EFFECTS OF ORGANIZATIONAL AND PERSONAL FACTORS ON SCHOOL TEACHERS' PSYCHOLOGICAL SAFETY

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ABSTRACT

Effects of Organizational and Personal Factors on School Teachers' Psychological Safety

The current study aimed to investigate the effect of organizational and personal factors on school teachers' psychological safety. The primary objective was to examine the effect of organizational factors (leadership behavior, organizational culture & team effectiveness) and personal factors of teachers (gender, generation type, organizational tenure, employment status and professional experience) on their psychological safety. The moderation effect of team effectiveness (goals, roles, processes and interpersonal relationships) on the relationship between leadership and psychological safety was also analyzed. The study population was delimited to O/A level school teachers of the private sector within the geographical limits of urban Islamabad, Pakistan, out of which 600 teachers from 46 schools were surveyed using structured questionnaires. The instruments used for data collection were standardized scales: The Managerial Grid, Psychological Safety Scale, Team Effectiveness Questionnaire and Organizational Culture Scale. The results indicated that organizational culture and leadership had a significant effect on psychological safety of school teachers. Further analysis on effects of personal factors on psychological safety showed a significant effect of generation types and employment status of teachers on their psychological safety and no effect of gender, professional experience and organizational tenure. Additionally, team effectiveness not only significantly moderates the relationship between leadership and psychological safety but also has a significant effect on psychological safety. The study concluded that teachers' psychological safety is significantly affected by factors at both organizational and personal level. School leadership is recommended to provide organizational culture that is collaborative, values teamwork and synergy with high psychological safety, and train leaders to focus on both task and relations within teams. Teacher teams may be assessed for increasing team effectiveness by ensuring clarity in team roles, goals, processed and developing inter-personal team relations. Practitioners are recommended to provide trainings to educational leaders on managing different generation types at the workplace. Furthermore, providing permanent employment status or fixed term contracts to teachers on probation may also increase their psychological safety.

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LIST OF ABBREVIATIONS

GRPI	Goals, Roles, Processed, Inter-personal Relations
HRM	Human Resource Management
ICT	Islamabad Capital Territory
LRB	Leadership Relations-Oriented Behavior
LTB	Leadership Task-Oriented Behavior
O/A Level	Ordinary/Advanced Level
PEIRA	Private Educational Institutions Regulatory Authority
PS	Psychological Safety
TE	Team Effectiveness
TEQ	Team Effectiveness Questionnaire
TLB	Team Learning Behavior

DEDICATION

THIS WORK IS DEDICATED TO

MY LOVING PARENTS

SHAHID IQBAL & ANJUM NASEER

MY SUPPORTIVE HUSBAND

WAQAS HAIDER SIAL

MY DEAR SISTERS

AIMUN & ARMAH

MOST OF ALL
MY DEAREST & BELOVED DAUGHTER
ZOYA

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The psychological safety of teachers has caught the attention of various educational researchers due to its numerous benefits for the schools as organizations, as well as the teachers as individuals. It is important for teachers to feel safe enough to share their ideas freely and play an active role in their teams without fearing a negative outcome as a result of pointing out mistakes, sharing innovative ideas and engaging in creative work behavior. In fact, for teachers it is more important to develop a psychologically safe team environment so that the benefits can extend towards the students as well. Psychological safety is one of those contextual factors which enable knowledge sharing, reporting errors and even sharing one's ideas without fear of being judged or evaluated by the team members. This feeling of safety that exists within teams, is often tied to many desirable organizational outcomes such as innovative work behavior, creativity, team performance, employee engagement and employee voice. Educational theory and practice have derived many concepts from the adjacent field of organizational behavior one of which gaining increased attention of researchers is psychological safety, defined as a shared belief held by the team members that the team is safe to speak up without any fear of its consequences. In case the psychological safety of a work team is low, the members will instead choose to remain silent, resort to impression management or simply withhold any important information that they may have for fear of being thought of as incompetent.

Understanding how various factors at organizational and individual level of the teachers affect their psychological may be beneficial in developing the context that supports psychological safety within the teams.

Psychological safety can further be explained as a part of the team environment which allows the members to take inter-personal risks by asking questions freely, reporting any errors and sharing an idea without fear of being negatively evaluated or judged by the other team members. Another important feature of psychological safety as described by Edmondson (2018) is that it is a characteristic of the work team which can be developed by the team leader and it varies from one team to the other team. Workplaces with high psychological safety are mostly the ones where leadership is shared and the leaders exhibit support and coaching to the employees and the social interaction occurring within the team members further influences the team psychological safety. Applying this concept to the education sector, teachers who are psychologically safe would be more comfortable in sharing their innovative ideas about their teaching practices and may even not be afraid of risking an inter-personal conflict with another peer teacher. This is because psychologically safe teams do not consider conflict as an undesirable situation, rather it is an opportunity for the team to learn. In addition, a teacher team with high psychological safety would also be open to innovation, experimentation, reporting their mistakes or errors without fear of negative evaluation by the peers. To be in a team and feel psychologically safe means that an individual team member has little fear of a negative outcome in the aftermath of suggesting a new idea, pointing out or admitting any mistake and discussing one's views openly. This phenomenon is also known as employee voice behavior in organizational behavior theory. In short, team members with high psychological safety are comfortable in expressing themselves without any apprehension about critique or

blame directed at them. Psychological safety has emerged as a prominent construct for high-functioning teams and fostering innovation and creative work behavior in a work team (Carmeli, 2009). Another important outcome for work teams with high psychological safety is the team's collective learning behavior which allows for team learning to occur in the presence of a safe environment for interpersonal risk and conflict.

The most important result of psychological safety is how it affects learning within organizations. In teams, psychological safety facilitates a learning environment which enables the team members to be more creative and innovative. If the environment is psychologically safe, the team members have a sense of safety and they are in a better position to utilize their skills and talents (Cannon & Edmondson, 2001). Most of the studies on psychological safety link it to the major outcome of organizational learning. Senge's (2006) theory of organizational learning defines a "learning organization" as the one where the organization learns from its own experiences of success and failures and makes it a part of the formal learning processes of the organization. Learning in organizations especially if it is aiming to experiment and be innovative and creative is dependent on the contextual factors which is provided to individuals and teams-one of these contextual factors for learning, besides many others, is psychological safety of the team members (Bapuji and Crossan, 2004; Schechter, 2008). This psychological safety enables them to interact freely without fear of negative evaluation by the peers and also encourages the exchange of knowledge and ideas. The benefits of psychological safety are not only limited to learning within organizations but it also includes other factors such as innovation and creativity which are quite relevant to the role of school teachers. Literature, after the landmark studies of Kahn (1990) and Edmondson (1999), has found strong theoretical support for psychological safety as an important factor for a multitude of work outcomes such

as employee engagement, creativity, learning behavior, voice behavior and innovation-oriented behavior amongst the employees.

Teachers may benefit from a team environment that encourages innovation and voice behavior from the employees as they remain engaged with their learners all day and also collaborate with other teachers in the work team to share their ideas and knowledge about teaching practices and other school tasks. Therefore, having teacher teams with high psychological safety would bring with it, various benefits for the schools as organization. The corporate sector has shown growing interest in becoming learning organizations by developing the learning context within their teams and organizations. The educational sector on the other hand, is also catching up to the emergent trend of focusing on the psychological factors of the employees and developing the human capital. Recently, educational researchers have also begun to study psychological safety in school work teams including management teams and teacher teams. The studies have shown that psychological safety in teachers functions the same way as the other organizations and have used Edmondson's concept of psychological safety as theoretical basis (Baena & Bordovskaia, 2015; Zinsser & Zinsser, 2016). With the changes in educational paradigms, the role of the teachers is expanding with distributed and shared leadership frameworks. With the developing field of organizational behavior and management sciences, schools are also adopting these concepts and forming collaborative work teams of the teachers and management. To develop a facilitating culture for organizational learning in schools, school leadership practices which reinforce learning of the teachers, an emphasis on experimentation and high levels of teachers' psychological safety should be developed (Higgins et al., 2012). Many studies have suggested that leadership and organizational practices as well as team factors directly affect psychological safety of the team members

(Edmondson, 2004; Newman et al.,2017). Educational research that explores the factors contributing to the development of psychological safety may be helpful in understanding the context that enables the development of psychological safety. This may also be helpful in understanding how schools can provide the optimum conditions for psychological safety of the teachers.

1.2 Rationale of the Study

Educational research has a vast body of literature based on inter-disciplinary research, especially from the adjacent field of organizational behavior. Psychological safety has been recently receiving attention from educational theory especially in examining psychological safety of school staff and its effects on various work outcomes. Educational institutions can largely benefit from organizational behavior theory since school administration follow the same organizational structures as in other corporate organizations. However, educational institutions also have a unique environment because "learning" plays the central role in schools which transcends from the teachers' professional learning to student learning. Although the research on psychological safety is mainly limited to examining its role as a "contextual" variable with a prominent role in organizational learning, there is limited research examining its antecedents especially in the educational institutions and more specifically in teachers. Most of the research is centered on the moderating and mediating effect of psychological safety and there is a lack of empirical research exploring conditions preceding psychologically safe teams or the factors that have an influence in fostering high psychological safety.

The current study aims to bridge the gap in local literature in the following aspects:

- examining multi-level antecedents of psychological safety
- effect of personal factors of teachers on psychological safety
- interaction effect of organizational factors as antecedents of psychological safety
- psychological safety in the private education sector
- examining psychological safety in school teachers of O/A level

First of all, there is a gap in literature pertaining to educational research which has overlooked investigating factors that facilitate the development of psychological safety. It is an aspect that should be investigated since creativity and innovation and innovation are sought out from teachers as a part of their jobs. Furthermore, literature has not explored the antecedents of psychological safety from a multi-level (organizational, team and individual) approach which the current study aims to examining factors at these three levels in relation with psychological safety. In addition, the study aimed to address the gaps in literature pertaining to the effect of individual factors on psychological safety of team members. Various researchers including one of the pioneers of psychological safety research, Kahn (1990) called for future researchers to examine the effects of personal factors in relation to psychological safety to which very few researchers have responded (Newman et al., 2012; Baer & Frese, 2003). Concerning the antecedents of psychological safety, there is a huge gap in literature pertaining to multi-level examination of variables. This is to say, very few studies have examined the organizational, team and individual level collectively and their effects on team psychological safety. This is the gap in literature that the current study aims to address. This study presents a different angle on understanding the antecedents of psychological safety using a multi-level lens. The review of literature showed that theory has examined and supported the

group-level antecedents of psychological safety which itself is also majorly defined as group-level construct. Another way the study adds to literature is examining the contextual factors that affect the relationship between leadership behavior and psychological safety. By using an approach that takes into account the team effectiveness in terms of how it functions and how it is structured (GRPI model of team effectiveness), this study provided the theoretical basis for examining team-level constructs that influence how effectively leadership behavior may foster psychological safety. These findings are important in understanding the process of how psychological safety is fostered. There will however be additional research required in finding out how psychological safety may be sustained instead of it being simply a social exchange process between leadership behavior and psychological safety as an outcome.

Secondly, the body of literature on psychological safety has largely ignored how psychological safety is developed with the effect of personal factors of the team members despite Kahn's (1990) call to do so. Since most of the psychological safety research is based on Edmonson's (1999) concept of psychological safety, this aspect has been overlooked in literature. Even Edmondson, in her book, The Fearless Organization (2018), has highlighted that the personality type of the individual team members does not really influence the team psychological safety. This could be a possible reason why personal factors in relation to psychological safety have been overlooked in literature. However, there are possibilities of certain personal factors that may influence a team members' psychological safety (Newman et al, 2012). There are no traceable studies that relate generation type or age of the employees with their psychological safety yet there is reasonable rationale for examining this effect as numerous studies have established that generational differences affect workplace behavior (Half, 2017). This gap in literature was addressed in the current study which focused on

personal factors of employees which are not related to their personality type, but mostly included the demographic factors, affects their psychological safety.

Thirdly, concerning the interaction/moderation effect of team level factors on leadership and psychological safety is also a gap addressed by the current study. Zhou and Pan (2015) bring to attention another aspect of leadership and creativity which has been largely neglected by research. Their study also served as a guide to developing to research approach of our study which is also a multi-level examination. Zhou and Pan (2015) point out that leadership and its impact on group-level factors specifically group climate needs further research so that there is a more thorough understanding of organizational life and employee outcomes especially where leadership is involved. They further brought to attention how multi-level influences play an important role in leading to organizational outcomes. Keeping in consideration this gap in literature, a review of psychological safety research brought to attention another existent gap which is a lack of studies that examine the interaction effect of team effectiveness on leadership and psychological safety.

Lastly, the study also aims to contribute to local literature on psychological safety and educational institutions. In Pakistani education system, private sector plays a significant role as most urban cities have a high number of private educational institutions. Private schools in Pakistan, specifically Islamabad have adopted the team work structure for their teachers besides other types of innovation in management practices. One reason for this is that their human resource departments and their school administration hire employees with background in business and management studies as compared to public educational institutions where senior teachers are promoted to positions of management based on the length of their tenure and professional experience. This situation has its own effects in both sectors. The employment

of individuals with qualifications in management studies may have its own academic drawbacks and administrative benefits. Memon (2003) highlighted that generally in Pakistani educational institutions, leaders are selected on the basis of their years of teaching experience and not on their administrative skills. This leads to selection of educational leaders who have little to no understanding of the organizational sciences and especially the realization that they are "pedagogical leaders" and should focus on transforming their school into a learning organization which focuses on collaborative learning. In a global world, where education is being re-defined to encompass more than simply imparting knowledge, the role of teachers is rapidly expanding. Local research also indicated that there is little understanding of organizational science amongst educational leaders in Pakistani schools (Memon et al., 2000; Nawab, 2014). Most of the management focuses on achievement of organizational objectives, paying little heed to developing their staff and other organizational factors that foster positive work environments for the teachers.

Furthermore, schools in Pakistan that have started team formations as a formal part of the schools' organizational structure should also focus on the essence of "teaming" which is collaboration and cooperation with shared goals. Collaborative initiatives are withheld due to the institutional bias against transformative initiatives, reservations of the teachers pertinent to perceived disorder and their unaddressed presumptions regarding the efficacy of collaboration (Gregory, 2010; Helstad & Lund, 2012). Besides specific focus on collaborations and teamwork, an introspective approach is necessary. The imitation of latest research-backed models without addressing the reservations of teachers within the institution and before re-evaluating and improving existing cultures may prove itself to be counterintuitive. In the absence of relevant capacity building, it may prove to be a daunting task to channelize the

traditional individualism into collaborative synchrony than anticipated. There is a need for said addressal by pointing out that the compulsion to retain autonomy may prevent the transformative endeavors of collaboration from flourishing within the education sector where non-confrontational, obstructive and isolated conditioning of teachers is pervasive.

The importance of teamwork is thoroughly reinforced throughout the literature found on the topic; however, it remains to be discussed whether conducive environments for such collaborations are enabled in the current landscape of private schools in Pakistan. It would not be fair to claim that in the age of innovative and technology assimilated education, the private education systems in Pakistan are not embracing the changes. It would, however, be more insightful to argue that the current management cultures may not provide the optimum learning conditions for encouraging collaborative work amongst the teachers working in teams. As more studies emerge on the importance of teamwork, more educational institutions are adopting collaborative methods and focusing on strengthening their teams in order to further facilitate enrichment of teachers on a professional scale (Ohlsson, 2013; Lomoset et al, 2011).

In the Pakistani landscape, collaboration, although appreciated on paper, is often discouraged among peers. There exists an imperative for understanding the significance of collaboration and its long-term benefit for the organization. Collaborations are not curtailed to facilitation of teachers rather carry a holistic objective of efficacy. Sharing the workload by forming teacher teams, elated sense of accomplishment and overall wellbeing of teachers are not the only positive outcomes of teamwork, the institution as well as its students enjoy a healthier and more profitable environment in terms of students attaining their goals and innovation.

The findings of this study would be helpful in determining if the existent team structures in place are more than mere structural adjustments. Teamwork has been repeatedly suggested as an effective way to accomplish goals in an organization especially by increasing collaboration. It would be unwise at the point to restrict educational structures to outdated cultures as it would result in continued intellectual taxation and underutilization of teachers. The policies of collaboration once set in place are bound to increase morale, reduce workload, and enhance overall satisfaction of the team within the job. The prevalent notion of the educational sector, however, is centered around individual responsibility and delegation. Each teacher is responsible for their own class, their own subject, and their own result. Sharing of burden and team collaborations can hardly be a priority in the current culture as accountability is predominantly individual. With hierarchical systems in Pakistani schools and other levels of the society, inter-disciplinary research is required in Pakistani educational sector for exchange of ideas and openness to innovation and learning. It is therefore up to universities to conduct inter-disciplinary research so that the education sector in Pakistan can benefit from other fields and overcome the perpetual rigidity (Memon, 2007).

Schools that fail to provide a learning context which comprises of the social context that enables adult learning to occur in an organizational setting, miss out on various benefits that can be gained from knowledge sharing and organizational learning. The teams in such organizations are rigid and the team members tend to be disengaged from their work. It is important to note that the greater emphasis is on teacher centric approaches rather than targeting the management responsible for the encouragement and incorporation of the culture of individualism. In order to increase work engagement, psychological safety is an important factor combined with supportive leadership practice and an enabling organizational culture.

With the increased emphasis on the managerial tasks that school headteachers/leaders are entrusted with, they do not pay heed to essential concepts like team work, team learning, teachers' intellectual development, fostering a good work environment and sharpening their own skills and competences. This presents a bleak picture of the situation in Pakistan regarding educational leadership and the concept of schools as 'learning schools' is entirely over-looked whereas organizational theory shows how espousing these concepts leads to improvement in the quality of educational institutes From the perspective of educational organizations in Pakistan, encouraging supportive work environments and developing cultures of learning amongst the employees is a dire need to be at par with the rising standards of education worldwide. Despite the increased interest in psychological safety in teachers, the body of research in this field is limited and requires more depth and breadth in inquiry, specifically in educational institutions which require innovation and creativity from the teachers who are engaged all day with their diverse learners. Similarly, with the growing literature in psychological safety there have been many studies which have examined the outcomes and moderating and mediating role of psychological safety yet many important questions remain, especially regarding the factors that influence psychological safety. More specifically, rigorous research is required on the direct effects and indirect/interaction effects of multi-level factors (organizational and personal) on the teachers' psychological safety.

1.3 Statement of Problem

Teachers with low psychological safety are dominated by fear, blame, and inflexibility and occupy themselves with impression management, withholding critical information and feeling afraid of taking interpersonal risk in order to avoid being thought as incompetent by

team members and team leader. This affects the overall work environment which holds back teachers from engaging in innovation and team learning. In order to find out how schools can improve the psychological safety of teachers by providing them the context that supports their psychological safety, finding out the facilitators and barriers of psychological safety in teachers is imperative. Practitioners and administrators may fail to provide the optimum conditions for developing psychological safety amongst teachers and know which personal factors makes the teachers more prone to reporting high or low psychological safety. Although literature mostly holds the leaders accountable for psychological safety of employees, other factors may act as antecedents of psychological safety including organizational and personal factors and the moderation effect of team effectiveness (goals, roles, processes and team interpersonal relations) on leadership and psychological safety. Facilitators and barriers of psychological safety may exist at organizational, team and individual level of the organization. The study undertook the problem of finding out the effects of organizational including leadership, organizational culture and team effectiveness and personal factors (gender, generation, professional experience, organizational tenure, employment status) to find out which factors strengthen and impede the psychological safety of teachers.

1.4 Objectives of Study

The objectives of the study are:

1. To investigate the effects of organizational factors on school teachers' psychological safety
    1.a To analyze the effect of leadership on psychological safety of teachers within their work teams

1.b To examine the effect of organizational culture on psychological safety

2. To explore the effects of personal factors (gender, employment status, generation type, work experience and organizational tenure) on school teachers' psychological safety
3. To assess the moderating effect of Team Effectiveness on the relationship between leadership and psychological safety

1.5 Hypotheses of the Study

$H0^1$: There is no significant difference in psychological safety of teachers across Country Club, Impoverished, Authoritarian and Team leadership styles of the team leaders

$H0^2$: There is no significant prediction of teachers' psychological safety by the leadership task-oriented behavior

$H0^3$: There is no significant prediction of teachers' psychological safety by the leadership relations-oriented behavior

$H0^4$: There is no significant difference in psychological safety of teachers in Control, Competence, Collaborate and Cultivate Organizational Culture types

$H0^5$: There is no significant difference in psychological safety of male and female teachers

$H0^6$: There is no significant difference in psychological safety of teachers in Baby boomers, Generation X, Millennials and Generation Z

$H0^7$: There is no significant difference in psychological safety of teachers on employment status in the permanent, fixed-term contract or probation group

$H0^8$: There is no significant difference in psychological safety of teachers in the five groups of durations of professional experience

$H0^{9}$: There is no significant difference in psychological safety of teachers in the five groups of organizational tenure

$H0^{10}$: There is no significant prediction of teachers' psychological safety by the team effectiveness

$H0^{11}$: The effect of leadership relations-oriented behavior on teachers' psychological safety is not moderated by team effectiveness

$H0^{12}$: The effect of leadership task-oriented behavior on teachers' psychological safety is not moderated by team effectiveness

1.6 Conceptual Framework

Many studies have used social exchange theory and leader-member exchange theory to explain the effect of organizational factors on psychological safety as an exchange of behavior (Newman, 2017; Shapiro et al., 2004). The current study took a novel approach in examining psychological safety from a multi-level lens. The review of research in psychological safety showed that theory has taken psychological safety to exist at individual, team and organizational level but there have been limited research studies that examine the personal factors of teachers and the interaction effect of leadership with team factors. The present study examined team level psychological safety which according to Edmondson's (2018) theory emanates from the individual to the team. This was done by examining its antecedents at all levels of organization by grouping them as organizational factors which include team factors as well and personal factors which are specific to each individual in the team. Another theory that supports the model is Edmonson's (1999) model of team psychological safety and learning behavior. The current study is primarily based on Edmonson's (2018;1999) theory of psychological safety and team learning behavior and the work extended by research using these

concepts. Using the same concepts, and taking a multi-level approach to the factors that influence an outcome in organizational behavior, organizational factors including team factors and personal factors were examined as predictors and independent variables affecting psychological safety as an outcome.

