CHANGE MANAGEMENT AT HIGHER EDUCATION LEVEL: A STUDY OF SELECTED UNIVERSITIES DURING PANDEMIC COVID-19

BY

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By

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Candidate of ***Master of Philosophy in Education*** at National University of Modern Languages Islamabad do hereby declare that the thesis **"*Change Management at Higher Education Level: A Study of Selected Universities During Pandemic Covid-19*"** is submitted by me in partial fulfillment of MPhil degree, is my original work and has not been submitted or published earlier. I also solemnly declare that it shall not in future be submitted by me for obtaining any other degree from this or any other university or institution.

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                                                                                    Arooj Khalid
                                                                                    Name of Candidate

ACKNOWLEDGEMENT

DEDICATION

*I dedicated this humble effort, the fruit of my thoughts and study to my affectionate **Parents**.*

ABSTRACT

Title: Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19

The study aims to assess change management process at higher education level and determine the challenges faced by the stakeholders with reference to teaching, examination and technological facilities in education system during (Covid-19). The study also compare universities on the bases of change management process. Mixed method approach was used in the study based on convergent parallel design to collect and analyze quantitative and qualitative data concurrently. Population of the study was teachers and administrators of Public Sector Universities of Islamabad. Multistage sampling techniques was used in the study to select the desired sample size of teachers with a ratio of 20% sample fraction of 172 teachers through stratified sampling technique, whereas the sample size of administrators (exam and IT) were taken through census technique was 30. Three separate Change Management Process scale survey questionnaire was self-developed to assess change management process in teaching, examination and IT section. For analysis of quantitative data mean and ANOVA were used, whereas for qualitative data thematic analysis was used. The findings of the study shows that change event was treated as a project of online education in pandemic. The mean score in this study reported the Define phase of change management process was more frequently used by the teachers and administrators while providing teaching learning process, technological facilities and conduction of examination procedures in education purposes during pandemic. Furthermore it was explored that there is no significance university wise difference in phases of change management process with reference to teaching, assessment and technology facility. Similarly it was reported that teacher's faced major challenge of limited resources and classroom management, whereas administrators of exam section faced challenges regarding difficulty in assessment and IT staff encountered challenge of limited resources and workload. It was suggested that university management arrange platform for both teachers and administrators to exchange information while keeping this change management model as a sample to initiate the change according to the need, encourage communication among employees, avoid reluctance and strategically plan the process. Teachers and administrators of different universities may identify gaps in strategies and styles of change management while integrating and incorporate this change management model that may target the planned/ unplanned or uncertain situations among different sections of universities.

Key Words: Change Management Process, Teaching-Learning, Examination Procedures, Technological Facilities, Covid-19, Higher Education.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abb.	Terms
CMP	Change Management Process
CMPT	Change Management Process for Teachers
CMPE	Change Management Process for Exam Section
CMPIT	Change Management Process for IT Section
NUST	National University of Science and Technology
CIIT	Comsat Institute of Information Technology
IIUI	International Islamic University Islamabad
AIR	Air University
NUML	National University of Modern Languages
QAU	Quaid-i-Azam University

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In the current era of amid pandemic most of the organizations are moving towards modern phenomena of change management where the process of change takes place in terms of culture, technology, changing techniques, changing behavior, economic changes, global changes and natural crisis situations. The change management is defined as; alteration done by the organization in the activities or events to a new style while coping up the threats, risk factors and focusing on profit maximization or performance improvement of the organization. There are different aspects of change management such as; control, adapt or effect the change. The aim of the change management process is to achieve a long term sustainable organization (Hashim, 2013). During the change process the management has the ability to benefit the organizational change to creating an effective climate to minimize the resistance and doubt of employees regarding organizational improvement and encourage the people to accept and support the change (Coetsee, 1999). In order to understand complete change of activities in the organization such as; process, physical, culture, structure, strategic, technology or crisis change are called trigger change, that are divided into two category; a) external factors for the change can be; technological development, new government policies, national and global changes, crisis situation(covid-19), social and culture value change and competitors. b) internal factors for the change are; development and innovation in teaching learning process, new ideas about facilities in education institutions, university relocation, induction of new heads and inadequate knowledge and training programs (Hashim, 2013).

In the world of innovation humans are constantly striving and thriving for rapid knowledge change by adapting the change, moving towards a learning organization. It is the function made by education sector to impart change knowledge to individual by enhancing and modifying their behavior via norms and values to make them a better person of the society. Change in the learning environment is the dynamic function of cultural mechanism. Hence when the change in the organization culture is debated both failure and success of the organization performance and productivity is been observed. While exploring the relationship of organization change management and crisis management in the education sector the most common factor that need to

consider while implementing the change is the readiness of the stakeholders (administration, teachers and students) to accept and adapt the change and to involve in productivity of the organization. In the organization a performance is considered as a backbone where the management should introduce the individual with norms, values and objectives of the organization to understand the organization culture, helps the workers to be committed, willingness to accept change and it will also lead to improve productivity and performance. Management of change is considered as the most difficult part in adapt to the changing demand of the market and during crisis situation (covid-19), that requires complex skills.

The change management concept has evolved over time especially during current crisis situation with the establishment of management models, process, strategies and plans to develop ease for the education institution on the impact of change. Change is part of life and consider to be as the part of both academic and administrative practices. The change has been defined by many authors in the literature as the process that supports in the development of organization. Inc.com says "change in the organization occurs when an establishment makes transition from its current state to a new state for future success". The change is the prominent feature of management that serve as a guarantee in continuous increase of productivity of organization. Organizational changes means development, changing attitudes and behavior of workforce, operational changes, technological changes, strategic changes, structure or organizational culture changes that affect the organization. It is the alteration that takes place in the organization environment. An organization and its members should develop the adaptability of change. Whereas according to John Kotter "change management refers to the process, tools, structure and technique to keep efforts of change under control and the aim is to minimize the resistance and impact of the change".

The change management is the approach to use knowledge, tools and resources to deal with the change that are caused by external or internal forces. The external forces may include; social, cultural, demographic, political, economic, technological, competitions, crisis events and consumer demands whereas internal forces are; low performance, low satisfaction, new mission, new leadership and conflict. It is the process of effective change management to adapt and implement the change in the organization in terms of process, procedures, strategies, culture and technology. Organizational change management needs appropriate plans, strategies and managerial skills for the formulation of objectives and addressing the external environment

changes. Planned and unplanned changes are the two types of changes that occur in the organization. Planned change is the change that occurs in the result of thoughtful decisions in the organization to alter the strategies, procedure and laws to achieve the goals while unplanned change are imposed on the organizations due to various factors or is of unforeseen conditions. Planned changes are based of systematic process in which manager or leader wants to move the organization to new standards; to meet the global needs, compete with the opponents, adopt new technology and information, design the structure of organization, accomplish the task and coordinate with the people. While the unplanned changes are unexpected decisions made by the managers to cope up with situation. Unplanned changes are a type of risk that can result in fruitful consequences or even led to break down. Usually unplanned changes are made in; employee demographics for recruitment or promotion purposes, economic crisis situation, global competition arena and in the gaps of performance of employees or production of the organization. Whereas the planned changes are made to; improve or change products or services to enhance the productivity. Managers and leaders address change as inference to people perception of change.

This research study was an attempt to gain knowledge regarding the area of change management at higher education level. The main interest of this study was to assess the process of change management in regard to different departments of university (such as; IT, teaching and examination) in the era of covid-19 crisis and determine the challenges faced by stakeholders. In this study, researcher assess the process of change management on teaching-learning process, examination procedures and IT facilities and how the stakeholders have tackle the challenges faced during phases of changes in crisis event of pandemic among the selected universities.

1.2 Rationale of the study

The change in the institutions helps to provide opportunity and solutions to combat with crisis and encourage the individual to work more effectively. In order to promote change in the university for the students learning, teachers improvement of instructional methods and advancement of education institution in global market, the heads have adopt certain change management phases to cope up with the sudden situation either with planned or unplanned change process. The researcher choose the topic "Change Management at Higher Education Level: A study of selected universities during pandemic of Covid-19" because during the current pandemic

of corona virus has forced the education institutions to shift the paradigm of face to face interaction to online mode.

The sudden shift of education system may have impact on the teachers, students, administration and institutions. Before the outbreak many education institutions were reluctant but due to current scenario education institutions were forced to move in online mode. Covid-19 was a disrupted challenge that provide the heads opportunity to transform their organizations with progressive change management process to respond the change, tackle the uncertain conditions, adapt the change and create change-ready culture in the organization. Below were practices that encourages the heads and administration to mobilize their teams with unintentional change situations are; *define* - role, vision, stakeholders, timeframe and measures to tackle with change initiative, *plan* - communication, engagement and training for the employee readiness to change and develop the risk management plans, *implement* – to execute the process of change administration need to monitor, manage resistance and deploy the risk-mitigation plan to tackle with the hurdles occurred during change event. *Sustain* - support the change management process with the drive of rewards and appreciation to last the change and measure the impact on the organization.

Internationally and nationally researches have been conducted on the study of change management process in various fields such as (industries, banking, IT etc.). Different studies have been reported regarding change management in IT industry for identifying and assessing risk factors in process of change management (Haroon & Ahmed, 2020). The studies reported a significant gap in exploring organizational change management process in public and private sector of Pakistan (Habib, Jamal & Manzoor, 2018). The role of academic leaders in accepting change management at Higher Education in Pakistan for better implementation of change (Mehmood, Babar, Raziq & Tahirkheli, 2012) very limited study has been conducted in education sector and at higher education level. (Shafi, Liu & Ren, 2020) assess impact of covid-19 on business and provide recommendations for survival and loses through crisis event. Up to the researcher information, no comprehensive research was found on change management process in covid-19 at higher education level in Pakistan with specific reference to teaching-learning, examination procedures and technology facilities and in the region of Islamabad. Therefore in this study researcher will going to assess the process of change management in the educational

organizations in terms of online teaching-learning process, examination procedures and IT technologies regarding covid-19 pandemic and what change management challenges were faced by the stakeholders to ensure the resumption of education system and what efforts were used by the administrators to promote the ability to change, resistance to change and support the change. Furthermore researcher would provide suggestion and recommendations for addressing the change management process in terms of online teaching and learning, online examination procedures and IT facilities of university in covid-19 that how the change management process enhance the university performance and reduce the stress and resistance to change. Hence the researcher does not find any precise research done on this topic "Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19" prompting to the study to fill the gap specifically conducting a research to investigate the process of change management at higher education level and determine the challenges faced by stakeholders.

1.3 Significance of the study

This research study will be beneficial for the following;

The management of education organizations will benefit from this research study by knowing how to manage change effectively in sudden crisis situation by utilizing change management process to increase their production level without affecting performance level of their employees. The research will be helpful for the employees to better understand the need for the change and accepting the change without any resistance.

The information from this study will be used by the government or higher education commission to guide other education organizations whether public or private to undertake change management process in crisis situation and address the challenges without compromising the performance of the organization or their employees.

The study will be beneficial for the researchers as it will contribute to the literature of change management and assist the students as a reference material.

1.4 Statement of the Problem

This research aims to appraise change management process at higher education level and determine the challenges faced by the teachers, exam and IT section that cause resistance to the change and ways to overcome them. Change in the organization seems rare to be continuous to

remain adapted, implemented and effective. Many researches have identify that need for organization change is consider as a critical and challenging responsibility of managers and leaders. Current review shows that only few leaders and their efforts result in successful change while those programs who have less success rate in the organization change are due to the resistance to accept and adopt the change by the employees. The intention of the study was to assess the process of change management in higher education institutions with reference to sudden shift of education process to online mode in the covid-19 pandemic and how the respondents (teachers and administrators) cope with change event by addressing the challenges faced by stakeholders of selected departments such as; (technology, teaching and examination) to enhance the employee and organization productivity.

1.5   Research Objectives

The aim of the study was to appraise change management process at higher education level and determine the challenges faced by stakeholders.

1. To Assess Change Management Process with reference to Teaching, Exam and IT at Higher Education Level.

    1a. To evaluate phase of 'Define' in Change Management Process with reference to Teaching, Exam and IT at Higher Education Level

    1b. To evaluate phase of 'Plan' in Change Management Process with reference to Teaching, Exam and IT at Higher Education Level.

    1c. To evaluate phase of 'Implementation' in Change Management Process with reference to Teaching, Exam and IT at Higher Education Level.

    1d. To evaluate phase of 'Sustain' in Change Management Process with reference to Teaching, Exam and IT at Higher Education Level

2. To Compare Universities on the bases of Change Management Process in Teaching, Exam and IT departments.

3. To determine the Challenges faced by Teaching, Exam and IT during Process of Change Management at Higher Education Level.

1.6   Null Hypothesis

$H_0$1 There is no significance university wise difference in phases of change management process with reference to teaching.

1.6.1.1   For Teaching Learning Process

$H_0$1a There is no significance university wise difference in 'Define' phase of change management process of Teaching and Learning.

$H_0$1b There is no significance university wise difference in 'Plan' phase of change management process of Teaching and Learning.

$H_0$1c There is no significance university wise difference in 'Implement' phase of change management process of Teaching and Learning.

$H_0$1d There is no significance university wise difference in 'Sustain' phase of change management process of Teaching and Learning.

1.6.1.2   For Examination Procedures

$H_0$2 There is no significance university wise difference in phases of change management process with reference to examination procedures.

$H_0$2a There is no significance university wise difference in 'Define' phase of change management process of Exam section.

$H_0$2b There is no significance university wise difference in 'Plan' phase of change management process of Exam section.

$H_0$2c There is no significance university wise difference in 'Implement' phase of change management process of Exam section.

$H_0$2d There is no significance university wise difference in 'Sustain' phase of change management process of Exam section.

1.6.1.3   For IT Facilities

$H_0$3 There is no significance university wise difference in phases of change management process with reference to technological facilities.

H$_0$3a There is no significance university wise difference in 'Define' phase of change management process of IT section.

H$_0$3b There is no significance university wise difference in 'Plan' phase of change management process of IT section.

H$_0$3c There is no significance university wise difference in 'Implement' phase of change management process of IT section.

H$_0$3d There is no significance university wise difference in 'Sustain' phase of change management process of IT section.

1.7   Research Questions

1.7.1.1   For Teaching-Learning Process

1. How Teachers are 'Defining' change (Covid-19) while providing Teaching-Learning Process at Higher Education Level?
2. How Teachers are 'Planning' change (Covid-19) while providing Teaching-Learning Process at Higher Education Level?
3. How Teachers are 'Implementing' change (Covid-19) while providing Teaching-Learning Process at Higher Education Level?
4. How Teachers are 'Sustaining' change (Covid-19) while providing Teaching-Learning Process at Higher Education Level?

1.7.1.2   For Examination Procedures

5. How Exam staff are 'Defining' change (Covid-19) while conducting Examination Procedures at Higher Education Level?
6. How Exam staff are 'Planning' change (Covid-19) while conducting Examination Procedures at Higher Education Level?
7. How Exam staff are 'Implementing' change (Covid-19) while conducting Examination Procedures at Higher Education Level?
8. How Exam staff are 'Sustaining' change (Covid-19) while conducting Examination Procedures at Higher Education Level?

1.7.1.3   For IT Facilities

9. How IT staff are 'Defining' change (Covid-19) while providing Technological Facilities for Educational Purposes at Higher Education Level?

10. How IT staff are 'Planning' change (Covid-19) while providing Technological Facilities for Educational Purposes at Higher Education Level?

11. How IT staff are 'Implementing' change (Covid-19) while providing Technological Facilities for Educational Purposes at Higher Education Level?

12. How IT staff are 'Sustaining' change (Covid-19) while providing Technological Facilities for Educational Purposes at Higher Education Level?

1.7.1.4   Challenges faced by Teaching, Exam and IT

13. What kind of challenges were faced by Teachers during the Change Management Process at Higher Education Level?

14. What kind of challenges were faced by Exam section during the Change Management Process at Higher Education Level?

15. What kind of challenges were faced by IT section during the Change Management Process at Higher Education Level?

1.8   Theoretical Framework
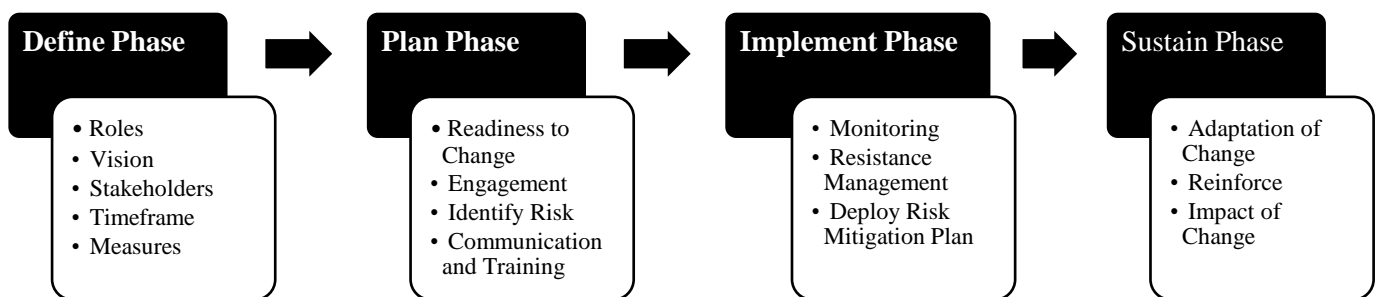
Figure 1: Change Management Model

Source: Society for Human Resource Management (2020). Managing Organizational Change. Retrieved by December 9, 2020, from https://www.shrm.org/resourcesandtools/tools-and-samples/toolkits/pages/managingorganizationalchange.aspx

The current study was based on theoretical framework of change management process adopted from society for human resource management (2020). The variable change management was discussed by John Kotter in his book 'Accelerate' in which eight stages of changes was discussed are; sense of urgency, build coalition, form a strategic vision, enlist volunteer, remove barriers, generate short-term goals, sustain acceleration and institute change. The main aim to address this model was to focus on the change process during crisis situation covid-19. The variable change management illustrating change in the organization in terms of attitude and behavioral change of individual, technological, structural, cultural change and resistance to change that may affect the performance of the organization. The above model illustrate the organizational change into four-phases of change management process.

1.8.1.1 *Define Phase*

In this phase align the expectations of change process to scope of change by defining the vision of change according to certain event, identify the stakeholders that are involve in the process of change, state the role of individual involve in team, establish the timeframe for the change management project and clarify the measures of change needed to cope with uncertain situations of crisis such as covid-19.

1.8.1.2 *Plan Phase*

It is the second phase to understand the impact of change on stakeholders and the organization by creating change engagement plan and design strategies to carry out the process of change and identify risks. Communication and training is considered as the most important aspect of change in the organization to navigate the plan of change.

1.8.1.3 *Implement Phase*

In this phase employees are being connect and engage to the leaders to execute the process of change by monitoring all activities, structure, procedures to manage resistance of the workers and due to uncertain events risk-mitigation plans are being deployed by the heads for the success.

1.8.1.4 Sustain Phase

It is the last phase of change management process where employees and leaders work together to track adaptation of change with the support of rewards, benefits and appreciation to drive the lasting change, measure the impact of change on the organization or employees in terms of performance

This model of change management process was used to measure the speed and impact of the change initiative takes place in crisis situation of covid-19 by overcoming the challenges faced by stakeholders that cause resistance to change in regard to change process during the teaching, assessment and technology facilities in the universities.

1.9   Operational Definitions

1.9.1.1 Change

It is the transition of organization from its current state to new desire future state for its success.

1.9.1.2 Change Management

It is the approach to control the impact of change and minimize resistance to change by using knowledge, tools and resources to deal with the change that are caused by external and internal forces.

1.9.1.3 Change Management Process

It include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

1.9.1.4 Define Phase

It is the phase to align the expectations of change process to scope of change by defining the vision, identifying stakeholders, stating role and estimating the timeframe to cope with uncertain situation of change process.

1.9.1.5 Plan Phase

It is the second phase to understand the impact of change on stakeholders and organization by designing plan and strategies to carry out process of change.

1.9.1.6 Implement Phase

In this phase employees are being connect and engage to the leaders to execute the process of change by monitoring all activities, structure, procedures and policies to manage resistance.

1.9.1.7 Sustain Phase

The last phase of change management process where employees and leaders work together to track adaptation of change with the support of rewards, benefits and appreciation to drive the lasting change

1.10 Methodology of the study

The Mixed Method Approach was used in the study were both quantitative and qualitative data was collected based on convergent parallel design in which quantitative and qualitative data were collected, analyzed and interpreted concurrently based on a descriptive survey.

1.10.1 Population

The population of the study include administrators from (examination and IT section) and teachers from 06 public sector universities of Islamabad having common departments. Total number of administrators (exam and IT) in 06 public sector universities were 30 and the total number of teachers were 859 in 06 public sector universities of Islamabad.

Table 1

Population Size

Universities	Teachers	Exam staff	IT Staff	Total
Air University	104	02	01	107
Comsat University	208	07	01	216
International Islamic University Islamabad	128	06	02	136
National University of	175	05	02	182

Modern Languages				
National University of Science and Technology	164	01	01	166
Quaid-i-Azam University	80	01	01	82
Grand Total	859	22	08	889

1.10.2 Sampling

A multistage sampling technique were used in the study to collect the desired sample size of respondents. Multistage Sampling is to take sample in stages using different sampling techniques at each stage. Sample A Simple Random Sampling technique was used to select the target population of public sector universities of Islamabad. Sample B Stratified Sampling Technique was used that include stratum of Teachers from 06 Public sector universities of Islamabad having computer science, economics, management science, psychology, international relations and mathematics department. The desired sample size for stratum of Teachers having designation of (professor, associate professor, assistant professor and lecturer) with 20% sample fraction were 172 teachers. Sample C Census Sampling Technique was used for the selection of administrators (Exam and IT). The sample size of administrators in exam department was 22 and IT departments was 08 having designation of (director, deputy director, assistant director). Total administrators size was 30 for the present study. Sample D convenience sampling was used to select the desired sample size of respondent based on their designations.

