Hence, the integrated analysis revealed that an appropriate climate and effective leadership play a very important role in the implementation of modern ideas and technology.

5.4 Conclusions

Following conclusions are drawn from the general picture of the analysis-based findings of the study:-

1. A conducive organizational climate plays an effective role in the acceptance and use of technology, greater majority of the teachers admitted that the climate of their department / university is not conducive for use of technology in teaching.
2. The transformational leaders inspire, motivate, stimulate and encourage their employees to use modern technology, greater majority of the respondents endorsed that their head of the department is a not a transformational leader.
3. Modern communication technologies i.e. Whatsapp, Skype, Facebook, Learning Management Systems, etc. are the effective tools for distance

teaching- learning, greater majority of the teachers admitted that they are not using the technology for teaching.

4. Leadership plays an effective role in implementation of any change. The cases, which have high-transformational leadership, a significant strong positive correlation was found between high-transformational leadership and technology acceptance of university teachers.
5. In case of less-transformational leadership, a significant weak positive association was found between the leadership style and technology acceptance of university teachers.
6. Conducive organizational climate has a lot of impact in the implementation of any change. In case of the departments having conducive climate, a significant strong positive association was found between climate and technology acceptance of the university teachers.
7. In case of the departments with non-conducive climate, a significant weak but positive association was observed between the organizational climate and technology acceptance of university teachers.
8. Modern educational technology is a smart, efficient and effective means of imparting distance education, however, on the whole acceptance and use of technology by university teachers found significantly very less.
9. Acceptance and use of modern technology must be ensured at all tiers of the university teaching, the Associate Professors and Professors were found significantly better in technology acceptance among the faculty members.
10. In this era of technology male and female are equally important in the development of any country; however, male teachers were found significantly

better than their female counterparts in the acceptance and use of technology for teaching purposes.

11. The university management must ensure, implementation of new technology at all tiers; however, the teachers from the department of Education were significantly better in acceptance and use of technology among all departments.
12. Implementation of policies must be ensured by the both public and private sector universities; however, the teachers from public sector universities were found significantly better than private sector in acceptance and use of technology.
13. A significant moderate positive relationship was observed between individualized consideration, intellectual stimulation, inspirational motivation, and technology acceptance of university teachers. However, a significant weak positive association was found between idealized behavior and technology acceptance of the university teachers.
14. A significant weak negative association was found between Structure, Support and Standards components of organizational climate and technology acceptance of university teachers. However, a significant moderate and positive correlation was found between Responsibility, Reward, Warmth, and technology acceptance of university teachers.

5.5. Recommendations

On the basis of findings of the present research, following plan of action is suggested to HEC for subsequent implementation in universities regarding acceptance and use of modern technology by faculty members in Pakistan:-

5.5.1. Vision for Implementation of Modern Technology in Teaching

1. Universities may have a clear vision, and strategic Plan documents for the implementation of modern technology for teaching
2. Teachers must be motivated and incentivized for the use of modern technology for teaching
3. Annual performance appraisals must be reviewed and criteria must be included regarding implementation of innovations and modern technology.
4. Universities should have to maintain a conducive environment for technology assisted teaching at all tiers.
5. Curriculum is the most significant pillar of any education system which provides the learners with adequate knowledge and skills to compete in the practical life. The curriculum of teacher training programs must be revised and restructured through NCRC committee as per the needs and demands of the global world by incorporating the transformational leadership skills and emphasizing upon a conducive climate for implementation of change.

5.5.2. Role of University Leadership

6. Management of the universities must emphasize upon the use of modern technology by all teachers for teaching.
7. Measure must be initiated to improve upon modern technology self-efficacy of faculty members.
8. Adequate professional trainings on various applications and softwares would enhance the technology use of faculty members. The more an individual would be familiar with information and modern instructional technology, the more likely he will use it for his/her job.

9. Educational technologies and tools are improving day by day and faculties are required to update their I.T skills over time. Hence, departmental/university leaders must recognize the importance of providing long term professional development programs.

5.5.3. University Climate

10. The climate of any organization plays a significant role in implementation of modern ideas. Structure, Reward, Warmth and Support are the core aspects of a conducive climate. Hence, Standard Operating Procedures (SOPs) must be formulated at department level and compliance must be ensured.
11. Standards and goals emphasizing upon the usage of modern technology for teaching must be formulated and be made an intrinsic part of departmental culture and climate.
12. HEC must arrange special professional development programs for teachers to train them on effective use of technology for teaching.