Defining psychological safety at only a single level of the organization would be limiting the inquiry into understanding the concept holistically (Newman et al, 2012). To counter this gap in literature, the current study proposes a cross-level examination of psychological safety to contribute to the development of a comprehensive definition of the construct and what it could mean for educational institutions where employees as well as the students are involved in the process of learning. The theoretical framework of the present study maintains that psychological safety is a team construct and a shared belief about the safety of the team for engaging in risky, innovative learning behavior. However, this belief develops based on antecedents at multiple levels of the organization which the stydy hypothesizes to include the personal factors of the individual themselves, the dynamics of the team the individual belongs to and at the broader level the leadership behavior and culture of the organization itself called to attention by Kahn (1990), Neman et al, (2012), Edmondson & Mogelof (2004) and Baer & Frese (2003).

The conceptual framework and the relationships between the variables are illustrated in the figure below:

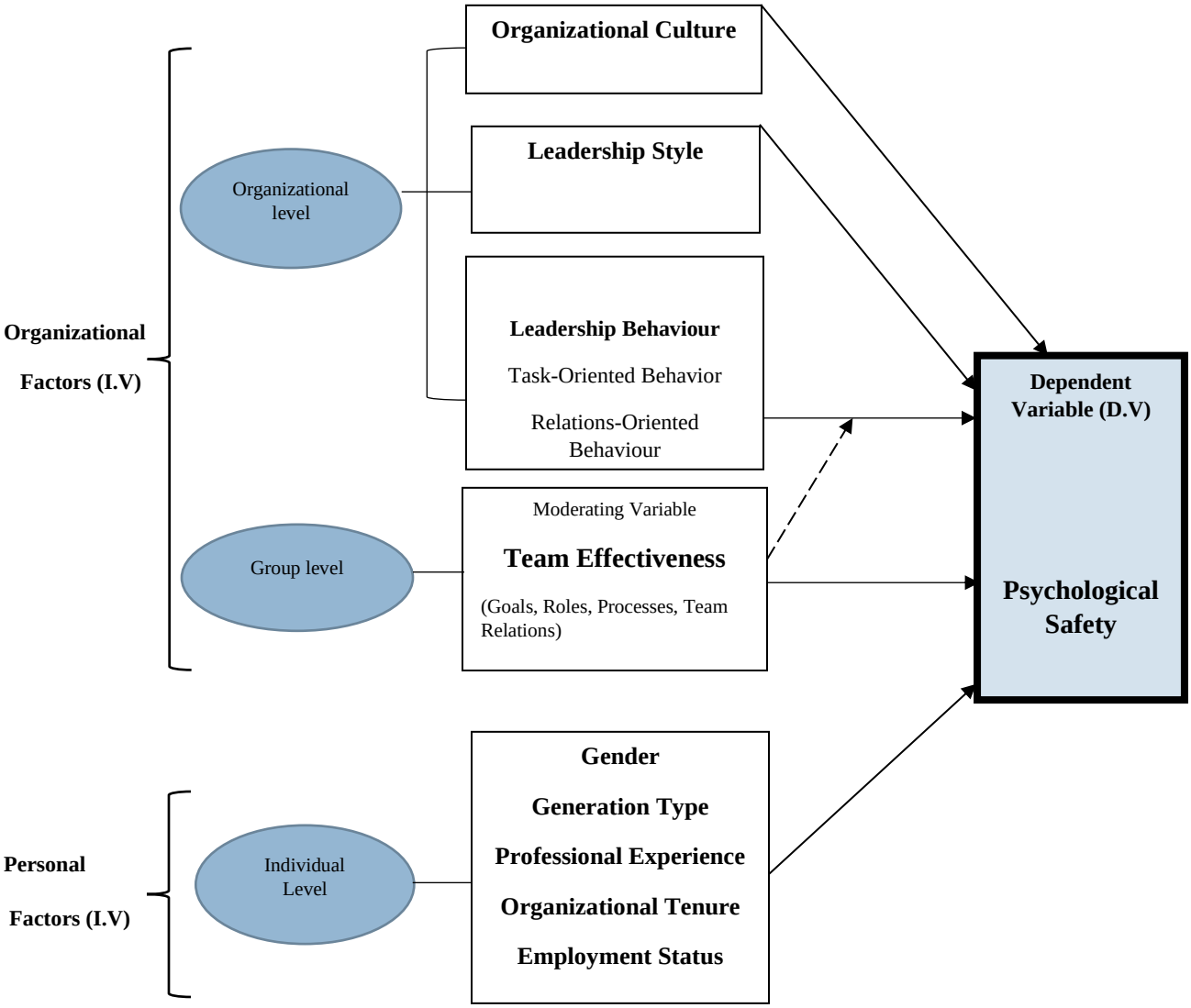

Figure 1.1 Conceptual Framework of the Study

1.6.1 Variables of the Study

The study undertook a multi-level approach (organizational, group and individual level) by examining independent variables in relation to the dependent variable i.e., psychological safety of the teachers.

1.6.2 Independent Variables at Organizational Level

In this study, the independent variables were selected from the organizational level which included the leadership behavior, leadership style and the school's organizational culture.

1. Leadership Behavior (relations and task-oriented behavior)
2. Organizational Culture (Sahota, 2012).
3. Leadership Style (the dominant pattern of leadership behavior) (Blake & Mouton cited in Curtis (2002)).

1.6.3 Independent Variables at Individual Level

In order to find out if the employee's personal dispositions influence their psychological safety, this study examines certain factors in relation to psychological safety.

1. **Gender**

   The present study examined the difference between the psychological safety scores in male and female teachers.

2. **Generation**

   There are currently five generations that make part of the global workforce which include: Generation Z (1997–2012), Millennials (1981–1996), Generation X (1965–

1980) Baby boomers (1946–1964), Traditionalists or the Silent Generation (born between 1928 and 1945).

3. **Professional Experience**

   The following categories were made with respect to the professional experience of the participants: Less than 5 years, 5 to 10 years, 10 to 15 years15 to 25 years, More than 25 years

4. **Organizational Tenure**

   The following categories were made in the questionnaire:

   Less than 5 years, 5 to 10 years, 10 to 15 years15 to 25 years, More than 25 year

5. **Employment Status**

   The respondents were asked to specify their employment status out of the following three categories: Probation, Fixed-term contract and Permanent.

1.6.4 Moderating Variable at Group Level

Moderator or moderating variables, simply denoted as M, as an "interaction effect" that a third variable may have on the association between independent and dependent variables. Team Effectiveness (Goals, Roles, Processes, Inter-personal relationship) was the moderating variable between leadership behavior and psychological safety (Rubin, Plovnick & Fry cited in Demeuse, 2009).

1.6.5 Dependent Variable at Individual and Group Level

In the present study, there is only one dependent variable under study which is psychological safety of school teachers (Edmondson, 2018). The study was designed to

examine the antecedent conditions of psychological safety as the independent variables of leadership behavior, culture, team effectiveness and the personal factors of the employees vary.

1.7 Significance of the Study

The study aimed to set the groundwork for research on teachers' psychological safety in Pakistan and the influencing factors at organizational, team and personal levels in order to guide theory and practice on developing psychologically safe teams where learning behavior is exhibited without apprehensions. It is also further important to evolve from the long-standing culture of teacher individualism and go towards a model of collaboration and team work which encourages innovation and creativity. It was further the target of the study to explore organizational and personal factors as antecedents of psychological safety. These factors can be explored in a variety of possibilities, the school leadership, organizational culture, personal differences amongst of the teachers and most importantly the difference in the external culture in which the schools are located could possibly be impacting the team psychological safety. Hence, this study was conceptualized in an attempt to contribute to psychological safety literature, set the foundations for psychological safety research at school level in Pakistan, and add to scientific knowledge about the effects of personal and organizational factors on the psychological safety of school teachers and examine how psychological safety affects the team's learning behavior. This would be beneficial to school leadership in private educational sector and human resource management while making selection decisions, team collaboration and especially while forming the organizational culture. It may further help school leaders in understanding how various factors interact to build psychologically safe teams which leads to

many positive work outcomes, besides team learning, which could possibly extend further to include outcomes related to student learning and experiences.

In addition, most of the psychological safety research has been centered in Western countries and the findings are applicable to their socio-cultural context (Abror, 2017). The scope of psychological safety research should be expanded to include Asian countries to support theory and examine the effectiveness of psychological safety for learning in organizations in Asian context. Similarly, despite the widespread awareness about the benefits of psychological safety for team learning 47% of employees in a global study considered their workplace to be psychologically safe (Ipsos, 2012). This indicates that more research is needed to explore the factors at all levels of an organization which affect the way employees feel psychologically safe to engage in voice behavior and team learning behavior. Studies are repeatedly recommending organizations to cater to employee silence in organizations if they are to tap into the full potential the employees have to offer and for them to be truly engaged in their work.

At a regional level, this study is the first study examining psychological safety amongst teachers in Pakistan and aims to set the groundwork for regional research on schools increasing focus on not only becoming learning organizations but also consciously developing the context that enables and facilitates teacher learning to occur in schools along with student learning. The study also recommends direction for future educational researchers to examine psychological safety using a multi-level theoretical approach and work towards a holistic definition of psychological safety and study its preceding conditions at all levels of the organization. It is also important to note that initial research in psychological safety has examined how it is developed but recent research has largely focused on the outcomes of

psychological and its mediating and moderating effects on organizational outcomes. Despite the landmark studies which guided theory about the conditions that develop psychological safety, there is a need for more research in the following aspects: exploring the personal factors of the employees that may influence how they experience psychological safety in a group, examining the interaction of organizational factors and their effects on psychological safety.

The findings of this research would help educational organizations generally and Human resource management departments particularly for improving psychological safety of teachers by controlling the organizational variables to achieve the optimum level of workplace psychological safety amongst the teachers. This may be achieved by improving team effectiveness by conscious efforts towards process, roles, structure and inter-group relations within teams in order to improve psychological safety of the teachers. In addition, gaining an understanding on how psychological safety may be increased in order to encourage teachers' creativity and innovation through idea sharing within teams by providing guidance on how to develop a facilitating leadership and organizational culture. The study also added scientific knowledge about the extent to which personal and organizational factors affect a teacher's psychological safety which would aid HRM and administrators in making informed selection decisions as well as for making work teams.

The findings of this study would not only benefit schools but it can also be instrumental for corporate organization in understanding the interaction of organizational factors and team factors. This would help in improving the organizational outcomes via awareness of the relation of organizational and personal factors, team effectiveness as a moderator and psychological safety as an outcome leading to team learning behavior. Having discussed the

existing scenario which identifies the need for conducting this study, the major objective was to explore the effects of organizational and personal factors on school teachers' psychological safety in order to find out how schools and school leadership can use to their benefit, this inter-personal construct that is often tied to improved organizational learning. It also aimed to find out the interaction effect and the cross-level influence of organizational and personal factors on a team-level construct i.e., psychological safety.

Assessing the current state of psychological safety in the private education sector in also helped to explore whether team structures, collaboration and team work are more than mere trendy adjustments and whether teamwork is implemented in its true sense which has collaboration as its essence. Policy makers and school administrators would benefit from the findings of the study by examining how they are providing the context of learning and team work to their teams in practice. This implies whether the organizational culture, team structure and function and most importantly the leadership are interacting to enable psychological safety instead of debilitating the teachers and silencing their voice in organizational setting. Another very important contribution of the study is adding to the understanding of generational differences amongst the employees which can help leaders make more informed decisions in forming and running their teams knowing how different generations behave in the work place.

1.8 Research Methodology

The current study undertook a quantitative methodology by adhering to the survey research method. Quantitative methodology was chosen for this research in order to identify relationship between the independent variables and psychological safety.

1.8.1 Research Design

The data was a survey from school teachers in order to examine the effect of organizational and personal factors on their psychological safety. Questionnaires were administered directly to the respondents and the numerical data was analyzed through descriptive and inferential statistical measures. Pilot Study and pre-testing was done in order to check the reliability of the adapted instruments and to analyze the feasibility of the study, the expected level of relation between the variables, the response rate and the time taken by the participants to respond to the questionnaire.

1.8.2 Research Population

The current study focused on the private educational institutions which have adopted teamwork and collaboration as a part of their organization structure. In these schools, a teacher team is formed based on the same level of classes they teach such as primary teachers' team, middle school teachers' team and O/A level teachers' team. Generally, O/A level teams in most of the urban private schools in Islamabad, comprise of 10-15 teachers headed by a team leader which could either be a section head, a senior head teacher or the principal who comes in regular interaction with the team members as well as direct their efforts towards the achievement of team goals. According to Pakistan Education Statistics (2016-2017) and Registration & regulation of Private Educational Institutions (PEIs) in Islamabad Capital Territory (ICT), an estimate number of private school teachers is given below from which a sample was extracted which would ideally be representative of the entire population:

Table 1.1 Study Population

Sector	Total No. of Teachers in ICT	Population (O/A Level Section)
Private	7,826	1,484

Sources: AEPAM, Pakistan Education Statistics, Federal Directorate of Education

1.8.3 Sampling Procedure

To draw a sample from the population, clustered sampling was used to ensure the representativeness of the sample by using a probability sampling technique. Each school was considered a separate cluster. The sample constituted of 600 teachers from 46 schools.

1.8.4 Instruments

The four scales that were included in the questionnaire besides items requiring demographic details of the participants, were all on a 5-point Likert scale except the organizational culture scale which had 20 forced-choice statements about the dominant organizational culture. The following four standardized scales were added in the questionnaire used for data collection:

1. **Psychological safety scale** by Amy C. Edmondson available in The Fearless Organization (2018).
2. **The Managerial Grid** by Blake & Mouton focusing on the four leadership styles Country Club, Team Leader, Authoritarian, and Impoverished leadership available as an open access scale by the Vision Council (2010).

3. **William Schneider's Organizational Culture Survey** available in *"An Agile Adoption and Transformation Survival Guide: Working with Organizational Culture"* by Michael K. Sahota (2012) categorized into Control, Cultivation, Collaboration and Competence.
4. **Team Effectiveness Questionnaire** using the items measuring the sub-constructs of Team processes, Team Roles and Inter-group/Team Relationships; the scale has been developed by NHS London Leadership Academy (2014).

1.8.5 Data Collection

Since the study is a quantitative survey, the data were collected through closed-ended questionnaire. Ballot-box method was used in face-to-face administration of questionnaire to ensure anonymity and confidentiality of the respondents' data and the teachers were included in the survey by informing the school administration about the intent of the study. Some respondents were accessed online using their social media profiles on LinkedIn. Besides the aforementioned items, the instruments were collectively added to the questionnaire for administration (Annexure A).

1.8.6 Data Analysis

The quantitative data were subjected to statistical analysis using both inferential and descriptive statistics. The following tests were used to test the hypotheses of the study:

1. Simple Linear Regression
2. Moderated Regression Analysis
3. One-Way Analysis of Variance (ANOVA)
4. Independent Samples t-test

1.9 Operational Definition of Variables

The operational definition of the study variables given in the proceeding section specifies what certain term that will be used repeatedly in the thesis mean so that readers can have a clear understanding of the discussion and ideas mentioned:

1. **School Leadership:** The principal or a school head who is leading the team of teachers
2. **Team:** A group of teachers who are either a part of the senior management team or a team responsible for a single section in a school
3. **School's Organizational Culture:** The culture of the school as an organization with reference to the management and the employees
4. **Psychological Safety:** A shared belief held by members of a team that the team is safe for interpersonal risk taking, error reporting and speaking up about issues, concerns and innovative ideas

1.9.1 Organizational Factors

5. **Leadership Style**: The behavioral pattern the leader adopts while dealing in the organizational settings
6. **Leadership Relations-Oriented Behavior:** The leader's commitment towards the goal achievement, maintaining self-esteem to workers and satisfying interpersonal relationships
7. **Leadership Task-Oriented Behavior:** The quality of procedures and policies, creativeness of research, effectiveness of staff, work efficiency and volume of output. scores on concern for people and production

8. **Organizational Culture:** The way an organization operates based on the decision-making processes (Personal-Impersonal) and the focus of the organization's attention (Actuality-Possibility)
9. **Team Effectiveness:** The capacity of a team to effectively perform with increased productivity while having the four well-developed core aspects in the team i.e., goals, roles, team processes and inter-personal relationships

1.9.2 Personal Factors

10. **Gender**: Either of the two biological sexes i.e., male and female
11. **Generation:** All of the people born and living at about the same time
12. **Education:** The highest academic qualification obtained as a formal degree
13. **Employment Status:** The status of an employee in an organization based on the legal conditions of the duration of their employment
14. **Professional Experience:** The number of years an employee has been formally employed in different organizations
15. **Organizational Tenure:** The number of years the employee has been working at their current organization

1.10 Delimitation of the Study

The current study was delimited to the geographical limitations of urban Islamabad Capital Territory. The schools included in the study sample were delimited to the major schools offering Cambridge Education System in the private sector. The scope of the research was further delimited to find out the effect of organizational variables (leadership, organizational culture and team effectiveness) and the moderating role of team effectiveness of the teaching

teams. Moreover, personal variables were delimited to demographical variables including Generation type (Traditionalists, Baby boomers, Generation X, Millennials, Generation Z), organizational tenure, employment status and professional experience.

1.11 Chapter Breakdown

The goal of this chapter was to introduce the background of the study and discuss the statement of problem in order to specify the aims of the current study. The organization of the ensuing chapters of the thesis are:

Chapter 1 Introduction

The section has also discussed the variables that were included in their study and the theoretical foundations that guided the conceptual framework of the hypothesized relationships between the study variables. The chapter has also discussed the gap in literature that the current study aims to cover and the rationale and the significance of the study for practice and theory alike.

Chapter 2 Literature review

which provides a detailed background of the extant research on psychological safety in organizational behavior research, discussing also the identified gaps in literature. A review of the educational research on psychological safety including both quantitative and qualitative approaches to inquiry. Finally, the existing research done on psychological safety in Pakistan and a discussion on the social exchange theory as the theoretical framework of the study.

Chapter 3 Research Methodology

provides detailed information about the research approach and the research design undertaken to achieve the study objectives. The steps taken to ensure an effective research design and the details of pretesting and pilot testing of the questionnaire, ethical considerations and details of study population and access to data are a part of this chapter. It further includes details of the data collection methods including the reliability and validity and the rationale for choosing the statistical tests for data analysis and hypothesis testing.

Chapter 4 Data Analysis & Interpretation

contains the results of the preliminary data screening and cleaning, normality tests and descriptive statistics of the demographic variables. The major portion of this chapter entails results of hypothesis testing using the inferential statistics and the tables and plots that explain the findings of the analyses.

Chapter 5 Findings, Discussion, Conclusion & Recommendations

includes a detailed report of all the major findings of the data analysis followed by an in-depth discussion on the findings in light of the existing literature. Results are followed by the conclusion of the thesis in line with the aims of the study. Study limitations, implications for research and practice as well as recommendations for future research are also discussed in the final chapter.

CHAPTER 2

LITERATURE REVIEW

This chapter of the dissertation aims to review the existing literature and place the study in context of the findings of the pivotal and conceptually relevant studies on psychological safety and the factors at organizational and personal level which have an effect on it. The scope of the literature includes the studies over the past thirty years which have contributed significantly in understanding the definition, antecedents, outcomes and also the intervening role of psychological safety in the organizational processes. The review also aims to analyze the existing patterns, methodologies and trends in psychological safety research and to identify the gaps in literature. More specifically, the review aims to include in its scope, the research on psychological safety in the education sector as well as a brief overview of studies on psychological safety in Pakistan. The chapter will follow the following outline:

2.1 Definition of Psychological Safety

2.2 Outcomes of Psychological Safety

2.2.1 Organizational Communication

2.2.2 Work Attitudes

2.2.3 Organizational Learning

2.2.4 Team Learning Behavior

2.2.5 Work Performance & Creativity

2.3 Psychological Safety in Educational Research

2.4 Antecedents: Factors that Influence Psychological Safety

2.4.1 Leadership and Psychological Safety

2.4.2 Organizational Culture and Psychological Safety

2.4.3 Team Effectiveness and Psychological Safety

2.5 Influence of Personal Factors on Psychological Safety

2.6 Psychological Safety Research in Pakistan

2.7 Summary

Psychological safety gained researchers' interest in the 1990s and is expanding currently due to the numerous desirable outcomes of this inter-personal construct. The industrial revolution brought with it the scientific management theory which prevailed for over a century advocating structure, productivity and efficiency, paying lesser attention to the employees. Management theory evolved over the course of the century and expanded the scope of the research towards the people who are driving the organization towards the achievement of its goals. Thus, employees now benefit from human resource departments which not only specifically develop and train the employees but also ensure their well-being. The shift of the theoretical focus was undoubtedly beneficial as understanding organizational behavior has led researchers to find out how the employer and employees can be mutually beneficial.