Table # 2

Sample Size

Universities	Teachers	Exam staff	IT Staff	Total
Air University	22	02	01	25
Comsat University	40	07	01	48
International Islamic University Islamabad	26	06	02	34
National University of Modern Languages	34	05	02	41
National University of Science and Technology	33	01	01	35
Quaid-i-Azam University	17	01	01	19
Grand Total	172	22	08	202

1.10.3 Instrument

Self-developed Questionnaire survey on "Change Management Process Scale" was used in the current study. The closed-ended questions for quantitative data based on questions of Change Management Process separate for teachers, exam and IT section whereas for qualitative data open-ended questions was used for determining the challenges faced by stakeholders during process of change management. Both type of data was collected concurrently in the field area for understanding of research problem. In open-ended questions respondents are free to express his/her view point about questions of Challenges in Change Management process whereas in closed-ended

questions respondents were restricted to choose options from 5-point likert scale for Process of Change Management (see Annexure E, F, G)

1.10.4 Data Collection

Data of the study was collected using Google Forms through email/social media or direct delivery of questionnaires due to restrictions of covid-19. The list of emails of respondents from 06 public sector universities was gathered through their official websites and volunteer research assistant at various universities. The instrument was coded and data entered in excel sheet later was transported to SPSS software and analyzed.

1.10.5 Data Analysis

The quantitative data was analyzed using descriptive and inferential statistics (Mean and ANOVA) whereas for qualitative data thematic analysis was used to appraise the process of change management and challenges faced by stakeholders in relation to phases of change management. The constructs of change management process and challenges were based on theoretical framework.

1.10.6 Delimitation of the Study

The study was delimited to;

1. The 06 Public sector Universities of Islamabad due to restrictions of Covid-19
2. Administrators of Exam and IT section
3. Administrators having designation of (director, deputy director, assistant director)
4. Teachers of computer science, international relations, psychology, mathematics, management science and economics department
5. Teachers having designation of (professor, associate professor, assistant professor, lecturer)
6. Phases of Change Management Process (define, plan, implement and sustain) by (Society for Human Resource Management)
7. Challenges faced by stakeholders in Change Management Process
8. In Covid-19 Pandemic

CHAPTER 2

LITERATURE REVIEW

The review of literature was conducted to find the relevant studies related to the concept of Change Management Process at Higher Education Level. In this study the researcher will going to assess the process of change management with reference to online teaching and learning, online examination procedures and IT services during the amid of pandemic in Pakistan for the resumption of education system with the challenges faced by stakeholders in the current scenario. The researcher has found the related studies through using various search engines such as; Google Scholar, Science Direct, Research Gate, Springer and JStore etc. the internet sources e.g. journals, articles and conference proceedings are been used by the researcher. The literature is divided in to following themes;

2.1 Change Management

The change management is defined as; alteration done by the organization in the activities or events to a new style while coping up the threat and risk factors and focusing on profit maximization or performance improvement of the organization. A study conducted by Wanza & Nkuraru (2016) on influence of change management on employee performance by focusing on leadership, structural, cultural and technology change using a case study design on the university of Eldoret Kenya. The data was collected through questionnaire and interview. Analysis of the study was done using descriptive statistics presented in tables and graphs. The findings of the study shows that structural, cultural, leadership and technology change has positive influence on employee performance. It was suggested by the author that leadership of the university need to focus on the management and leadership styles to increase the motivation of employees and also result in exceed employee performance. The process of change in any organization is crucial for enhancing employee confidence in the activities of an education institution.

The relationship between organization structure, strategy and change management on performance with the mediation of commitment to organization is being tested by structure equation modelling. The finding of the study shows that organization structure has no significant effect on performance whereas strategy and change management has significant effect on

performance of the organization. The commitment to organization is mediated between strategy and change management to performance Mon, Jasfar & Arafah (2019).

A study in Nigerian bank sector (Patrick, 2018) to investigate the consequences of change and address the best practices to enhance employee productivity by using the dimensions of communication, identification, engagement, implementation and incentives. The study is based on cross-sectional survey design and data was collected through questionnaire. Analysis of the study was done through mean, percentage and correlation. The finding of the study shows that communication change, identification change, employee engagement, change implementation and incentives are significantly associated with productivity of employee.

According to Makumbe (2016) the objective of the study is to identify the key factors that contributes to change management. The review of literature in the study summarize the change management models and identify the key factors of change include; change leadership, engagement, communication and commitment. The search engines is used as a data collection and analysis of the collected data was done through discussion. The finding of the study shows that the key factors drive from the review of literature are proposed as a model and hypothesize which shows that employee engagement, employee commitment, communication and leadership change are the key factors that are necessary for successful organization change implementation.

The key factors that contributes to effective change management Karnoukos (2015) proposed a study on review of literature to identify factors of change management such as; leadership, training and development, reward and recognition, culture, politics and information system. Questionnaire survey is use to collect data of the study and analysis was done through structure equation modelling. The finding of the study shows key factors drive from literature; leadership, training, reward, culture, politics and information are correlated to each other.

The study on impact of change and change management on goals and objectives of organization by Jalagat, (2015) based on the framework of three models namely; lewin's three stage model, kotters 8-stage model and McKinsey 7S model. The study was based on review of literature and analyzed through discussion. The findings of the study shows that the perspective of every organization is different with regards to change that may varies between positive or negative consequences. The change resistance in the organization should be effectively manage for the successful implementation.

17

The study conducted in Kenya by Makina & Keng (2018) to establish the strategies to manage change. The study is based on conceptual framework where organization performance is dependent variable that include; financial, business performance, organizational effectiveness and cost reduction whereas change management strategy is independent variable that include; reducing cost, competing, catching up and turning around a crisis and the extraneous variable is involve that consist of internal and external factors. The study is based on descriptive design and the tool use for collection of data was questionnaire. Analysis of data is done through correlation. The finding of the study shows a positive correlation between performance and implementation of strategies whereas negative correlation between resistance to change and involvement in change. It is suggested by the research to involve all the stakeholders in the formation, implementation and control of change management process.

According to Saima (2017) the significance of change management during the transition phase based on the best practices of change process by USAID, lewin's, kotters and ADKAR model. The study is focus on critical review of theories and models of change management. The finding of the study shows that the models and theories of change management are selected in the organization on the bases of their desire need and diminishing fear of individual.

The change has always a beginning and an end with a set of dimensions. There are two significant characteristics of change; 1) change as process and 2) change as a result. In the organizations where change has taken place the management has number of features that include; adaptation or alteration concern with various dimensions of organization (such as personality, structure, groups, performance), secondly both internal and external forces that are affecting the interest of the individual or an organization. In the organization effective management is required to develop adequate goals and formulate appropriate methods, strategies for alteration or adaptation of change to be implemented. In order for a successful implementation of change a great team with expertise skill is responsible for the ultimate success of the organization. In the organization there are variety of changes based on the way they are carried; planned changes - refers to the analysis of the difficulties, threats, opportunities and success related to them, Reactive change – refers to the response occurred by issues, threats or opportunities done in the speed, slow change – the change which is made carefully considering every step of the change process and

focusing on the consequences made after the change, quick change – a change that is made quickly with great extent of essentiality Mariana (2019).

2.2 Change Management Process

The change management is defined as the approach to control the impact of change and minimize resistance to change by using knowledge, tools and resources to deal with the change that are caused by external and internal forces. In the current era of covid-19 crisis most of the organizations are moving towards modern phenomena of change management where the process of change include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

The change management models and approaches are important to set change intervention in both the public and private organizations. The change intervention are of three types; top- down change management – is based on the assumption that the focus of change planners are on changing culture where the only obstacle from the employees is resistance to change. Transformational change management – relies on innovating the people to think by providing them a safe working environment. Strategic change management – is based on the aim of readiness of employees to internalize the change in way of work. Each of the approach and model can be effective depending on the context it is being used in the organization Catherine (2015). The change management process consist of many styles in order to make decisions in the crisis situation and encourage the workers to adapt the change. Collaborative – in this style employees are involve in the process of decision making during the change event and effect the future of both the individual and organization, Consultative – employees are involve in a partial way in decision making process, Directive – in such style higher authorities have power to initiate decisions of change process, Coercive – refers to forceful imposing of the change process on the workers in the organization by senior management Hashim (2013). According to literature "models of change" refers to assumption, to combine systematic functions that result in form of change whereas "strategies of change" is a means of attaining mission, vision, goals, objectives and long term plans, thus the models of change are the framework on which strategies of change management are build, implemented and adopted.

The outbreak of covid-19 has disrupted the life around the world since 2020. The pandemic has affect many other sectors but specially education in many ways. In Pakistan certain actions were taken by the government to reduce the spread of coronavirus by initiating precautionary measures to limit the social interaction, due to which face-to face teaching, exams, admissions and academic activities were suspended throughout the country. The traditional classes are been replaced by e-books, materials and numerous e-learning platforms. As well as television shows and social media is being used for education purpose. The covid-19 pandemic impact the education system as there is lack of homogeneity in terms of academic year, timings, content and pattern, some higher education institutions suspend the classes until further notice, announced holidays to prepare for distance learning era, while others were less restrictive Gonzalez (2020).

According to a study Akutey (2020) in pandemic of covid-19 students have been engaged online with face to face interaction makes teaching and learning process a challenge from both the teachers and students to adapt the modern trend of education by familiarizing themselves with the technology usage. The crisis event presented that there is no such time to plan change management process to ensure the smooth transition of education system. There are several change management models and theories that can be used in various fields such as education or business etc. to know the change need and benefits of change but the sudden amid of Covid-19 pandemic the stakeholders of educational organizations were not able to decide which of the model will be most beneficial for such crisis situation. A qualitative study was conducted to explore the concern and perspective of educators with respect to unplanned transition from offline to online mode will be managed. Findings shows that prior to pandemic educators were reluctant to use technology, but due to sudden transition the use of online resources or use of technology has become priority to facilitate teaching and learning mode. Many challenges were perceived by the educators so in order to entrenched the change management needs to consider recommendations.

The impact of Covid-19 on higher education cause change in education system of the world. The education institutions need to adapt changes to ensure resumption of education process by in cooperating emergency e-learning platforms, engaging students with rapid technological gadgets and approaches. The higher education needs to plan post-pandemic strategies to manage the change education system, ensure good learning outcome and improve the standard quality of education. The administration of the universities need to focus on training of educators/ workers

and provide digital technology accessibility for smooth procedures. In the post-pandemic crisis of covid-19 higher education institution need to play role in providing quality education, delivery mode, accessibility and know about the perceptions of educators, students and heads, this will going to help experts and policy makers to improve the system of education and what change measures were needed to enhance productivity. The sudden shift of change education process in terms of adapt and implementation of online mode education institutions were facing various challenges such as; the digital inequality is a term use for availability of digital technologies to every individual in the society, internet accessibility issues, second challenge is affordability, students or workers belonging from weaker financial background faces burden of affordability and accessibility of internet services, to ensure engagement and commitment policies should be establish in higher education. Another hurdle with online mode of education is less communication and interaction, the individual while face-to-face communication has better opportunity to express his/her thoughts, knowledge, opinion and can ask for help whereas in virtual mode interaction seems to be limited online video conferencing, discussion forums may not provide holistic outcome. Cyber security issues is another leading challenge in the virtual mode of education system. The software are not being tested and examined before using in educational processes, the students, educators and administrators faced privacy and surveillance issues. The shift paradigm of online education has led to a heavy workload on teaching faculty, service providers and administration of universities in terms of re-design of curriculum, development of e-content, planning online exams, assessment and admission procedures. In order to achieve good outcome individual need to trusted, encourage compassionate communication with the stakeholders Rashid & Yadav (2020).

The change occur in the organization with the firm to aid transition from the current state to a new state. The impact of change management on behavior of employees regarding the administration office of university. The aim of study is to explore the influence of project on employee behavior by addressing the change management process for implementation of upgraded system in the university administrative office. The methodology used in the study is qualitative approach based on case study from the University of United States. The sample size of 12 employees were selected through purposive sampling and interview was conducted through face-to face interaction. The data collected from employees is based on their thoughts, attitude, feelings and suggestions regarding the process of change management for the implementation of change

21

project. The pattern-matching teaching is used for the analysis of data. The results indicated the positive influence of change process of employees regarding the project, whereas during the process the employees feel lack of training, lack of communication, heavy workload with no increase in income and feel unvalued during meetings and decision making. It has been suggested by the author for successful implementation of change the positive behavior of employees in the education institutions is encourage and for this management to consider on appropriate mode or process of change for the sustain organization change Turner (2017).

According to a study of Lovelace & Dyck (2018) discusses the web-based review on change management model based on power and influence in the organization on the courses of both undergraduate and graduate level. The focus of models are on personal and organizational factors of change that influence the adoption of sustain initiative. The aim of the study is to improve students ability to experience challenges of unstructured problems, practicing of theoretical concepts, manage conflict, stress and development critical thinking with association of success to lead towards strategic change. In this study students are the agent of change to move towards new state. The finding shows that during a critique that some students were not comfortable during the web-based simulation and to engage undergraduate students face-to face communication and guidance is needed. Overall it is a very useful methodology in education sector about the concept of change and can be adapted at the higher education level.

The study on global perspective of covid-19 pandemic on life of higher education during first wave of virus the sudden shutter educational institutions and shift of education paradigm to online mode in early 2020 have impact of education system throughout the globe. This paper presents a comprehensive study on impact of covid-19 on higher education with a sample 30,383 students from 62 countries of the world. The methodology use in the study was Web-based survey through convenience sampling technique from 133 countries, 6 continents. The findings of the study shows that male, part-time and from Asia and Africa are less satisfied during crisis of their both academic and personal life where as female, full-time and financial issue students are more affected. Certain recommendations were suggested for policy makers and higher education institutions to design the strategies that will support the students during such future crisis Aristovnik & Kerzi (2020).

2.3 Effect of Change on Teaching – Learning Process

In the era of Covid-19 pandemic many researches have been conducted on teaching and learning process. The sudden closure of education institutions cause disruption of face-to-face teaching and the need for change or alternative is required to save the academic year and future of upcoming generations. The crisis event of Covid-19 provide us a path way to move towards digital age of teaching and learning. Pokheri & Chhetri (2020) in their articles aims to discuss review of literature on impact of Covid-19 pandemic on teaching and learning. The paradigm shift in the mode of education to maintain quality is only possible because of various online platforms, both educators and learners have faced many challenges due to unprecedented pandemic that has been occurred throughout the globe and affecting teaching and learning process. To cater such change situation the only alternative available was the transition of face-to face learning with online learning. The technology and IT facilities has played a very vital role in adapting new changes in terms of online teaching and learning. The change management process acquired during the current closure of educational institutions in the pandemic, the staff and student's readiness is highly important to incorporate change accordingly. At first every individual teachers, students and administrations of university were reluctant to adapt new learning environment, but with the passage of time and prolong Post Covid -19 situation the mindset of individual need to be change, usage of e-learning tools and different methodologies of online learning according to the varying need of the subject and age will support the process of change.

According to review of literature students, teachers and administrators around the globe at higher education level still does not find best practices for online teaching need to be explored. During digital mode students learn at their pace from home learning faces many physical challenges by going under psychological and emotional stress to be engage more affectively and productively whereas similar has been going through educators to cope up with sudden change pedagogy creates stress, frustration and burden to support the learning with enriched e-learning platforms, establishing e-content and assessing online. Pokheri & Chhetri (2020)

Despite of challenges in online teaching and learning faced by teachers, students, administration and universities during the pandemic, it has also provide several opportunities to stakeholders due to unplanned implementation of change process in the organization. The digital mode of education has create a very strong bond between teachers and students to support the

learning accompanied by tools, e-materials, recorded lectures etc. The use of social media whatsapp, messenger and other virtual learning platform zoom, Google meet, Skype have been tried for the first time in Pakistan to continue the education and it will provide further tutoring to every individual even after resumption of face-to-face pedagogy. Another opportunity gain in this process that teachers have develop digital skills and prove their strong efforts to adopt the change with active collaboration with every individual, improve their teaching methodology, they are willing to learn new concepts and get them trained for new digital tools, similarly educational institutions are facilitating their workers with updated tools and services to support interactive and engaging environment. Pokheri & Chhetri (2020).

According to Mishra, Gupta & Shree (2020) propose a study on online teaching and learning during pandemic in higher education. The aim of study is to address online teaching and learning process amid pandemic and how educational institutions transform mode of education effectively with the use of online tools, technology and resources. The methodology used in the study is based on both quantitative and qualitative approach to study the perception of teachers and students regarding online mode of education and discuss the process of implementation. The significance of the study shows a linkage between process of change management and online teaching and learning within the crisis of covid-19 to ensure the resumption of education system.

The study Bozkurt & Sharma (2020) on emergency teaching during crisis. The aim is to determine the practices of remote teaching occurred in pandemic. The crisis of covid-19 is the first global challenge that has effect every sphere of life such as; socially, economically, politically and education system. It can be said that such crisis event has made a shift to digital age of knowledge. For emergency online education a good collaboration between different stakeholders is required for better solutions. The fact of remote learning is that during crisis times such mode of education is considered as a secondary importance in which doesn't focus on content delivery rather on how much hard times, frustration, stress and workload they have faced to cope with the demanding need of the society. It the approach in which the stakeholders of change management process will narrate the story they have come across and whether it has positive or negative effect.

2.4 Act of Change in University

Internationally and nationally many researches have been conducted on corporate environment with both positive and negative consequences in change process. The focus of this

study is on scenes of change in universities and higher education institutions, with reference to its administrative employees and the change management team that maintain the success or failure of organization.

2.4.1 Administrative Change

The process of change management in organization managers or administrators play an essential role in understanding the need of change, role and responsibility, timeframe and encourage knowledge sharing behavior in the organization. Change in the institution come with a challenges of internal and external forces that serve as a barrier in defining, process, implement and adoption of change through management process. According to study by Zogjani & Raci (2015) on analysis of role of managers as barriers to organizational change and how it can be addressed. The study has discussed three phases to address the best practices of organizational change. At first part role and responsibilities of managers or heads are been discussed in terms of their behavior with workers, with organization and with change environmental conditions. The administrators need to motivate the workers to increase interest of understanding, collaborate with each other and encourage sharing of thoughts and point of views to initiate the need and process of understanding of change. In second phase resistance to change is been focused in terms of conflict and serve as a challenge for managerial decisions in regard to change process. Conflict to change in the organization can be in different forms such as; resistance from employees to accept the need for change, reluctance to adapt certain new scenarios or encounter of point of views. In order to resolve such situation managers/administrators have to use their authorities to resolve it. At last phase analysis of change management process is been occurred to found the best possible way of addressing the issues arises in process of change, adaptation of change, implementation of right version of change according to organization and environmental need. The action of such change situations may have either positive or negative influence on the performance and productivity of employees and organization. The finding of the study shows that ethical behavior and motivation of managers can result in easy adaptation of environmental changes in the organization. Five characteristics have been identified in the study for managers to be effective such as; consistency in behavior, honesty, control, communication and demonstration of concern.

The study on role of leaders in implementing organizational change management focuses on the importance of efficient management of the organization and leaders or heads must be

efficient to implement change in the institution. The aim of the study is to explore role of leadership in the process of change management. The methodology used in the article are secondary sources such as; books, articles, reports related to leadership and organizational change management. The finding shows that the leaders who are involve with employees in process of decision making, serve as role model for the workers, encourage communication and sharing of views and have democratic approach are considered as successful leadership style in implementing the change management process in the organization Iuliana (2019).

The change in the organization occur with the support of managers and administrators in the organizations. During the process of change management managers plays a key role either in support or opponent of change takes place within the organization. The relationship of administrators and workers with effect to change management process is the importance of their role, function, engagement, communication and positions within the organization. The study is based on role of managers in management of change process within the organization. According to author Ionescu, Meruì & Dragomiroiu (2014) describes five roles of a manager in the process of change management such as; communicator, supporter, trainer, environment maker and manage resistance. The conclusion of the study is that change management teams must be able to achieve solution of those task and activities that are carried out daily in the organization by every individual, while planning change process team need to have a strong technical support in terms of various tools, resources, budget allocation and estimation of timeframe. The change management team must ensure in progress of change events and provide information timely to concern personnel's.

The study by Mader, Scott & Razak on sustainable transformation at higher education with effective change management policy and governance in terms of curriculum, research, activities and operations. The paper aims to discuss the areas of change management, leadership, support and governance to ensure the establishment of initiated policies for successful implementation and sustainability. The research approach used in the study is based on combine analysis of empirical literature on change management and leadership at higher education institutions transformation focusing on leaders of sustain universities in Australia, UK, Europe and America. The findings of the study identifies a framework for sustainable development of curriculum, research, activities

and operation in higher education institutions and identify the challenges in change management and leadership sustainability in universities.

The change in education system is consider true in means of changing attitude and behavior of human beings for the present as well as for the future. In the current era the higher education has widen the field of knowledge and result in changes in many aspects of education system. The academic leaders are involve in the process of change management to integrate changes and innovation. In an education institution academic leaders are responsible to trace the need of change. The changes in higher education create challenges for academic leaders in terms of planning, management and implementation. In order to in cooperate change in the organization academic leaders need motivate, engage and facilate faculty members to accept change for the betterment of the individual as well as organization. The aim of the study is to know the opinion of faculty about change management and the role of academic leaders to accept and implement the change in higher education. The quantitative research approach is used in the study with multi-stage sampling technique two public sector universities of Lahore and Islamabad was selected. The sample size of 200 faculty members was selected from education, psychology, computer science and management science. The instrument used in the study was self-developed by the researcher based on five-point likert scale to know the opinion of faculty members regarding the acceptance and implementation of change. The data was analysed using chi-square technique. Finding shows that for the integrate of change management practices academic leaders must train and motivate the faculty members to accept the change and the opinion of the workers involved in the change process should need to consider for managing resistance while in cooperation change at higher education Mehmood, Babar, Raziq & Ashraf (2012).