5.6. For Further Research

1. Research may also be launched to explore why male teachers use more technology than female teachers.
2. Another study may be conducted to explore the factors affecting the acceptance of technology between teachers of different provinces.
3. This study checked the relationship between Transformational Leadership, and Organizational Climate with Technology acceptance. However, further research may be launched to explore the impact of Transformational Leadership and Organizational Climate on the Technology acceptance of university teachers.

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Appendix "A"

الجامعة الإسلامية العالمية – إسلام آباد

International Islamic University – Islamabad

Questionnaire for University Teachers

Dear Sir / Madam,

I am a Ph. D scholar at International Islamic University, Islamabad and doing research on **"Relationship of Transformational Leadership and Organizational Climate with Technology Acceptance at University Level"**. As population of the study comprised of university academia, administration and practicing teachers so your responses can be of great worth and value for this study. Therefore, your help and cooperation is required in this regard. The questionnaire is attached herewith, kindly provide your responses by putting **(√)** mark in front of the statement that best represents your opinion for each main statement in the questionnaire. The results of this study will be helpful for future policy makers, planning departments and prospective researchers.

I assure you that all efforts would be taken to protect your identity and keep the information confidential. I look forward to know your opinion / perceptions / practices regarding the usage of educational technologies and the role of the transformational leadership and organizational climate for adoption of the technology. Your participation will be highly appreciated and findings of the study will be shared with you, if you asked for it.

Sincerely,

Muhammad Irfan Ashraf
Department of Education
International Islamic University, Islamabad
Cell : +92-321-2167867

Appendix "B"

Questionnaire on "Relationship of Transformational Leadership and Organizational Climate with Technology Acceptance at University Level"

This questionnaire seeks to explore the 'Relationship of Transformational Leadership and Organizational Climate with Technology Acceptance at University Level'. As the university leadership and climate are the main determinants to influence the individuals for usage / adoption of new technologies, therefore, the questionnaire has been developed in three parts. It is requested to tick (√) the box that best validates the statement in your opinion and honest responses to all questions are humbly requested please; do not write your name on the questionnaire. Thank you for taking your time to complete this survey.

Demographic Information

Part I: Kindly tick (√) your relevant column, please:-

Name of the University					
Sector	**Public**			**Private**	
University Located	**Punjab**	**Sindh**	**Baluchistan**	**KP**	**Islamabad**
Department	**Education**	**History / Pak Studies**	**Islamic Studies**	**Psychology**	**English**
Gender	**Male**			**Female**	
Present Age	**Less than 30**	**31 – 40**	**41-50**	**51-60**	**More than 60**
Present Position	**TA/ TRA/ Tutor**	**Lecturer**	**Assistant Professor**	**Associate Professor**	**Professor**
Highest Academic Achievement	**B.S / B. Ed**		**MA / M Ed**	**M. Phil**	**Ph. D**
Teaching Experience (Years)	**1-5**	**6-10**	**11-15**	**16-20**	**20+**

Part II: **Every statement is followed by five options. Kindly, tick (√) the box that validates the best option in your opinion. While attempting this questionnaire please make your judgments on the basis of what these statements meant to you using following scale:-**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

S No	Statement	1	2	3	4	5
Our Head of Department						
1	Gives confidence in the development of our potential.					
2	Welcomes diversity from the staff members.					
3	Behaves us as if we are special people					
4	Encourages creativity and new implementations.					
5	Supports new ideas and solutions to the teaching problems					
6	Wants us to think more about technology and its applications in classrooms.					
7	Creates enthusiasm for technology among teachers.					
8	Has a vision to make us work in teams					
9	Establishes working conditions that exhibit staff collaboration for professional development.					
10	Prefers our needs before his own.					
11	Democratic and treats us as respectful members of the department.					
12	I have fully trust as he respects and values our ideas.					
In our Department / Organization						
13	Job descriptions are clearly defined in our department.					
14	Departmental policies emphasize on use of educational technology.					
15	Curriculum compels teachers to teach through educational technology.					
16	I hold myself accountable to deliver results.					
17	Everyone ensures that lesson plans are coupled with appropriate technology.					
18	one can make difficult decisions even when the right choice is not easy.					
19	In our department, good work is recognized and acknowledged.					
20	Our head of department is too much tolerant of poor performers.					
21	I feel strong sense of job satisfaction.					
22	I enjoy bringing new technologies into the classroom.					