2.1 Definition of Psychological Safety

Psychological Safety emerged as a prominent construct in organizational sciences with Kahn's (1990) landmark study on the psychological conditions that determine an employee's

engagement or disengagement at the workplace. Psychological Safety was identified as one of those pre-conditions which determine the context of individual employee and how much they choose to be actively involved or detached from their tasks. Kahn (1990) posited that psychological safety is an individual-level perception about whether the employee feels comfortable with engaging at the workplace without any apprehension about a negative consequence or punishment from the team members in face of any error. Trust and strong inter-personal relationships also emerged in Kahn's qualitative study as determinants of how psychologically safe an individual feels at the workplace. It was after 1990s that psychological safety received much attention from the researchers, once Kahn had established its effectiveness in ensuring that employees are engaged in their tasks. Prior to Kahn's study, Schein and Bennis (1965) also discussed psychological safety as a feeling of security experienced by employees when they are learning to manage organizational change.

Researchers have viewed the source of psychological safety differently, some deemed it an individual-based phenomenon while others believed it to be a team construct and even an organizational-level construct. Psychological Safety has also been used inter-changeably, especially in the studies before 1990 which mostly viewed psychological safety as an individual-based phenomenon. Much like Kahn (1990), Jones & James (1989) claimed it to be an individual employee's perception of the safe/appropriate behavior in the organization. Similarly, James & James (1989) also termed it as a perception based on the working environment. The common feature in these studies is that they fairly conclude that psychological safety:

- emanates from the individual employee
- is a perception/belief held by the individual

- is based on context/environment

These external factors on which an individual's psychological safety is based were identified as organization climate, the working environment and in Kahn's words the context of the individual employee. These studies helped develop our initial understandings of psychological safety whereby the most important finding, the one which is relevant to our study, is that psychological safety is related to the external factors of the organization such as work environment and the climate ultimately leading us to question if psychological safety can be intentionally and consciously developed if we are aware of its antecedents and pre-conditions. While the afore-mentioned studies conceptualized psychological safety as a construct which is based on the individual employee, another stream of researches viewed it as a team construct. The most prominent and widely-agreed upon definition was given by Edmondson in 1999, popularizing the construct again with her study on psychological safety by re-defining it as a team-level construct which is a *"shared belief held by members of a team that the team is safe for interpersonal risk taking"* (p. 350). The team members of a psychologically safe team are open to innovative ideas, there was more dialogue about problem solving and idea sharing, the team members do not hesitate to admit their failures and even discuss differing opinions in an attempt to further the team learning and solve common problems. On the contrary, the teams with low psychological safety are characterized by being submissive to authority, reluctant to speak up during team discussions and seldom challenged or offered alternate solution to the team leader. Moreover, the inter-group interactions are usually also limited and team members resort to solving individual problems rather than freely collaborating with the team. The ensuing body of research following Edmondson (1999) and Kahn's (1990) studies largely adopted Edmondson's definition which linked a team's

psychological safety to its learning behavior. Other studies also confirmed that psychological safety was a team construct as it was a shared, similar belief held by the members of the team (Klimoski et al., 1994) and encouraged them to engage in risk-taking behavior, expressing themselves freely and holding trust and respect for their fellow team members (Edmondson, 1999; Yang Minxi, 2002; Tyan, 2005).

On the other hand, a few scientists took a broader approach in defining psychological safety as an organization-level construct. Brown & Leigh (1996) define it as the employee's perception of the characteristics of the organization while Baer & Frese (2003) and May et al. (2004) call it the perception based on the atmosphere and the openness and trust in the work environment which is formed through all formal and informal social interactions. Most recently, Clark (2020) defined psychological safety independent of its source by defining it not as a perception but as a "condition" that allows human to feel safe. This condition depends on the environment and passes through four stages which eventually allow individuals to feel included in the team and feel safe to learn, contribute and challenge the existing status quo. This novice definition is distinct from earlier researches which deemed psychological safety a perception or belief Although this beckons researchers to examine intensively how this condition may be developed, there is still empirical evidence to be gathered to investigate whether psychological safety originates largely in the cognitive/affective domain of the individuals or does it exist externally in the environment which enables the individuals? Our take is that psychological safety is an outcome of an individual' interpretation of the safety of the environment who then makes a conscious decision to behave in a certain way which is ideally, a learning behavior embracing openness of communication and trust within team members. Edmondson's definition, with empirical support, takes into account the cognitive

aspect of the individuals in the development of psychological safety and also relates it as a pre-condition of learning behavior in work teams.

2.2 Outcomes of Psychological Safety

Since Kahn's study in 1990, the proceeding body of literature primarily focused on psychological safety in relation to organizational learning linking it to outcomes which were related or were the pre-requisites of learning to take place. Therefore, Edmondson (1999) related the team's psychological safety to the team's learning behavior and performance outcomes.

2.2.1 Organizational Communication

Leroy et al. (2012) investigated psychological safety in a medical team where high levels of team psychological safety resulted in an increased reporting of errors. In the medical field, admitting one's mistakes is crucial for the patient's safety and important for improving medical practice, timely reporting of errors is essential. The study highlighted the role of the leader, in terms of behavioral integrity for safety, in fostering the required result of increased psychological safety so that subordinates may openly report their errors. Peltokorpi (2004) affirms the notion that psychological safety improves communication by conducting a study on the cognitive aspect of individuals and team in the organizations and the positive role of psychological safety in forming information directories and knowledge sharing at the team and organizational level. Mu & Ginyawali (2003) examined communication amongst business students in higher education institutes to find out the aspects that enable students to evaluate and communicate perspectives using high-order thinking skills. Using social cognition and organizational learning as theoretical basis, the researchers concluded that synergistic

knowledge development was a key outcome of high psychological safety. These findings further indicate the pivotal role psychological safety plays in learning, communication, knowledge development as well as knowledge sharing. Similarly, knowledge sharing which encompasses more than not only sharing information but also skills and experience between individuals in an organization, is an important pre-requisite for organizational learning and ultimately organizational change. Simesen et al. (2009) explored similar variables at the organizational level further affirming that knowledge sharing is a key outcome of psychological safety provided that the individual also has high confidence in his knowledge which fuels his motivation to share what he knows. The study also emphasizes a variable relevance to the current study which is leadership consideration that was empirically proved to help foster psychological safety in the first place.

Organizations that emphasize developing their communication networks and encourage the participation of employees in problem-solving require their employees to exhibit voice behavior. Voice behavior refers to the role of employees in voicing their opinions while pointing out mistakes or making suggestions for the better, but which may involve challenging the status quo. To exhibit such a "risky" behavior which most employees tend to avoid in organizations, requires a certain degree of psychological safety. Numerous studies have examined employee voice behavior in relation to psychological safety, finding the latter an important factor in how frequently employees engage in voice behavior. With lower levels of psychological safety, they may in turn revert to silence. Studies that empirically support a positive relation of psychological safety with employee voice behavior include, a study by Tynan (2005) which concluded that threat sensitivity and face giving positively affect two types of psychological safety: self-psychological safety and others psychological safety. It is

important to understand the construct of threat sensitivity because it gives us crucial insight into the cognitive processes of an individual employee which may affect his behavior. Individuals prefer to maintain a positive face in the organization, which means they want to be valued, appreciated, liked and thought of as competent. Whenever they perceive a threat to their positive face, they may have an affective reaction to the threat for instance anger, hurt, disappointment or annoyance (Carson & Cupach, 2000). According to Tynan (2005), the threats to positive place that an individual may experience at the workplace are most commonly disagreement, pointing out the others' mistakes/errors or criticism of one's performance, thoughts or behavior. To lower the threat sensitivity of employees, psychological safety plays an important role. Tynan (2005) brings to light an important consideration that is viewing psychological safety as dyadic where psychological safety is developed between the individual and the leader based on their own threat sensitivity and face giving. Individuals may engage in giving feedback, voicing opinions and pointing out mistakes if they believe that the others also feel psychologically safe. To the best of our knowledge, Tynan's is the only study that operationalizes psychological safety as a dyadic variable, but due to its strong founding in the theory of sociology, it is worth consideration that leader behaviour plays a crucial role in psychological safety of individual employees or at the team level than it has been previously examined in literature.

2.2.2 Work Attitudes

Chen et al., (2013) related psychological safety with increased affective commitment of employees towards the organization and also helped lower their turnover intention. This study was largely focused on the importance of formal mentoring and also helped add to psychological safety literature by concluding that psychological safety can serve as a predictor

of positive and desirable work attitudes amongst the employees. Using social exchange theory as theoretical basis for explaining the empirical findings, Chen et al., (2013) explore the role of formal mentoring relationships in China, which itself follows the Confucian values. However, empirical evidence from their studies does show that formal mentoring relationships foster psychological safety depending upon the power distance orientation of the individual employee, and that psychological safety acts as a mediator towards work attitudes such as high affective commitment and reduced turnover intention. It is important to note that this study analyzed psychological safety while keeping an important factor from the organizational level of analysis which is power distance, a construct measured as a part of organizational culture. Therefore, adding to the existing body of literature which identified leadership behavior as an important antecedent of psychological safety, we must also consider aspects of organizational culture. A similar empirical study which was large-scale was conducted by De Clercq & Rius (2007) including the data from 863 Mexican firms to explore the factors that foster employee's organizational commitment. Using the psychological climate scale developed by Brown & Leigh (1996), the researchers found out a that high levels of employee's perceived psychological safety, as well as their tenure and job position, results in higher organizational commitment and ultimately determines how much effort they put into their work. The same finding was reported by Rathert et al., (2009) linking psychological safety to increased organizational commitment. However, the path model proposed in this study examined the work environment and the mediating role of psychological safety leading to an increase in organizational commitment. The aforementioned studies examine the effect of psychological safety keeping in view the cognition of the individual employees which forms perceptions of psychological safety and manifests in their attitudes related to their work. This also brings to attention the question that how does psychological safety affect the employee's behavior in an

organizational setting? More specifically, how does it affect the desirable employee behaviors in the organization? A myriad of studies has attempted to answer these questions and have put forward invaluable findings that guide our understanding of psychological safety outcomes. The most notable constructs that emerged as outcomes of psychological safety include performance, learning behavior and innovation.

2.2.3 Organizational Learning

Organizational learning has become an important aspect, most commonly linked to organizational change. For companies to sustain the rapid changes of the outside world, they must adapt to the new changes as well as create, retain and transfer the gained knowledge and experience. For this purpose, reflection on the learning and experiences must be frequently done and most organizations have to intentionally develop a learning culture. The corporate world is becoming increasingly competitive and organizations must come at par with the rising standards in order to sustain the rapid scientific and technological development. In such a scenario, change is inevitable. Change is necessary. Keeping in mind the Darwinian's "survival of the fittest" idea, organizations that adapt to change are the ones most likely to sustain the demands of a world that is developing at a tremendous pace. Such adaptability to change requires increased collaboration and innovation. This is where teamwork and innovation come into play as they are instrumental in managing organizational change (Sartori et al., 2018).

Liu et al., (2014) examined the effect of shared leadership on learning at the individual and team level and found team psychological safety to be a mediator in both individual and team learning. Another dimension of their study was the job variety that is offered to employees which boosts their learning in the presence of shared leadership and the mediating role of

psychological safety. The effect of psychological safety on learning behavior is not limited to the conventional work teams. This notion is supported by Bstieler & Hemmert (2010) who examined the learning behavior amongst inter-organizational teams who worked specifically towards product development. Since such teams transcend the boundaries of the organization, maintaining a climate that enables learning and boosts efficiency is crucial. The researchers in this study proposed that fostering certain beliefs like psychological safety, in the collaborative ventures of inter-organizational team, are required for team learning, performance and increased time efficiency. The results of the studies indicated a high positive relationship between team psychological and team learning where shared problem solving also contributed to the team learning.

Other studies have also explored psychological safety in unconventional teams such as virtual teams by Ortega et al., (2010) who examined the interaction of psychological safety, task-interdependence and collective efficacy with the team learning behavior to ultimately result in team effectiveness. Their findings support the proposed model and the study also highlights a gap in literature pertaining to the factors that help in fostering the beliefs of inter-personal context; the researchers suggest future studies to explore the effect of leadership, organizational support and information technologies on the development of psychological safety and other contextual factors. Stalmeijer et al., (2007) explored psychological safety and team learning, in multi-disciplinary in medical schools, a team that may face challenges due to members belonging to different disciplines. In order to increase the effectiveness of the collaborative effort, the study proposes the development of psychological safety for increased team learning and improving the educational quality. Likewise, linking psychological safety to team learning behavior and resulting in team effectiveness Van de Bossche et al., (2006)

explored the constructs from a social-cognitive aspect and as factors that form the learning environment in teams. Like Edmondson (1999), Bossche et al., (2006) also considered psychological safety as a team's shared belief (perception of reality) which forms a part of the inter-personal context within a team. The cognition leads to the team learning behavior which develops the shared cognition resulting in higher team effectiveness. Their study defines shared cognition as mutual understanding. However, their study operationalized team effectiveness as an outcome of team processes and gauged it in terms of performance.

2.2.4 Team Learning Behavior

Edmondson (1999) identified an affective emergent state called psychological safety to be a precursor to team learning behavior. Studies have found evidence supporting this relationship with significant effects of the team members' psychological safety on the team learning behavior. Similar support was provided by Bell et al., (2012) where team learning behavior emerged in teams with high psychological safety reported by the team members. Harvey et al., (2019) also conducted an exploratory study on team learning orientation, psychological safety and team learning behavior finding strong empirical support. Other recent studies have linked team learning behavior as a mediator of relationship between PS and team performance (Kim & Connerton, 2020) as well as quality improvement (Albritton et al., 2019) and team efficacy (Knapp, 2016). The collective learning process in which there is open dialogue about assessing the team's performance for the purpose of improvement and feedback on individual performance does not happen automatically in teams. The reason for this is the fear of taking inter-personal risk and challenging the status quo. This could possibly explain the situation in teams where there are numerous factors which may inhibit and individual from taking interpersonal risk and speaking up. If, however, this fear is removed in the presence of

high psychological safety within the teams which is due to many organizational and team factors as shown by literature, the outcome can be observed by the learning behavior exhibited by the team members (Kim et al., 2020). There is extensive support in studies that have concluded psychological safety as a very prominent indicator towards learning within teams. The foremost in these studies being Edmondson (1999) followed by Ven den Bossche et al., (2006) expanding into this decade with Decuyper et al. (2010) and Veestraetenet al. (2014) adding empirical evidence to the notion that psychological safety is a significant predictor of team learning behavior. When teachers are made comfortable enough in the presence of supportive leadership and an organizational culture that values innovation and open communication, it provides the atmosphere where team members adapt, tackle challenges and learn individually as well as collectively through open and free dialogue. An important condition here is that of the leader's effectiveness in bringing about the required openness to learning within the teams, therefore the leaders' characteristics come into play a very important role as discussed by Frazier et al (2017). They should be able to build strong relationships with all team members (Zhang et al, 2010). Simialrly, communication with the leader including its clarity, ease and transparency (Siemsen et al, 2009) also plays an important role in how the team members perceive the team environment and the outcomes of any risky behavior such as interpersonal conflict or pointing out a mistake and even challenging the status quo. The leaders' role further expands to act as a buffer between the employee and the organization as they must work against the hierarchy to increase psychological safety of the team members and empower them (Nembhard & Edmonson, 2006). The extent to which leaders lay value on the skills, ideas and participation of the team members also encourages the development of psychological safety and team learning especially during times of high tension (Smith & Riley, 2012). Lastly, the way leader present themselves humbly and fallible also gives the confidence to team members that it is alright to err and there will be little to no negative consequences of openly reporting errors. All in all, leaders can make a difference in

their teams by ensuring that their behavior is modelled in the way that encourages psychological safety of the employees. Secondly, by continually assessing psychological safety they can ensure that the team engages in learning behavior for improved performance and other team outcomes.

2.2.5 Work Performance and Creativity

When employees are working in a team, they undergo many cognitive processes during which they gauge their environment and make decisions consciously about their behavior within the teams. If the team or the organization values or encourages a certain behavior, they may engage more frequently in it. In case, a behavior is seen as undesirable or is penalized, the individual decides to not engage in that behavior. Edmondson (2003) argues that these individuals in teams also assess the possibility of inter-personal risk in case they engage in a certain behavior before actually doing or saying something in a team setting. If they believe that they would be hurt i.e., penalized, ridiculed, embarrassed, criticized or being thought of as incompetent for sharing a half-formed idea, reporting an error or giving an unconventional solution to a problem, they will refrain from speaking up. Now classical studies on organizational change and learning such as Schein and Bennis (1965), posit that a psychologically safe work environment is of utmost importance for individuals to make decisions about their behavior and ultimate engage in organizational change. The reason is mainly because psychological safety helps the team members overcome their defensiveness and resistance to learning. If the individual team members are overcome by social anxiety pertaining to learning in groups, they tend to withhold their creative contribution within the team (Goncalo & Staw, 2006).

When it comes to creative behavior and work performance, almost all organizations posit work performance as of higher priority. Creativity on the other hand is more desirable in sectors like education where the teacher's creativity and initiative also improve students' learning outcomes. In this case, psychologically safe teachers may engage in creative work behavior and improved performance. Several studies have found evidence for the improvement in employee's work performance after an increase in their psychological safety such as studies by Baer & Frese (2003) and Schaubroeck et al, (2011). One way to explain the findings is that increased psychological safety of the employees may decrease their fear of mistakes being penalizes which in turn motivates them to take initiatives, take risks and engage in creative work tasks also improving their job performance (Faraj & Yan, 2009). With the increased work engagement due to psychological safety, their work performance also increases (Mayer & Gavin, 2005).

One way to explain why workers' psychological safety could lead to more engagement in creative work behavior is because any novel idea initially may seem to be unconventional, impractical, ridiculous or unrealistic in a group. Similarly, most people are naturally resistant to change and novelty especially when there is a risk involved which is performance of the organization. When the employees hold more at stake as a consequence of creativity, they may also be dubious of new ideas and changes. However, if the team climate is low in psychological safety, team members based on the prior responses of the team members to creativity, may hold back any innovative ideas that they may have. In case of teachers, creativity is a more desirable workplace trait due to the nature of the job. However, teams that are marked by low psychological safety may be resistant to newness. In that case, teachers will not take initiative and withhold their creativity for apprehensions about inter-personal risk or a negative outcome. Studies however show that one of the most important outcomes for psychological safety is the innovation and the creativity that employees exhibit when they believe that their creative participation will not be met

with rebuttal. Kark & Carmeli (2009) further enhance the understanding about the relationship between psychological safety and creativity by adding that vitality and the creative work involvement of the employees which is linked to their affective states at the work place. They conclude that vitality is an intervening variable between psychological safety and creative work behavior which means that employees' enthusiasm, ability to manage stress and take initiative which is related to their psychological well-being at the workplace. As discussed in light of researches, it is evitable that the growing interests in affective states of the employees has added to theory about the outcomes of these states in the form of performance and other desirable work outcomes. In the current organizational scenario, which is marked by technological advancement and a more aware consumer, newness, creativity and the ability to engage are sough-out by organizations. Psychological safety appears frequently in literature which allows the team members to give more of themselves fearlessly to the organization's benefits. For that end, other organizational factors may have a more prominent role which influences the affective states of the employees. Some researchers however believe that personal factors also play a role in the development of psychological safety which is similar to the framework if the current study. For example, Gong et al (2012) designed a study that examined the effect of employee's proactive personality as an important factor which leads to increased information exchange between the team members, developing the inter-team trust and finally resulting in creative work behavior. The authors further add that information exchange also leads to creativity at the work place as trust is developed.

2.3 Psychological Safety in Educational Research

There is an increasing interest in examining psychological safety in educational institutions. The special review published by Research in Human Development 2016 showcases the increasing interest of researchers in psychological safety in educational research. The review was dedicated entirely to examining and discussing psychological safety in education and its role in human development which includes both the students as well as the teachers. Wanless (2016) argues that psychological safety must be examine in detail and it should be expanded especially for adult learning which includes the teachers and administrators. The paper proposes that relational developmental systems theory RDST can be used to expand psychological safety in education since the theory asserts that contextual factors assert how much individuals use their agency to learn. These contextual factors can be developed by the schools if they want their teachers, students and administrators to exhibit learning behavior, exhibit employee voice and engage in innovative and creative behavior by taking inter-personal risks. It was further found out in the review of literature that a growing body of research has been focusing on examining psychological safety in the educational institutes but some of the literature is geared towards approaching psychological safety in another deeper aspect in schools. Psychological safety is approached differently as compared to the Organizational Behavior theory which considers it a strictly corporate construct existing only in "corporate work teams". The two categories of educational research examining psychological safety are:

Category 1: Psychological Safety of the Teachers Research that examines psychological safety in school administration such as school leadership, school management teams and teacher teams

Category 2: Psychological Safety of the Educational Environment (PSEE)

Research that focuses on psychological safety as a factor of school culture which affects teachers, students and administrators and affects all school processes including student learning.