2.4.2 Technology Change

The study is based on review of systematic literature of more than 40 papers from high impact factor journals on the impact of technology in higher education during the period of covid-19. The aim is to explore the transition of education system within the closure of educational institutions from physical interactive classroom to online delivery mode. The objective is to examine the best practical ways to cope up with sudden shift of education pedagogy that has impact on academia and students for his long-term consequences. Through the review of literature the articles will going to examine impact of pandemic on education, limitation of online mode,

opportunities laid by digital transformation, feedback of effectors such as students and teachers and last recommendation. The findings from the review discusses that education institution faces various abrupt challenges during the age of Covid-19 and result in the issues of lack of access, affordability, connectivity, lack of technology literacy etc. Beside of positive side of technology usage in education system the negative side is inequality of access, inadequacy of online teaching, lack of communication, heavy workload and privacy concerns that may worsen the education disparity. However if feedback of respondents are concern then online mode of education shows a satisfactory result, it is beneficial and effective is such crisis event to continue the teaching learning process. At last it has been suggested by the author that policy makers should take account of finding of transition of online mode of education to bridge the gap and promote smoother education system Talib. M, Bettayeb. A & Omer. R. (2021).

According to Kimli (2019) aims to examine the effect of technology change management process and leadership change on the performance of organization by using the theories of organizational change and lewin's three step model based on descriptive survey method. The tool use for data collection was questionnaire filled by employees working in manufacturing company. T-test statistical analysis was used to drive the results of hypothesis. The finding of the study shows that technology change, change management strategies and leadership change has a positive effect on the performance of the organization. The researcher recommended that while implementing technology change proper training session should be provided to employees to simplify their work and make work environment effective, strategies of change management should be strong enough to build a good relationship between heads and employees based on their norms, values, behavior and attitude. The process of change develop in the organization must encourage the employee to participate, express their viewpoints instead of force adaptation of change by leaders.

The study on internet facility provided to faculty in changing environment of higher education Bhatti (2010). The aim of the study is to explore the usage of internet by faculty members in the changing environment of higher education and the challenges faced by stakeholders. The quantitative research design is used in the study based on questionnaire survey from 150 faculty members of 15 departments through random selection. The finding shows that Islamia University of Bahawalpur faculty shows interesting rate of internet usage for teaching and research purpose whereas faculty of science most use the internet facility. It has been suggested by the author that

university need to focus on IT services and train the faculty members to use technology and internet as source of information and for researched purposes. Proper training of faculty staff should be provide to enhance their digital skills according today's world of technology. The findings from this study would help the universities and policy makers regarding e-learning programs to facilitate teaching learning process and research studies.

According to Elfirdoussi (2020) study on assessment of online mode of education at higher education level during Covid-19 with an aim to know the limitations of online platform and how public and private university are performing their activities. A qualitative approach is used to assess e-learning during pandemic in Morroco with a sample size of 3037 students and 231 teachers from different levels of higher education programs. The tool used for the study is two structured questionnaires whereas the mode of analysis used were; descriptive, regression and qualitative response analysis. The result indicated that online mode of education is considered as a best choice of education for both the teachers and students with the usage of latest technological tools. In order for successful implementations of e-learning platforms various technological gadgets, accessibility of internet and enhancing of digital skills are required to move step forward for flexible distance learning environment. It has been suggested by the author that universities of Morroco need to in-cooperate online learning method in their university programs because it allows every students to learn from anywhere and at any time.

2.4.3 Examination Change

The change management process in assessment practices at higher education level is considered as a difficult task due to resistance of stakeholders (teachers, students and examination section). According to study by Deneen & Bond (2014) seeks to explore the resistance to change assessment pattern through the analysis of dialogues with staff members of one education institution. The methodology used in this study dialogue analysis within the one institute covering 35 academics and 12 departments to intervene new assessment practice with pilot study. The purpose of the study is to emerge new pattern with the exchange of ideas between academics and education development personnel's. The finding shows that different stakeholders have expressed differently according to under review circumstances and resistance to change management assessment practices is very strong whereas the change management assessment and learning

theories in higher education are been discussed for practical implementation for change assessment plan in education institution.

In higher education institutions the complete shift of education system of 2019-2020 to online mode using various digital tools. The study has been conducted on remote assessment at higher education by Senel (2021). The aims is to examine assessment practices used in higher education institutions during amid of pandemic. For this purpose researcher has developed four research questions focusing on perception of students, approaches of assessment and measure quality of assessment practices. The survey design is used to answer the research questions with the development of instrument based on three-parts to collect both qualitative and quantitative data of sample size of 486 students from 61 universities were selected. The findings shows that involvement and interaction of students with teachers provide a satisfactory result of assessment practices performed at university. The respondents reported positively to quality of remote assessment practice whereas negatively reported towards rapid assessment feedback and individuality of test score in assessment practice. Results indicated that the most used assessment approaches were; assignments, projects and performance task whereas online test, peer or self-assessment and discussion are used very less due to inexperience of educators. At last the author has mention that from the analysis of content it has been emphasize on the formative assessment and feedback practice during remote assessment in pandemic.

The study on e-assessment based on the review of literature from established journals is conducted. The aim is to summarize the concept of e-assessment based on review of research articles from three well established journals focusing of topic, settings and methodology used in the studies. The review of literature has identify many broad spectrum of approaches and practices related to e-assessment Stodberg (2011).

The closure of education institutions to minimize the face-to-face interaction has shifted the paradigm to online mode that has affected almost every branch of education process. The administration of universities are transitioning to remote teaching learning and online assessment for catering all levels of students and teachers to face challenges. The aim of the study is to review security of assessment regarding the digital age and evaluates the practices performed by the universities to ensure the academic integrity with accompanying challenges. The policies and practices of academic integrity are not universal as every education institution around the globe

have diverse mode. The higher education institutions insist on shared practices and policy of assessment security and academic integrity, for this certain standards and benchmark need to be maintain for ranking purpose. The academic management and policy has mostly affect the students and it is the responsibility of academic community to work together for the diffusion of academic integrity. The online mode of education is facilitated by technology and detect academic misconduct. The plagiarism check and declaration software are used by the universities changing academic situation of pandemic and cause assessment security at higher education sector. The resources such as; viva and thesis are still inadequate to conduct assessment. In order to support academic integrity administration and staff need to be encourage and provide support for the preparation of policies, practices, disciplinary actions and developmental tools to ease academic misconduct Gamage, Silva & Gunawardhana (2020).

According to Gamage, Silva & Gunawardhana (2020) with reference to amid pandemic the designing of assessment criteria, tasks and practices to help students to understand the learning outcome for the adoption of assessment approach. The steps initiated towards academic integrity are; avoiding of recycling assessment, train invigilators, describe etiquettes and procedure for exam room and aware everyone about cheating consequences. During the process of online delivery of education and e-assessments the mostly challenges faced by students are; performance pressure, lack of motivation, interest and time and plagiarism issues. However to encourage security in assessment practices the teachers need to provide clear instructions, demonstrate their concerns regarding challenges and academic honesty, teach citation and research skills, recalls academic policies and maintain sequence of assignments. A good communication should be encouraged between students and teachers regarding the cheating dangers and reinforcement of policies.

2.5 Challenges in Change Management

The study conducted in Kenya according to Catherine (2015) to determine the effect of change management challenges on employee performance with regard to technology, structure and culture change using the theoretical framework of lewin's three step model, McKinsey 7S and contingency model of change using a descriptive research design. The data for the study was collected through questionnaire and analyzed using mean, average and percentage. The finding of the study shows that lack of training and incentives are the major factors that affect the change

management whereas the technology, culture and leadership change are politically controlled by the authorities.

The challenges in teaching and learning process have been identified by many researchers as; accessibility of internet connectivity, affordability of gadgets and services, flexibility, change in teaching learning mode, lack of interaction, heavy workload, Pokheri & Chhetri (2020).

The change in the organization influences every individual, regardless of minor changes or sudden uncertain change events. The change is the key element for development and advancement of the organization in terms of technology, process, structural, cultural and strategic change due uncertain situation of crisis (covid-19). Resistance to change is being expected by the employees, but to overcome such opposition communication and engagement is necessary to embrace the change with confidence. There are inevitable challenges along the way of change management process that are being faced by various stakeholders. The challenges of change management are the part and parcel that can be anticipated on the route to successful change. To safeguard the change management process in higher education organization some most common challenges have been identify that are being face by administrators and teachers during the implementation of change.

1. *Lack of Planning* - Change in an organization requires proper planning. Lack of planning causes more problem than benefits. The management of the organization need to understand the change, design strategies to carry out the process of change and identify risks and communicate and training is considered as the most important aspect of planning change in the organization to navigate the process of change.

2. *Lack of communication* – employee must be involve in the process of planning phase through meetings and feedback to regularly update about the process and progress of change implementation.

3. *Time Management* – employees in the organization try to manage work and time to cope up with sudden shift of work process to online mode using numerous digital tools and software without trainings, attending virtual departmental meetings, responding emails, grading the assignments and maintaining their own house and children in crisis situations.

4. *Technological literacy* - during current pandemic it is difficult for teachers, employees and administrators to use LMS, applications and other digital tools without having training.

5. *Assessment and supervision issues* - in online learning assessment of students is based of e-testing format whereas the limited supervision of learners make it impossible to control cheating.

6. *Heavy workload* - the sudden shift on digital mode by universities create a huge workload on the teachers, staff and administrator to transform their courses to e- teaching and learning platform, new education policies implementation, e-assessment techniques, e-admission strategies, establishment of software and applications.

7. *Lack of interaction* - during online mode it is difficult to engage with students and employees without physical interaction and hands on experiences in the work environment.

8. *Conflict to change* - resistance of the staff to embrace change in the organization with reference to online teaching, student's assessment, policy implementations, admission procedures and IT services.

9. *Humans Disturbance* - during the online mode while working from home in lockdown period the attention of the staff gets disrupted or diverse due to appearance of family members, friends and pets.

10. *Accessibility issues*: include unavailability of technology, internet access, non-compatible phone and laptops, costly internet bundles and issues of browsing Pokheri & Chhetri (2020).

Summary

The chapter 2 was about review of past literature and analysis of books and journals related to area of research. Changes is the transition of organization from current new state to desire future state. The change management is a term related to a process to control impact of change and minimize resistance to change. It demonstrate the sequence of phases that are involve in decision making in terms of defining the need of change, strategically develop change engagement plan, monitoring procedures for implementation and track adaptation of change for sustainable organization overtime.

The primary competency of teachers in process of change management was the ability to foster interactive learning environment , careful designing of content and better planning for delivery of content, using diverse ways to manage classroom and enhance communication skills of students during crisis event of pandemic, whereas competency of administrators to tackle such uncertain event was to create health atmospheric working environment, provide IT support and

apply different strategies in conduction of examination procedures and providing of technological facilities while having professional commitment and good communication skills.

Change management model was presented by society of human resource management in (2020). This model focuses on how organization measure the speed and impact of change initiative takes place in crisis situation of covid-19. In the current era of covid-19 crisis most of the organizations are moving towards modern phenomena of change management where the process of change include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime. The change management models and approaches are important to set change intervention in both the public and private organizations.

Many researches are done on variable of change management process. The past researches are done mainly in baking, industry and private sectors, very limited studies were found in the field of education. However there was no research on change management process at higher education level during pandemic of covid-19 in Pakistan. The intention of this study was to appraise change management process and determine challenges faced by respondents during amid of pandemic. Similarly, the process of change management was assess with reference to teaching, exam and technology facilities which are being employed in universities of Pakistan during covid-19.

The implementation of change management process in the universities of Pakistan was considered as a different concept the stakeholders were not aware of such term although they were practicing the change event at every level special during the recent event of pandemic, it is important that teachers and administrators should use technology in their working environment and demonstrate their competencies in this regard. Government need to facilitate faculty members with IT support and infrastructure at higher education level. In this way the employees of universities will become competent and innovation in their performance.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the research design adopted in this descriptive study. The aim of the present study is to appraise the process of change management at higher education level and determine the challenges faced by the teachers and administrators of (examination and IT section) from public sector universities of Islamabad.

The current study was descriptive in nature and both quantitative and qualitative research approach were considered most accurate. The research methodology of the study was discussed in detail. The population of the study, sampling technique, sample size, research instrument, its development, validity and reliability of the tool through expert and pilot testing was described in detail. In this chapter the process of data collection, data analysis, limitations and ethical consideration of research were also explained.

3.2 Research Approach

The mixed method approach was in the current study where both quantitative and qualitative data was collected. According to (Creswell, 2012) mixed method research is a technique of mixing, collecting and analyzing both qualitative and quantitative methods in a single study. The aim of the study was to appraise change management process at higher education level and determine the challenges faced by stakeholders.

3.3 Research Design

The convergent Parallel Design was used in the study in which the researcher concurrently collect both quantitative and qualitative data at the same time of research process based on descriptive survey. The analysis of both the quantitative and qualitative data was done independently, whereas results were interpreted together.
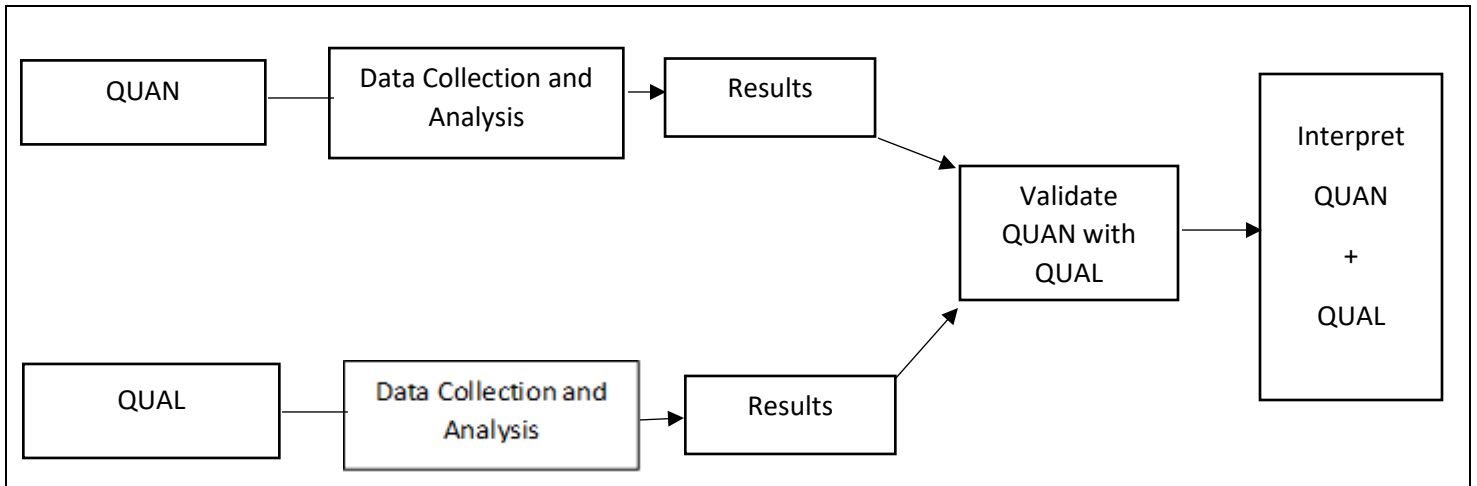
Figure 2: Study Design

The research study was intended to appraise process of change management at higher education level with reference to teaching and learning, examination procedures and IT facilities provided during the scenario of Covid-19 and the challenges faced by stakeholders. The mixed method approach was based on convergent parallel design in which quantitative data was collected through (Change Management Process) CMP questionnaire and analysis was done through mean and ANOVA, concurrently the qualitative data was collected through open-ended questions and thematic analysis was done to identify the themes generated from the responses. Later both the quantitative and qualitative data were compare and relate to triangulate the process of change management by addressing the challenges faced by stakeholders during pandemic and during the phase of conclusion, discussion and recommendation the data obtained from both the research approaches were triangulated to produced generalized results.

3.4 Population

The target population of the study was administrators and teachers of the public sector universities of Islamabad. The accessible population of the study include administrators from (exam and IT section) and teachers from public sector universities of Islamabad having common departments.

3.4.1.1 Population A

At the stage 1 the list of public sector universities recognized by HEC was taken from the official website of Higher Education Commission. There were 17 public sector universities in Islamabad of all disciplines mentioned in below table. Every 3rd university from the list of public sector universities was selected as the population of the study. 06 Public Sector Universities of Islamabad were selected as population.

3.4.1.2 Population B

At stage 2 the population of teachers were selected from 06 public sector universities of Islamabad having department of computer science, politics and international relations, psychology, mathematics, management sciences and economics was 859. The list of teachers was taken by the researcher through official website of universities.

3.4.1.3 Population C

At stage 3 the total number of administrators from exam and IT section in 06 public sector universities were 30. The list of administrators at higher education level was taken by the researcher through official website of universities.

Table # 3

Population of Public Sector Universities in Islamabad

Sr. No.	List of Universities
1.	Air University
2.	Allama Iqbal Open University
3.	Bahria University
4.	Comsats University
5.	Federal Urdu University of Arts, Sciences and Technology
6.	Institute of Space and Technology
7.	International Islamic University
8.	Health Services Academy, Islamabad
9.	National Skills University
10.	National University of Modern Languages
11.	National Defence University
12.	National University of Technology (NUTECH)
13.	National University of Science and Technology
14.	Pakistan Institute of Development Economics
15.	Pakistan Institute of Engineering and Applied Sciences
16.	Quaid-e- Azam University
17.	Shaheed Zulfiqar Ali Bhutto Medical University

Table # 3 explains the population of Public Sector Universities in Islamabad recognized by Higher Education Commission.

Table # 4

Population Size of the study

Universities	Teachers	Exam staff	IT Staff	Total
Air University	104	02	01	107
Comsat University	208	07	01	216
International Islamic University Islamabad	128	06	02	136
National University of Modern Languages	175	05	02	182
National University of Science and Technology	164	01	01	166
Quaid-i-Azam University	80	01	01	82
Grand Total	859	22	08	889

Table # 6 explain population size of the study of 06 public sector universities of Islamabad. The respondents of the study were teachers, exam staff and IT staff.

Table # 5

Department wise Population Size

Departments	Air University	Comsat University	International Islamic University	National University of Modern Languages	National University of Science & Technology	Quaid-i-Azam University	Total
CS Teachers	23	66	20	34	51	13	207
IR Teachers	06	07	14	25	16	14	82
Psychology Teachers	14	07	17	21	08	10	77
Mathematics Teachers	24	43	30	13	29	15	154
Management Science Teachers	30	68	14	60	44	14	230
Economics Teachers	07	17	33	22	16	14	109
Grand Total	104	208	128	175	164	80	859
Exam Staff	02	07	06	05	01	01	22
IT Staff	01	01	02	02	01	01	08
Grand Total	03	08	08	07	02	02	30

Table # 5 explains department wise population size of 06 public sector universities of Islamabad. The selected departments of the study were; (computer science, international relations, psychology, mathematics, management science, and economics) and population size of teachers and administrators of exam and IT section.

3.5 Sampling

The Multistage Sampling technique was used in the study to collect the desired sample size of respondents. The multistage sampling is taking of sample in stages using different sampling technique at each stage that has been described as under;

3.5.1.1 Sample A

At first stage Simple Random Sampling technique was used in which every 3rd university from the list of recognized Public Sector Universities of Islamabad was selected as the desired sample size of universities. 06 Public Sector Universities of Islamabad were selected as sample size of the study.

3.5.1.2 Sample B

At second stage stratified sampling technique was used for the study. The strata of the study include administrators and teachers. As stratified sampling technique was used in the current study, so the researcher has population of 859 teachers from 06 public sector universities of Islamabad having departments; computer science, international relations, psychology, mathematics, management science, and economics. 20% sample fraction was used to get the desire sample size of 172 teachers.

3.5.1.3 Sample C

At third stage of sampling the Census sampling technique was used for the administrator stratum from examination and IT department in 06 public sector universities of Islamabad. The sample size of administrators (exam and IT) was 30. The exam administrators were 22 whereas the IT administrators were 08. According to L.R Gay if the population is less than 100 then the desire sample size will be entire population, so the sample size of administrators was 30.

3.5.1.4 Sample D

At fourth stage the respondents from each strata was selected using convenience sampling. The researcher choose the respondent from the desired sample to participate in the study based on their designations. The stratum of the study were administrators of examination and IT departments having designation of (director, deputy director, assistant director) whereas for stratum of teachers from departments of computer science, international relations, psychology,

mathematics, management science, and economics of 06 public sector universities were selected having designation of (professor, associate professor, assistant professor and lecturer).

Table # 6

Sample of Public Sector Universities in Islamabad

Sr. No.	List of Universities
1.	Air University (AIR)
2.	Comsats University (CIIT)
3.	International Islamic University (IIUI)
4.	National University of Modern Languages (NUML)
5.	National University of Science and Technology (NUST)
6.	Quaid-i-Azam University (QAU)

Table # 6 explains the Sample size of 06 Public Sector Universities in Islamabad selected through random sampling technique in which every 3rd university was selected as desired sample of the study.

Table # 7

Desired Sample Size of the study

Universities	Teachers	Exam staff	IT Staff	Total
Air University	22	02	01	25
Comsat University	40	07	01	48
International Islamic University Islamabad	26	06	02	34
National University of Modern Languages	34	05	02	41
National University of Science and Technology	33	01	01	35
Quaid-i-Azam University	17	01	01	19
Grand Total	172	22	08	202

Table # 7 explain desire sample size of the study of 06 public sector universities of Islamabad. The respondents of the study were teachers, exam staff and IT staff.