S No	Statement	1	2	3	4	5
23	Administration has created a risk-taking culture that encourages exploration of new ideas.					
24	Risk-taking strategies have improved student engagement in my classroom					
25	Managing student conflict peacefully is an important part of our work.					
26	Encourage students to role-play in situations of problem-solving.					
27	Course objectives and grading criteria are clearly stated to teachers.					
28	My identity as a teacher is based on my professional knowledge.					
29	Technology based teaching is very significant in this organization.					
30	Teachers have opportunities to contribute in decision making in this organization.					
31	In our department, teachers are provided with a platform to express their suggestions.					
32	Teachers are given a platform to express their feelings / provide advice.					
33	Teachers have trust that problems and issues highlighted to the management will be helped out.					
34	Annual performance appraisal of the teachers includes criteria regarding technology competency.					
35	Technology engaged learning environment is available at our department.					
36	Formative and summative assessment procedures / tasks are available for teachers.					
37	A friendly atmosphere prevails among teachers at our department.					
38	Peer support and guidance is available regarding technology integration at our department.					
39	Management promotes an atmosphere of caring and trust among staff.					
Use of Educational Technology						
40	Learning outcomes are enhanced when lesson is coupled with appropriate technology.					
41	Educational technology helps me to accomplish teaching activities efficiently.					
42	Constructive teaching outcomes may be achieved through educational technology.					
43	It is easy to become skillful at handling different technologies during teaching.					
44	Educational technology is supportive in achieving the lesson objectives.					

S No	Statement	1	2	3	4	5
45	Technology embedded lessons require peculiar skills to accomplish the objectives.					
46	My dear and near ones suggest me to use educational technology for teaching.					
47	Students' participation is enhanced in a technology embedded lessons.					
48	Colleagues / peer groups advise me to embed modern technology in lesson.					
49	Un-interrupted wi-fi / internet / intranet / connection is available all the times in our classrooms.					
50	Access to the digital libraries and online journals is available in our department.					
51	Workshops / seminars are conducted for imparting training to teachers regarding technology integration.					
52	Educational technology makes teaching interesting.					
53	Teaching through educational technology is a fun.					
54	I plan to use social media for group discussion with students.					
55	I use Learning Management System for correspondence with students					
56	I use social media for group discussion among students					
57	I facilitate my students to present their assignments through video conferencing					

Appendix "C"

Interview Questions

1. How do you believe that using educational technology enhances your teaching outcomes?
2. De you believe that specific efforts are required for integration of educational technology in teaching?
3. What social influences prompted you to use educational technology?
4. How much department management facilitates for use of modern technology for teaching purposes?
5. Which educational technology do you use / intend to use for teaching purposes?
6. Why do you use modern technology for teaching-learning processes?
7. How do you find that your boss has focused the staff development in use of technology for teaching?
8. How do you believe that your boss creates intellectual stimulation among teachers to use technology for teaching?
9. How the head of department influences teacher for the use of educational technology in teaching processes?
10. What are the factors for making a conducive climate and how much it encouraged you to use technology for teaching?

Appendix "D"

Experts' Details

S No	Name of Experts	University
1	Dr. Steeve Warner	University of Trinidad and Tobago, West Indies
2	Dr. Allah Rakha Saghar	Allama Iqbal Open University, Islamabad
3	Dr. Abida Ellahi	Abbottabad University of Science & Technology
4	Dr. Amjad Ali Arain	University of Sindh Jamshoro, Hyderabad
5	Dr. Shaikh Tariq Mehmood	International Islamic University, Islamabad

Appendix "E"

Dual-Mode Universities

1. University of Peshawar, Peshawar
2. University of Sindh, Jamshoro
3. Shah Abdul Latif University, khairpur
4. Sukkur Institute of Business Administration, Sukkur
5. Gomal University, Dera Ismail Khan
6. Islamia University of Bahawalpur
7. Bahauddin Zakaria University, Multan
8. GC University, Faisalabad
9. International Islamic University, Islamabad
10. University of Agriculture, Faisalabad
11. University of Balochistan, Quetta
12. The University of Faisalabad, Faisalabad
13. COMSAT Institute of Information Technology, Islamabad