The former category of educational research draws majorly from organizational behavior theory and the latter draws from educational theory. Both categories have provided valuable insights about how psychological safety can be expanded in the learning process especially that involves group learning where leadership and culture both play significant roles. Researches that have examined psychological safety as a contextual factor that influences learning whether it is student learning or teacher learning have also contributed significantly in understanding how context may be improved for the learning of all participants of the school culture. Baena and Bordovskaia (2015) conducted an empirical study in Russian secondary schools which included both teachers and student. They argue that psychological safety to be an important psychological factor of the learning context that must be provided to the students and teachers by protecting them from threat and enabling them to develop and learn along with maintaining their psychological well-being. The study also found empirical evidence supporting psychological safety for improved learning, described in Table 2.1.

Table 2.1 Overview of Psychological Safety in Educational Research

Authors	Research Focus	Major Findings
Baena & Bordovskaia (2015)	Psychological safety of educational environment (Quantitative)	Correlation between students' and teachers' psychological safety levels. Self-confidence and improved cognitive activity in students with high psychological safety
Edmondson et al. (2016)	Psychological Safety of School Principals	Leader effectiveness, work type and hierarchical status within the organization influences the reported psychological safety in the education sector
Zinsser and Zinsser (2016)	Psychosocial safety climate in Preschool (Case Study)	Psychosocial Safety Climate in Schools 1. Management Support & Commitment 2. Management Priority 3. Organizational Communication 4. Organizational Participation & Involvement 5. Contextual Factors (Peer Relations and Peer support)
Sağnak (2017)	Teachers' voice behavior and ethical leadership moderating effect of psychological safety	Ethical leadership enables teachers' voice behavior in the presence of psychological safety and ethical culture.
Kulikova & Maliy (2017)	Teachers' professional and personal qualities	Desirable professional and personal qualities of teachers such as emotional stability, creativity, reflection, ability to manage anxiety are related with the psychological safety of the educational environment that is influences by these qualities.
Bondarchuk (2018)	Innovative Activities and	Teachers are more likely to engage in innovative activities if the educational environment is psychologically safe

	Psychological Safety	
Sun & Huang (2019)	Teachers' innovative behavior and psychological capital mediated by psychological safety	Psychological capital has a direct effect on innovative work behavior exhibited by the teachers and is partially mediated by their team psychological safety.
Dramanu (2020)	Psychological flexibility and psychological safety	Teachers are more easily engaged in their work if they have high levels of psychological safety and psychological flexibility which are both significant predictors.
Bas & Tabankali (2020)	Teacher Personality, psychological safety and teachers' voice behavior	Psychological safety was found to be positively related with teacher agreeableness and openness to communication. Similarly, psychological safety was also correlated with teachers' voice behavior.
Weiner et al (2021)	The role of school principals on psychological safety and organizational learning in schools	Using qualitative data from 54 school principals, the study found that organizational factors, teacher decision making and the principals' autonomy were all related with psychological safety

Zinsser & Zinsser (2016) carried out a case study in two pre-schools adapting psychological safety concepts from Edmondson (1990) and Dollard (2007) which is the psychosocial safety in the workplace and leads to employee engagement in their work. The paper proposes steps that can be taken for improving the psychosocial safety climate of the school to engage pre-school teachers in their work and manage the challenging work of early childhood education. The steps direct practitioners towards improving the climate by re-visiting management practices and policies. They further support the findings buy using

relational developmental systems theory (RDST) and concluding that teachers who work in a high psychosocial school environment will practice innovative teaching strategies and their psychological well-being is manifested in their behavior, social-emotional competence and the eventually the classroom outcomes (Jennings and Greenberg, 2009).

Research on psychological safety of teachers has only gained increased attention in the past decade as educational researchers are implementing the concepts drawn from organizational behavior theory to education sector. It has so far been proven beneficial to incorporate team structures in the education sector but would be truly beneficial if the leadership and organizational support also facilitate team work. The shift from individualism to collectivism in education sector is monumental and must be understood clearly by administrators if the benefits are to be fully reaped. Weiner et al (2021) discuss in detail the role of the school leader as a facilitator for the teachers learning especially by providing the direction and creating the context where organizational learning takes place. They can achieve that by forming professional learning communities for the teachers, developing a culture that is conducive to learning, promoting teacher collaboration and cultivating their individual development as professionals as well as instilling a collective ownership in the team members. Leaders can also act as buffers for teachers from the pressures of the organization and giving them the space where they can freely innovate and learn. We can say that even if the organizational culture is not as conducive to learning, the role of leadership ranks still higher in the factors that enable psychological safety and innovative work behavior.

Educational research can also situate psychological safety and innovation as key features of the school culture, the school leaders would realize the need to ensure that the

requirements are met. Their emphasis during team functions would shift towards innovation and fostering psychological safety of the team members if they know that is what the organization also encourages and values. The same concept of psychological safety is applied for students who may feel safe to share ideas, voice opinions, report errors if they believe that they will not be harmed in anyway. Educational research is exploring how this group level construct may affect student learning within schools and has been found to be instrumental in improving learning and the educational environment the students are exposed too. Another study by Baena & Bordovskaia (2015) correlate teachers and students' psychological safety which paves a new way of understanding the implications in education sector. It is logical that psychological safety of teachers may have effects on the psychological safety of the students however more research is needed to find theoretical basis for such claims. The larger portion of research in education which explores psychological safety in on teachers as members of the schools as organization. The prominent factors that emerge in these studies are leadership, teacher empowerment, teacher participation and a sense of collective accountability which is found to be related to the teachers' psychological safety. Schools that emphasize creativity and experimentation would be more conducive to psychologically safe teams and result in innovative work behavior. The review has shown that research in this sector is still in its infancy and educational research must address the gaps especially by specifying the definitions of psychological safety of teachers and psychological safety of the educational environment. Some studies have also used the term psychosocial safety climate instead. The current study aimed to fill the gap in literature especially by examining personal factors in relation to psychological safety and conducting a cross-level examination of the influences of psychological safety.

2.4 Antecedents: Factors That Influence Psychological Safety

The organization provides the setting in which individuals and teams interact with one another. Research in organizational behavior aims to analyze the factors that affect this behavior so that organizations may understand and make decisions that are mutually beneficial for the employers and employees. Therefore, organizational behavior theory has anchors which analyzes these factors at three levels of analysis: individual, group and organization.

In the proceeding section of this chapter, we will discuss the extant psychological safety research as well as identify the level of analysis of the studies. Studies conducted in different types of organizations, have identified a wide range of factors that contribute to changes in psychological safety. At the group level of analysis are facets of leadership behavior such as Bienefeld & Grote (2014) identified shared leadership and inclusiveness as factors that significantly affect how individuals perceive their psychological safety and consequently feel safe enough to speak up. Carmeli et al., (2010) report similar findings adding leadership supportive behavior to the antecedents of psychological safety at the individual level. A few studies including Edmondson (1999) have also conceptualized psychological safety as a collective perception of the team and found leadership behaviour an important antecedent specifically support and coaching that the leader provides to the entire team (Roberto, 2002). The review has shown repeatedly that organizational practices that empower the employees or engages them in distributed leadership results in higher psychological safety amongst the employees which enables them to be more engaged in their work, perform effectively and most importantly exhibit creative work behavior and voice behavior (Detert & Burris, 2007; Liu et al., 2014). Bienefeld and Grote (2014) also found evidence supporting shared leadership for

increasing team performance, managing risk and leading the team towards safety. It is logical to conclude from theoretical support that leadership is a major antecedent of psychological safety, however, an employee interacts at an interpersonal level with the team members as well which is why studies have examined the effects of inter-personal relationships on psychological safety and found it to be a significant contributor. Roberto (2002) and Brueller & Carameli (2011) found the level of interaction, familiarity between the team members and the quality of social relationship between members as factors strongly influencing psychological safety.

Likewise, social capital (Huan & Jian, 2012) and network ties (Schulte et al.,2012) also empirically proved to be affective in improving psychological safety of the employees. An interesting finding was reported by Burris et al. (2009) where belonging to the inner circle of the leader increased psychological safety further reinforced by Gerlach & Gockel (2017) highlighting that low task-conflict was needed for high psychological safety unless the employee belongs to the leader's inner-group. The studies mentioned so far bring our focus to the point that psychological safety as a construct is influenced by the social interactions occurring within the context of the organization whether they are directly with the leader or with the team members whereby the quality of the relationships with these co-workers also influence how the perception of inter-personal safety develops in the individual's mind. This brings to attention a gap in literature pertaining to how individual employees' personal dispositions or their personal factors play a role in how psychologically safe they are naturally disposed towards feeling.

Carmeli & Zisu (2009) explored how certain individual factors that depend on the context influence psychological safety for instance, organizational commitment and job

performance are individual variables that depend on the employee's perception of the extent of organizational support. Organizational support refers to the employee belief about how much the organization values them and cares about their socio-emotional needs (Eisenberger et al., 1986). Depending upon employee's perceive organizational support their psychological safety may vary. This finding supports the theoretical basis of the current study, that there is a degree of interpretation and *"thinking"* an employee does about the prevalent context of the organization and attributes a personal meaning to the external events and then behaves according to his/her subjective interpretation. This interpretation may be facilitated by organizational practices and leadership behavior along with other personal factors that are specific to the individual employees.

A slightly distinct study was designed by Farj & Yan (2009) who analyzed the effect of boundary work on psychological safety under the variable conditions of task uncertainty and resource scarcity. Boundary work entails interaction between team members while they are managing external networks and managing their resources. The findings of this survey study showed a positive relation between boundary work and psychological safety if the conditions of high task uncertainty and resource scarcity is met. This means that when teams have to engage in boundary work while there are the challenges of task uncertainty and resource scarcity at hand, there psychological safety as a whole team will increase. This finding leads us to interpret that when team members are in a tough situation their objectives are aligned and focused on a common outcome thus leading to higher levels of psychological safety with less fear of a negative consequence of expressing themselves. O'Donovan & McAuliffe (2020) conducted an interesting study in which intentional intervention programs were designed to assess their effects on psychological safety. These interventions aimed to

promote employee voice behavior via team-building activities specifically targeting to increase psychological safety of the team member, interpersonal communication and mutual support. Although the study was presented with limitations due to the interventions themselves but there were some interventions that resulted in increase in psychological safety, however the study concludes that the interventions must be consistent at all levels of the organization including leadership support if the target is to foster psychological safety by changing deeply-rooted behavior of the employees which is resistant to speaking up.

Aspects of leadership have continuously emerged in literature for having an effect on the psychological safety of the team members. Definitely, if the team members have good relationships with the individual with whom the most power and authority reside in a team setting, the individual would feel safe from penalty or negative evaluation even if an error is reported or an idea openly shared. An important aspect to consider here is how the organization views errors, which depends on the type of work as well. For example, mistakes in medicine are more crucial as compared to mistakes made by teachers in their classrooms. However, having good leader-member relations does influence the way an individual feels in a team setting for example Edmondson (1999) and Kahn (1990), both of whom are pioneers of psychological safety research, identified that leader member relations have a significant effect on the psychological safety of the team members. Kahn (1990) further clarifies that the reason these relationships have such an instrumental effect on psychological safety on the team members is because relationships with the leaders are related to trust (Madjar & Ortiz-Walters, 2009) and also an understanding of one's competence due to the quality of relations. Edmonson (2004) further aids the understanding that relationship with the leaders also determine the expectations of appropriate and inappropriate behavior in the team. The social exchange

between the leader and the team member also determines what kind of behavior is valued by the leader (Coombe, 2010).

2.4.1 Leadership and Psychological Safety

Leadership behavior appeared frequently in this study's review of literature as an antecedent of psychological safety. May et al (2004) examined leader support in relation to psychological safety. The results of their study indicated that psychological meaningfulness and psychological safety are related to job engagement of the employees where support from the leadership and good inter-personal relations with the team, contributed towards the development of psychological safety. Their research design focused on re-visiting Kahn's (1990) landmark study and investigating the psychological conditions that help the employees engage in their work. Their findings found interesting relationships which also guided the conceptualizing of the present study in terms of including leadership behavior as a part of the framework. Madjar and Ortiz-Walters (2009) conducted their study on a sample of hairstylists and found that psychological safety mediated the link between supervisor's trust and the employee's performance. This further affirms the position of leadership as an antecedent of psychological safety but the difference lies in the facet of leadership that this study chose to examine, Other studies have focused on the behavioral aspect of leadership such as leader's behavioral integrity, as done by Palanski and Vogelgesang who found it to have a significant effect on perceptions of psychological safety. An interesting study design put forward by Palanski and Vogelgesang (2011), by conducting an online experiment on how the subordinates interpreted their leader's integrity and whether it affects their perceptions of psychological safety. This study also affirmed psychological safety as resulting in creativity and risk-taking amongst the employees.

Leadership theory is also developing with the rapid global changes. With increased technological advancement which allows worldwide travel and communication, it is not uncommon to organizations to work with diverse employees and work together with people from different cultural backgrounds. In this case, it requires a leader to be skilled enough in working together with diversity and catering to the dynamics that arise in a diverse workgroup such as bias, habitual patterns, communication gap and group conflict. In this scenario, leaders must be empathetic, inclusive of all diversity, and must demonstrate adaptability to any socio-cultural elements. This particular aspect of leadership is known as leadership inclusiveness and is more than relevant in modern organizations. Research in psychological safety also explored how leadership inclusiveness affects how psychologically safe a team member may perceive himself to be especially if the team is ethnically or culturally diverse. What we know about leader inclusiveness and psychological safety is based on empirical studies carried out in the past decade. The earliest being the study by Carmeli et al. (2010) that linked leader inclusiveness gauged by openness, accessibility and availability towards increased psychological safety which results in innovative creative work behavior. The study presents robust findings based on results of SEM which provides empirical evidence on the relationship between leadership and psychological safety although it does so with a small sample size of 150. Further adding to this relationship, Hirak et al. (2012) carried out a longitudinal study examining leader behavior and psychological safety and found that inclusive leadership affects learning processes especially psychological safety which facilitated the team's ability to learn from failures. Previously discussed studies have explored psychological safety in order to investigate team learning and team learning behavior. The study by Hirak et al (2012) further strengthens psychological safety as an important preceding variable for organizational learning

process also confirmed by Nembhard & Edmondson (2006) who found that psychological safety inhibits the inverse effect of job status (defined as job position in the organization) and resulted in teams that are more engaged in team learning with higher levels of psychological safety. The current study also attempts to determine, if the status difference between team members reduces the team psychological safety, what would be the effect of the employment status held by employees on their team psychological safety? More specifically, the study examined psychological safety in teachers holding permanent and temporary positions in the organizations (Javed et al. ,2017).

While leadership theory has emphasized the importance of leadership behavior in affecting organizational outcomes, there has been a growing body of literature that supports organizational and team learning and significant factors in relation to psychological safety and team effectiveness. Ortega et al. (2013) examined organizational learning by examining how change-oriented leadership behavior acts as a contributor towards psychological safety which in turn results in team learning and team effectiveness. Delving into the details of change-oriented leadership behavior, it is found that this aspect of leadership behavior lies within the bounds of relations-oriented leadership behavior as it emphasizes relations with employees and change and improvement. They recommend that change-oriented leadership can be fostered by management if they focus on team learning and leadership. Leaders themselves can foster psychological safety by discussing errors and their solutions, encouraging innovation and idea sharing. Consistent with the findings of Detert and Burris (2007) who found that change-oriented leadership results in improvement-oriented employee voice. These relations can be explained using social exchange theory which is also the framework of the current study, in

which case, employee psychological safety is an exchange taking place as a response to the leadership behavior.

Miao et al. (2019) entrepreneurial leadership which is a category of leadership behavior specific to entrepreneurial opportunities but is goal-oriented and opportunity-oriented. The study found psychological safety to have a mediating effect on entrepreneurial leadership and team performance. It is important to note here that entrepreneurial leadership has similarities with transactional leadership style (Gupta et al., 2004). However, Miao et al. (2019) have distinguished the two based on opportunity-oriented leadership behavior which can be attributed to entrepreneurial leadership.

Humble leadership is another emerging research interest in organizational behavior research. Factors that are examined frequently in relationship are creativity, psychological safety and knowledge sharing. Wang et al (2018) present a moderated-mediating effect of psychological safety on leadership specifically humble leadership and the creativity of the employees. Important to note here is how humble leadership is an antecedent of psychological safety, supported empirically indicating a strong association. This model also adds to our understanding of psychological safety as a contextual factor in organizational processes. Using dyadic leadership and social information processing theory as a theoretical framework, Wang et al. (2018) findings indicate leadership humility as an antecedent of high team psychological safety by maintaining an environment where team members feel safe to contribute and exhibit creative work behavior. In the traditional scientific management, the power resided with the manager but due to the changing organizations the power is not explicitly exercised yet it is done invisibly within the team structure while the employee may or may not be conscious of

it. As Foucault (1995) says that power was traditionally what could be perceived, seen through interactions, actions, decisions and dialogues but now the power must be exercised through invisibility. We can infer that the leadership through its invisibility may exercises a certain degree of control over the team members which may inhibit their growth. Constant surveillance and examination of individuals leave permanent effects on their cognition and behavior.

Erkutlu and Chatra (2016) confirmed similar findings where leadership behavior, in terms of benevolent leadership affected the psychological safety of the employees which in turn led to increased psychological well-being of the employees. Benevolent leadership is categorized by ethical decision-making, positive influences on the employees and inspiring hope and cultivating a shared meaning in their followers. Although Erkutlu and Chatra (2016) along with many other studies have added to theory about how leadership and its linked positive leadership style which are employee-focused affect psychological well-being, these studies largely neglect the effect of the increased relation-focused leadership on the productivity and performance of the individual, team and the organization. Fielder's Contingency leadership theory also brings to attention how effectiveness of leadership should not be on the extreme ends of the dichotomy of leadership behavior namely relations and task-focused leadership. The theory asserts that different situations require appropriate

The present review of leadership theory in relationship with team psychological safety has identified a gap in literature which shows that there are very few that have examined leadership task-oriented behavior such as productivity, goal-orientation, emphasis on structure, team productivity and more emphasis on "soft skills", for lack of a better word, of the leadership. The current study has made an attempt to bridge this gap by examining how task-

oriented leadership behavior may affect psychological safety. A few empirical studies have, however, investigated certain factors such as mastery-goal orientation, leadership, team potency in relation with psychological safety (Hjerto et al., 2017). This study is more relevant to our study since it was conducted in school leadership teams where the leadership of the principal was examined in relation to team members' psychological safety, and presented interesting findings leading to how leadership styles that provide coaching, and emphasize team learning by redefining goals and keeping mastery as the goal will lead to improved team performance and psychological safety. The authors also recommended that leadership must focus on educating the team members about how teams' function and develop their team potency and team psychological safety although, the authors also expressed that team psychological safety may develop with time much like inter-personal relationships. However, we present the argument that team members despite having good inter-personal relationships, team members may not necessarily feel safe to share errors or come up with technical solutions to problems without engaging in impression management and having apprehensions about negative evaluation by the team members. In fact, longer team tenure may lead to higher psychological safety over time, but studies have shown that leadership and other factors contribute towards expediting this process. This is the assertion on which the premise of the current study is based, to identify factors that may contribute towards fostering psychological safety and how some of the factors which can be controlled may be optimized for fostering high team psychological safety.

While leadership behavior may refer to the behavior the leader engages in which may influence organizational outcomes, leadership style refers to the behavioral patterns that a leader may exhibit. This is to say, the pre-disposition of the leader to behave in a certain way

is the leadership style. Trait theory of leadership called it a natural predisposition that cannot be altered however with growing body of research it was found that leadership is a skill that may be developed overtime. There is a growing myriad of research that has explored leadership style with psychological safety.

Chughtai (2016) presented interesting findings drawing the sample, from the local corporate sector of Pakistan. The study linked servant leadership and employee voice and employee negative feedback by examining the mediating role of psychological safety. The finding of interest in this study was the strong association between servant leadership and psychological safety. Servant leadership is another kind of leadership behavior characterized by focusing on employee-needs and going beyond self-interest while working for the organization. This leadership style is an emerging style in leadership theory and still much research is needed to understand how this style influences employee outcomes as so far research has shown that servant leaders are able to influence and engage their workforce quite effectively (Liden et al., 2015; Walumbwa, Hartnell & Oke, 2010).

Zhou and Pan (2015), in their cross-level examination of transformational leadership and employee creativity, found psychological safety to be a mediator of the relationship. Transformational leadership is one of the three leadership style in theory which are: transactional, transformational leadership and laissez-faire leadership. These leadership also lie on the relations/task focus dichotomy where transactional leadership is more task-focused and transformational leadership is relation or employee-focused and laisse-faire takes a non-chalant behavioral approach which neither has focus on the organization nor on the employees. This leadership style is similar to impoverished leadership style as in Blake and Mouton's

managerial grid. Zhou and Pan's (2015) study examines the effect of transformational leadership in group climate that the team is subjected to in particular psychological safety which in turn leads to creativity on the individual employee's part. This study is a cross-level examination of group factors that influence an individual employee's outcome thus making an important theoretical contribution which calls for cross-level research in organizational behavior specifically leadership and psychological safety.