Table # 8

Department wise Sample Size

Departments	Air University	Comsat University	International Islamic University	National University of Modern Languages	National University of Science & Technology	Quaid-i-Azam University	Total
CS Teachers	05	12	04	07	10	03	41
IR Teachers	01	02	03	04	03	03	16
Psychology Teachers	03	02	04	04	02	02	17
Mathematics Teachers	05	09	06	03	06	03	31
Management Sciences Teachers	06	13	03	12	09	03	46
Economics Teachers	02	03	06	04	03	03	21
Grand Total	22	40	26	34	33	17	172
Exam staff	02	07	06	05	01	01	22
IT staff	01	01	02	02	01	01	08
Grand Total	03	08	08	07	02	02	30

Table # 8 explains list of departments wise sample size of 06 public sector universities. The selected departments of the study are; (computer science, international relations, psychology, mathematics, management science, and economics) and desired sample size of teachers and administrators of exam and IT section.

3.6 Research Instrument

Questionnaire survey was used for the current study. The closed-ended questions for quantitative data was used based on self-made questionnaire on Change Management Process from teachers, examination and IT section whereas for qualitative data thematic analysis was used for assessing open-ended questions on challenges in change management process faced by stake holders. Both type of data were collected concurrently in the field area for understanding of research problem. In open-ended questions respondents are free to express his/her view point about questions of Challenges in Change Management process while in closed-ended questions respondents were restricted to choose options from 5-point likert scale for Process of Change Management.

3.6.1 Instrument Development

In the current study a self-developed Change Management questionnaire was used based on five-likert scale separate for teachers, examination, IT section. The questionnaire was developed in the light of review of related literature by the researcher herself. Three separate questionnaires were developed based on both closed-ended and open-ended questions.

- Change Management Process at Higher Education Level for Teachers.
- Change Management Process at Higher Education Level for Examination Section.
- Change Management Process at Higher Education Level for IT Section.

The details of questionnaire were given below.

3.6.1.1 Demographic Data

The part 1 of questionnaire was consisted of demographic information of the respondents that were considered necessary for the study. The demographic information includes; age, gender, qualification, university, department and designation.

3.6.1.2 Change Management Process

The part 2 of questionnaire was based on change management process closed-ended questions falling on five point likert scale of (5= strongly agree, 4= agree, 3= undecided, 2= disagree and 1= strongly disagree). The part 2 of questionnaire is composed of 4 major themes and total of 40 items in a section. The process of change management at higher education level were

highlighted from different research articles on related topic. The self-developed tool was designed in the light of theoretical framework of the study.

Table # 9

Items of Change Management Process

Themes	Indicators	No. of Items
1. Define	a) Roles	12
	b) Vision	
	c) Stakeholders	
	d) Timeframe	
	e) Measures	
2. Plan	a) Readiness to change	12
	b) Engagement plan	
	c) Identify risk	
	d) Communication and training	
3. Implement	a) Monitoring	08
	b) Resistance management	
	c) Risk-mitigation plan	
4. Sustain	a) Adaptation of change	08
	b) Reinforce	
	c) Impact of change	

3.6.1.3 Challenges

There were different challenges faced by the administrators and teachers during the pandemic of Covid-19 that has shifted the paradigm of face-to-face education system to online system of education. The sudden change scenario of interaction has created many challenges for individual working at higher level. The study was based on those challenges that have become hindrance in the process of change management in term of teaching and learning process, examination procedures and IT services during the crisis of Covid-19 and how to overcome such

challenges in post-Covid-19 situation. The current study aims to determine the challenges faced by the administrators and teachers from different departments. The part 3 of the questionnaire was based on open-ended questions in which respondents were free to express his/her view points by highlighting the challenges they were facing during such scenarios and how to overcome them.

3.7 Validation of Instrument

For this study, three separate questionnaires were developed by the researcher herself for data collection. The authentication of instrument is necessary for this the validity of the tool was carried out by six experts in the field of education and management. The experts have examined all the three questionnaires in the light of theoretical framework, research objectives, research questions and research hypothesis of the study. Suggestions and observations from the experts for the improvements of the change management tool were; grammatical mistakes, rephrase the statement, explain all four indicators briefly in questionnaire, check formatting and rearrange the items. The observations were incorporated for further improvement.

3.8 Pilot Testing

The pilot testing was conducted to ensure the reliability of the instrument used for the research study. The three questionnaires on change management scale separate for teachers, exam and IT section were administered through pilot testing. Pilot testing is a small scale study to investigate quality, efficiency and feasibility of tool used for future research. The results identify the amendments needed in the tool.

The questionnaire namely Change Management Scale (CMPT, CMPE, CMPIT) having 50 items based on five point likert scale. The data for pilot study was collected through distribution of questionnaire to respondents and via sharing of Google form link in targeted universities. Two public sector universities (National University of Modern Languages Islamabad and International Islamic University Islamabad) were selected for pilot testing. 20 questionnaires were distributed among administrators of exam and IT section and 50 questionnaires were distributed among teachers of common departments. Rate of return from administrators were 18 out of 20 questionnaires whereas return rate from teachers were 35 out of 50. The analysis of responses was done through SPSS.

The data used in pilot testing was not used in actual study, the basic purpose was to test the tool of the study, the required changes and improvements were made in the tool. The items in the questionnaire may increase or decrease due to the response rate and there may be a difference in collection of data as the sampling technique used in pilot testing was mostly convenient sampling, where as in final data collection different techniques was used for accurate results.

3.9 Reliability Analysis

Reliability analysis is the procedure to measure the strength of the tool used in the study through Cronbach's Alpha. The items in the questionnaire were studied by applying reliability analysis in SPSS 20. The analysis of Change Management Process Scale helped the researcher to decide how much the tool was reliable and can be used in the future. The results of the tools used in the study were as under;

3.9.1   Reliability of the Tool CMPE (Change Management Process in Examination)

Table # 10

Reliability Analysis of Change Management Scale for Exam Section (Pilot study)

Variable	Items	Reliability
CMPE	50	.867
Define	15	.723
Plan	15	.807
Implement	10	.496
Sustain	10	.415

Table # 10 explains reliability analysis of the tool Change Management Process scale for Exam Section by cronbach alpha method having 50 items was found reliable at .867. It explains that instrument was well constructed and can be used in future.

Table # 11

Item Total Correlation of Change Management Scale for Exam Section (Pilot Study)

Items	r	Items	r
D1	.034	P11	-.151
D2	.518	P12	.691*
D3	-.860**	P13	.651*
D4	.765	P14	.702*
D5	.216	P15	.238
D6	.560	I1	-.293
D7	-.050	I2	-.581
D8	.546	I3	.593
D9	.314	I4	.721*
D10	.651*	I5	.612
D11	-.365	I6	.627
D12	.345	I7	.647*
D13	.438	I8	.635*
D14	.160	I9	.589
D15	.118	I10	.623
P1	.455	S1	.575
P2	.878**	S2	.545
P3	.352	S3	-.158
P4	.741*	S4	.297
P5	.695*	S5	.291
P6	-.207	S6	.229
P7	-.267	S7	.681*
P8	.831**	S8	.169
P9	.592	S9	.119
P10	.595	S10	.319

Table # 11 explains Item Total Correlation of Change Management Process scale for Exam Section the range of correlation is between .878**and .034. The table demonstrate that item P2, D3 and P8 have highest

correlation while the lowest correlation was of item D1 and D7. The items in CMPE scale need to be improved and revised.

Table # 12

Inter-Section Correlation of Change Management Scale for Exam Section (Pilot Testing)

	Define	Plan	Implement	Sustain	CMPE
Define	1				
Plan	.250	1			
Implement	.380	.926**	1		
Sustain	.327	.632	.572	1	
CMPE	.617	.898**	.914**	.751*	1

Table # 12 explain Inter-Section Correlation of Change Management Scale for Exam Section of 4 subscales. The highest correlation exists between Plan and Implement is .926**. The two ** after .926 indicates the relationship between Plan and Implement phase was statistically significant and were more strongly interconnected than any other phase of change management process. The second correlation exist between Plan and Sustain is .632. Third correlation exist between Implement and Sustain is .572. The lowest correlation exist between Define and Plan.

3.9.2 Reliability of the tool CMPIT (Change Management Process in IT)

Table # 13

Reliability Analysis of Change Management Scale for IT Section (pilot study)

Variable	Items	Reliability
Change Management	50	.918
Define	15	.918
Plan	15	.760
Implement	10	.274
Sustain	10	.711

Table # 13 explains reliability analysis of the tool Change Management Process scale for IT Section by cronbach alpha method having 50 items was found reliable at .918. It explains that instrument was well constructed and can be used in future.

Table # 14

Item Total Correlation of Change Management Scale for IT Section (pilot testing)

Items	R	Items	r
D1	.600	P11	-.378
D2	.617	P12	.682
D3	.188	P13	.833*
D4	.605	P14	.462
D5	.388	P15	.430
D6	.742*	I1	-.608
D7	.508	I2	-.614
D8	.668	I3	.545
D9	.826*	I4	.708*
D10	.899**	I5	.300
D11	.202	I6	.837**
D12	.731*	I7	.791*
D13	.837**	I8	.873**
D14	.455	I9	.094
D15	.699	I10	.724*
P1	.708*	S1	.725*
P2	.794*	S2	.407
P3	.538	S3	.030
P4	.822*	S4	.396
P5	.643	S5	.247
P6	-.041	S6	-.055
P7	-.112	S7	.709*
P8	.227	S8	.106
P9	.291	S9	.117
P10	.586	S10	.658

Table # 14 explains Item Total Correlation of Change Management Process scale for IT Section the range of correlation is between .899**and .030. The table demonstrate that item D10 and I8 have

highest correlation while the lowest correlation was of item S3 and P6. The items in CMPIT scale need to be improved and revised.

Table # 15

Inter-Section Correlation of Change Management Scale for IT Section (Pilot Testing)

	Define	Plan	Implement	Sustain	CMPIT
Define	1				
Plan	.693	1			
Implement	.617	.781*	1		
Sustain	.285	.686	.601	1	
CMPIT	.873**	.923**	.839**	.672*	1

Table # 15 explain Inter-Section Correlation of Change Management Scale for IT Section. The highest correlation exists between Plan and Implement is .781*. The second correlation exist between Define and Plan is .693. Third correlation exist between Plan and Sustain is .686. The lowest correlation exist between Define and Sustain.

3.9.3 Reliability of the tool CMPT (Change Management Process for Teachers)

Table # 16

Reliability Analysis of Change Management Scale for Teachers (n=pilot study)

Variable	Items	Reliability
Change Management	50	.969
Define	15	.894
Plan	15	.926
Implement	10	.885
Sustain	10	.913

Table # 16 explains reliability analysis of the tool Change Management Process scale for Teachers by compact alpha method having 50 items was found reliable at .969. It explains that instrument was well constructed and can be used in future.

Table # 17

Item Total Correlation of Change Management Scale for Teachers (pilot testing)

Items	R	Items	r
D1	.420*	P11	.754**
D2	.315	P12	.606**
D3	.629**	P13	.672**
D4	.470*	P14	.608**
D5	.605**	P15	.591**
D6	.543**	I1	.526**
D7	.557**	I2	.624**
D8	.513**	I3	.739**
D9	.561**	I4	.761**
D10	.576**	I5	.638**
D11	.525**	I6	.824**
D12	.828**	I7	.634**
D13	.810**	I8	.616**
D14	.757**	I9	.553**
D15	.701**	I10	.672**
P1	.779**	S1	.829**
P2	.720**	S2	.697**
P3	.735**	S3	.684**
P4	.718**	S4	.694**
P5	.632**	S5	.738**
P6	.384*	S6	.696**
P7	.457**	S7	.724**
P8	.625**	S8	.535**
P9	.769**	S9	.624**
P10	.767**	S10	.588**

Table # 17 explains Item Total Correlation of Change Management Process scale for Teachers the range of correlation was between .829**and .315. The table demonstrate that item S1 and I6 have highest correlation while the lowest correlation was of item D2.

Table # 18

Inter-Section Correlation of Change Management Scale for Teachers (Pilot Testing)

	Define	Plan	Implement	Sustain	CMPT
Define	1				
Plan	.744**	1			
Implement	.844**	.798**	1		
Sustain	.756**	.791**	.736**	1	
CMPT	.916**	.923**	.918**	.893**	1

Table # 18 explain Inter-Section Correlation of Change Management Scale for Teachers. The highest correlation exists between Define and Implement is .844**. The second highest correlation exists between Plan and Implement is .798**. Third correlation exist between Plan and Sustain is .791**. Fourth correlation exist between Define and Sustain at .756**. Define and Plan correlate at .744**. The lowest correlation exist Implement and Sustain at .736**.

3.10 Finalization of the Research Tool

The amendments made in the tool Change Management Process Questionnaire were made after pilot testing and reliability analysis. 10 items were deleted and 8 out of 50 items were modified and rephrased because of pilot study results and expert's opinion that tool was quite lengthy and some items have low values.

The final research tool has 40 statements that was ready for data collection section 1 was based on demographic information consisted of 6 items. Section 2 was based on change management process that has four sub scales including 40 items whereas the section 3 was focused on qualitative analysis of the study based on the challenges faced by the respondents during the event of change management process.

Table # 19

Reliability of Tools

Variable	Items	Reliability
CMPE	40	.823
CMPIT	40	.929
CMPT	40	.962

Table # 19 explains reliability analysis of the tool CMPE by compact alpha method having 40 items was found reliable at .823. Reliability analysis of the tool CMPIT of 40 items was found reliable at .929, whereas reliability analysis of the tool CMPT of 40 items was found reliable at .962

3.10.1 Finalize Reliability Analysis of Change Management Process for Examination
Table # 20

Item Total correlation of CMPE

Item	R	Item	r
D1	.231	P9	.225
D2	.248	P10	.608*
D3	.600*	P11	.572*
D4	.586*	P12	.377
D5	.466	I1	-.211
D6	.381	I2	.746**
D7	.381	I3	.586*
D8	-.156	I4	.709**
D9	.345	I5	.318
D10	.269	I6	.477
D11	-.132	I7	.660**
D12	.006	I8	.638**
P1	-.091	S1	.255
P2	.683**	S2	.486
P3	.127	S3	.123
P4	.676**	S4	.037
P5	.821**	S5	.236
P6	.271	S6	-.070
P7	-.474	S7	.317
P8	.325	S8	.407

Table # 20 explains Change Management Scale for exam staff, the result shows the highest correlation was found of item .821** and the lowest correlation was of .006.

Table # 21

Inter-Section Correlation of CMPE

	Define	Plan	Implement	Sustain	CMPE
Define	1				
Plan	.349	1			
Implement	.542*	.826**	1		
Sustain	.114	.477	.309	1	
CMPE	.664**	.892**	.895**	.582*	1

Table # 21 explains Change Management scale for exam staff that had 4 further phases of change, the results shows the highest correlation was found between Plan and Implement .826**. Correlation among the phases of change management are displayed in table above.

3.10.2 Finalize Reliability Analysis of Change Management Process for IT

Table # 22

Item Total Correlation of CMPIT

Item	R	Item	r
D1	.603	P9	-.240
D2	.674	P10	.768*
D3	.008	P11	.814*
D4	-.423	P12	.567
D5	.770*	I1	-538
D6	.863*	I2	.434
D7	.728	I3	.221
D8	.472	I4	.350
D9	.726	I5	.600
D10	.987**	I6	.958**
D11	.763*	I7	.376
D12	.726	I8	.512
P1	.613	S1	.681
P2	.744	S2	.566
P3	.897**	S3	.283
P4	.564	S4	-.301
P5	.678	S5	.788*
P6	.155	S6	.414
P7	.416	S7	.468
P8	.149	S8	.546

Table # 22 explains Change Management Scale for IT staff, the result shows the highest correlation was found of item .987** and the lowest correlation was of .149

Table # 23

Inter-Section Correlation of CMPIT

	Define	Plan	Implement	Sustain	CMPIT
Define	1				
Plan	.687	1			
Implement	.700	.938**	1		
Sustain	.325	.704	.761*	1	
CMPIT	.861*	.931**	.942**	.722	1

Table # 23 explains Change Management scale for IT staff that had 4 further phases of change, the results shows the highest correlation was found between Plan and Implement .938**. Correlation among the phases of change management are displayed in table above.

3.10.3 Finalize Reliability Analysis of Change Management Process for Teachers

Table # 24

Item Total Correlation of CMPT

Item	R	Item	r
D1	.226**	P9	.611**
D2	.522**	P10	.550**
D3	.510**	P11	.629**
D4	.580**	P12	.629**
D5	.575**	I1	.369**
D6	.621**	I2	.684**
D7	.515**	I3	.661**
D8	.644**	I4	.648**
D9	.624**	I5	.655**
D10	.380**	I6	.595**
D11	.746**	I7	.660**
D12	.707**	I8	.655**
P1	.741**	S1	.559**
P2	.728**	S2	.608**
P3	.610**	S3	.434**
P4	.556**	S4	.505**
P5	.202*	S5	.605**
P6	.094	S6	.500**
P7	.439**	S7	.470**
P8	.460**	S8	.446**

Table # 24 explains Change Management Scale for teachers, the result shows the highest correlation was found of item .728** and the lowest correlation was of .094

Table # 24

Inter-Section Correlation of CMPT

	Define	Plan	Implement	Sustain	CMPT
Define	1				
Plan	.739**	1			
Implement	.763**	.790*	1		
Sustain	.665**	.607**	.674**	1	
CMPT	.913**	.892**	.907**	.817**	1

Table # 23 explains Change Management scale for teachers that had 4 further phases of change, the results shows the highest correlation was found between Plan and Implement .790**. Correlation among the phases of change management are displayed in table above.

Table # 25

Detailed Description of Questionnaire

Themes	No. of Items
a. Define (D)	D1-D12
b. Plan (P)	P1-P12
c. Implement (I)	I1-I8
d. Sustain (S)	S1-S8
Total Number of Item	40

3.11 Data Collection

The process of data collection using finalized questionnaire which was comprised of 40 statements on Change Management Process Scale. The researcher has developed Google form link separate for three tools and share them using whatsapp and email the respondents of the study. The researcher has gather the emails of participants from their official website and the researcher personally email them and request to help in process of data collection. The researcher also personally visit the 06 public sector universities of Islamabad for data collection as well as received help from fellows and other research assistance to circulate the link and questionnaire with the respondents.

The data collection procedure starts from consent letter from the university show the consent permission letter to respective universities of 06 public sector universities of Islamabad. The respondents were requested to fill the questionnaire and ensure them there answers were kept secret and were not disclose whereas Google form links have been shared with respondents through email and whatsapp. The desired sample size of teachers in the study was 172 so 200 plus questionnaires were disseminated among teachers of public sector universities of Islamabad. The desired sample size of administrators in the study was 30 and relevant questionnaires were disseminated among administrators of Exam and IT Section in public sector universities of Islamabad through convenience sampling. The researcher received 151 completed filled questionnaires from teachers which shows that response rate of the current study was 87.7%.

3.11.1 Permission for Data Collection

For data collection a permission letter was issued by the National University of Modern Languages Islamabad in the name of researcher. The reference letter was shown to public sector targeted universities of Islamabad region for the process of data collection.

3.11.2 Distribution of Questionnaire

The distribution of questionnaire among respondents was done via personal visit as well as through Google Form link. The questionnaires were distributed among respondents of targeted universities. The researcher requested the respondents to fill questionnaires with attention and responsibility.

3.12 Data Analysis

The process of data analysis was initiated after getting questionnaires from the respondents. The questionnaires were coded before analysis of collected data. SPSS 20 version was used to analyze data of questionnaires. The three separate questionnaires for teachers and administrators of Exam and IT section were prepared. The analysis of questionnaire on CMP was completed according to objectives of the study. The descriptive statistics were used for example Mean, Frequency, Percentage and ANOVA. The analysis of qualitative data was done through thematic analysis discussed below;

3.12.1.1Phase 1

In first phase, responses of the participants were read several times, notes were prepared about what was understood and relevant to the research question.

3.12.1.2Phase 2

In second phase, process of coding was conducted the researcher highlight the text, compare, discuss and modify the text that conveyed similar meanings with shorthand labels.

3.12.1.3Phase 3

The third phase, collated the codes and generate the initial themes. The themes were the most dominant pattern that were emerged from the collected data of research questions.

3.12.1.4Phase 4

Fourth Phase was of reviewing the themes, the researcher reviewed and modified the themes which were overlapping, too vague or not appearing very often in the data set.

3.12.1.5Phase 5

In phase five themes and sub-themes were defined and named to ensure their effectiveness and relationship with each other.

3.12.1.6Phase 6

In phase six the final analysis of the qualitative data was write up by performing thematic analysis on responses of research questions addressing challenges faced by teachers, exam and IT section during process of change management and how we can overcome those challenges.

3.13 Ethical Consideration of the Research

The research ethics served as a guiding map for the researcher based on the rules and regulations while conducting the study. In present study the researcher tries to focus on all the ethical considerations while performing each phase of research activity. The ethical consideration of research followed by the researcher in present study were;

1. The issuance of Permission Letter in the name of researcher from National University of Modern Languages for purpose of data collection.

2. The distributed questionnaire among the respondents who were willing to fill out questionnaire.

3. The secrecy of data was maintained by committed in writing by the research on questionnaire that responses provided were not be disclosed without their permission.

4. The personal reporting factors were controlled in the process of data collection, data analysis and interpretation of results, as the private information of the respondents was encrypted with serial numbers. The responses received from the study were used for this study rather than any other reason.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

The analysis of data is the integral part of the research study to interpret and express the presentation of data. In chapter 4 of the study the data collected through questionnaire survey was analyzed, interpreted and presented in a systematic manner. The current study assess the process of Change Management and challenges faced by the teachers and administrators (Exam, IT) section during the pandemic at higher education level. The research is descriptive in nature and mixed method approach was used to gather both quantitative and qualitative data based on convergent parallel design. The collection and analysis of data was done through three questionnaire developed by the researcher separately for teachers examination section and IT section having three parts each. First part was based on demographic information, second part was based on Change Management Process that is divided into four phases; define, plan, implement and sustain. Third part was based on Challenges.

This chapter will going to cover both quantitative and qualitative analysis and interpretation of data. There will be three major sections and each section will have further sub-sections. The first section was based on in-depth analysis of Demographic Information of teachers and administrators (exam and IT), Second section was based on in depth analysis of Change Management Process at higher education level with respect to teaching and learning process, examination procedures and IT facilities, whereas the third section was based on in depth analysis of Challenges faced by the teachers and administrators (exam and IT) section. The analysis of data include descriptive statistics (mean, frequency, percentage), inferential statistics (ANOVA) for quantitative data and Thematic Analysis for qualitative data.

Analysis of section 1 Demographic Information was done on following basic characteristics;

a) Gender
b) Age
c) Qualification
d) University

e) Department

f) Designation

Analysis of section 2 Change Management Process communicates the following items related to four phases of change process;

1. D1-D12, deals with questions related to Define phase of Change Management Process
2. P1 – P12 deals with questions related to Plan phase of Change Management Process
3. I1 – I8 deals with questions related to Implement phase of Change Management Process
4. S1 – S8 deals with questions related to Sustain phase of Change Management Process

Responses on all variables were received by 5-point likert scale; Strongly Disagree SDA = 1, Disagree D = 2, Undecided UD = 3, Agree A = 4 and Strongly Agree SA = 5.

Analysis of Quantitative Data (CMP Questionnaires)

4.1.1 Section 1 Demographic Information

4.1.1.1 Part 1 Assess Demographic Information of Teachers

Table # 25

Gender of Respondents (Teachers)

Gender	Frequency	Percentage
Male	103	68.2
Female	48	31.8
Total	151	100

Table # 25 indicated that the 68.2% were male respondent while 31.8% were female respondents of Teachers from public sector universities of Islamabad.

Table # 26

Age of Respondents (Teachers)

Age	Frequency	Percentage
24-29years	42	27.8
30-35years	46	30.5
36-41years	32	21.2
42-47 years	13	8.6
48years and above	18	11.9
Total	151	100

Table # 26 explains the age groups of the respondents. There were five options given under age that include 1 = 24-29years, 2 = 30-35years, 3 = 36-41years, 4 = 42-47years and 5 = 48years and above . The results revealed that 27.8% of the university teachers included in the sample were less than 29 years of age, 30.5% of university teachers were of age between 30-35years, 21.2% of the university teachers were of age between 36-41 years of age, 8.6% of university teachers were of age between 42-47years of age and 11.9% of university teachers were 48 above years of age.

Table # 27

Academic Qualification of Respondents (Teachers)

Academic Qualification	Frequency	Percentage
Bachelors	10	6.6
Masters	24	15.9
MS/MPhil	57	37.7
PhD	60	39.7
Total	151	100

Table # 27 explains the academic qualification of the respondents. There were four options given under qualification that include 1 = Bachelors, 2 = Masters, 3 = MS/MPhil and 4 = Phd. The results revealed the academic qualification of university teachers included in the sample were 6.6% of the teachers were having Bachelor's degree, 15.9% of the teachers were having Master's degree, 37.7% of teachers were having MS/MPhil degree whereas 39.7% of university teachers were having PhD qualification.

Table # 28

Designation of Respondents (Teachers)

Designation	Frequency	Percentage
Professor	13	8.6
Associate Professor	12	7.9
Assistant Professor	35	23.2
Lecturer	64	42.4
Other (teacher assistant)	27	17.9
Total	151	100

Table # 28 explains the Designations of the respondents. There were five options given under Designation that include 1 = Professor, 2 = Associate Professor, 3 = Assistant Professor, 4 = Lecturer and 5 = other (teacher assistant). The results revealed the designation of university teachers included in the sample that 8.6% of university teachers were having designation of Professor, 7.9% of teachers were having designation of Associate Professor, 23.2% of teachers were having designation of Assistant professor, 42.4% of teachers were having designation of Lecturer whereas 17.9% of university teachers were having designation of teacher's assistant.

Table # 29

University wise Participants (Teachers)

Universities	Frequency	Percentage
National University of Science and Technology	32	21.2
Comsats University	40	26.5
International Islamic University	22	14.6
Air University	15	9.9
National University of Modern Languages	30	19.9
Quaid-i-Azam University	12	7.9
Total	151	100

Table # 29 describes about the participation of different universities. 06 Public sector universities were selected through random sampling technique having common departments were targeted population of current study. The highest return rate was 26.5% from Comsat University, 21.2% was return was of NUST, 19.9% was return rate of NUML, 14.6% was return rate of IIUI, while return rate from Air university was 9.9% and 7.9% was from QAU.

Table # 30

Department wise Participants (Teachers)

Department	Frequency	Percentage
Computer Science	40	26.5
International Relations	16	10.6
Psychology	11	7.3
Mathematics	31	20.5
Management Science	33	21.9
Economics	20	13.2
Total	151	100

Table # 30 describes about the department wise participation of teachers from 06 Public sector universities having common departments. The highest return rate was 26.5% from Computer science department, 21.9% was return was of Management Science department, 20.5% was return rate of Mathematics department, 13.2% was return rate of Economics department, while return rate from International Relations department was 10.6% and 7.3% was from Psychology.

4.1.1.2 Part 2 Asses Demographic Information of Exam Section

Table # 31

Gender of Respondents (Exam Section)

Gender	Frequency	Percentage
Male	11	68.8
Female	5	31.3
Total	16	100

Table # 31indicated that the 68.8% were male respondent while 31.3% were female respondents of Exam section from public sector universities of Islamabad.

Table # 32

Age of Respondents (Exam Section)

Age	Frequency	Percentage
24-29years	1	6.3
30-35years	5	31.3
36-41years	1	6.3
42-47 years	6	37.5
48years and above	3	18.8
Total	16	100

Table # 32 explains the age groups of the respondents. There were five options given under age that include 1 = 24-29years, 2 = 30-35years, 3 = 36-41years, 4 = 42-47years and 5 = 48years and above . The results revealed that 6.3% of exam administrators included in the sample were less than 29 years of age, 31.3% of exam administrators were of age between 30-35years, 6.3% of the exam administrators were of age between 36-41 years of age, 37.5% of exam administrators were of age between 42-47years of age and 18.8% of exam administrators were 48 above years of age.

Table # 33

Academic Qualification of Respondents (Exam Section)

Academic Qualification	Frequency	Percentage
Masters	12	75
MS/MPhil	3	18.8
Phd	1	6.3
Total	16	100

Table # 33 explains the academic qualification of the respondents. There were four options given under qualification that include 1 = Bachelors, 2 = Masters, 3 = MS/MPhil and 4 = Phd. The results revealed the academic qualification of exam administrators included in the sample were 75% of the exam staff were Master's degree, 18.8% of exam staff were having MS/MPhil degree whereas 6.3% of exam staff were having PhD qualification.

Table # 34

Designation of Respondents (Exam Section)

Designation	Frequency	Percentage
Deputy Director	5	31.3
Assistant Director	6	37.5
Other	5	31.3
Total	16	100

Table # 34 explains the Designations of the respondents. There were four options given under Designation that include 1 = Director, 2 = Deputy Director, 3 = Assistant Director and 4 = other. The results revealed the designation of exam administrators included in the sample 31.3% of exam staff were having designation of Deputy Director, 37.5%% of exam staff were having designation of Assistant Director whereas 31.3% of exam staff were having designation of other (assistant).

Table # 35

University wise Participants (Exam Section)

Universities	Frequency	Percentage
National University of Science and Technology	1	6.3
Comsats University	3	18.8
International Islamic University	5	31.3
Air University	1	6.3
National University of Modern Languages	5	31.3
Quaid-i-Azam University	1	6.3
Total	16	100

Table # 35 describes about the participation of different universities. 06 Public sector universities were selected through random sampling technique having common departments were targeted population of current study. The highest return rate was 31.3% from International Islamic University and National University of Modern Languages Islamabad, second respond rate was of comsat university 18.8% while the lowest rate was 6.3% from National University of Science and Technology, Quaid-i-Azam University and Air University.

4.1.1.3 Part 3 Assess Demographic Information of IT Section

Table # 36

Gender of Respondents (IT Section)

Gender	Frequency	Percentage
Male	6	85.7
Female	1	14.3
Total	7	100

Table # 36 describe that the highest was 85.7% of males while 14.3% was females respondents of IT section from public sector universities of Islamabad.

Table # 37

Age of Respondents (IT Section)

Age	Frequency	Percentage
24-29years	1	14.3
30-35years	4	57.1
42-47 years	1	14.3
48years and above	1	14.3
Total	7	100

Table # 37 explains that the age groups of the respondents. There were four options given under age that include 1 = 24-29years, 2 = 30-35years, 3 = 36-41years, 4 = 42-47years and 5 = 48years and above . The results revealed that 14.3% of the IT administrators included in the sample were less than 29 years of age, 57.1% of IT administrators were of age between 30-35years, 14.3% of IT administrators were of age between 42-47years of age and 14.3% of IT administrators were 48 above years of age.

Table # 38

Academic Qualification of Respondents (IT Section)

Academic Qualification	Frequency	Percentage
Bachelors	1	14.3
Masters	1	14.3
MS/MPhil	4	57.1
Phd	1	14.3
Total	7	100

Table # 38 explains that the academic qualification of the respondents. There were four options given under qualification that include 1 = Bachelors, 2 = Masters, 3 = MS/MPhil and 4 = Phd. The results revealed the academic qualification of IT administrators included in the sample were 14.3% of the IT staff were having Bachelor's degree, 14.3% of the IT staff were having Master's degree, 57.1% of IT staff were having MS/MPhil degree whereas 14.3% of IT staff were having PhD qualification.

Table # 39

Designation of Respondents (IT Section)

Designation	Frequency	Percentage
Director	1	14.3
Deputy Director	1	14.3
Assistant Director	5	71.4
Total	7	100

Table # 39 explains the Designations of the respondents. There were four options given under Designation that include 1 = Director, 2 = Deputy Director, 3 = Assistant Director and 4 = other The results revealed the designation of IT administrators included in the sample 14.3% of IT staff were having designation of Director, 14.3%% of IT staff were having designation of Deputy Director whereas 71.4 % of IT staff were having designation of Assistant Director.

Table # 40

University wise Participants (IT Section)

Universities	Frequency	Percentage
National University of Science and Technology	1	14.3
Comsats University	1	14.3
International Islamic University	2	28.6
Air University	1	14.3
National University of Modern Languages	2	28.6
Total	7	100

Table # 40 describes about the participation of different universities. 06 Public sector universities were selected through random sampling technique having common departments were targeted population of current study. The highest return rate was 28.6% from International Islamic University and National University of Modern Languages Islamabad while the lowest rate was 14.3% from National University of Science and Technology, Comsat University and Air University. No respondent was available from Quaid-i-Azam University.

4.1.2 Section 2 Change Management Process

Objective no. 1 To assess Change Management Process with reference to Teaching, Exam and IT at Higher Education Level.

4.1.1.1 Teaching- Learning Process

RQ1 How Teachers are 'Defining' change (Covid-19) while providing Teaching Learning process at Higher Education Level?

RQ2 How Teachers are 'Planning' change (Covid-19) while providing Teaching Learning process at Higher Education Level?

RQ3 How Teachers are 'Implementing' change (Covid-19) while providing Teaching Learning process at Higher Education Level?

RQ4 How Teachers are 'Sustaining' change (Covid-19) while providing Teaching Learning process at Higher Education Level?

Table # 41

Change in Teaching Learning Process (Covid-19)

No.	Phase	Mean	Remarks
1.	Define	3.59	Agree
2.	Plan	3.48	Undecided
3.	Implement	3.45	Undecided
4.	Sustain	3.52	Agree

Table # 41 indicated the mean values of Change Management Process while providing teaching learning process by teachers at Higher Education Level.

These mean values were extracted to assess change management process with reference to teaching at higher education level. The results of the mean values shows among four phases of change management process, define (3.59), plan (3.48), implement (3.45) and sustain (3.52). 'Define' phase was found to be most practiced phase in the study by teachers at higher education level during teaching learning process in pandemic of covid-19. It was recorded that teachers at higher education level agree that they practice define phase more in change management process during pandemic of covid-19.

The phases of change management process in teaching and learning at higher education level were assessed through mean score which shows that during 'Define' phase teachers were agreed with the need of change and serve as a team to meet the expectation of change education system during pandemic. Moreover during 'Sustain' phase teachers were agreed to track adaptation of change by working together as a team with a support of appreciation to last the impact of change teaching learning process. Whereas in 'Plan' phase and 'Implement' phase teachers were unclear about the change plan and strategies to carry out the resumption of teaching learning process during uncertain event.

3.9.1.1 Examination Procedures

RQ5 How Exam staff are 'Defining' change (Covid-19) while conducting Examination Procedures at Higher Education Level?

RQ6 How Exam staff are 'Planning' change (Covid-19) while conducting Examination Procedures at Higher Education Level?

RQ7 How Exam staff are 'Implementing' change (Covid-19) while conducting Examination Procedures at Higher Education Level?

RQ8 How Exam staff are 'Sustaining' change (Covid-19) while conducting Examination Procedures at Higher Education Level?

Table # 42

Change in Examination Procedures (Covid-19)

No.	Phase	Mean	Remarks
1.	Define	3.91	Agree
2.	Plan	3.53	Agree
3.	Implement	3.43	Undecided
4.	Sustain	3.32	Undecided

Table # 42 indicated the mean values of Change Management Process while conducting examination procedures by exam staff for educational purposes at Higher Education Level.

These mean values were extracted to assess change management process with reference to exam at higher education level. The results of the mean values shows among four phases of change management process, define (3.91), plan (3.53), implement (3.43) and sustain (3.32). 'Define' phase was found to be most practiced phase in the study by exam staff at higher education level while conducting examination procedures in pandemic of covid-19. It was recorded that exam staff at higher education level agree that they practice define phase more frequently in change management process during pandemic of covid-19.

The phases of change management process in conducting examination procedure at higher education level were assessed through mean score which shows that during 'Define' phase and 'Plan' phase exam administrators were agreed with the need of change and serve as a team to meet

the expectation of change examination procedures during pandemic by creating plans and strategies to carry out the process. Whereas during 'Implement' phase and 'Sustain' phase exam administrators were unclear about the monitoring procedures to manage resistance and risk due to uncertain event and measure the impact of change examination procedures at university in terms of performance.

3.9.1.2 IT Facilities

RQ9 How IT staff are 'Defining' change (Covid-19) while providing Technological facilities for educational purposes at Higher Education Level?

RQ10 How IT staff are 'Planning' change (Covid-19) while providing Technological facilities for educational purposes at Higher Education Level?

RQ11 How IT staff are 'Implementing' change (Covid-19) while providing Technological facilities for educational purposes at Higher Education Level?

RQ12 How IT staff are 'Sustaining' change (Covid-19) while providing Technological facilities for educational purposes at Higher Education Level?

Table # 43

Change in Technological Facilities (Covid-19)

No.	Phase	Mean	Remarks
1.	Define	3.88	Agree
2.	Plan	3.78	Agree
3.	Implement	3.39	Undecided
4.	Sustain	3.07	Undecided

Table # 43 indicated the means value of Change Management Process while providing technological facilities by IT staff for educational purposes at Higher Education Level.

These mean values were extracted to assess change management process with reference to IT at higher education level. The results of the mean values shows among four phases of change management process, define (3.88), plan (3.78), plan (3.39) and sustain (3.07). 'Define' phase was found to be most practiced phase in the study by IT staff at higher education level while providing technological facilities in pandemic of covid-19. It was recorded that IT staff at higher education

level agree that they practice define phase more frequently in change management process during pandemic of covid-19.

The phases of change management process in providing technological facilities at higher education level were assessed through mean score which shows that during 'Define' phase and 'Plan' phase IT administrators were agreed with the need of change and serve as a team to meet the expectation of change technology facilities during pandemic by creating plans and strategies to facilitate the process of education in university. Whereas during 'Implement' phase and 'Sustain' phase IT administrators were unclear about the monitoring procedures to manage resistance and risk due to uncertain event and measure the impact of change technology facilities at university in terms of performance.

Objective No. 2 To Compare Universities on the bases of Change Management Process in Teaching, Exam and IT departments.

3.9.1.3 Teaching – Learning Process

H_01 There is no significance university wise difference in 'Define' phase of change management process of Teaching.

Table # 44

University wise Comparison of Teachers with reference to 'Define' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Define Phase	National University of Science and Technology	32	43.1	.560	150	.731
	Comsats University	40	42.3			
	International Islamic University Islamabad	22	43.7			
	Air University	15	41.2			
	National University of Modern Languages	30	44.6			
	Quaid-i-Azam University	12	43			

Table # 44 shows University wise comparison of 'Define' phase of Change Management Process of teachers. The above mention table shows that F value (.560) is statistically non- significant at p value (.731) which is greater than 0.05 level of significance. Therefore H_01 there is no significant university wise difference in Define phase of change management process of teachers was accepted.

H₀2 There is no significance university wise difference in 'Plane' phase of change management process of Teaching.

Table # 45

University wise Comparison of Teachers with reference to 'Plan' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Plan Phase	National University of Science and Technology	32	38.4	1.178	150	.323
	Comsats University	40	36.8			
	International Islamic University Islamabad	22	39.6			
	Air University	15	37			
	National University of Modern Languages	30	39.7			
	Quaid-i-Azam University	12	39.1			

Table # 45 shows University wise comparison of 'Plan' phase of Change Management Process of teachers. The above mention table shows that F-value (1.178) is statistically non-significant at p value (.323) which is greater than 0.05 level of significance. Therefore H₀2 there is no significant university wise difference in Plan phase of change management process of teachers was accepted.

H₀3 There is no significance university wise difference in 'Implement' phase of change management process of Teaching.

Table # 46

University wise Comparison of Teachers with reference to 'Implement' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Implement Phase	National University of Science and Technology	32	27.6	1.054	150	.389
	Comsats University	40	26.7			
	International Islamic University	22	29			
	Air Univversity	15	25.8			
	National University of Modern Languages	30	28.4			
	Quaid-i-Azam University	12	27.9			

Table # 46 shows University wise comparison of 'Implement' phase of Change Management Process of teachers. The above mention table shows that F-value (1.054) is statistically non-significant at p value (.389) which is greater than 0.05 level of significance. Therefore H₀3 there is no significant university wise difference in Implement phase of change management process of teachers was accepted.

H₀4 There is no significance university wise difference in 'Sustain' phase of change management process of Teaching.

Table # 47

University wise Comparison of Teachers with reference to 'Sustain' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Sustain Phase	National University of Science and Technology	32	28.7	.870	150	.503
	Comsats University	40	27.6			
	International Islamic University	22	28.8			
	Air University	15	26.1			
	National University of Modern Languages	30	28.9			
	Quaid-i-Azam University	12	27.9			

Table # 47 shows University wise comparison of 'Sustain' phase of Change Management Process of teachers. The above mention table shows that F-value (.870) is statistically non-significant at p value (.503) which is greater than 0.05 level of significance. Therefore H₀4 there is no significant university wise difference in Sustain phase of change management process of exam section was accepted.

3.9.1.4 Examination Procedure

H₀5 There is no significance university wise difference in 'Define' phase of change management process of Exam section.

Table # 48

University wise Comparison of Exam section with reference to 'Define' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Define Phase	National University of Science and Technology	1	45	2.529	15	.099
	Comsats University	3	45			
	International Islamic University	5	44.4			
	Air University	1	45			
	National University of Modern Languages	5	50			
	Quaid-i-Azam University	1	51			

Table # 48 shows University wise comparison of 'Define' phase of Change Management Process of exam section. The above mention table shows that F value (2.529) is statistically non- significant at p value (.099) which is greater than 0.05 level of significance. Therefore H₀5 there is no

significant university wise difference in Define phase of change management process of exam section was accepted.

H$_0$6 There is no significance university wise difference in 'Plan' phase of change management process of Exam section

Table # 49

University wise Comparison of Exam section with reference to 'Plan' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Plan Phase	National University of Science and Technology	1	38	.933	15	.499
	Comsats University	3	40			
	International Islamic University	5	44.2			
	Air University	1	38			
	National University of Modern Languages	5	42.4			
	Quaid-i-Azam Universitty	1	49			

Table # 49 shows University wise comparison of 'Plan' phase of Change Management Process of exam section. The above mention table shows that F-value (.933) is statistically non-significant at p value (.499) which is greater than 0.05 level of significance. Therefore H$_0$6 there is no significant

university wise difference in Plan phase of change management process of exam section was accepted.

H₀7 There is no significance university wise difference in 'Implement' phase of change management process of Exam section

Table # 50

University wise Comparison of Exam section with reference to 'Implement' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Implement Phase	National University of Science and Technology	1	27	.411	15	.831
	Comsats University	3	25			
	International Islamic University	5	28.2			
	Air University	1	27			
	National University of Modern Languages	5	27.8			
	Quaid-i-Azam University	1	31			

Table # 50 shows University wise comparison of 'Implement' phase of Change Management Process of exam section. The above mention table shows that F-value (.411) is statistically non-significant at p value (.831) which is greater than 0.05 level of significance. Therefore H₀7 there

is no significant university wise difference in Implement phase of change management process of exam section was accepted.

H$_0$8 There is no significance university wise difference in 'Sustain' phase of change management process of Exam section

Table # 51

University wise Comparison of Exam section with reference to 'Sustain' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Sustain Phase	National University of Science Technology	1	23	.856	15	.542
	Comsats University	3	27			
	International Islamic University	5	25.8			
	Air University	1	23			
	National University of Modern Languages	5	28.2			
	Quaid-i-Azam University	1	28			

Table # 51 shows University wise comparison of 'Sustain' phase of Change Management Process of Exam section. The above mention table shows that F-value (.856) is statistically non-significant at p value (.542) which is greater than 0.05 level of significance. Therefore H$_0$8 there is no

significant university wise difference in Sustain phase of change management process of exam section was accepted.