Leadership behavior has been proven to significantly affect organizational functioning. The Ohio State University pioneered leader behavior description questionnaire (LBDQ) which led to the concept of the dichotomy of leadership behavior: initiating structure and consideration also known as the leadership's task focus or people focus. Our study employs the terms leadership task-oriented behavior and relations-oriented behavior; the former has the efficient completion of tasks as the primary objective and the latter focuses on developing the human resource as its primary concern. Hoy & Miskel (2013) note that leadership studies found two major dimension of leadership behavior which may describe a leader's dominant style however the leader's behavior may change as per different situations. Regardless, this dichotomy of leadership behavior is clear and comprehensive as it not only broadly categorizes leadership behavior but also sets the path towards identification of the dominant leadership style. Furthermore, Blake & Mouton's managerial grid (1985), based on these very same dimensions of task and relation focus, has been helpful in understanding leader behavior and for exploring relationship of leader behavior with other variables. Thus, the rationale for selecting the dichotomy of leadership behavior, despite the recent research identifying other types of leader-behavior such as change-oriented behavior and external behavior (Yukl, 2002,

2010, 2012), is due to its generic nature and extensive theoretical support in literature. The two independent variables related to leadership behavior are:

- **Leadership task-oriented behavior** is focused on the completion of tasks and the achievement of organizational objectives. All organizational processes and leadership functions are geared towards the goals of the organization.
- **Leadership relations-oriented behavior** is focused on developing the human resource of the organization while focusing on employee well-being, encouraging motivation and ensuring their satisfaction.

A leadership style may be defined as the behavioral pattern a leader has while engaged in the functions of management in an organization. As per the Blake & Mouton's managerial grid, which is a behavioral model of leadership, leadership style may be determined on the basis of the behavior exhibited by the leader on the two behavioral dimensions namely task-focus and relations-focus. According to the model, there are five possible leadership styles which a leader may exhibit based on his scores on task and relations-focused behavior. A total of 81 possible scores that a leader may get on the managerial grid can be further categorized into five leadership styles.

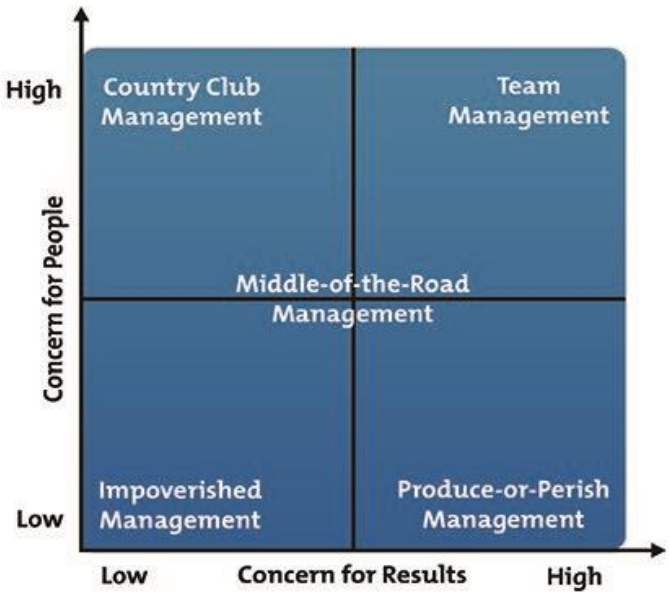

Figure 2.1 The Leadership Grid

Figure 2.1 shows The Leadership Grid® figure from "Leadership Dilemmas – Grid Solutions," by Robert R. Blake and Anne Adams McCanse (formerly the Managerial Grid by Robert R. Blake and Jane S. Mouton). Houston: Gulf Publishing Company, Copyright 1991 by Grid International, Inc.

1. **Impoverished Leadership (low task, low relations)**

Impoverished leaders exhibit minimum concern on both dimensions of leadership behavior. Their focus is neither the achievement of organizational goals nor the development of the human resource.

2. **Authoritarian Leadership (high task, low relations)**

The focus of authoritarian leaders is centered on the achievement of organizational goals and the completion of tasks. Their interactions with the employees are dominated by

their concern for maximizing production and task completion. The emphasis on employee needs is diminished as task concern dominates this leadership style.

3. **Country Club Leadership (low task, high relations)**

Country Club leaders pay more attention towards the employee needs and their satisfaction. Their motive is developing a friendly work environment at the expense of organizational goals which go lower in priority. This type of leadership is effective in terms of higher employee motivation but it may affect the organizational performance and only those employees may be motivated who have a good relationship with the supervisor.

4. **Team Leadership (high task, high relations)**

Blake and Mouton conclude Team Leadership as the most effective style as it highly emphasizes the achievement of organizational goals while also highly prioritizing the employee needs. Meeting the employees' personal needs while completing the organizational tasks are the major foci of team leaders. Such leaders nurture positive relations with the employees and motivate them while steering their efforts towards the task completion. As a result, there is an equally high focus on tasks and relations which may improve the desired organizational outcomes.

2.4.2 Organizational Culture and Psychological Safety

The most influential construct at the organizational level of analysis in organizational behavior theory is organizational culture. Theory has taken distinct approaches in defining organizational culture but there is a myriad of literature which has linked organizational culture to positive work outcomes at all levels of analysis. Most researchers agree that organizational culture is a contextual construct that is apparently implicit but has deep-rooted effects in the

organizational behavior. Manetje and Martins (2009) and Wagner (1995), organizational culture leads to various work-related behavior that may be exhibited by the employees in exchange to the organizational culture they are exposed to. In line with the theoretical framework of the current study, organizational factor is also considered as a factor that influences various types of behavior and outcome in the organizational processes. In order to make the employees engage in innovation and organizational learning, theory has been striving to uncover the factors that may aid in developing the social context which will enable the learning behavior and the psychological conditions for organizational learning. Most researchers agree that organizational culture as well as climate are one of the major factors belonging to that "social context" (Glisson, 2015). Schein (1990) was the first to consider psychological safety as a part of the organizational culture, however Edmondson (1999) defined it as a construct that emanates from the individual to the team and thus becomes a shared belief of the team and is developed by the team leader behavior (Edmondson, 1996). Edmondson and Mogelof (2004) also attempted to examine the conditions preceding psychological safety in innovation teams linking personality, organizational culture and team dynamics. The findings of the study indicated that psychological safety is developed with the influence of factors at multiple levels of analysis in an organization including the climate that reinforces innovation. The authors further discuss that organizational cultures that encourage cross-level social interactions between members of the organization further develops a sense of psychological safety. At the group-level, interaction between team members especially how errors are penalized in social interactions, also develops or inhibits the sense of psychological safety of team members (Edmondson, 2006).

Overtime, various researchers have presented various models of organizational culture especially in the 1970s onwards, where the organizational cultures were categorized based on the various factors the organization was oriented towards such as Harrison's (1993) model that characterized organizational culture into four categories such as: role-oriented, power-oriented, achievement-oriented and support-oriented. Using the same model, a Turkish study by Taştan and Türker (2014) examined organizational culture in relation to psychological safety as a moderator and job involvement. Using hierarchical regression analysis, organizational culture was found to be positively related with psychological safety however the study found its moderation effect to be weak on the relation between organizational culture and job involvement. Nonetheless, the finding of interest here is the positive association between organizational culture and psychological safety which also has extensive support in literature especially in Kahn's (1990) landmark study finding organizational culture to be the context that results in their psychological engagement or disengagement at the workplace. Similar findings were reported by Whitener (1998) and May et al. (2004). A case study to examine how organizational learning occurs under the influence of organizational culture, conducted by Lucas and Kline (2008) concluded that organizational culture and leadership both influence the group dynamics of the work team and therefore lead to whether employees engage in innovative task or disengage from exhibiting innovative/creative work behavior. The authors of this study also use the social exchange theory to explain the interaction of external factors with the employee's interpretation of these factors which are assisted by leadership. Although the study found leaders to be limited by the organizational culture and the system, theory suggests otherwise. Schein (1992) notes that leaders are the actual agents of the organizational culture which they do so by exerting a significant influence on maintaining and changing the organizational culture. The current study however does not include in its scope,

the objective of examining the interaction of leadership and organizational culture on psychological safety. It rather focuses on how organizational culture may influence psychological safety on its own as a body of researches have supported organizational culture as instrumental in affecting psychological safety such as Baer and Fraese (2002) and Ali Taha et al. (2016) who found organizational culture that encourages creativity, innovation to have the strongest association with psychological safety.

Defining organizational culture has been an elusive task due to the variety of ways it has been interpreted. There is a general consensus that organizational culture does exist even though it may be difficult to specify it and it also plays a major role in shaping the behavior in the organization. Another important aspect of organizational culture is how the leaders are the main agents in disseminating it. Leadership determines the kind of culture that is set-up based on their own personal worldview. William Schneider (1985) put forward the culture model by keeping in view two aspects of an organization:

1. what the organization focuses on (Reality/Possibility)
2. how decisions are made in the organization (Personal/Impersonal)

By categorizing the aforementioned aspects of an organization, Schneider (1985) proposed four quadrants, which has been a popular choice in various theoretical models, with four possible core culture types of an organization. Figure 2.2 illustrates how the focus of organization and their decision-making process may help in identifying the core culture and Schneider (1994) defines organizational culture as “the way we do things around here”

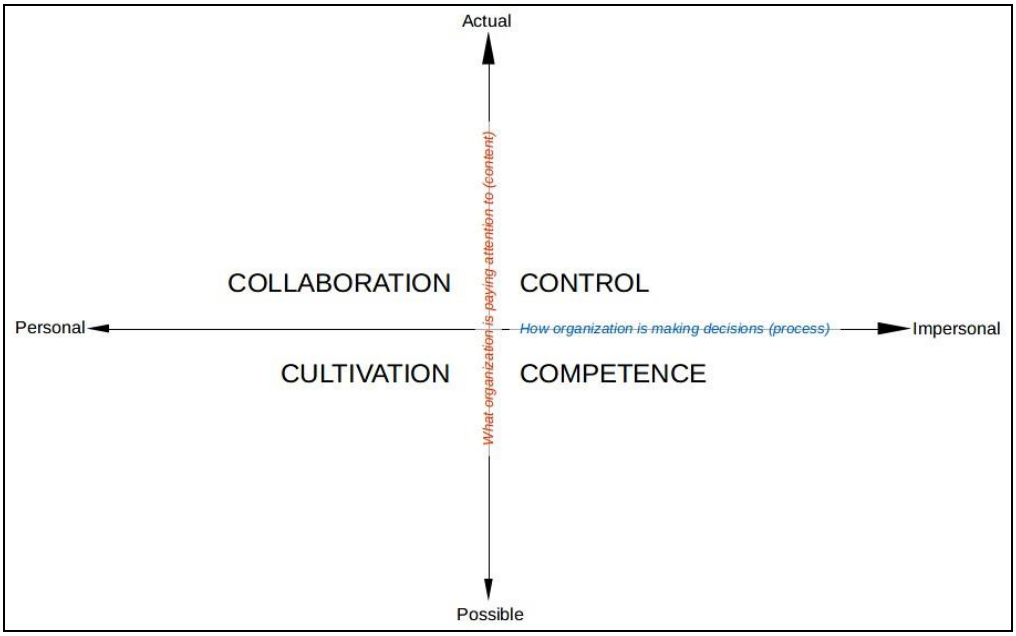

Figure 2.2 Schneider's Organizational Culture Model

Building upon Schneider's discussed in The Reengineering Alternative (1999) culture model and available for open access by Corporate Development Group, Inc (1994-2011), and competing values framework (Quinn et al., 1990). Cameron & Quinn (2006) put another version of the organizational culture model but with a different scoring strategy. Instead of choosing forced-item categories, respondents score each statement out of 100 based on their own organization's internal culture. The figure shows the four quadrants and the culture types.

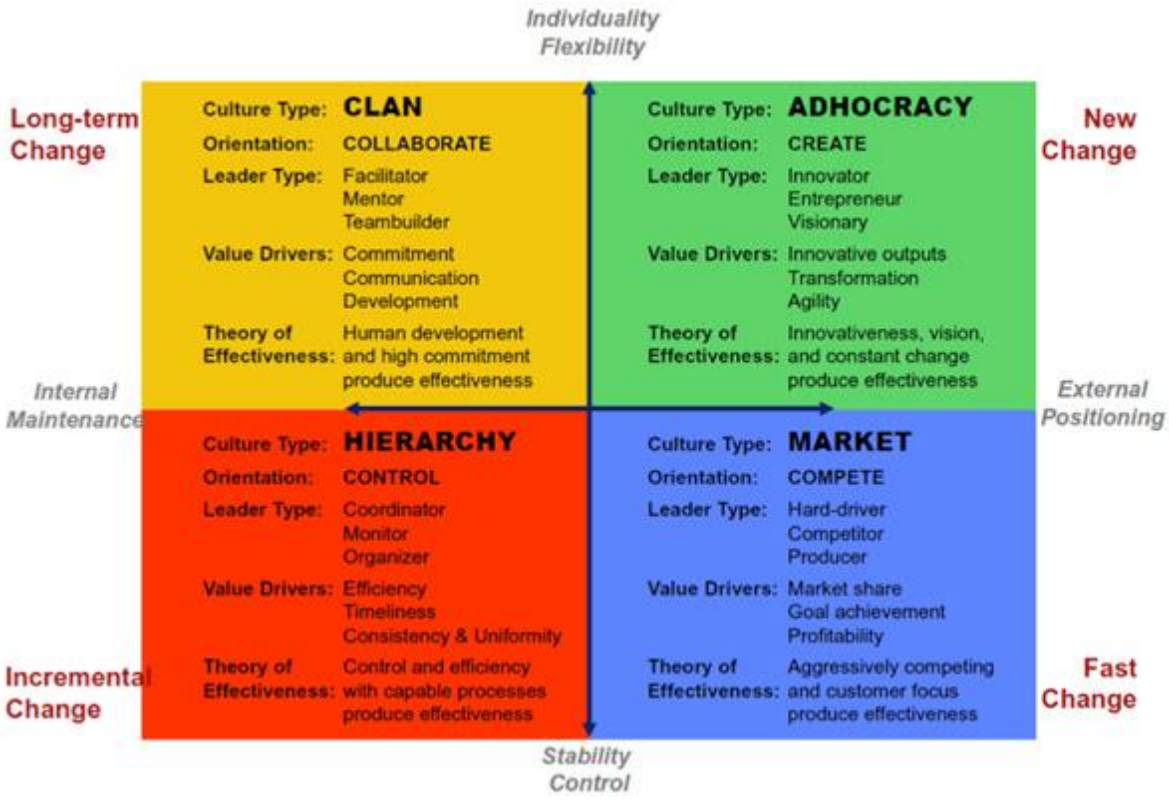

Figure 2.3 Cameron & Quinn (2006) Organizational Culture Model

1. Control/Hierarchy Culture

Control culture lies in the Actual/Impersonal quadrant in Schneider's Culture model and in (stability/internal focus) in Cameron and Quinn's model. The primary focus of such organizations is structure and stability. The emphasis in on the achievement of organizational goals and the focal point is gaining and keeping power over the organizational processes. This type of culture is traditionalist and realistically practical in its processes and decision-making. Efficiency is a key feature of such a culture with a strict control over the processes and outcomes. It tends to foster authoritarian leadership by limiting collaboration; in other words, a control culture may provide stability and functional expertise but may also get impersonal

and inflexible. They may end up inhibiting creativity and be slow in adapting to changes in the market.

2. Competence/Market Culture

Competence culture lies in the Impersonal/Possible quadrant of the culture model. In this culture type, the organization strives to compete against pre-set standards of excellence. Even though a competence culture promotes innovation by being future-oriented and maintaining a possibility-driven visionary approach, employees are side-lined since they have to put forward exceptional performance in order to be acknowledged by the leadership. This in turn may end up in adding to the employee's insecurity and stress. The organization maintains its stability with an emphasis on planning, and systematic decision-making and is also good at adapting to change with continuous development and research. However, the organization may lose track of what's practical and may get too idealistic with its firm adherence to the standards of excellence with an increased focus on external success rather than internal satisfaction of organizational members.

3. Collaborate/Clan Culture

A Collaboration culture lies on the Personal/Actual quadrant of the culture model and emphasizes the people as well as the organization in its decision-making processes. Communication in such a culture is open with increased correspondence between the employees due to an increased emphasis on building and effectively utilizing teams. With an increased collaboration between employees, teams work together and benefit each other by building on each other's capacities and expertise. Team work and synergy are the key features of this culture and the approach is mostly egalitarian. However, if the organization over-

emphasizes good relationships with the employees, it may foster mediocrity and may also diminish accountability in the team. This type of culture is most often seen in smaller teams and flatter hierarchies however organizational communication plays the major role in developing clan/collaborate culture as well as improved inter-personal relationships. The word clan says it all, such organizations like to work in collaboration as a family. Teamwork and open and two-way communication is practiced in such organizational cultures and may include work outcomes such as team members engagement and satisfaction.

4. Cultivate/Adhocracy Culture

Cultivation Culture lies on the Personal/Possibility quadrant as it emphasizes both personal growth of the employees and keeping a possibility-orientation. People and their individuality are valued in such a culture which leads to trust and creativity in the employees. However, the emphasis on individuals may lead the organization to lose its focus and may end up being inefficient and out of control. Employees are encouraged to express themselves which adds to their inspiration yet the solutions may not be practical and realistic. Adhocracy/Cultivate culture require more risk-taking and creativity from team members, New innovative ideas are encouraged and the focus is on external market and differentiation. An over-emphasis on novelty and increased pressure on employees for innovative behavior may end up forming competitiveness between the team members.

The current study uses Schneider's culture model event though Cameron and Quinn's model, is more recent because how it is in line with the Managerial Grid in terms of people and organizational focus which makes the interpretation easier. Furthermore, both models are more or less similar in how they categorize the four organizational culture types however,

Cameron & Quinn model's scoring for respondents may have been tricky for the respondents of the current study where the remaining questionnaire is on a Likert scale. So, to maintain uniformity in scoring in interpretation, the decision was made so. Besides, both models offer invaluable insight on how the internal organizational culture works, the type of leadership and organizational foci it may lead to and how effectively each culture type may be able to deal with change in the market. Organizational change has most often been linked to organizational learning which in turn is often related with innovation. Glisson (2015) argues that innovation and creativity in an organization, is a lot about the social context in which the behavior occurs and the two main factors of this social context are organizational culture and climate. Theory has used organizational culture and climate interchangeably however both of them refer to the external environment in which individuals and teams of an organization function. Glisson (2015) further highlights how the mechanistic view of organization is evolving towards increased innovation and with enabling psychological climate for innovation, effectiveness within organizations may be achieved. Baer and Frese (2002) also support similar ideas where providing the climate for desired employee behavior such as innovation and creativity is more important than realized by managers. The authors conclude that providing the context or climate for taking initiatives will improve psychological safety of the employees and ultimately result in improved performance. The study was conducted in 47 German companies and found strong empirical evidence in favor of the effect of organizational climate and psychological safety leading to improvement in the firms' performance.

2.4.3 Team Effectiveness and Psychological Safety

Work in schools also comes in various forms such as individual tasks, pair tasks and group tasks. A team of teachers can also take various meanings depending upon the type of

team that is formed: a temporary team or a permanent team. A team is basically a group of workers who share the same goal and join their efforts to reach their goals. A team is led by a team leader who performs his managerial functions and leads the team towards success.

Team effectiveness encompasses various sub-constructs but it majorly refers to the effectiveness of a team or a groups as single unit in achieving the objectives given to them by an authority or an organization. It is about their ability to work together and achieve the end. Concerning the educational sector, team work and group work has been used inter-changeably. Some traditionalist might even argue that teams do not exist in the educational sector since teachers have their individual specialized tasks related to their own academic subjects and therefore do not need to work with a group for the achievement of the organizational objectives. However, education sector has adopted team work and group cohesion since schools started working with a shared leadership approach and expanded the traditional academic role of teachers to include various administrative tasks. A grade-level faculty, a senior management tea or a department of teachers is considered a "work team" since the scope of their objectives include more than academic outcomes; especially functions related to the school administration such as school improvement plans, school evaluation programs and increased collaboration for whole-school functioning

In an educational setting, a team could be a management team or a teachers' team. A team of teachers may be categorized based on the grade level they teach or divisions based on the subjects they teach also known as faculty. The most common way in education sector to divide teacher teams in on the basis of the grade level which the group of teachers is teaching led by a senior teacher or section head. Research has shown that working in teams for teachers is beneficial in various ways such as: team work adds to teachers' commitment and trust

towards the organization (Park et al., 2005), empowering the teachers through team work which brings forth their knowledge, job satisfaction and motivation (Henkin & Park, 2007) and develops positive work attitudes when they are involved in team work (Duyar et al., 2013).