3.9.1.5 Technology Facilities

H₀9 There is no significance university wise difference in 'Define' phase of change management process of IT section

Table # 52

University wise Comparison of IT section with reference to 'Define' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Define Phase	National University of Science and Technology	1	44	.403	6	.801
	Comsats University	1	54			
	International Islamic University	2	50			
	Air University	1	57			
	National University of Modern Languages	2	35.5			

Table # 52 shows University wise comparison of 'Define' phase of Change Management Process of IT section. The above mention table shows that F value (.403) is statistically non-significant at p value (.801) which is greater than 0.05 level of significance. Therefore H₀9 there is no significant university wise difference in Define phase of change management process of IT section was accepted.

H₀10 There is no significance university wise difference in 'Plan' phase of change management process of IT section.

Table # 53

University wise Comparison of IT section with reference to 'Plan' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Plan Phase	National University of Science and Technology	1	40	2.423	6	.313
	Comsats University	1	57			
	International Islamic University	2	41			
	Air University	1	54			
	National University of Modern Languages	2	42			

Table # 53 shows University wise comparison of 'Plan' phase of Change Management Process of IT section. The above mention table shows that F-value (2.423) is statistically non-significant at p value (.313) which is greater than 0.05 level of significance. Therefore H₀10 there is no significant university wise difference in Plan phase of change management process of IT section was accepted.

H₀11 There is no significance university wise difference in 'Implement' phase of change management process of IT section.

Table # 54

University wise Comparison of IT section with reference to 'Implement' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Implement Phase	National University of Science and Technology	1	24	.763	6	.635
	Comsats University	1	31			
	International Islamic University	2	25			
	Air University	1	31			
	National University of Modern Languages	2	27			

Table # 54 shows University wise comparison of 'Implement' phase of Change Management Process of IT section. The above mention table shows that F-value (.763) is statistically non-significant at p value (.635) which is greater than 0.05 level of significance. Therefore H₀11 there is no significant university wise difference in Implement phase of change management process of IT section was accepted.

H₀12 There is no significance university wise difference in 'Sustain' phase of change management process of IT section.

Table # 55

University wise Comparison of IT section with reference to 'Sustain' phase in Change Management Process

Variable	Universities	N	Mean	F - value	df	sig
Sustain Phase	National University of Science and Technology	1	27	1.812	6	.386
	Comsats University	1	30			
	International Islamic University	2	16			
	Air University	1	30			
	National University of Modern Languages	2	26			

Table # 55 shows University wise comparison of 'Sustain' phase of Change Management Process of IT section. The above mention table shows that F-value (1.812) is statistically non-significant at p value (.386) which is greater than 0.05 level of significance. Therefore H₀12 there is no significant university wise difference in Sustain phase of change management process of IT section was accepted.

Analysis of Qualitative Data (Responses of Open-ended Questions)

Open-ended questions was designed for data collection. Teachers and Administrators (Exam and IT) at higher education level were targeted population for study. The researcher approached 172 teachers but rate of return was 151, administrators 30 but rate of return was 23. The researcher personally visit the office of teachers and administrators of exam and IT section as well as emailed Google form link to every participant. Thematic analysis technique was used to analyze qualitative data.

4.1.3 Section 3 Challenges

Objective No. 3 To determine the challenges faced by Teaching, Exam and IT during Process of Change Management at Higher Education Level.

RQ13 What kind of Challenges were faced by Teachers during the Change Management Process at Higher Education Level?

Part 1 Challenges faced by Teachers

The aim of the study is to assess Change Management Process and determine the Challenges faced by teachers. In order to explore challenges encountered by teachers while providing teaching learning process in Covid-19 scenario. The qualitative part of the research study was conducted through open-ended questions, based on the collected data and results the challenges faced by teachers in providing teaching learning process are summarized into seven major themes described in table;

Table # 56

Challenges faced by Teacher while providing Teaching Learning process (Covid-19)

Sr. No.	Themes	Sub –Themes
1.	Limited Resources	Poor internet connectivity
		Electricity failure
		Lack of compatible devices
		Lack of IT infrastructure
		Lack of technical facilities
		Financial constraints

2.	Class Management	Lack of student engagement
		Lack of knowledge
		Hard to manage online teaching learning process
		Difficulty in delivering content and performing practical work
		Poor time management
3.	Low Attendance	Lack of seriousness
		Less participation of students
		Disturbance issue
4.	Communication Barriers	Insufficient Feedback
		Lack of connectivity between staff
		Less student-teacher interaction
5.	Difficulty in Assessment	Difficulty in adapting online teaching and learning
		Cheating issue/plagiarism
6.	Lack of Technical Skills	Limited technology experience
		Limited knowledge of software's
7.	Workload	Lack of guidance
		Lack of training

1. Limited Resources

The institutions provide support to teachers in terms of resources to achieve objectives of teaching and learning effectively. Within the scenario of Covid-19 faculty members are facing challenges regarding the limited resources and inadequate facilities. Teachers find it difficult to manage online teaching learning process effectively with poor internet connectivity, electricity failure, lack of compatible devices and lack of IT infrastructure provided by the university Akram, Aslam, Saleem & Parveen (2021)..

2. Class Management

Class management refers to the process in which teachers and students establish and sustain orderly environment in classroom for meaningful teaching and learning. According to responses of teachers they faced difficulty in delivery content and performing practical work in online mode

of education, lack of knowledge and lack of student engagement were other challenges faced by teachers Akram, Aslam, Saleem & Parveen (2021).

3. Low Attendance

Attendance of the students significantly contribute to successful online teaching learning process. According to the responses of participants the absenteeism of the students results in low academic performance and serve as a challenge for teachers to manage online education. The low attendance issue in synchronous mode was due to; lack of seriousness of students to attend the lectures and submit the task within time, less participation of the students in discussions, technology accessibility and disturbance/environmental issues during online mode of education from home.

4. Communication Barriers

Communication is the act of sharing information between teachers and students for effective teaching learning process. Another major challenge teachers faced during providing teaching learning process in covid-19 is inability to interact face-to-face. Teachers cannot have sufficient feedback from students on their learning and cannot have tangible check on their level of understanding the lecture. Less coordination occurred between staff members. Teachers find it difficult to manage online activities without knowing the need of learners.

5. Difficulty in Assessment

Assessment is the process of judging deep understanding of student learning, knowledge based on their educational experiences. Online assessment during period of covid-19 appeared as a major challenge for teachers to design the paper online as well as assessment of students was done through new examination procedures introduce in the university. Quality of assessing students learning has been reduced because students find online exams convenient to acquire good grades and sudden shift to e-examination has many loop holes for assessment. Teachers find it difficult to adapt online teaching learning process and were not able to design, asses and submit result within the time due to unfamiliarity with new methods, while marking results inexperience of examination systems ratio of mistakes increase. The trend on cheating and increased plagiarism is become common in online exam procedures due to limited supervision.

6. Lack of Technical Skills

In the era of pandemic the education system need to be align with technology, skills and knowledge for teaching learning process. According to the responses of teachers they find difficult to manage online mode of education, they had limited experience of technological use in pedagogy. Consequently they have limited competence of using software and face difficulty in virtual teaching and learning.

7. Workload

The teachers experience the burden in amount of work assigned to them in a specified period of covid-19 pandemic. The sudden shift to online mode has created a huge workload on teachers to transform the education system to digitalize system of education such as; online teaching and learning platforms, online discussion, online learning activities/resources, uploading lectures, converting courses content to e-content, e-assessment techniques and introduction of learning management system(LMS) for smooth running of education. The teachers faced another challenge of lack of guidance for adopting online technology, due to limit time deficiency of trainings sessions for teachers were not provided that result in incompetence of teachers for virtual teaching Akram, Aslam, Saleem & Parveen (2021).

RQ14 What kind of Challenges were faced by Exam during the Change Management Process at Higher Education Level?

Part 2 Challenges faced by Exam Section

The aim of the study is to assess Change Management Process and determine the Challenges faced by Exam section. In order to explore challenges encountered by Exam section while conducting exam procedures in Covid-19 scenario. The qualitative part of the research study was conducted through open-ended questions, based on the collected data and results the challenges faced by Exam section in conducting exams procedures are summarized into three major themes described in table;

Table # 57

Challenges faced by Exam section while conducting Examination Procedures (Covid-19)

Sr. No.	Themes	Sub-Themes
1.	Difficulty in Assessment	Quality of assessment reduced
		Time constraint
		Human error
		Late submission of results
		Cheating trend increase
2.	Accessibility Issues	Internet speed
		LMS server overload
3.	Reluctance to Change	Resistance of staff to embrace change and learn online system
		Implementation, acceptance of online exam policies
		Workload

1. Difficulty in Assessment

Assessment is the process of judging deep understanding of student learning, knowledge based on their educational experiences. Online assessment during period of covid-19 appeared as a major challenge for examination section due to resistance to adopt new examination procedures. Quality of assessing students learning has been reduced because students find online exams convenient to acquire good grades and sudden shift to e-examination has many loop holes for assessment. Faculty members were not able design, asses and submit result within the time due to unfamiliarity with new methods, while marking results inexperience of examination systems ratio of mistakes increase. The trend on cheating is become common in online exam procedures due to limited supervision.

2. Accessibility Issues

Another most common challenge faced by exam section was accessibility issues include; internet speed, compatible devices, lack of IT infrastructure and overload of servers during the exams and

result uploading period. Students belonging from far flung areas find difficult to connect, faculty members were not able to upload lectures and results on time. Due to unstable internet speed and load on LMS servers teachers find difficult to supervise because of rapid disconnection of internet.

3. Reluctance to Change

The unwillingness of faculty members to adapt the alter change conditions of examination procedures during the scenario of covid-19. The senior staff members who worked on manual system shows resistance to accept online examination system whereas the staff members find the implementation and acceptance of online examination policy as a burden and heavy workload to design the courses and papers online, upload lectures and result within the limited time that increase miss management and increase ratio of mistakes.

RQ15 What kind of Challenges were faced by IT during the Change Management Process at Higher Education Level?

Part 3 Challenges faced by IT Section

The aim of the study is to assess Change Management Process and determine the Challenges faced by Teachers, Exam and IT section. In order to explore challenges encountered by IT section in providing Technological facilities for Educational purposes in Covid-19 scenario. The qualitative part of the research study was conducted through open-ended questions, based on the collected data and results the challenges faced by IT section in providing Technological facilities are summarized into three major themes described in table;

Table # 58

Challenges faced by IT section in providing Technological Facilities for Educational Purposes (Covid-19)

Sr. No.	Themes	Sub-Themes
1.	Limited Resources	Internet Issues
		Lack of technology gadgets
		Lack of IT equipment's
		Lack of online technical laboratories
2.	Workload	Time constraint

104

		Inexperience of online technology
		Lack of training
		No appreciation
3.	Communication Barrier	Insufficient feedback
		Miss management of task due to less interaction

1. Limited Resources

The technological resources are characterized as support to provide facilities, services, communicate and disseminate information to faculty members and students in achieving effective teaching and learning objectives. Without having internet connectivity, lack of IT equipment's, compatible technology gadgets and online technical laboratories IT administrators find it hard to facilitate the teachers in teaching effectively and students to learn efficiently during the situations of crisis or online mode of education. Majority of the IT staff reported that they were not provided adequate support from their institutions such as; scarcity of IT infrastructure, internet speed, advanced devices and software's Akram, Aslam, Saleem & Parveen (2021).

2. Workload

The IT staff experience the burden in amount of work assigned to them in a specified period 0f covis-19 pandemic. The sudden shift to online mode has created a huge workload on IT section to transform the education system to digitalize system of education such as; online teaching and learning platforms, new education policies, online examinations, new admission procedure, introduction learning management system(LMS) and establishment of other software's and application for smooth running of education. The IT staff faced another challenge of inexperience faculty for online technology, due to limit time deficiency of trainings sessions for teachers and no appreciation was provided to IT section that would encourage them to work more hard Akram, Aslam, Saleem & Parveen (2021),.

3. Communication Barrier

Communication is the act of sharing information between administration, faculty and students for effective outcome. Another major challenge IT section faced during providing technological

facilities in covid-19 is inability to interact face-to-face. IT staff cannot have sufficient feedback from faculty and students on their services provided through LMS. Consequently, they find missed management of task between administrators and staff due to less interaction.

CHAPTER 5

SUMMARY, FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The aim of the present study is to appraise change management process and determine the challenges faced by the stakeholder during covid-19 period with reference to teaching, exam and IT section at Higher Education Level. The focus of the study was to enlighten the Change Management Process based on four phases of change management model and further explores Challenges of stakeholders (teachers, exam and IT) during covid-19 in change educational process at higher education level. Each phase of Change Management Process was analyzed with reference to teaching-learning, examination procedures and technological facilities in educational purposes.

The current research was descriptive in nature based on convergent parallel design of mixed method approach in which both quantitative and qualitative research approaches were applied. The population of the study was six public sector universities of Islamabad having common departments. The population of teachers was 859 in six public sector universities of Islamabad having common departments whereas 30 was population of Administrators (exam and IT). The list of teachers and administrators were drawn from official website of universities. Due to research limitations the researcher was unable to conduct study on both sector of universities. Multistage sampling technique was used in the current study, public sector universities of Islamabad were selected through simple random sampling, and at second stage stratified sampling was used to select desired sample size 172 teachers. Census sampling technique was used to draw sample size of administrators (30) and at last convenience sampling was used to collect data from the respondents.

Three self-developed questionnaires were constructed by the researchers on Change Management Process Scale having three sections each. First section was of demographic information, second section was of change management process based on 5-likert scale and third section was of challenges based on open-ended questions. CMPT questionnaire was for teachers regarding teaching –learning in change management process (covid-19), CMPE questionnaire was for exam section regarding conducting examination procedures in change management process

(covid-19) and CMPIT questionnaire was for IT section regarding providing technological facilities for educational purposes. About 200 questionnaires were distributed among teachers and 172 completely filled questionnaires were received and about 30 questionnaires were distributed among administrators and 23 completely filled questionnaires were received.

On the bases of research objectives, analysis of the collected data was done in SPSS. Statistical test applied on quantitative data were; frequency, percentage, mean and ANOVA whereas for qualitative data Thematic analysis was applied.

5.2 Findings of Quantitative Data

Section 1 Demographic Information

By Teachers

1. Table # 25 indicated that the 68.2% were male respondent while 31.8% were female respondents of Teachers from public sector universities of Islamabad.

2. Table # 26 indicated that 27.8% of respondent were having 24-29 years of age, 30.5% of respondent having 30-35years of age, 21.2% of respondent having 36-41years of age, 8.6% of respondents having 42-47 years of age, while 11.9% of respondents were having 48 years and above years of age from public sector universities of Islamabad.

3. Table # 27 indicated that 6.6% of teachers were having Bachelor's degree, 15.9% of teachers were having Masters degree, 37.7% of teachers were having MS/MPhil degree, while 39.7% of teachers were having Phd degree from public sector universities of Islamabad.

4. Table # 28 indicated that 8.6% of teachers were having designation of Professor, 7.9% of teachers were having designation of Associate Professor, 23.2% of teachers were having designation of Assistant Professor, 42.4% of teachers were having designation of lecturer, while 17.9% of teachers were having designation other (teacher assistant) from public sector universities of Islamabad.

5. Table # 29 indicated that the highest return rate was 26.5% from Comsat University, 21.2% was return of NUST, 19.9% was return rate of NUML, 14.6% was return rate of IIUI, while return rate from Air university was 9.9% and 7.9% was from QAU.

6. Table # 30 indicated that the highest return rate was 26.5% from Computer science department, 21.9% was return was of Management Science department, 20.5% was return rate of Mathematics department, 13.2% was return rate of Economics department, while return rate from International Relations department was 10.6% and 7.3% was from Psychology.

By Exam Section

1. Table # 31 indicated that the 68.8% were male respondent while 31.3% were female respondents of Exam section from public sector universities of Islamabad.

2. Table # 32 indicated that 6.3% of respondents were having 24-29years, 31.3% of respondents were having 30-35 years, 6.3% of respondents were having 36-41 years, 37.5% of respondents were having 42-47 years while 31.3% of exam respondents were 48years and above from public sector universities of Islamabad.

3. Table # 33 indicated that 6.3% of exam staff were having Phd degree, 75% of exam staff were having Master's degree while 18.8% of exam staff were having MS/Mphil degree .There was not a single respondent of Bachelors degree from public sector universities of Islamabad.

4. Table # 34 indicated that 31.3% of exam staff were having deputy director designation, 31.3% of exam staff were having other (controller examination) designation while 37.5% of exam staff were having assistant director designation from public sector universities of Islamabad.

5. Table # 35 indicated that the highest response return rate was 31.3% from International Islamic University and National University of Modern Languages Islamabad, second respond rate was of comsat university 18.8% while the lowest rate was 6.3% from National University of Science and Technology, Quaid-i-Azam University and Air University.

By IT Section

1. Table # 36 indicated that 85.7% of respondents were male while 14.3% of respondents were females of IT section from public sector universities of Islamabad.

2. Table # 37 indicated that 14.35 of IT respondents were 24-29years, 57.1% of IT respondents were 30-35years, 14.3% of IT respondent were 42-47years while 14.3% of respondent were 48 years and above from public sector universities of Islamabad. There was not a single respondent from 36-41years of age.

3. Table # 38 indicated that 14.3% of IT respondent were having Bachelor degree, 14.3% of respondent were having Master degree, 57.1% of respondent were having MS/MPhil degree while 14.3% of respondent were having Phd degree from public sector universities of Islamabad.

4. Table # 39 indicated that 14.3% of IT staff were having designation of director, 14.3% of respondent were having designation of deputy director, 71.4% of respondent were having designation of assistant director from public sector universities of Islamabad.

5. Table # 40 indicated that the highest return rate was 28.6% from International Islamic University and National University of Modern Languages Islamabad while the lowest rate was 14.3% from

National University of Science and Technology, Comsat University and Air University. No respondent was available from Quaid-i-Azam University.

Section 2 Change Management Process

Objective no. 1 To assess Change Management Process with reference to Teaching, Exam and IT at Higher Education Level.

The CMP scale was developed separately for teachers, exam and IT section. This objective was pursed using quantitative approach.

By Teachers

1. Table # 41 indicated the means value of Change Management Process while providing teaching learning process by teachers at Higher Education Level. The mean value of define (3.59), plan (3.48), implement (3.45), sustain (3.52) were extracted to assess change management process with reference to teaching at higher education level. The results of the mean values shows among four phases of change management process, 'Define' phase was found to be most practiced phase in the study by teachers at higher education level during teaching learning process in pandemic of covid-19. It was recorded that teachers at higher education level agree that they practice define phase more in change management process during pandemic of covid-19. While adopting the define phase by teachers in universities they have align the expectation of change to scope of change by identifying their role as a stakeholder in process of change, identify measures and establish timeframe to meet the need of change teaching learning strategies during amid of pandemic.

By Exam Section

2. Table # 42 indicated the means value of Change Management Process while conducting examination procedures by exam staff for educational purposes at Higher Education Level. The mean values of define (3.91), plan (3.53), implement (3.43) and sustain (3.32) were extracted to assess change management process with reference to exam at higher education level. The results of the mean values shows among four phases of change management process, 'Define' phase was found to be most practiced phase in the study by exam staff at higher education level while conducting examination

procedures in pandemic of covid-19. It was recorded that exam staff at higher education level agree that they practice define phase more frequently in change management process during pandemic of covid-19. While adopting the define phase by exam administrator in universities they have align the expectation of change examination procedures to scope of change by identifying their role as a stakeholder in process of change, identify measures and establish timeframe to meet the need of change in examination techniques during amid of pandemic.

By IT Section

3. Table # 43 indicated the means value of Change Management Process while providing technological facilities by IT staff for educational purposes at Higher Education Level. The mean value of define (3.88), plan (3.78), implement (3.39) and sustain (3.07) were extracted to assess change management process with reference to IT at higher education level. The results of the mean values shows among four phases of change management process, 'Define' phase was found to be most practiced phase in the study by IT staff at higher education level while providing technological facilities in pandemic of covid-19. It was recorded that IT staff at higher education level agree that they practice define phase more frequently in change management process during pandemic of covid-19. While adopting the define phase by IT administrator in universities they have align the expectation of change technology facilities to scope of change by identifying their role as a stakeholder in process of change, identify measures and establish timeframe to meet the need of change technology facilities during amid of pandemic.

Objective No. 2 To Compare Universities on the bases of Change Management Process in Teaching, Exam and IT departments

By Teachers

1. Table # 44 shows no Significance University wise difference in 'Define' phase of Change Management Process of teachers, as the F-value (.560) is not statistically significant at (.731) level. Thus H_01 there is no significant university wise difference in Define phase of change management process of teachers is accepted. According to the mean value (44.6) shows in the table National University of Modern Languages teachers have adopted the define phase during change management process more frequently as compared to other

public sector universities included in the sample whereas Air University shows lowest mean value (41.2) in defining the need of change teaching learning process in covid-19.

2. Table # 45 shows no Significance University wise difference in 'Plan' phase of Change Management Process of teachers, as the F-value (1.178) is statistically non-significant at .323 level. Thus $H_0 2$ there is no significant university wise difference in Plan phase of change management process of teachers is accepted. According to the mean value (39.7) shows in the table that National University of Modern Languages teachers have adopted the plan phase during change management process more frequently as compared to other public sector universities included in the sample whereas the Comsat University shows lowest mean value (36.8) in understanding the impact of change teaching learning process on education system.

3. Table # 46 shows no Significance University wise difference in 'Implement' phase of Change Management Process of teachers, as the F-value (1.054) is statistically non-significant at .389 level. Thus $H_0 3$ there is no significant university wise difference in Implement phase of change management process of teachers is accepted. According to the mean value (29) shows in the table that International Islamic University teachers have adopted the Implement phase during change management process more frequently as compared to other public sector universities included in the sample whereas the Air University shows lowest mean value (25.8) in executing the change teaching learning process during covid-19.

4. Table # 47 shows no significance University wise difference in 'Sustain' phase of Change Management Process of teachers, as the F-value (.870) is statistically non-significant at .503 level. Thus $H_0 4$ there is no significant university wise difference in Sustain phase of change management process of exam section was accepted. According to the mean value (28.9) shows in the table National University of Modern Languages teachers have adopted the Sustain phase during change management process more frequently as compared to other public sector universities included in the sample whereas the Air University shows lowest mean value (26.1) in tracking the adaptation of change teaching learning process during covid-19.

By Exam Section

1. Table # 48 shows no Significance University wise difference in 'Define' phase of Change Management Process of exam section, as the F value (2.529) is statistically non- significant at .099 level. Thus H_05 there is no significant university wise difference in Define phase of change management process of exam section is accepted. According to mean value (51) shows in the table that Quaid-i-Azam University exam section have adopted the define phase during change management process more frequently as compared to other public sector universities included in the sample whereas International Islamic University shows the lowest mean value (44.4) in defining the need of change examination procedure in covid-19.

2. Table # 49 shows no Significance University wise difference in 'Plan' phase of Change Management Process of exam section, as the F-value (.933) is statistically non-significant at .499 level. Thus H_06 there is no significant university wise difference in Plan phase of change management process of exam section is accepted. According to the mean value (49) shows in the table that Quaid-i-Azam University exam section have adopted the plan phase during change management process more frequently as compared to other public sector universities included in the sample whereas Air University and National University of Science and Technology show lowest mean value (38) in understanding the impact of change examination procedures and design strategies to carry out online examination system during process of change and identify risk.

3. Table # 50 shows no Significance University wise difference in 'Implement' phase of Change Management Process of exam section, as the F-value (.411) is statistically non-significant at .831 level. Thus H_07 there is no significant university wise difference in Implement phase of change management process of exam section is accepted. According to the mean value (31) shows in the table that Quaid-i-Azam University exam section have adopted the Implement phase during change management process more frequently as compared to other public sector universities included in the sample whereas Comsat University show lowest mean value (25) in executing the change examination procedures during covid-19.

4. Table # 51 shows no Significance University wise difference in 'Sustain' phase of Change Management Process of Exam section, as the F-value (.856) is statistically non-significant

at .542 level. Thus H_08 there is no significant university wise difference in Sustain phase of change management process of exam section is accepted. According to the mean value (28.2) shows in the table National University of Modern Languages exam section have adopted the Sustain phase during change management process more frequently as compared to other public sector universities included in the sample whereas Air University and National University of Science and Technology show lowest mean value (23) in tracking the adaptation of change examination procedures during Covid-19.

By IT Section

1. Table # 52 shows no Significance University wise difference in 'Define' phase of Change Management Process of IT section, as the F value (.403) is statistically non-significant at .801 level. Thus H_09 there is no significant university wise difference in Define phase of change management process of IT section is accepted. According to the mean value (57) shows in the table that Air University IT section have adopted the define phase during change management process more frequently as compared to other public sector universities included in the sample whereas National University of Modern Languages shows lowest mean value (35.5) in defining the need of change technology facilities during covid-19.

2. Table # 53 shows no Significance University wise difference in 'Plan' phase of Change Management Process of IT section, as the F-value (2.423) is statistically non-significant at .313 level. Thus H_010 there is no significant university wise difference in Plan phase of change management process of IT section is accepted. According to the mean value (57) shows in the table that Comsat University IT section have adopted the plan phase during change management process more frequently as compared to other public sector universities included in the sample whereas National University of Science and Technology show lowest mean value (40) in understanding the impact of change technology facilities to carry out online learning during amid of covid-19.

3. Table # 54 shows no Significance University wise difference in 'Implement' phase of Change Management Process of IT section, as the F-value (.763) is statistically non-significant at .635 level. Thus H_011 there is no significant university wise difference in Implement phase of change management process of IT section is accepted. According to the mean value (31) shows in the table that Air University and Comsat University IT section have adopted the Implement phase during change management process more

frequently as compared to other public sector universities included in the sample whereas National University of Science and Technology show lowest mean value (24) in executing the change technology facilities in education system during covid-19.

4. Table # 55 shows no Significance University wise difference in 'Sustain' phase of Change Management Process of IT section, as the F-value (1.812) is statistically non-significant at .386 level. Thus H_012 there is no significant university wise difference in Sustain phase of change management process of IT section is accepted. According to the mean value (30) shows in the table that Air University and Comsat University IT section have adopted the Sustain phase during change management process more frequently as compared to other public sector universities included in the sample whereas International Islamic University show lowest mean value (16) in tracking the adaptation of change technology facilities during covid-19.

5.3 Findings of Qualitative Data

Section 3 Challenges

By Teachers

1. Table # 56 indicated the results of challenges faced by teachers during Change Management Process while providing online teaching learning mode in Covid-19. The seven major themes of challenges were described in the table along with sub-themes. The major challenges faced by teachers were;

a. Limited resources (poor internet connectivity, electricity failure, lack of compatible devices, lack of IT infrastructure, lack of technical facilities, financial constraints)

b. Class management (lack of student engagement, lack of knowledge, hard to manage online teaching learning process, difficulty in delivering content and performing practical work, poor time management)

c. Low attendance (lack of seriousness, less participation of students, disturbance issue)

d. Communication barrier (insufficient feedback, lack of connectivity between staff, less student – teacher interaction)

e. Difficulty in assessment (difficulty in adapting online teaching and learning, cheating issue/plagiarism)

f. Lack of technical skills (limited technology experience, limited knowledge of software's)

g. Workload (lack of guidance, lack of training)

By Exam Section

1. Table # 57 indicated the results of challenges faced by the exam staff during Change Management process while conducting examination procedures for educational purposes in Covid-19. The three major themes of challenges were described in the table along with the sub-themes. The challenges faced by the Exam Administrator were;

a. Difficulty in assessment (quality of assessment reduced, time constraint, human error, late submission of results, cheating trend increase)

b. Accessibility issues (internet speed, LMS server overload)

c. Reluctance to change (resistance of staff to embrace change and learn online system, implementation, acceptance of online education policy, workload).

By IT Section

1. Table # 58 indicated the results of challenges faced by the IT staff during Change Management process while providing technological facilities in Covid-19. The three major themes of challenges were described in the table along with the sub-themes. The challenges faced by the IT Administrators were;

a. Limited resources (internet issues, lack of technology gadgets, lack of IT equipment's, lack of online technical laboratories)

b. Workload (time constraint, inexperience of online technology, lack of training , no appreciation)

c. Communication barrier (insufficient feedback, miss management of task due to less interaction)

5.4 Discussion

The online mode is the latest happening in the education sector during amid of pandemic. Just like other developing countries of the world online mode is also getting famous in Pakistan. Integrating technology with traditional mode of education is still concern for Pakistanis. The change management process provides the best model for innovative teaching learning and examination procedures comprising a fusion of technological facilities that compliments the assessment and teaching methodologies in higher education institutions. The change Management Process is the sequences of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

The purpose of current research study was an appraisal of change management process at higher education level by determining the challenges faced by the stakeholders while providing teaching-learning environment, technological facilities and conducting examination procedures for educational purposes. The study was descriptive in nature based on convergent parallel design. The study design focuses on collection of both quantitative and qualitative data concurrently to answer the how questions instead of why and what. The collection of data takes place through self-developed questionnaires. Mixed method approach was used in the study to collect data from teachers and administrators of public sector universities of Islamabad. The research study that are related to perspective of Change Management Process were; organizational change in Covid-19 era – Choflet, Packard & Stashower (2021), Successful change management initiatives – Fusch, Ness & Booker (2020), organizational change management in unpredictable situations – Junnaid, Miralam & Jeet (2020), normative change management model in covid-19 pandemic – Kumar (2020), impact of organizational change on the employee performance – Zamanan (2021).

The aim of the study was to assess change management process at higher education level of selected universities during pandemic of covid-19 and determine the challenges faced by stakeholders with reference to teaching, exam and IT. The focus of the study was on change management process in education system during Covid-19 in terms of teaching-learning process, examination procedures and technological facilities. The challenges and issues faced by the respondents at higher education level while adapting online education policy. The sudden paradigm shift of education system to online mode created burden and hurdles for teacher, students, administration and university.

The current study was based on three major objectives. On the bases of objectives thirteen research questions and twelve null hypothesis were formulated to achieve the aim of the study. The findings and interpretations were discussed below;

Objective No. 1: the focus of the objective no. 1 was to assess change management process with reference to teaching, exam and IT at higher education level. The change management process was analyze through Change Management Process scale questionnaire based on four phases of change management process. The results indicated that change management process was embraced in public sector universities. The researcher used the model of change management (SHRM, 2020). There were four phases of change management process; a. define, b. plan, c. implement and d.

sustain. Based on the mean score of the study, it was found that the teachers were ready and aware of their roles of using change management model in pandemic of covid-19 at higher education level, similarly it was found that administrators of examination and information technology department were practicing define phase more frequently during initiating change management process in Covid-19 in examination procedures and technology facilities in education purposes at higher education level. The result of this study were different with the studies found in the literature

According to a study by (Fusch, Ness & Booker, 2020) concluded in his study on successful change management initiatives about the implementation of change management process in pandemic to improve the performance of the organization while discussing communication among the faculty in response to social distancing and resistance of employees in implementation of change management. The author suggested in the study that administrators in the institutions need to encourage stakeholders to embrace new technologies, mitigate resistance to change and address the impact and adaptability of change initiatives as a result of change management process.

According to another study in covid-19 situation institutions need to understand and design action plan to respond to such uncertain events. The institution administrators must develop comprehensive mechanism to identify the risk associated with the uncertain crisis situation and must establish measures and risk-mitigation plans for implementation of change. (Junnaid, Miralam & Jeet, 2020) discusses the leadership and organizational change management in unpredictable situations. He concluded that sustainability of the organization is based on the management approaches extended to organizational members. Communication serve as a key factor to develop interdependent relationship among organizational members during the period of less interaction. Furthermore the change goals are targeted by the short term plans, strategies, process and procedures for implementation and achievement of change management.

However some other studies in past reported contradictory results with results of this study as these researches reported that most practiced phase in change management process was Plan Phase where communication was considered as the most important aspect of change to navigate the plan of change According to (Jalagaat, 2015) concluded that for the successful implementation of change initiative, management of the institution should align the plan of change with goals and

objectives for the need of change. The relationship of change event, change management and achievement of goals should be affirm.

Objective No. 2: the focus of the objective no. 2 was to compare universities on the bases of change management process in teaching, exam and IT departments. The results indicated that there is no significance university wise difference in change management process of education system during covid-19 at higher education level.

According the author (Zamana, 2021) in his study on impact of organizational change on employee performance found that there is a statistical difference in impact of change on performance of employee in educational institution of Kuwaiti with reference to technology, culture, structure and human change. The author suggested that education institutions need to focus on changing directions of management and adopt strategies to confront resistance to change among the faculty members. Latest technological methods should be used in the institutions and training session provided to employees on latest technological facilities in education process.

According to the author (Vlachopoulos, 2021) concluded that higher education administrators are experts of various dimensions. They explore the issues of change event and guide the team members regarding challenges and solutions for meaningful change.

Objective No.3: the focus of objective no.3 was to determine the challenges faced by teaching, exam and IT during process of change management at higher education level. The challenges were identified through open-ended question in CMP scale that was analyzed through thematic analysis. The major relevant researches were; challenges of online teaching in covid-19 pandemic Akram, Aslam, Saleem & Parveen (2021), impact of covid-19 pandemic on teaching –learning Pokheri & Chhetri (2020), practice of online assessment in covid-19 Ghanbari & Nowroozi (2021).

According to the findings of this study there wasn't any difference reported regarding challenges faced by the stakeholders in the review literature. The challenges faced by the teachers were in agreement of the (Akram, Aslam, Saleem & Parveen, 2021) concluded that challenges encountered by the faculty members in teaching – learning process and technological facilities in transition phase of covid-19 were; class management, lack of guidance, lack of IT infrastructure, technical skills, communication barriers, assessment difficulty and low attendance.

According to another study (Pokheri & Chhetri, 2020) concluded that impact of covid-19 on teaching learning process identify the challenges such as; accessibility of internet, compatible devices, lack of interaction and workload.

However according to other studies in scenario of covid -19 mention the same challenges faced by the stakeholders (Ghanbari & Nowroozi, 2021) concluded that online assessment during covid-19 result in several challenges of; misunderstanding of instructions, internet connectivity and difficulty in scoring.

5.5 Conclusion

In the light of quantitative and qualitative results and findings. The study concluded that;

The aim of research study was to assess process of change management at higher education level by selecting universities during pandemic of covid-19 with reference to teaching-learning process, examination procedure and technology facilities. Basic objective of the researcher was to assess change management and determine the challenges faced by teachers and administrators of exam and IT section during pandemic while comparing selected universities on the bases of change management process. The results of the current study revealed that Change management process was different as change was initiated. The uncertain change event was treated as a project once the project of online education was start delivering. Although the change online education was a successful change. The current study supports the process of change management in higher education institutions. It is considered that online education is at a nascent stage in Pakistan. There is a need to train teachers and administrators of university on the use of online modalities and developing with reduce cognitive load and increased interactivities. The change in education system was the complex process that required support of both faculty and administration. The findings shows that there were limitations and issues in planning, implementation as well as sustaining stage of change management process.

1. The mean score in this study reported that Define phase of change management process was more frequently used by the teachers while provide teaching learning process. The teachers reported high mean score of Define phase which concluded that teachers of public sector universities included in Islamabad were ready to initiate change in teaching learning process while integrating technology in teaching practices. Faculty members were aware

of online mode of education in face to face teaching which means that teachers were prepared to use technology facilities while teaching which helps to cater the amid pandemic situation for resumption of education system. The teachers have define the need of change in teaching learning process during covid-19,

2. The mean score in this study reported the Define phase of change management process was more frequently used by the exam administrators while conducting examination procedures. The exam staff reported high mean score of Define phase which concluded that examination section of public sector universities in Islamabad were ready to initiate change in teaching learning process while integrating technology in assessment and result generation. Staff members shows reluctance to embrace change and learn online assessment system.

3. The mean score in this study reported the Define phase of change management process was more frequently used by the IT administrators while providing technological facilities. The IT staff reported high mean score of Define phase which concluded that IT section of public sector universities in Islamabad were ready to initiate change in teaching learning process and examination procedures while integrating technology in assessment and teaching practices. Staff members shows strong support in terms of facilitation to embrace the change mode of education and cater the demands of pandemic situation in education sector.

4. It was reported from the findings that the null hypothesis for teaching learning process was accepted which shows that there is no significance university wise difference in phases of change management while providing teaching learning process at higher education level during pandemic of covid-19. It can be concluded that teachers of public sector universities were ready to incorporate online mode of education in their teaching practices by initiating change management process in their universities respectively.

5. Further it was concluded from the results that null hypothesis for examination procedures was accepted which shows that there is no significance university wise difference in phases of change management while conducting assessment at higher education level during pandemic of covid-19. It has been concluded that exam staff of public sector universities were ready to initiate online assessment system and accept the implementation of online education policy in their respective universities.

6. According to the finding of the study the null hypothesis of technological facilities was accepted which shows that there is no significance university wise difference in phases of change management while providing technological facilities at higher education level during pandemic of covid-19. It was concluded that IT staff of public sector universities were functioning as support to initiate the change management process of online education resumption in universities during amid of pandemic.

7. According to the findings of the study in public sector universities of Islamabad teachers faced challenges with reference to providing teaching –learning process. The data showed that teachers encountered challenges regarding limited resources, class management, low attendance, communication barrier, difficulty in assessment, lack of technical skills and workload. The faculty members of the university face several challenges in order to adopt online platform for teaching

8. It was reported from the findings that exam administrators faced challenges with reference to conducting examination procedures while encountering challenges regarding difficulty in assessment, accessibility issues and reluctance to change.

9. Further it has been concluded that IT administrators faced challenges with reference to providing technological facilities. The finding shows that IT staff encountered challenges regarding limited resources, workload and communication barriers.

5.6 Recommendations

The current research concentrate on appraisal of change management process. Through finding and conclusion the researcher provide following recommendations.

1. The current research study supports teachers of universities as respondent, so it may be recommended that Universities may give exposure to teachers in terms of training to enhance their technical skills and develop understanding of online modes of teaching learning and assessment practice to engage the students more effectively in such uncertain event of change in order for continuation of education system. (finding/conclusion 1)

2. The results of the study supported that teachers of universities were ready to initiate change in teaching and learning process during pandemic, so it may be recommended that teacher may utilize resources like Pdf that student can access easily and make online learning experience as a key to simplicity. (finding/conclusion 1)

3. The results of the study supported that administrators of universities were ready to initiate change process, so it may be recommended that university may ensure availability of infrastructure for providing supportive atmosphere by technology section. (finding/conclusion 2)

4. The current study supported that technology facilitation in universities during pandemic were consider essential element for regulation of teaching learning process and examination procedures so it may be recommended to universities to initiate this model of change management in crisis situation or uncertain events and in other departments of institution for fast recovery of lose and impact of change according to situation by overcoming challenges faced by stakeholders that cause resistance. (finding/conclusion 3)

5. As there was no significance university wise difference in phases of change manage process at higher education level, so it may be recommended that university management arrange platform for both teachers and administrators to exchange information while keeping this change management model as a sample to initiate the change according to the need, encourage communication among employees, avoid reluctance and strategically plan the process while deploying risk mitigations measures to track adaptation of change for sustain organization overtime. (finding/conclusion 4)

6. The results of the study concluded that there is no significance difference in process of change management with reference to teaching-learning, examination procedures and technology facilities, so it may be commended that to identify gaps in strategies and styles of change management while integrating them in different universities and incorporate this change management model that may target the planned situations among different sections of universities. (finding/conclusion 3, 4, 5)

7. The inculcation of technology in education system has been recommended in National Education Draft 2017-2025, so it may be recommended that university teachers and administrators need to incorporate technological change in their traditional setup therefore it may be recommended that change management process should be accepted according to the need and situation and its implementation and adaptions must be ensure by government, stakeholders, teachers and administrators in particular for different levels of education. (finding/conclusion 6)

8. As the study supported that teachers and administrators of exam and IT section were ready to incorporate change process in the education purposes, so it may be recommended that teachers may use digital models and library to which serve as a support for effective delivery of content from various disciplines, whereas exam administrators may provide required technological infrastructure to avoid difficulty in conduction of examination procedures and assessment instruction during such crisis events, furthermore IT administrators may provide proper infrastructure, latest equipment's, compatible devices and online servers which may prove as a helping hand in effective delivery of facilities to various stakeholders. (finding/ conclusion 4, 5, 6)

9. This study suggest ways to overcome challenges faced by faculty members to improve the integration of technology in change management process in their teaching practices and offer a substitute for a face to face interaction effectively. In the light of findings, the study indicates the major challenges of limited resources, classroom management and low interest and participation of students, therefore it is recommended that teachers should employ technology based tools, encourage communication and develop activities to foster the participation of students in teaching learning process. (finding/conclusion 7)

10. The current study has recommended that faculty development opportunities should be provided to teachers so that there should be a reduction in cognitive load and increase interactive activities during online learning. (finding/conclusion 7)

11. This study suggest ways to overcome challenges faced by exam staff to improve the integration of technological change during process of change management in pandemic while practicing assessment procedures and offer a substitute to conduct examination, assessment and generate results online effectively. In the light of findings, the study indicate the major challenges of difficulty in assessment and accessibility issues, therefore it is recommended that exam administrators should provide IT support and the higher education commission should develop policy to facilitate internet access for examination procedures. (finding/conclusion 8)

12. The current study has recommended that to enhance the quality of education premium software's should be bought by the university administration to detect cheating and plagiarism during online mode of education. (finding/conclusion 8)

13. This study suggest ways to overcome challenges faced by IT staff to improve the integration of technological change during process of change management in pandemic while providing technical support and offer a substitute to education process effectively. In the light of findings, the study indicate the major challenges of limited resources and workload, therefore it is recommended that IT administrators should develop proper learning management system in evaluating remote teaching learning and assessment and planned possibility arrangement to tackle unexpected events of online education. (finding/conclusion 9)

5.6.1 Suggestion for Future Researchers

1. Future study may extend to examine change management process before, during and after the change event.
2. Future research may compare public and private sector universities on the basis of change management process.
3. Future study should examine the obstacles in change management process and tactics to overcome them.
4. Future study may be extended in other provinces of Pakistan.
5. Future study may be extended to other departments of education institutions to assess change management process.
6. Future study may be extended to other levels of education system to assess the change management process in unpredictable event.

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APPENDICES

APPENDIX A

NATIONAL UNIVERSITY OF MODERN LANGUAGES
Faculty of Social Sciences
DEPARTMENT OF EDUCATION

Letter No: ML.1-3/Edu/2021   Date: 14th December 2021

To: **Ms. Arooj Khalid (Reg No 1785-MPhil/Edu/F-19)**

Subject: **Approval of Change of MPhil Thesis Topic**

1. Reference to Letter No ML.1-3/Edu/2021 dated 14.12.21, it is intimated that the 12th BASR in its meeting held on 18th November 2021 has validated the change of your Thesis Topic as under:
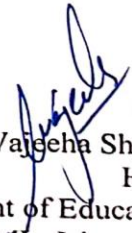
   Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19

2. You may continue with the formalities of submission of thesis by **31st July 2022.**

3. Format can be taken from Coordinator (MPhil /PhD) Dr Saira Nudrat.

   Distribution:
   Ms. Arooj Khalid (MPhil Scholar)
   Dr Saira Nudrat (Supervisor)

   Dr Wajeeha Shahid
   Head
   Department of Education
   NUML, Islamabad

APPENDIX B

Validity Certificate

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19

By

Arooj Khalid

MPhil Scholar at National University of Modern Languages Islamabad

This is to certify that the questionnaire developed by the researcher towards her research work has been assessed by me and I find it appropriate to study "Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19" in public sector universities of Islamabad. Questionnaires have been consist of 3 parts. First part is about demographic information, second part is about change management process and third part explores the challenges faced by administrators and teachers at higher education level during the process of change management.

It is considered that the research instrument, developed for the research titled above, is according to the objectives and research questions. To assure adequate construct and content validity according to the purpose of research and can be used for data collection by the researcher with the fair amount of confidence.