Walker (1994) identified that schools and the education sector are now rapidly adopting structural changes and adopting team formations. Many researchers have strongly recommended schools to adopt team work as an integral part of their organizational structures (Lindlow & Bentley, 1989; Bell, 1993) However, the essential function that teams perform is collaboration as Walker (1994) recommends school leaders to review if their educational teams are merely structurally a team but do not perform the essential function of teams which is collaboration and working together towards a common purpose. Team work therefore must be more than a mere "cosmetic adjustment" to the existing organizational structures. This requires the school leaders to re-think all levels of the organization especially how power is distributes and how leadership and the organizational culture encourages collaboration and innovation. Certain characteristics of team work has long existed in schools since teachers have been collaborating wherever the school culture allows and encourages it. Yet, supportive organizational practices which go from the organizational culture to team dynamics, leadership and even individual factors must be reformed if the schools are really willing to benefit from introducing teamwork in the educational setting. This aspect is what the current study aims to examine, the inter-play of multi-level factors in an organization and the outcome of developing the psychological factors-specifically psychological safety of the team members-that encourages as well as enables innovation, voice behavior and creativity. The shift in education sector from individualism towards collaborative teamwork has moved by recognizing the restrictions on creativity and open collaboration that come with a hierarchical system of

authority as opposed to flatter organizational structures. With that, the understanding backed by scientific research the developing the human capital in organizations is of equal importance as productivity also facilitated the aforementioned transition. The pivotal role played in teams is the team leader which in the case of schools may be the school principal or a senior head teacher. Furthermore, the effectiveness of a team is largely dependent on the environment in which it functions which in the case of teacher teams is the school culture. Here school culture should be conducive enough to enable open communication, risk taking and collaboration, trust and participation. Otherwise, it would be useless to introduce team structures in the school without also providing the environment that enables the essential function of a team which is collaboration. Similarly, working in teams involves a degree of risk which is mostly inter-personal in nature. A team where ideas are shared and assessed openly is bound to result in some sort of interpersonal conflict however it depends on the team members how they perceive the risk. Ideally, conflict is an opportunity to learn together as a team and come to an understanding which is beneficial to all. However, if the teams are low in psychological safety, they would instead propose low risk strategies and avoid conflict altogether. That is why psychological safety gives the confidence to team members that even if there is a conflict it would still not be held against them and they will not face any consequence for speaking up.

However, if the school culture does not allow a culture of participation, trust and collaboration it would directly affect how teacher take initiatives in the teams. The result would be a rigid team that is more conflict avoidant and engaged in impression management rather than being open in communication and idea sharing. The question remains whether the administration truly want the teachers to take initiatives and engage in innovative work behavior. If so, the school culture would be developed by the administration encouraging psychologically safe teams. Teacher teams would truly thrive if the organization also supports their teamwork and

collaboration by providing the culture that promotes creativity and collective performance rewards rather than individualization. Team structure is more than just adjustment made in the school structure as it also encompasses the essence of shared accountability and collectivism which can only be disseminated by the team leader and supported by the school culture.

The private educational sector of Pakistan follows a decentralized system where there is more autonomy and freedom in administrative structures. Private school administrations in some schools of urbanized cities have actively introduced educational reforms which has readjusted the distribution of leadership amongst the teachers and school leaders. (Jimenez & Peng Tan, 1987) Although there may be a catch here, teamwork is into limited to only structural reforms in the administrative hierarchy and formation of groups but rather the essence of teamwork revolves around sharing common goals and increasing collaboration and learning. This is entirely not reliant on the inter-team dynamics but also on the external environment where the teams are situated-school culture and the authority figure around which the team is structured-team leader. This restructuring of schools and reforms in school leadership and management especially encouraging collaboration amongst the teachers calls for schools to be more flexible to learning, innovation and creativity for meeting the demands of a rapidly changing globalized world. Many major school systems in Pakistan have adopted the team formation as an integral part of their organizational structure and processes. The study was therefore delimited to include these systems where teacher teams are functional and leadership is somewhat distributed by expanding the role of teachers to administrative tasks as well as teaching. Public schools are centralized and follow strict hierarchies which is why the participants were only taken from schools that offer Cambridge education system which means

that they are well-established schools and authorized by Cambridge University for O and A Level Programs.

The extant literature on forming effective teams shows that "team effectiveness" is mostly considered as an output variable of organizational processes. The current study takes a different approach by using GRPI model of team effectiveness as a moderating variable. These shared objectives and tasks require them to interact as a team with the school leadership which enables them to experience the group dynamics that corporate organizations also do. This study uses the GRPI model of team effectiveness proposed by Rubin, Plovnick & Fry (1977) which includes goals, roles, processes and inter-personal relationships as the main features of a team's effectiveness.

- **Goals:** to be clearly stated and expectations are communicated
- **Roles:** the team leader is acknowledged and all team members are clear about their role in the team
- **Procedures/Processes:** the "how" of the task is specific and understood by all with a clearly-set functions within the team
- **Inter-personal Relationships:** Team members exhibit amicable relations with a good degree of trust and respect

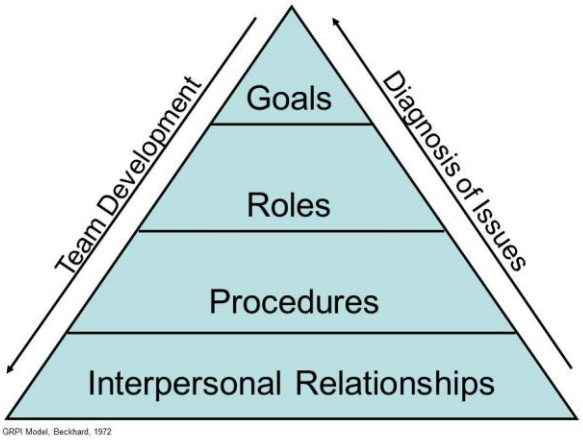

Figure 2.4 GRPI Model of Team Effectiveness

Vangrieken et al. (2016) is one of the traceable studies that have examined teacher teams' psychological safety and team effectiveness. Although the models differ from the current study's conceptual model in the sense that team effectiveness is a moderator whereas psychological safety is the outcome variable, the basic premise remains the same. That team learning occurs when psychological safety is present, the authors further conclude that team effectiveness was found to have an association with psychological safety. In the review of literature, it was found that team effectiveness which is based on the more recent models are more concerned with the performance outcomes of the team. The GRPI model on the other hand is more concerned with the team structure and processes. The current study employs this model which takes into account certain team factors. These team factors appear frequently in literature in comparison with psychological safety providing support for their relationship (Edmondson & Mogelof, 2004).

Most of the organizational theories take team effectiveness as an outcome variable but the current study takes it as team factors that may influence the psychological factors preceding team learning, individual and team safety. The team factors that the GRPI model takes into consideration are goals, roles, processes and interpersonal relationships. To start off, when it comes to team goals they act as unifying factor in teams. When team members have a shared vision for what they want to achieve they come together as a collaborative unit to redirect their efforts. Clarity in team goals and the fact that all team members must be aware of the goals that is to be achieved is found as important for team effectiveness. Researchers in psychological safety have also found links establishing that teams that lack clarity in goals are also lower in psychological safety although they may differ in which factor precedes the other, the link between these two have been established by Edmonson's research on psychological safety. Edmondson et al., (2014) and Edmondson & Roloff (2008) found that lack of clarity in the team goals which should ideally be shared goals of the whole team, reduces psychological safety. A very important theory worthy of being mentioned here is the Goal Setting theory of motivation which Locke et al. (1981) deemed as having an exponential effect on team's task performance and motivation. Having shared and openly communicated team goals in the umbrella term of team effectiveness, is therefore hypothesized to affect psychological safety as it gives the team members a shared purpose which makes it safe to express ideas and knowledge relevant to the team goals. The other factor related to the structure of the team is clearly defining the team roles which means everyone acknowledges the authority of the team leader and is also clearly aware of their own and everyone else's role in the team. This is important for effective team function as it helps in avoiding ambiguity and holding accountability where it should be held. Clearly defined team roles where each member knows who is doing what and what exactly are, they expected to do refers to clear team roles and was

linked with psychological safety by Edmondson (1999), Chandrasekaran & Mishra (2012) and Huand & Jiang (2012).

On the functional aspect of the team, team processes encompass the "how" of the team, the processes, behaviors and strategies used by the team members in completion of the team tasks is known as team processes. Bell et al. (2018) considers team processes and the emergent states of teams, one of which is psychological safety which is an affective emergent state, to be interdependent and can exist as functions of one another. Linking team processes to psychological safety has been done by Post (2012) which shows that psychological safety can lead to improving team processes as well as effective team processes could result in the emergence of psychological safety which is what the current study hypothesizes. The other team factor related to how a team functions is the interpersonal relationships between the team members which refers to the strong associations between members working in the same organization leading to improved cohesion, understanding and communication between the team members. Literature has shown strong support in favor of team interpersonal relationship in relation to psychological safety of the team members for example, O'Donnovan and McAuliffe (2020) used a mixed-method study to investigate the outcomes and contributing factors of psychological safety and found team interpersonal relations to have a significant impact on the psychological safety of the team members. The members of healthcare teams who felt a strong sense of familiarity with their colleagues reported felt safe in speaking up and voicing concerns and taking interpersonal risks knowing that they would not be penalized for doing so. Studies that support the effect of interpersonal relationship on psychological safety include Chen et al. (2014), Soares & Lopez (2014), Roussin et al. (2016), Reese & Barnard (2016), Akan et al (2020), Schulte et al (2010). It is also discussed in literature that

sharing the same values with team members about whether or not one should even speak up in teams also affects the psychological safety and voice behavior within teams (Yanchus et al, 2014) or even having a role model who influences how one perceives voice behavior within teams also influences the psychological safety of the team members further fortifying the idea that support from peers is an important contributing factor of psychological safety (Law & Chan, 2015). It is important to note here that teams that are frequently dispersed and reformulated with changing members in other words temporary work teams have a lower chance of developing psychological safety. For psychological safety, long withstanding work teams which are permanent and allow face to face interaction between the team members are more effective in developing the environment for psychological safety, collaborative learning and voice behavior (O'Leary, 2016). This does not typically arise in teacher teams because usually teachers are not rotated until the end of the school term which gives them at least a year session time for collaborative team work with the other teachers in their team. Therefore, schools do not have temporary teacher teams as most of them are permanent teams formed for at least the entirety of one academic session.

2.5 Influence of Personal Factors on Psychological Safety

Although psychological safety is defined by Edmondson (1999) as a team-level construct which emanates from the individual to the team, there have been many studies which have related the individual differences of the employees to have an effect on their reported psychological safety within teams. Kahn (1990) while examining the psychological conditions of employee's engagement at the work place also called for future researchers to examine the individual/personal factors of employees on their psychological safety. A few researchers did

answer his call but the body of literature is limited as more attention has been given to the organizational factors. The employment status of the employees especially how it gives them a sense of job security and organizational identification was found to have a significant effect on psychological safety of workers (Kim, 2020). Similarly, Plomp et al. (2019) also examined the states of psychological safety amongst workers holding permanent and temporary positions in the workplace and found those on probation or with temporary positions to not engage in voice behavior and report lower levels of psychological safety. This has implications for managers and HR departments in organizations, as having permanent positions would encourage and motivate the workers to engage in their work and speak up where required while taking an active role in the collaborative learning of the whole team.

2.5.1 Effect of Employee's Gender in the Workplace

The foremost individual difference that comes to mind is the gender of the team members and found that it has an effect on psychological safety of teachers where the females were reported to be lower in psychological safety as compared to the male members (Atwal & Caldwell, 2005). Females withheld their opinions more frequently as compared to men who were more inclined towards voicing their opinions in work teams (Reese et al, 2016). Male team members on the other hand were more likely to exhibit voice behavior about certain aspects such as professionalism and safety issues. In addition, personal factors related to the employee's position in the organization also appeared as an important factor such as those holding higher status in the company report higher levels of psychological safety and those on lower positions are less likely to openly communicate their opinions for fear of being penalized or even held culpable for any error (Schwappach & Gehring, 2014; Jain et al, 2016).

2.5.2 Generational differences at the Workplace

In sociological research, studying the effect of generation types of the employees and their behavior in the workplace has been an emerging trend. In the past century, scientific research has begun to categorize individuals into generation types and this has led sociological and organizational behavior theory to make fascinating discoveries about how inter-generational differences play out in the workplace. In sociological research, a generational cohort is a stratum of individuals that are born within the same time period, and they have also experienced similar socio-cultural and global changes so the effects are not only limited to their biological age but also the similarity in the kind of life experiences they had in response to global events (Edmunds & Turner, 2002). Sociological research has categorized the individuals in the past century into five generational categories (Tolbiez, 2008).

1. Generation Z (1997–2012)
2. Generation Y also known as Millennials (1981–1996)
3. Generation X (1965–1980)
4. Baby boomers (1946–1964)
5. Traditionalists or the Silent Generation (born between 1928 and 1945)

Each generation type demonstrates different values at the workplace and it is important that team leaders and administrators are cognizant of these intergenerational differences in order to better manage them and ensure that their talents are not underutilized. The oldest generation is the traditionalists generation which is also known as the silent generation or the veteran generation because it was the generation born at the brink of the World War II. Although most of the traditionalists are now past retirement, and is unlikely that they are

employed in the labor or any other type of workforce currently, their values at the workplace are helpful in understanding how different generations behave in organizations. Traditionalists are mostly past-oriented which means that they rely on what worked in the past and continue to do what is safe instead of experimenting on new approaches or innovating (Kersten, 2002). This also makes them reluctant to change and experiment and also avoid conflict within organizations (Zemke et al, 1999). They also tend to be very conscious of authority and prefer horizontal hierarchies in the organization. This makes them unlikely to engage in open communication with top management but they do engage in teamwork with peers (Tolbiez, 2008).

A few values that research studies have found out in different generations show us that baby boomer generation which was born between 1946 to 1964 and is now in the mid or end of their career are resistant to change and reluctant to challenge the status quo although they do like being engaged in teamwork and collaboration (Zemke et al., 1999). They are also resistant towards having inter-personal conflict with their employees as they may view them as undesirable and unnecessary. They may also be more conscious of how their peers view their competence how they may judge them for having different opinions. They are however quite hardworking, detail-oriented and focus on technical skill development and aim to be result-oriented and are loyal to the employers (Bova & Kroth, 2001). Baby boomers also tend to focus more on achieving their objectives and do not mind giving in additional time to the company which means that they also tend to be workaholic and sacrifice their personal time for the company's benefit (Joyner, 2000).

Generation X which includes individuals born between 1965 and 1980 are now experienced members of the workforce and have also adapted to technological advances. With the changing paradigms in organizational behavior theory, the members of Generation X are also quite comfortable with authority figure and are not intimidated by them but rather freely question and communicate openly with them (Zemke et al., 1999). They are also more open towards receiving feedback frequently from their supervisors and aim to maintain a flexible work schedule so they can balance their personal and professional life (Karp et al., 2002).

Millennials are the individuals that were born at the brink of the millennium which started from 1981 to 1996. The values of these generations are largely shaped by the technological advances, the development of computers and internet and the ease of global communication. These particular global changes attribute for this generation's ease with technology and their comfort with using technology at work (Kersten, 2002). This generation share a lot of values with its predecessor however they have more self-assurance and confidence as compared to their previous generations (Glass, 2007). This heightened sense of self-confidence has also made them very good workers in organizations especially in modern organizations where novelty and innovation are highly valued along with increased teamwork, collaboration and open communication (Zemke et al., 1999). They have also been reported to be more flexible towards change and novelty.

The youngest generation which has now begun to join the workforce is the Generation Z (1997-2012) which was raised in the age of social media and technology. These global changes have also made this generation technology-dependent and technology-savvy. This however also makes them fall behind when it comes to professional skills and poor problem-

solving skills. Generally, this generation has lower attention spans and demands instant results which makes the impatient and individualistic. They may also have trouble working in teams and tend to be more demanding and entitled with low patience and attention deficit (Singh & Dangmei, 2016). Due to the negative effects of being raised with social media, they are also more materialistic and lack ambition relying mostly on superficial praise. There are however certain traits that make these generation different from the previous generations, these generations have a high regard for conservation of natural resources and are not motivated to work for money. Exercising personal freedom and flexibility is of utmost importance to this generation which is why their productivity may get lowered in a controlled work environment. Dan Schwabel (2014) found that Generation Z also seeks one-to-one personalized communication with their supervisors and that may make them more individualistic and more conscious of impression management within teams.

They also require this feedback more frequently as compared to the previous generations and aim to earn immediate recognition. Failure to be recognized immediately lowers their morale and self-worth in comparison to Generation X who might have taken offense at a highly frequent feedback from the supervisor. As demonstrated in this review of inter-generation studies, it is imperative that leaders are aware of and have the right skills and knowledge to manage all types of generation of teachers at the workplace. Each generation has differing work ethics, values and thought paradigms regardless of their personality and leaders can learn about these characteristics to have a variety of strategies instead of adopting a one-size-fits-all approach towards managing employees of different generations.

2.5.3 Personality Traits and Psychological Safety

Personality of the individual team members is also considered a factor that enables their psychological safety and voice behavior within teams. Nurses were more likely to speak up if they had higher scores on assertiveness and bravery, as found by in professional healthcare teams (Lyndon, 2012). Edmondson (2004) also mentions that extraversion is factor that influences psychological safety but she also argues that we cannot limit the development of psychological safety to individual personality factors as team and organizational factors have a bigger role in providing the social context for learning to take place. Courage of the employees was also found to affect whether employees would speak up in a situation of high risk and patient safety in medical teams (Martinez et al, 2015). Another interesting finding was put forward by Tangirala & Ramanujam (2008) who concluded that employees who have high personal control and a sense if identification with the organization they are employees at, feel safer in speaking up in team situations which require reporting errors, interpersonal risk, giving evaluative feedback and communicating concerns.

Some studies have linked aspects of employee's personality traits and psychological safety. The findings of Frazier et al (2017) show that positive personality traits of individual employees can be linked with psychological safety but there is empirical evidence for a few factors such as proactive personality type if often linked with psychological safety. This personality types tale charge in situations by finding out problems, bringing change and striving to solve problems (Crant, 2000). This personality type does not get affected by the situational factors (Bateman & Crant, 1993). Similarly, people who are emotionally stable and have a learning orientation as a part of their personality traits tend to view mistakes as opportunities for learning and make self-development an important part of their lives. This

disposition towards learning in individuals has been found to be linked with psychological safety in their respective teams (Wiklens & London, 2006). Such personal disposition also extends their psychological safety at individual level (Chiu et al, 2011)

2.6 Psychological Safety Research in Pakistan

The scope of the review of local literature was expanded to include all of the research studies with the keywords containing psychological safety in Pakistan. The review showed that local literature on psychological safety was limited and was mostly conducted in corporate sector more commonly banking and telecommunication. There was only a single study which briefly examined leadership and psychological safety in the educations sector especially private schools. The study was conducted quite recently by Brohi et al. (2021), who explored the effect of servant leadership style on private school teachers' psychological capital which in turn affects their turnover intention. The analysis was done using a moderated-mediation model. Though the research focus was on psychological capital, it shows that there is an increasing need to examine leadership and psychological factors at the workplace in the schools as the review of local literature showed that most of the research on psychological factors at the workplace is done in higher education institutions. Such as the knowledge sharing processes especially the effect of a knowledge-oriented culture on innovation and quality in the higher education sector were examined by Iqbal (2021)

Malik et al (2012) point out the importance of continuous effort to make higher education institutions into "learning organization". The authors also point out that it is imperative for higher education sector to consciously develop knowledge management systems

since thousands graduates of the system later also join the system and must focus on improving it. Another important finding of the authors is the influence of the environment which enables learning. This circles back to the scope of the current study where psychological safety of the teachers which is a part of the learning environment, comes into play for learning to occur effectively. They conclude that in Pakistan's context and specifically higher education sector developing psychological safety and leadership that reinforce learning, innovation, listening to different ideas and opinions is imperative if educational institutions strive to become learning organizations. In case the organizations continue as they are, their systems will become rigid and repetitive. Change and innovation must be welcomed, heard and appreciated. Similar ideas were discussed by Shabbir (2009) advocating continuous learning and, openness to new ideas and the development of psychological safety in the education sector of Pakistan. This study was done on the employees of AFAQ (Association for Academic Quality) which is based in Lahore. The author concludes that the education sector would benefit from becoming learning organizations by being more open to change, cultivating psychological safety in their workplace and consciously directing the effort towards making the employees comfortable and feel safe enough to share their opinions and innovative ideas all the while embracing mistakes and treating them as opportunities to learn-that may be a very effective approach towards becoming an organization that learns from its own experiences. More studies in Pakistan have linked leadership with psychological safety, an interesting study by Hassan & Hassan (2018), found that inclusive leadership has an indirect effect on the teachers' involvement in creative tasks which is mediated by the teachers' psychological safety. Similarly, theory shows so far that in dynamic work environments where psychological distress may fluctuate, psychological safety may also be affected because of the psychological distress however in such cases the consistent supportive organization practices such as the leadership may help regulate the

feelings of low psychological safety and distress (Ahmed et al, 2021). Much in line with the concept of employee engagement, psychological safety came forward as a prominent construct for the outcome of creative work behavior. The study included public and private high schools however a major limitation was the representativeness of the sample since convenience sampling was used to gather data from the respondents. Nonetheless, the study provided interesting insight about how school teachers engage in creative tasks using Edmondson's (2004) psychological safety scale, the findings were significant. The current study aims to contribute to the recent efforts to examine school teacher psychological safety in Pakistani schools.