Name *Dr. Fouchendra Tabussum*

Designation *A.P*

Institute *NUML Islamabad*

Signature

Date *15-07-21*

APPENDIX C

Validity Certificate

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19

By

Arooj Khalid

MPhil Scholar at National University of Modern Languages Islamabad

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It is considered that the research instrument, developed for the research titled above, is according to the objectives and research questions. To assure adequate construct and content validity according to the purpose of research and can be used for data collection by the researcher with the fair amount of confidence.

Name _Dr. Jameela Ashraf_

Designation _Assistant Professor_

Institute _NUML_

Signature _____

Date _31-12-2021_

132

APPENDIX D

Validity Certificate

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19

By

Arooj Khalid

MPhil Scholar at National University of Modern Languages Islamabad

This is to certify that the questionnaire developed by the researcher towards her research work has been assessed by me and I find it appropriate to study "Change Management at Higher Education Level: A Study of Selected Universities during Pandemic Covid-19" in public sector universities of Islamabad. Questionnaires have been consist of 3 parts. First part is about demographic information, second part is about change management process and third part explores the challenges faced by administrators and teachers at higher education level during the process of change management.

It is considered that the research instrument, developed for the research titled above, is according to the objectives and research questions. To assure adequate construct and content validity according to the purpose of research and can be used for data collection by the researcher with the fair amount of confidence.

Name _Dr. Obaid Ullah_

Designation _lecturer_

Institute _Deptt: of Education_

Signature _____

Date _13 Dec. 2021_

133

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic of Covid-19

Change Management Questionnaire for Teachers

Dear Respondent,

This questionnaire aims at exploring your opinion regarding the change management process and the challenges faced by the teachers in the university during crisis situation. You are kindly requested to fill out this questionnaire by following the instruction below. Your objectives and truthful answers will help us to get a realistic assessment. Your answers will kept secret and will not be disclosed

Arooj Khalid

MPhil Scholar

Department of Education

National University of Modern Languages Islamabad

Instructions: For each of the statement below, please mark tick in the appropriate box that best describes yourself and your opinion concerning Change Management.

Part 1 Demographic Information

1. **Gender**

a. Male 1	b. Female 2

2. **Age**

a. 24-29years 1	b. 30-35years 2	c. 36-41 years 3	d. 42-47years 4	e. 48years and above 5

3. **Qualification**

a. Bachelors 1	b. Masters 2	c. MPhil 3	d. PhD 4

4. **University** _____

5. **Department** _____

6. Designation

a. Professor	b. Associate Professor	c. Assistant Professor	d. Lecturer	e. Other
1	2	3	4	5

Part 2

Statements about Change Management Process

For each of the statement below, please indicate the extent of your agreement or disagreement by ticking the appropriate box. Where, SA= strongly Agree (1), A= Agree(2), UD= undecided(3), DA= disagree(4), SDA= strongly disagree(5).

Change Management Process – include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

Statement	Code	SA 5	A 4	UD 3	DA 2	SDA 1
a. Define – is the phase to align the expectations of change process to scope of change by defining the vision, identifying stakeholders, stating role and estimating the timeframe to cope with uncertain situation of change process.						
1. The sudden change of teaching mode was smooth during pandemic.	D1	5	4	3	2	1
2. The teachers understand the need for change in teaching mode.	D2	5	4	3	2	1
3. There a sense of urgency in the teachers for the need of change in teaching mode.	D3	5	4	3	2	1
4. The teachers are ready to initiate new teaching methodologies and curriculum in covid-19 crisis.	D4	5	4	3	2	1
5. The teachers are clarified with their roles in the change event and design e-curriculum.	D5	5	4	3	2	1
6. The teachers are passionate and committed to make the change in teaching learning process.	D6	5	4	3	2	1
7. The teachers throughout the university have been informed about the online mode of teaching.	D7	5	4	3	2	1
8. The department can handle such crisis situation in limited time.	D8	5	4	3	2	1
9. The teachers are passionate to articulate change in teaching process in the university.	D9	5	4	3	2	1
10. The sudden shift to online mode has created burden on teachers and departments.	D10	5	4	3	2	1
11. The department tries to facilitate teachers and students through online mode in limited timeframe.	D11	5	4	3	2	1
12. The department has establish certain measures to cope with change situation of teaching mode.	D12	5	4	3	2	1

b.	**Plan** - is the second phase to understand the impact of change on stakeholders and organization by designing plan and strategies to carry out process of change.						
13. The change teaching plans have been created in university to deal with current crisis situation.	P1	5	4	3	2	1
14. The department has a plan to deal with challenges faced during crisis change management of teaching process.	P2	5	4	3	2	1
15. To support the change process plan trainings are provide to teachers to work effectively on online mode of education.	P3	5	4	3	2	1
16. The Teachers have positive feeling towards change event.	P4	5	4	3	2	1
17. The teachers are quite reluctant to accommodate the new teaching change in the university.	P5	5	4	3	2	1
18. The change in teaching mode at the university have negative effect on teachers and students.	P6	5	4	3	2	1
19. The training sessions of LMS by university has positive effect on teachers work performance.	P7	5	4	3	2	1
20. The department clearly explains necessity of change education mode to university in crisis of covid-19.	P8	5	4	3	2	1
21. Risk-mitigation plans are created by the department to monitor and manage such uncertain events to resume teaching process.	P9	5	4	3	2	1
22. The department management team takes account of the employee feedback.	P10	5	4	3	2	1
23. The department design alternative risk plans to continue the teaching process in university during crisis event.	P11	5	4	3	2	1
c.	**Implement -** in this phase employees are being connect and engage to the leaders to execute the process of change by monitoring all activities, structure, procedures and policies to manage resistance.						
24. The teaching mode change policies in university faces reluctance.	I1	5	4	3	2	1
25. The department has designed policies and strategies to deal with challenges of teaching process.	I2	5	4	3	2	1
26. The teaching mode changes in the university is support by systematic protocols during crisis of covid-19.	I3	5	4	3	2	1
27. The department monitor the adaptive change by viewing the employee's feedback.	I4	5	4	3	2	1
28. The change management team address the teaching problems and change made in the teaching learning mode confidently.	I5	5	4	3	2	1
29. The change education mode would bring a good outcome to teachers, students and university	I6	5	4	3	2	1
30. The department identified the barriers in teaching mode change in education system.	I7	5	4	3	2	1

31. The department deploy risk-mitigation plan to eliminate the barriers to teaching change.	I8	5	4	3	2	1
d. Sustain - the last phase of change management process where employees and leaders work together to track adaptation of change with the support of rewards, benefits and appreciation to drive the lasting change						
32. The management of the university support the teaching changes in terms of teaching methodology, curriculum design and assessment.	S1	5	4	3	2	1
33. While adopting the change feedback of university teachers and students is required to improve the teaching process.	S2	5	4	3	2	1
34. The department has short term goals to accelerate success of teaching such as zoom and Google meet links to continue process of education in covid-19	S3	5	4	3	2	1
35. Teaching Change in crisis situation provides opportunities to teachers to learn and develop digital skills using gadgets.	S4	5	4	3	2	1
36. The university management established ways to gather feedback from those who are being impacted by the online mode of teaching.	S5	5	4	3	2	1
37. The management of my university have prepared methods for celebrating success during implementation of online mode of teaching	S6	5	4	3	2	1
38. The department reward the teachers who are involved in change process.	S7	5	4	3	2	1
39. The university management provided facilities and appreciation to teachers who are involved in change program of online education.	S8	5	4	3	2	1

Part 3 Challenges faced by Teachers.

1. **Enlist the challenges you have experienced in the process of online teaching and learning during crisis situation?**

_____

_____

2. **How you will overcome the challenges faced in teaching process during pandemic?**

_____

_____

Thanks for your Cooperation….

Serial No. ---------------

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic of Covid-19

Change Management Questionnaire for IT Section

Dear Respondent,

This questionnaire aims at exploring your opinion regarding the change management process and the challenges faced by the IT section in the university during crisis situation. You are kindly requested to fill out this questionnaire by following the instruction below. Your objectives and truthful answers will help us to get a realistic assessment. Your answers will kept secret and will not be disclosed

Arooj Khalid

MPhil Scholar

Department of Education

National University of Modern Languages Islamabad

Instructions: For each of the statement below, please mark tick in the appropriate box that best describes yourself and your opinion concerning Change Management.

Part 1 Demographic Information

1. **Gender**

a. Male 1	b. Female 2

2. **Age**

a. 24-29years 1	b. 30-35years 2	c. 36-41ears 3	d. 42-47years 4	e. 48years and above 5

3. **Qualification**

a. Bachelors 1	b. Masters 2	c. MPhil 3	d. PhD 4

4. **University** _____

5. **Department** _____

6. **Designation**

a. Director	b. Deputy Director	c. Assistant Director	d. Others
1	2	3	4

Part 2

Statements about Change Management Process

For each of the statement below, please indicate the extent of your agreement or disagreement by ticking the appropriate box. Where, SA= strongly Agree(5), A= Agree(4), UD= undecided(3), DA= disagree(2), SDA= strongly disagree(1).

Change Management Process – include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

Statements	Code	SA	A	UD	D	SDA
a. **Define** – Is the phase to align the expectations of change process to scope of change by defining the vision, identifying stakeholders, stating role and estimating the timeframe to cope with uncertain situation of change process.						
1. In covid-19 pandemic online education policy need to be change to ensure quality education.	D1	5	4	3	2	1
2. The changes made in IT facilities during covid-19 crisis are clear.	D2	5	4	3	2	1
3. There is a sense of urgency in the employees to the process of change.	D4	5	4	3	2	1
4. The faculties, departments and campuses are ready to initiate new IT services in online education during pandemic.	D5	5	4	3	2	1
5. The IT branch is passionate and committed to develop comprehensive mechanism of LMS and online teaching.	D7	5	4	3	2	1
6. The employees throughout the university have been informed about the IT changes.	D8	5	4	3	2	1
7. The IT Department of the university can handle uncertain crisis situation in limited time.	D9	5	4	3	2	1
8. The sudden shift to online mode has created burden on IT sector to ensure availability of relevant hardware and software for effective and efficient online education.	D11	5	4	3	2	1

9. The IT department of the university tries to facilitate everyone in limited timeframe.	D12	5	4	3		2	1
10. The IT department has established certain measures to cope with change situation of accessibility and security during pandemic.	D13	5	4	3		2	1
11. The change measures are easily being communicated to the faculties, department to ensure time functioning of LMS.	D14	5	4	3		2	1
12. The IT section has heavy workload due to covid-19 crisis to manage the change in technology accessibility, software's and services.	D15	5	4	3		2	1
b. Plan – is the second phase to understand the impact of change on stakeholders and organization by designing plan and strategies to carry out process of change.							
13. The change management technology plans have been created in university to deal with current crisis situation.	P1	5	4	3	2	1	
14. IT department has a plan to support technological challenges during event of change management process.	P2	5	4	3	2	1	
15. To support the change process planned trainings are provide faculty on LMS, relevant software, online teaching and its application.	P4	5	4	3	2	1	
16. IT department has positive feeling towards change event.	P5	5	4	3	2	1	
17. IT section is quite reluctant to accommodate the online education policy in the university.	P6	5	4	3	2	1	
18. Software change in the university has negative effect on employee and students.	P7	5	4	3	2	1	
19. The training sessions of LMS by IT department have positive effect on workers performance.	P8	5	4	3	2	1	
20. IT branch keeps all the faculties, departments and campuses informed about its guidelines to change IT services.	P9	5	4	3	2	1	
21. IT branch clearly explains necessity of online education policy to university in crisis of covid-19.	P11	5	4	3	2	1	
22. Risk-mitigation plans are created by the IT sector to monitor and manage such uncertain events of technological change.	P12	5	4	3	2	1	
23. The department management team takes account of the employee feedback regarding challenges to online education policy.	P13	5	4	3	2	1	
24. IT department design alternative risk plans to continue the education process in university during crisis event to ensure security, exams, teachings and admissions as well.	P15	5	4	3	2	1	

c. **Implement** - in this phase employees are being connect and engage to the leaders to execute the process of change by monitoring all activities, structure, procedures and policies to manage resistance.						
25. The technology change policies in university faces reluctance	I2	5	4	3	2	1
26. The department has designed policies and strategies to deal with challenges of change process.	I3	5	4	3	2	1
27. The IT changes in the university is support by systematic protocols during crisis of covid-19.	I4	5	4	3	2	1
28. The department monitor the adaptive change by viewing the teachers and student feedback regarding online education, accessibility and LMS.	I5	5	4	3	2	1
29. The implemented change technology process are clear to the faculties, departments and campuses.	I6	5	4	3	2	1
30. The change management team address the technology problems and change made in the university confidently.	I7	5	4	3	2	1
31. The administration of the university identified the barriers to technology change system in terms of available software, functioning of LMS and security of central repository.	I9	5	4	3	2	1
32. The department deploy risk-mitigation plan to eliminate the barriers to change technology process.	I10	5	4	3	2	1
d. **Sustain -** the last phase of change management process where employees and leaders work together to track adaptation of change with the support of rewards, benefits and appreciation to drive the lasting change						
33. The management of the university supports the IT changes in terms of software, gadgets and connectivity.	S1	5	4	3	2	1
34. While adopting the online education policy change feedback of university staff is required to improve the IT services.	S2	5	4	3	2	1
35. The IT department has short term goals to accelerate success such as zoom and google meet links in covid-19	S3	5	4	3	2	1
36. Changes in crisis situation provides opportunities to staff to learn and develop digital skills using gadgets.	S5	5	4	3	2	1
37. The university management established ways to gather feedback from those who are being impacted by the technology change.	S7	5	4	3	2	1
38. The management of university has prepared methods for celebrating success during	S8	5	4	3	2	1

implementation of online education policy and enhance quality education.						
39. The IT section reward the individuals who are involved in implementation of change online education process in departments and campuses.	S8	5	4	3	2	1
40. The university administration provided facilities and appreciation to employees who are involved in change program.	S10	5	4	3	2	1

Part 3 Challenges faced by IT section

1. **Enlist the challenges you have experienced in the process of online IT facilities during crisis situation?**

_____

_____

_____

_____

2. **How you will overcome the challenges faced in IT services during pandemic?**

_____

_____

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_____

Thanks for your Cooperation….

Change Management at Higher Education Level: A Study of Selected Universities during Pandemic of Covid-19

Change Management Process Questionnaire for Examination Section

Dear Respondent,

This questionnaire aims at exploring your opinion regarding the change management process and the challenges faced by the examination section in the university during crisis situation. You are kindly requested to fill out this questionnaire by following the instruction below. Your objectives and truthful answers will help us to get a realistic assessment. Your answers will kept secret and will not be disclosed

Arooj Khalid

MPhil Scholar

Department of Education

National University of Modern Languages Islamabad

Instructions: For each of the statement below, please mark tick in the appropriate box that best describes yourself and your opinion concerning Change Management.

Part 1 Demographic Information

1. **Gender**

a. Male 1	b. Female 2

2. **Age**

a. 24-29years 1	b. 30-35years 2	c. 36-41years 3	d. 42-47years 4	e. 48years and above 5

3. **Qualification**

a. Bachelors 1	b. Masters 2	c. MPhil 3	d. PhD 4

4. **University** _____

5. **Department** _____

6. Designation

a. Director	b. Deputy Director	c. Assistant Director	d. Others
1	2	3	4

Part 2

Statements about Change Management Process

For each of the statement below, please indicate the extent of your agreement or disagreement by ticking the appropriate box. Where, SA= strongly Agree(5), A= Agree(4), UD= undecided(3), DA= disagree(2), SDA= strongly disagree(1).

Change Management Process – include sequence of phases that are involve in transition of decisions to move from current state to new state in terms of defining the vision of change, creating change engagement plan to support the change, monitoring procedures of change to manage resistance and track adaption of change for sustain organization development overtime.

Statement	Code	SA 5	A 4	UD 3	D 2	SD 1
a. Define– is the phase to align the expectations of change process to scope of change by defining the vision, identifying stakeholders, stating role and estimating the timeframe to cope with uncertain situation of change process.						
1. In Covid-19 Pandemic examination policy need to be change to ensure quality education and merit-based promotions.	D1	5	4	3	2	1
2. The changes in assessment procedures during crisis are clear.	D2	5	4	3	2	1
3. There is a sense of urgency in the teachers for the need of change assessment techniques.	D3	5	4	3	2	1
4. The faculties, departments and branches are ready to initiate new assessment techniques in online education during Covid-19 period.	D4	5	4	3	2	1
5. The examination branch is passionate and committed to develop comprehensive mechanism of assessment.	D5	5	4	3	2	1
6. The teachers throughout the university have been informed about the assessment techniques used in online education.	D6	5	4	3	2	1
7. The examination department of the university can handle uncertain crisis situation in limited time.	D7	5	4	3	2	1
8. The sudden shift to online mode has created burden on examination sector to assess progress of students.	D8	5	4	3	2	1
9. The examination department of the university tries to facilitate teachers and students during online examination pattern in limited timeframe.	D9	5	4	3	2	1
10. The examination department has establish certain measures to cope with change assessment procedures during covid-19 situation.	D10	5	4	3	2	1

11. The assessment change policy are easily being communicated to faculties, departments and campuses for grading purposes.	D11	5	4	3	2	1
12. The examination branch has heavy workload due to covid-19 crisis to manage the change in examination pattern, grading system, assessment and supervision issues.	D12	5	4	3	2	1

b. Plan - is the second phase to understand the impact of change on stakeholders and organization by designing plan and strategies to carry out process of change.

13. The change assessment plans have been created in university to deal with current crisis situation.	P1	5	4	3	2	1
14. The examination department has a plan to deal with assessment challenges during event of change management process.	P2	5	4	3	2	1
15. To support the change examination policy faculties, departments and campuses are connect and engage with assessment procedures	P3	5	4	3	2	1
16. To support the change process plan trainings are provide to teachers regarding the new assessment techniques.	P4	5	4	3	2	1
17. Examination department has positive feeling towards change event.	P5	5	4	3	2	1
18. Examination branch is quiet reluctant to implement the online examination policy and grading system change in the university.	P6	5	4	3	2	1
19. The assessment instruction need to be communicated early to all faculties and campuses before conduct of exams.	P7	5	4	3	2	1
20. Examination team keeps all the university departments informed about its guidelines to conduct online exams.	P9	5	4	3	2	1
21. Examination branch ensure the necessity of change assessment policy and grading system to faculties, department and campuses in crisis of pandemic.	P11	5	4	3	2	1
22. Risk-mitigation plans are created by the examination sector to monitor and manage such uncertain events to assess the students' performance during e-examination.	P12	5	4	3	2	1
23. The department management team takes account of the employee feedback regarding the challenges to change examination policy.	P13	5	4	3	2	1
24. Examination branch design alternative risk plans to ensure quality education and merit-based promotions during crisis event.	P15	5	4	3	2	1

c. Implement - in this phase employees are being connect and engage to the leaders to execute the process of change by monitoring all activities, structure, procedures and policies to manage resistance.

25. The change examination policies in university faces reluctance.	I2	5	4	3	2	1
26. The faculties, department and campuses has a change plan to deal with obstacles of change examination procedures.	I3	5	4	3	2	1

27. The examination changes in the university is support by systematic protocols during crisis of covid-19.	I4	5	4	3	2	1
28. The department monitor the adaptive change by viewing the teachers and students feedback regarding online assessment.	I5	5	4	3	2	1
29. The implemented change examination policy and techniques are clear to the faculty, department and campuses.	I6	5	4	3	2	1
30. The change management team address the assessment problems and change examination procedures made in the university confidently.	I7	5	4	3	2	1
31. The management of the university identified the barriers to assessment change in examination system.	I9	5	4	3	2	1
32. The examination department deploy risk-mitigation plan to eliminate the barriers to change assessment ways.	I10	5	4	3	2	1
d. Sustain- the last phase of change management process where employees and leaders work together to track adaptation of change with the support of rewards, benefits and appreciation to drive the lasting change						
33. The management of the university support the examination changes in terms of guidelines of paper conduction, projects and assignment assessments and performance of students with reference to declaration of results.	S1	5	4	3	2	1
34. While adopting the e-examination feedback of university staff and students is required to improve the assessment ways.	S2	5	4	3	2	1
35. The examination branch accelerate short term goals for transparency and fair assessment.	S3	5	4	3	2	1
36. Change examination techniques enhance faculties to prepare and conduct online assignments/papers.	S5	5	4	3	2	1
37. The university management established ways to gather feedback from those who are being impacted by the new examination procedures.	S7	5	4	3	2	1
38. The management of university prepare methods for implementation of successful online assessment procedures and enhance merit-based performance.	S8	5	4	3	2	1
39. The examination section reward the employees who are involved in change assessment practices in department and campuses.	S9	5	4	3	2	1
40. The university administration provide facilities and appreciation to employees who are involved in change assessment techniques.	S10	5	4	3	2	1

Part 3 Challenges faced by Examination section.

1. **Enlist the challenges you have experienced in the process of online assessment system during crisis situation?**

   _____

   _____

   _____

2. **How you will overcome the challenges faced in assessment system during pandemic?**

   _____

   _____

   _____

Thanks for your Cooperation….

APPENDIX H

LIST OF PUBLIC SECTOR UNIVERSITIES

Sr. No.	List of Universities
1.	Air University
2.	Allama Iqbal Open University
3.	Bahria University
4.	Comsats University
5.	Federal Urdu University of Arts, Sciences and Technology
6.	Institute of Space and Technology
7.	International Islamic University
8.	Health Services Academy, Islamabad
9.	National Skills University
10.	National University of Modern Languages
11.	National Defence University
12.	National University of Technology (NUTECH)
13.	National University of Science and Technology
14.	Pakistan Institute of Development Economics
15.	Pakistan Institute of Engineering and Applied Sciences
16.	Quaid-e- Azam University
17.	Shaheed Zulfiqar Ali Bhutto Medical University