Table 2.3 Psychological safety Research in Pakistan

Author	Sector	Findings
Zaman & Abbasi (2020)	Telecommunication	Partial mediation effect of psychological safety on the relationship between transformational leadership and individual learning behavior
Ahmad et al. (2018)	Telecommunication	Mediation effect of psychological safety on corporate social responsibility and employee's creative performance
Hassan et al. (2016)	Insurance Sector	
Hassan et al. (2019)	Government Sector Organizations	Interaction effect of employee's psychological states including psychological safety on the relationship between perceptions of organizational politics and employee performance
Brohi et al. (2018)	Private Schools of KPK, Sindh, Baluchistan, Punjab and ICT	Consistent with earlier research, the results of the CB-SEM analysis revealed that employees' perception of servant leadership behavior and psychological safety could significantly reduce the turnover intention and also servant leadership can enhance employees' perceptions of psychological safety

Ismail et al. (2019)	Corporate Sector, Karachi	Leadership specifically ethical & leadership, significantly effects employee voice and psychological safety allowing them to exhibit creative behavior and express opinions and share innovative ideas. Data was collected from 450 Pakistani employees. The authors present findings in favor of leadership styles affecting workgroup psychology
Ali et al. (2011)	Corporate Sectoral Comparison	Private organizations in Pakistan provide the context for organizational learning where psychological safety of the employees directly effects their learning within the organizations. Public sector organizations have lower levels of psychological safety and organizational learning.
Arfat et al. (2017)	Public and Private Banking Sector	Transformational leadership affects employee work engagement moderated by supportive organizational culture. Additionally, bureaucratic organizational culture strengthens the relationship between transactional leadership and employee engagement. Data was collected from 700 in-service employees.
Ahmed & Ansari (2020)	Pharmaceutical Sector	Psychological climate, leadership style and affective commitment significantly affect the employee engagement. Findings were based on data collected from 284 employees working in the pharmaceutical companies in Pakistan.
Nawab (2014) Nawab (2011)	Private Education Sector	Pakistani educational institutions rely on external sources of knowledge instead of developing their own schools as learning organizations. Intellectual capital, increased communication between teachers may be developed for improved knowledge sharing. Implications are mostly for managers for developing the context that supports organizational learning. Workplace learning of teacher may be developed by reforming the school structures and culture that enables teacher learning to take place including courses on how teachers should take responsibility for workplace learning.

Jahanzeb & Fatima (2018)	Telecommunication Banking Higher Education Sector	Ostracism of the supervisor was found to result in employee silence which is a type of defensive behavior. Leaders may ensure that they implement strategies for increasing psychological safety in order to reduce employee silence and encourage their voice behavior. Administration may also use strategies such as role play and discussions to reduce supervisors' ostracism.

An overview of the relevant local literature on psychological safety and related constructs such as work engagement and the influence of leadership and organizational culture showed many gaps especially since the literature on psychological safety in Pakistan is in its infancy. Most of the studies have focused their attention on the effects of organizational factors limited to leadership on psychological safety. There is only a single study that has examined the psychological safety of teachers and that was also limited to higher educational institutions. The review also showed that the private sector of organizations is more prone towards flexibility and innovation rather than public organizations which are marked by rigidity and follow a bureaucratic model using rigid leadership practices. On the other hand, private organizations are flexible and open to experimentation and use flatter hierarchies. It is however, fair to say that local literature has so far advocated that psychological safety leads to various work outcomes that are beneficial to the organization on the whole. The studies have also found that leadership and culture play a major role in developing psychological safety within teams. There are however no local studies that have explored, recommended or discussed the effect of employee's personal factors on psychological safety and mainly attribute it towards leadership and the organization. The current study aims to respond to the

call of landmark studies done by the pioneering researchers in psychological safety Kahn (1990) to examine how individual predispositions and personal factors influence their psychological safety within the teams. In short, the local literature provides limited insight about the prevalent state of psychological safety in Pakistani employees but it does reinforce the findings of psychological safety literature where organizational factors significantly affect the psychological safety of the workers especially leadership.

As illustrated by Newman (2017) and the review of literature of the current study, psychological safety literature has shown the following key points: Studies have defined psychological safety depending on which level of organization it influences leading to three different levels of psychological safety in literature: individual/dyadic psychological safety, team psychological safety and organizational psychological safety. Most studies have adopted Edmondson (1999)'s scale and definition for measuring psychological safety, which takes psychological safety as a team level construct and a shared belief of psychological safety of a team.

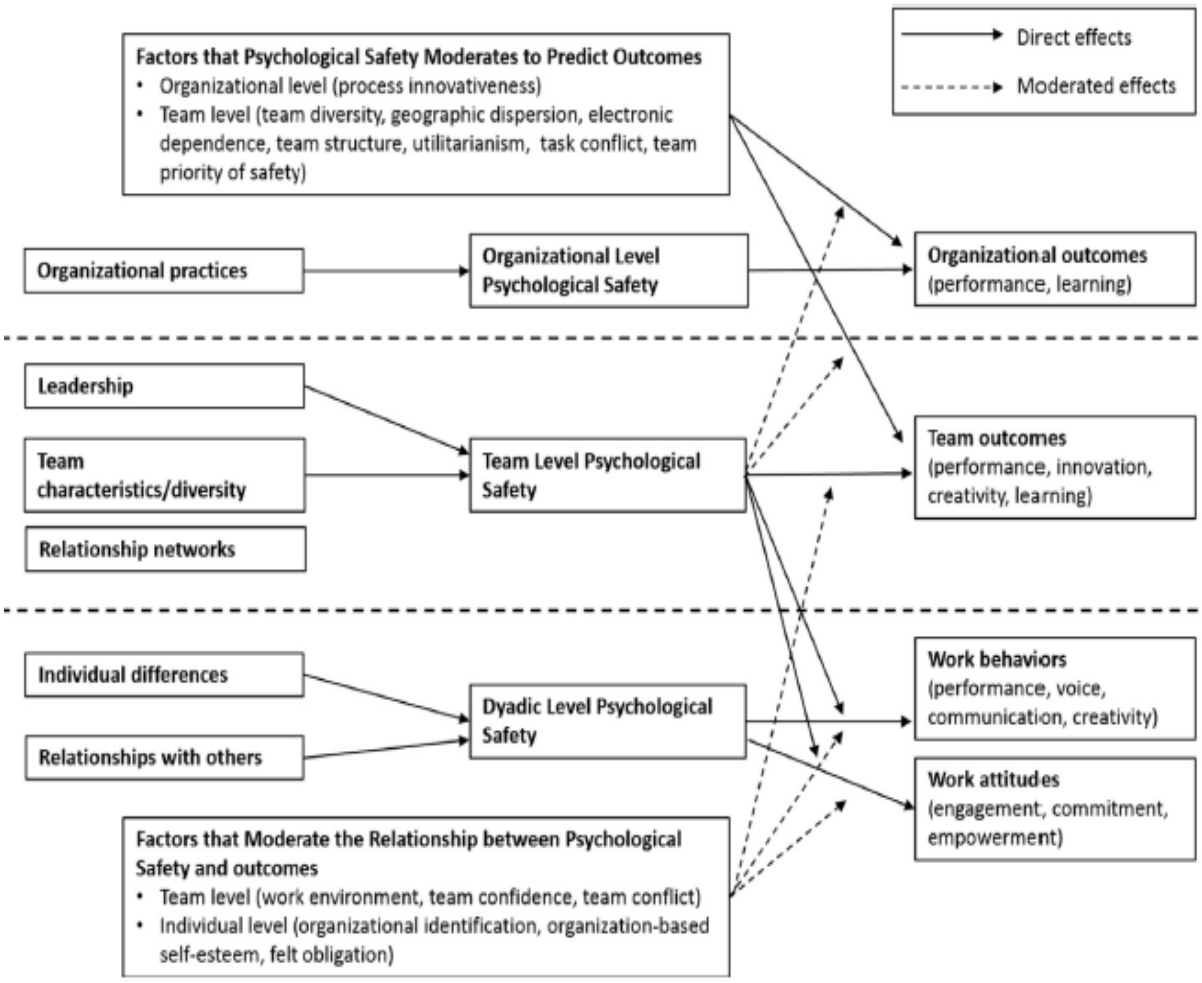

Figure 2.5. Network of Key variables in Psychological Safety Research

[adapted from Newman et al. (2017)]

2.7 Summary

This chapter of the dissertation provided an in-depth review of the psychological safety literature in terms of its antecedents and outcomes as well as its moderating and mediating role on variables at individual, team and organizational level. Broadly speaking, psychological safety was found to emerge with supportive organizational practices, team dynamics that support a safe environment and most importantly the leadership behavior, trust and support

which plays the most prominent role in developing individual and team psychological safety. On the other hand, the most common outcomes of psychological safety were related to voice behavior, innovative work behavior, reporting errors, positive work attitudes and most important organizational, team and individual learning. Despite the increasing research studies that show that psychological safety is a desirable affective state in teams, there is more research needed to understand how to develop psychological safety amongst the team members. More specifically, research on psychological safety has mostly viewed factors at organizational, team and individual levels in isolation from one another. A multi-level approach in examining the factors that contribute to the development of psychological safety in the work place may be more helpful for practitioners in bringing about the required changes in the team and the organization.

The review brought to light gaps in literature which the study was designed to address especially with reference to the multi-level approach in examining the factors the influence the teachers' psychological safety. The review further strengthened the rationale for conducting the research in Pakistan because local literature on psychological safety is scant and mostly focused on corporate sector. Also, school level research on management and leadership in Pakistan is also very limited as most of the studies are carried out in higher education institutions. More research, especially in schools that are adopting innovative work structures such team work and a variety of effective and positive leadership styles such as leader inclusiveness, flatter hierarchies and distributed leadership should be examined for effectiveness in the local context of Pakistan to guide practitioners. Furthermore, research on psychological safety in the education sector is in its initial stages and would benefit largely from the findings of research studies from the adjacent field of organizational behavior theory. An important contribution of the current study is taking a multi-level approach towards

examining the interaction and influence of multi-level factors on an affective emergent outcome in teacher teams. The review of literature also showed how the growing interest in psychological safety research is largely ignoring individual factors that affect psychological safety, the literature is scant in this aspect. It was also found that recent research is focusing more on the interaction effect of psychological safety and its outcomes whereas very few recent studies are aiming to examining how exactly psychological safety may be fostered and sustained. Initial studies on psychological safety have provided the guidelines but more research is needed to articulate a standardized definition, antecedents and outcomes of this construct as well as its utility in educational sector especially for teachers.

The current study hypothesizes that organizational factors, team factors that include goals, roles, processes and interpersonal relationships and personal factors which majorly include demographic variables have an effect on teachers' psychological safety. The organizational factors hypothesized to have an effect on psychological safety include leadership, organizational culture. The study also hypothesizes that the leadership interacts with team effectiveness to result in psychological safety. The details of the research approach, research design and how the study was carried out by collecting data through survey and statistical analysis plan will be discussed in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Overview

This chapter of the dissertation includes a detailed account of the approach to inquiry including the research design; the methods of data collection; analysis and interpretation. The study can be broadly classified as a descriptive research, more specifically a survey research, with the underlying objective of describing the existing relationships between the variables of the study and to acquire statistics of the target population which would be open to multiple analyses. In other words, it presents answers to *'what type of relationship exists'* between personal and organizational factors and the teachers' psychological safety.

In the later sections of this chapter, the research methodology will be discussed including:

- Research Approach
- Research Design
- Population and Sample
- Instruments
    - Validity and Reliability
    - Reliability Analysis
    - Scoring

- Data Collection
- Data Analysis Procedures
- Summary

3.2 Research Approach

Scientific research is considered an applied phenomenon that mostly involves practice; however, every scientific inquiry essentially has philosophical foundations that direct the development of the of the study design, and interpretation according to the nature of the problem under scrutiny. A paradigm is defined as, "a broad, overarching intellectual framework or architecture of assumptions used for examining an area of scientific inquiry" by Sabatier (1993).

It is important to decide upon a paradigm during the initial phases of the study design as it is instrumental in determining the methodology to be used by the researcher (Krauss, 2005). The approach undertaken in this study was quantitative, based on the philosophical paradigm of positivism /post-positivism which may be found in the writings of the philosophers of the mid-20th century such as Comte, Mill, and Locke. A positivist/post-positivist paradigm entails cause-effect relationships, numeric measures of phenomena and maintaining objectivity in all phases of the inquiry (Phillips and Burbules, 2000). This study adhered to a quantitative approach with a positivist/post-positivist paradigm because psychological safety is viewed as a required or desired condition in an organization due to the vast theoretical support of its benefits and this study undertook an objective inquiry into the cause-effect/antecedent-outcome relationship between the organizational/personal factors and psychological safety. This approach was considered most suitable for examining the

relationship between the variables by using quantifiable, empirical data to interpret the findings. Furthermore, this study drew theoretically Edmondson's theory of psychological safety (2018) which the interaction between organization and the individual as an exchange based on how the individual perceives the risk of his organizational behavior. The study considered leadership behavior and psychological safety which is a pre-condition of team learning behavior and employee voice to be a series of social exchange. Adopting post-positivist paradigm to examine the relationship psychological safety and its antecedents provided authentic data and empirical support to the claims made about the hypothesized relationships between the variables. Furthermore, due to the restraints in the data collection process in the target population, when it comes to the infeasibility qualitative data, also directed towards the approach taken in the inquiry and research design. Post-positivism, as a model of scientific inquiry, view the data as simply "empirical indicators" of reality, unlike positivism it does not ignore the inherent bias in observations yet highly emphasizes empirical data as indicator being closest to reality (Bergman, 2016).

3.3 Research Design

The study was designed keeping in view the research objectives to be achieved and for testing the hypothesized relationships between the variables of the study. A quantitative methodology was adopted following the survey research methods to find out the relationships between the variables of interest and interpreting the findings from empirical data. Keeping the research approach in mind, a quantitative methodology was chosen for this research in order to identify relationship between the variables and psychological safety which is statistically significant and to collect rich data on organizational and personal factors which

would be used to explain the factors contributing significantly towards developing teachers' psychological safety. The data collected was quantitative, as it was a preliminary attempt to examine the existing state of teachers' psychological safety in Pakistan with generalizable empirical data. The population of the study was O/A level teachers in the private schools offering Cambridge system of education in urban Islamabad, Pakistan. The sample was selected using cluster sampling technique. The total number of schools from which the data was collected was 46, and including the data of 13 randomly selected teachers from each school, where each school was considered as a separate stratum. After initial data cleaning and normality testing, the data of 600 respondents was subjected to descriptive and inferential statistical analyses to obtain the key findings of the study and to test the research hypotheses. The scope of this study was precise and primary data was collected through questionnaires majorly administered face-to-face since it has the highest response rates and is better suited to collecting complex information however some respondents were accessed via online mail depending on their availability and also to save time and cost.

After conducting a pilot study using the standardized questionnaires on 60 participants, the full-scale survey was carried out. The respondents were approached directly and their anonymity and confidentiality were maintained throughout the data collection and analysis. Finally, the research design entailed the analysis of the collected data using robust analyses including regression ANOVA, especially moderated regression analysis that is a popular and reliable test for examining interaction effects and to test the study hypotheses. The findings were examined in relation with the extant literature on psychological safety research and the implications for educational practice and theory, especially in the Pakistani context.

3.3.1 Survey Research

Survey research majorly constitutes the administration of a questionnaire to a carefully selected sample to find results which are generalizable to the wider population. The rationale for selecting survey research design, was that survey research methodology involves the use of reliable and valid scales for measuring phenomenon; this ensures objectivity to the maximum as the data collected is numeric and leads to empirical support to the interpretation of relationships. As previously discussed, positivist/post-positivist approach takes objectivity and empirical data as the most reliable, a survey is a popular tool for examining relationships between variables which can be tested using robust statistical analyses. According to Barnett (2002), survey may be termed as an alternative to census, the only difference being that a survey has a well-targeted and precise scope. It is also time-effective and provides a large amount of data which is open for multiple analyses.

Survey research is the most commonly used method in applied social research due its practicability and gathering large amount of rich data within a short time. which is statistically significant and to collect rich data on organizational and personal factors which would be used to explain the factors contributing significantly towards teachers' psychological safety. The scope of this study was precise and the data was gathered through questionnaires administered face-to-face since it has the highest response rates and is better suited to collecting complex information however some respondents may also be accessed via online mail depending on their availability and also to save time and cost. Also, a quantitative research design allows the researchers to investigate cause-effect relationships with the use of reliable scales thus leading to objective conclusions based on inferential and descriptive statistical analyses. Furthermore, a survey is a practical method of data collection which gives access to large amounts of rich data which is both time and cost effective. Isaac & Michael (1997, p.136) define the role of the

survey in research as, *"to describe what exists, in what amount, and in what context."* Barnett (2002) says that a survey may be termed as an alternative to census, the only difference being that a survey has a well-targeted and precise scope.

According to Kothari (2004), a research design can be categorized as exploratory of formulative and descriptive/diagnostic (pp.39). Survey research falls under the descriptive research category which has certain characteristics. First of all, a survey research overall entails a rigid research design. Following a review of literature, the variables are selected to further investigation. The study was designed in a way to minimize bias and maximize reliability and generalizability of the findings. Choosing a probability sampling design was therefore a pre-requisite if the results were to be considered generalizable. Furthermore, the scales that were selected are not only valid and reliable but also well-structured and practical. This research design also required the researchers to make decisions about the statistical analyses in advance so that the data may be collected keeping in view the analyses it will be subjected to.

Survey research has been gaining popularity currently due to the ease in administration, especially with the option of online surveys and the time effective statistical analyses with the availability of various software. Despite the ease that survey research provides, it has not been devoid of criticism due to certain limitations such as social desirability bias, errors in sample selection which affects representativeness of the sample and rigidity in terms of the fixed numbers of possible answers leaving little room for probing deep into understanding the phenomena. Having selected a survey research as a mode of inquiry and data collected, the limitations and the fundamental requirements of effective research design were carefully considered and addressed in all phases of research especially in sample selection, data collection and the analyses. The foremost problems that affect the validity of a survey research is whether the sample has been selected using parametric techniques, the representativeness of

the sample, the reliability and validity of the selected scales and the response biases that frequently undermine the study results. All of these factors, including other steps that were taken to increase the validity of the study are discussed in the ensuing sections of this chapter.

3.3.2 Representativeness of the Sample

A major factor is the effectiveness of survey research is the representativeness of the sample. The importance of this feature has been advocated by researchers since it also provides the study with results that are not only reliable but also confident and generalizable. (Weisberg et al., 1996) To achieve this end, researchers made use of probability sampling methods that are characterized as representative sampling methods which are systematic and are more reliable for yielding accurate results and reducing biases. Maintaining rigor in this scientific research was actually beneficial in the sense that it required the research design to ensure the reliability and validity of the results. After collecting data from the sample, inferential statistical analyses were run to make claims generalized to the whole population based on the findings of the selected sample. This required a certain degree of confidence in the research design which is technically known as "statistical confidence". Ramsay and Hewitt (2005) enlist three requirements in a research design to ensure representativeness of the sample and statistical confidence in the results:

- Availability of the entire population for sampling and complete access to the population for data collection
- Random collection of data
- Sample must be an accurate and proportionate representation of the population

To ensure that the current study took into account the rigor of survey research design, the sample that was selected was done so using cluster sampling which is a probability sampling technique. Cluster sampling allowed the researchers to divide a large population into non-overlapping clusters or groups. These clusters acted individual subjects and a simple random sample was drawn from these clusters. Furthermore, the entire population which is teachers from O/A level sections in private sector of Islamabad were available to be included in the sample. This means that all teachers in the urban sector of Islamabad had equal chances of being included in the sample. Adding to that, the clusters that were formed in the first stage of clustered sample selection, all clusters were added into the sampling frame since the total number was 46 and the study required 41 clusters; the remaining 5 clusters were also included in the sample-this further adds to the representativeness of the present study's sample.

3.3.3 Steps taken to Reduce Response Bias

Response bias in survey research normally emerges because of the cognitive processes of the respondents while answering the questionnaire. Certain factors could have affected the way a respondent may have interpreted a question and decided upon an answer. There are various reasons why these conditions arise but their effects on the survey results are substantial because of which specialists may raise questions on the accuracy of data. There is a possibility, owing to systematic response bias, that the study results may not present authentic findings. The results may appear because of response bias instead of the relationship between the variables that the study had hypothesized. It is due to this very reason that researcher was cognizant of these biases and attempt to minimize the effects of these biases, especially in psychological or behavioral research (Gove & Geerkan, 1977).

Pertaining to the survey research design, there are three major kinds of biases that may arise and that were addressed in the current study. They included extreme response bias, acquiescence bias and extreme response bias (Furnham, 1986). When respondents were presented with the questionnaire, the researcher supplied either a cover letter detailing the type of data that would be needed or the terms of confidentiality and anonymity of the respondents' data. Despite the terms and conditions that the researcher informed the respondents of, a phenomenon that has been popularly highlighted by experts of the field is the social desirability bias simply explained as reporting only that data which presents the respondents in a socially acceptable aspect (Krosnick, 1999). They may also refrain from reporting those aspects which are socially unacceptable or frowned upon. This leads to inaccuracy of data provided by the respondents as it may not be completely truthful and may hinder the researcher from accessing real data. Similarly, extreme response bias arises when individuals tend to respond in extremities by reporting something more extreme than it originally is in their opinion. For example, scales based on Likert scales have answers ranging from 1 to 5, respondents would only choose the extreme options and disregard the medium options. Ironically, some people also believe that in order to be considered normal, their responses must fall in the medium category of responses-this is another form of response bias called neutral response bias. Research suggest that individuals may respond in extremities because of lower IQs or cultural identities tied to extreme manners (Meisenberg et al., 2008).

A method for reducing extreme response bias is to phrase the questions in such a way that it does not provoke an instant emotional or impulsive response from the respondent. In this type of response bias, respondents have a tendency to agree with the statement regardless of whether they actually register the meaning of the statement. They tend to agree with all statements and this has been explained by researchers as the participant attempting to appear

likeable to the researcher (Knowles, 1997) or because of problems in their cognitive processes specifically their memory (Cronbach, 1942). They may be predisposed to agree with statements even if they are contradictory to one another. Researchers can attempt to minimize this bias by carefully wording the items of the questionnaires. They can have a balanced number of positively or negatively worded questions so that it is easier to identify, during the analyses of the responses, if any respondent has resorted to acquiescence bias (Podsakoff et al., 2003). Furthermore, some respondents may also tend to respond negatively to all statements but that is less common than the previously discussed phenomenon. To limit the effects of social desirability bias, forced-choice items of Organizational Culture Survey were included in the scale to prevent the direction of responses towards or away from socially desirable responses. The second step was to self-administer the questionnaire by isolating the respondents and limiting any social cues (Nederhof, 1985).

Bova et al. (2018) call for the implementation of the ballot-box method to reduce response bias. In this method, the respondents are asked to submit their anonymous responses or drop them in a ballot box where there is no way of knowing the identity of the respondent. The same technique was applied in the study where the group of respondents was asked to put the completed questionnaire into the box without writing their names on it. As for the online questionnaires, google forms numbers the responses and it is recorded without revealing the identity of the respondent. Knowing that their anonymity is ensured, response bias is considerably reduced using the ballot-box method.

Table 3.1 Overview of Research Design

1	**Population**	De-limited to private sector in Islamabad where the study variables can be examined
2	**Representativeness**	Probability Sampling Comparison of Population to Sample
3	**Instruments**	Standardized instruments with strong validity and reliability with the Cronbach alpha above 0.7 for all scales
4	**Validity**	Use of standardized scales grounded in theory with well-established construct and predictive validity
5	**Reliability**	Reliability Analysis to check the value of Cronbach's alpha coefficient for all scales and sub-scales.
6	**Practicability**	Pre-testing and Pilot Testing (wording of the questions were neutral in the standardized scales) Time taken to complete the survey was 10-15 mins Clarity of Question was cross-checked
7	**Response Bias**	• Forced-choice items • Self-administering the questionnaire • Anonymity and Confidentiality of responses • Ballot-box Method • Online Anonymous Submission
8	**Data Analysis Plan**	• Parametric tests after testing the assumptions • Moderated Regression Analysis for examining the interaction effect between study variables • ANOVA, T-test and Linear Regression for hypothesis testing

3.4 Reliability and Validity

The reliability and validity banked entirely on the sample, scale and the analysis. Reliability and validity of the scale that is used for gathering data is of utmost importance in survey research design as they contribute towards the overall study validity and reliability. The reason is that the tools which may be used for data collection must measure the correct intended variables of the study-this is known as validity of the scale and the accuracy of the measurements over time can be termed as the reliability-collectively they are termed as psychometric properties of the measurement scales. This rigorous requirement was met by the researchers during the study research design. Altheide & Johnson (1994) term reliability as how stable the findings are and validity as how truthful they are. Assessment of reliability and validity not only reduced bias of the researcher but also provided good interpretation of psychometric scales (Singh, 2014; Cook & Beckhan, 2006).

As discussed earlier, the reliability and validity of a quantitative survey research relied heavily on the scales, in this case there were three psychometric 5-point Likert scales that aimed to gather numerical data namely team psychological safety scale by Edmondson (1999;2018), Blake and Mouton's Managerial grid by the Vision Council (2010) Team Effectiveness Questionnaire by London Leadership Academy (2014) whereas the Schneider's Organizational Culture Assessment (Sahota, 2012) is a forced-category questionnaire which is valid standardized, scale for identifying the dominant culture type of any organization.

Table 3.2 Characteristics of the Scales

Scale	Author	Cronbach α	No. of items
Psychological Safety	Edmondson (1999; 2018)	0.84	7
The Managerial Grid	Blake & Mouton by the Vision Council (2010)	0.86	18
Team Effectiveness	London Leadership Academy (2014)	0.77	28
Organizational Culture	William Schneider, cited in Sahota (2012)	0.85	20

Psychological Safety Scale by Edmondson (1999) is the most commonly used scale of psychological safety. It was developed by observations and interviews conducted in manufacturing teams. The scale has demonstrated good psychometric properties as reported by Baer & Frese (2003) with a Cronbach's alpha value of α = .82. It has also demonstrated good psychometric properties in various teams such as healthcare teams and educational teams. Adaptations of the scale using items as less as 4-items by Edmondson & Nembhard (2006) report high validity and reliability in measuring psychological safety with a Cronbach's α = .82. The present study used the brief version containing 11-item questionnaire by Edmondson that measures psychological safety and team learning behavior using three sub-constructs: individual safety, team respect and team learning. The reliability analysis yielded strong psychometric properties of the scale with a Cronbach's α = .89

Blake and Mouton's managerial grid is also known as a dual-concern theory where leadership is gauged on the scores on concern for people and concern for production. Blake and Mouton (1985) assert that the gird is not an attitudinal measure, which has been wrongfully interpreted in literature, but also a behavioral measure of leadership and has strong predictive

validity. Although literature has mostly used the theory and scale to only identify the leadership style, it also provides valuable results if we use the two dimensions of the scale to measure the leadership behavior oriented towards people (relations) and production (task) all the while also leading to identification of the leader's dominant style. Despite the majority of literature using the gird for identifying the leadership style, some studies have employed the scale to examine leadership behavior on the dichotomy of leadership behavior or the dual concern of the leader for people and the company (Koç et al., 2013; Bernadrin & Alvaris, 1976). The current study found the leadership grid to be a highly reliable measure of leadership behavior across the dimension of relations-oriented and task-oriented behavior with a Cronbach's alpha value of LTB=0.85 and LRB=0.86. Rossiter (2001) finds coefficient alpha computation as the most widely used and acceptable test of reliability of any scale by using Cronbach's alpha (1951) where Nunnally (1967) finds 0.8 to be an acceptable range for any instrument.

Team Effectiveness Questionnaire (2014) is a theoretically grounded scale which takes into consideration the four dimensions of team effectiveness as theorized by GRPI model of Team Effectiveness. A study conducted by El Morsi Ibrahim et al. (2020) used the translated version of the scale in Arabic including all dimensions of the original scale. The study also reports high validity of the team effectiveness questionnaire, based on a validity review by 5 subject specialists additionally reporting a high internal consistency of the items with a Cronbach's alpha value of 0.9

The scales used in the current study have shown good validity and reliability based on the data collected as well as support from literature. However, the Team Effectiveness Questionnaire (TEQ) was adapted to include four dimensions of team effectiveness, it is

therefore recommended to use the full scale which literature has shown to be more reliable or an alternate scale for measuring team effectiveness dimensions in teaching teams. Besides the se of standardized scale, the study attempted to maintain validity by careful selection of the sample using probability sampling to ensure representativeness of the population and generalizability of the results. The methods and measurement techniques of the study variables were also designed keeping in mind the theory and scales widely used in literature especially the psychological safety scale. However, the TEQ presented certain limitations and a slighter lower Cronbach's value which could be addressed in future studies. It is suggested use of the entire 8-dimensions in the scale instead of adapting the 4 dimensions which posed marginal limitations in the measurement of team effectiveness.

3.5 Research Population

The target population was de-limited to the geographical region of urban Islamabad since it was more convenient for data collection whereas the reason for de-limiting it to the private sector as the majority of private schools functionally use distributed leadership model with a larger focus on team work and collaboration. Studying the same variables in the public schools would have yielded irrelevant results as not only team work is less prevalent in public schools of Pakistan but also teachers do not have an expanded role in the school administration. Therefore, retrieving a sample from the private schools where O/A level teachers are actively involved in management teams for various school functions besides their basic teaching roles yielded relevant data for studying the team construct i.e., psychological safety.

The reason for selecting this population for the study has been discussed earlier besides the specific geographical and social reasons pertinent to the Pakistani educational context, the population provided ample opportunity to study the variables and their relationships to add to

our understanding of psychological safety and its antecedents. Since most of the private schools which offer the Cambridge system of education are well-reputed urban schools, they have organizational structures which provide an opportunity to study organizational behavior. Generally, the public sector of education in Pakistani requires a more individualized role of the teachers and the leadership and authority are concentrated in the higher administration. On the other hand, most of the urban well-established private schools have espoused and practice research-backed organizational structure of distributed leadership, increased collaboration and an expanding role of the teacher in administrative tasks. They work with their leaders in forming action plans, discussion, being a part of permanent or temporary work teams and taking a participatory leadership role for whole-school improvement. Although this a general understanding, this study explored to which extent these suppositions of the teachers' role and the effects of various factors on their psychological safety hold true, with empirical evidence, in the private sector of urban Islamabad. With the aforementioned reason, the population that was chosen for this inquiry included the O/A level school teachers of the private sector within the geographical limits of urban Islamabad, Pakistan. It is further de-limited to include school teachers of the major private schools offering Cambridge Education System only. Again, the reason for choosing schools offering Cambridge system was because the sample would then only contain well-established schools up to the higher secondary level. To gain a concise number of teachers in our population, publicly accessible reports available in Academy of Educational Planning and Management (AEPAM) under the authority of Federal Directorate of Education (FDE), Pakistan were accessed.

According to Pakistan Education Statistics (2016-2017) and Registration & regulation of Private Educational Institutions (PEIs) in Islamabad Capital Territory (ICT), an estimate number of private school teachers is given below from which a clustered sample was drawn

which would be representative of the entire population: The data from later reports and census had not been publicly released at the time of the study proposal which is why, an estimate population was taken from Pakistan Education Statistics (2016-2017) and a clustered sample was drawn from the target population. The total number of private institutions in Pakistan are 35,684 out of which 20,716 are secondary and higher secondary level. As per the available data, there were a total of 7,826 teachers in employment in the private sector of Education within Islamabad Capital Territory. Out of these teachers including both male and female teachers, 1,484 are teaching at secondary and higher secondary grade or O/A level.

Table 3.3 Population Statistics of O/A level teachers in ICT urban

Sector	Institutions offering Cambridge in ICT	Total no. Secondary Teachers in ICT	Total no. of O/A level teachers in ICT
Private	46	7,826	1,484

Sources: AEPAM, Pakistan Education Statistics, Federal Directorate of Education

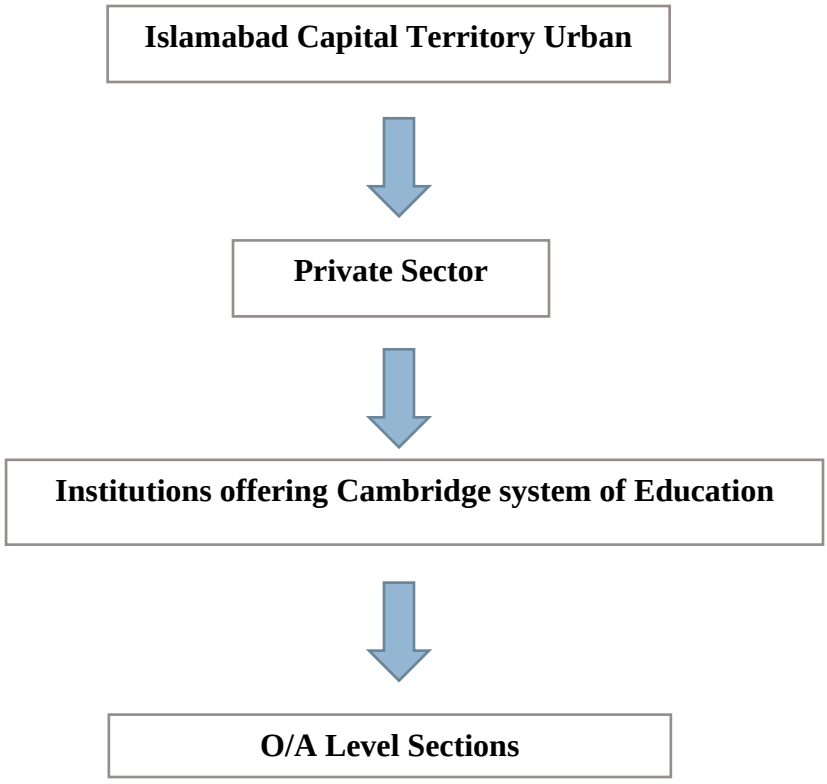

Figure 3.1 De-limitation of the Study Population

3.6 Sampling Procedure

To improve the validity of survey research, it is required that the selected sample has maximum representativeness of the target population. To achieve this end, the present study opted for probability sampling which although provides freedom from bias but also increases the cost in terms of time and effort (Brown, 1947). The sampling frame helped in identifying the individual cases from which the sample was drawn. As previously discussed, the population of the study was geographically de-limited to urban Islamabad, Pakistan. Clustered sampling has several advantages over simple random sampling. For example, using clustered sampling, it may be possible to reduce the sample size required to achieve a given precision. Or it may be possible to increase the precision with the same sample size. With a target of sampling 40%

of the study population which is 13 responses per cluster; therefore, an estimate of 20 questionnaires were administered in each cluster. A total of 636 responses were collected which shows a response rate of 66% out of the 920 questionnaires that were administered to the population of interest, both face-to-face and via online survey tool. Furthermore, the sampling method chosen for this study is useful for minimizing bias. Cluster sampling is done in two stages which is why it is also known as multi-stage sampling.

Stage 1: Draw a Sample of Clusters

In the first stage, the study population was divided into groups or clusters. The population consisted of teachers of O/A level teaching in 46 private schools offering Cambridge system of education. The population of the study was already divided into schools, considering each school as a separate cluster. Using the formula for sample size estimate, it was required to include 41 schools at the confidence interval of 5 and 95% confidence level. However, all clusters were included in this stage of the sampling process to ensure representativeness.

Stage 2: Simple Random Sampling from within the Clusters

The next stage of cluster sampling was drawing a simple random sample from each of the individual cluster and then forming the final study sample (Wilson, 2010). In this phase of the sampling process, a list of teachers was acquired from the 46 schools and calculated the required number of teachers from each school.

3.6.1 Study Sample

clustered sampling also improves the representativeness of the sample and reduces selection bias. The population of the study was delimited to include participants from the private sector within urban Islamabad. Further de-limitations were the schools that offered Cambridge system of Education. The schools were identified using the data provided in AEPAM, Pakistan Education Statistics 2016-2017. Each school was considered a separate cluster and a random sample of 13 teachers was drawn from 46 private schools.

The minimum sample size was calculated using Raosoft, Inc (2004). The formula used for calculating the sample size was:

$$\text{Sample Size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + (z^2 \times p\,(1-p)/e^2 N}$$

Where N=population size i.e., 1,482

e=margin of error which was kept as 5%

z is the z-score and at 95% confidence interval, the value is 1.96

The minimum recommended sample size as per the formula was 306. To reach the target of testing 40% of the population to increase the effect size and precision, a sample of 600 participants took part in our study which majorly included face-to-face administration of the questionnaire; however, a few respondents were accessed online and they responded to our questionnaire using the online survey tool, Google forms. The respondents consented to

participate in the study with the condition of maintaining anonymity of the participants and confidentiality of their identity and professional affiliation.

The final study sample constituted of 600 teachers from O/A level sections of 46 private schools in urban Islamabad. Upon calculating the required sample size, it was found to be 305 at 95% confidence level and confidence interval of 5. However, the study aimed to sample 40% of the population and hence set the target of collecting data from 636 respondents out of which 600 data sets were finally included in the study for analysis. The excluded data sets were those that contained at least 30% missing values. Table 3.4 shows the statistics of the study sample.

Table 3.4

Sample Statistics

Total Population	Sample Size Needed	Confidence Level	Sample Size	Excluded Data Sets	Final Sample Size
1,484	305	95%	636	36	600

3.7 Instruments

The instruments chosen for this research were all standardized scales with established validity and reliability. These four scales were adopted and administered to the respondents collectively. The approach of this study was intensive rather than extensive, in an attempt to explore the effects of organizational and personal variables. The following standardized instruments were employed to collect the data; with the consent of the authors and adapting them to the requirements of the study.

1. Psychological safety scale by Amy C. Edmondson available in The Fearless Organization (2018)
2. The Managerial Grid by Blake & Mouton by the Vision Council (2010)
3. William Schneider's Organizational Culture Scale available in "An Agile Adoption and Transformation Survival Guide: Working with Organizational Culture" by Michael K. Sahota (2012).
4. Team Effectiveness Questionnaire NHS London Leadership Academy (2014).

All instruments, except the Organizational Culture Scale which contained forced choice items, were measured on a 5-point Likert scale where:

1: Strongly Disagree

2: Disagree

3: Neutral

4: Agree

5: Strongly Agree

3.7.1 Psychological Safety Scale

Psychological safety scale was developed by Edmondson (1999;2018) to measure the construct of psychological safety across three sub-constructs: individual safety, team learning behavior and team respect. This study employs the brief version of the scale developed by Edmondson (2018) herself to measure psychological safety. It consists of 11-items on a 5-point Likert scale and shows high reliability and validity across the various studies that have employed it. The scale measures psychological safety across three sub-constructs namely:

- Individual Safety: 3-items
- Team Respect: 4-items

The current study found the reliability of the scale to be high with the Cronbach's alpha to be α=0.89 which shows high reliability and internal consistency of the scale. The inter-items correlations were also high which further shows the reliability of the scale ranging from 0.5 to 0.6. None of the items reduced or increased the value of Cronbach's alpha significantly, therefore all 11 items were kept in the scale with the final alpha co-efficient of 0.89

Table 3.5 Psychological Safety Scale Statistics

Mean	Variance	Std. Deviation	N of Items	Cronbach's Alpha
36.7	106.9	10.34	7	0.89

Table 3.6 Reliability Analysis of Psychological Safety Scale

Item	Item-Total Correlation	Cronbach's Alpha if Item Deleted
Individual Safety 1	.63	.88
Individual Safety 2	.59	.89
Individual Safety 3	.64	.88
Team Respect 1	.65	.88
Team Respect 2	.63	.88
Team Respect 3	.58	.89
Team Respect 4	.62	.89

3.7.2 The Managerial Grid

The Managerial Grid was developed by Blake & Mouton and turned into a 5-point Likert scale by the Vision Council (2010) to find out the leadership style based on scores on relations-oriented and task-oriented leadership behavior. The grid was adapted into a questionnaire by The Vision Council for measuring scores on leadership behavior and identifying the leadership style. The Leadership Style questions are broadly classified into the four leadership styles: Country Club (high relations, low task), Team Leader (high relations, high task), Authoritarian (high task, low relations), and Impoverished leadership (low task, low relations) excluding the middle of the road leadership style from the original model. The scale consists of 18 items on a 5-point Likert scale, out of which 9 measure the leadership relations-oriented behavior and the other 9 measure the leadership task-oriented behavior. Scoring of this questionnaire is done by plotting the acquired scores on the grid to find the leadership style. The relations-oriented leadership behavior and task-oriented leadership behavior was found to be highly reliable with α=0.86 and α=0.85 respectively. Table 3.7 and 3.8 show the results of the reliability analysis on Leadership relations-oriented behavior.

Table 3.7 Leadership Relations-oriented Behavior (LRB*)*

Mean	Variance	Std. Deviation	N of Items	Cronbach's Alpha
29.59	72.70	8.52	9	0.86

Table 3.8 Reliability Analysis of Leadership Relations-oriented Behavior (LRB*)*

Item	Item-Total Correlation	Cronbach's Alpha if Item Deleted
RLB 1	.578	.856
RLB 2	.546	.859
RLB 3	.632	.851
RLB 4	.625	.852
RLB 5	.617	.852
RLB 6	.618	.852
RLB 7	.605	.853
RLB 8	.590	.855
RLB 9	.593	.855

Table 3.9 and 3.10 show the results of the reliability analysis of task-oriented leadership behavior and the Cronbach alpha value was found to be 0.85 which showed good internal consistency and reliability of the scale.

Table 3.9 Leadership Task-oriented Behavior (LTB)

Mean	Variance	Std. Deviation	N of Items	Cronbach's Alpha
30.67	52.42	7.24	9	0.85

Table 3.10 Reliability Analysis of Leadership Task-oriented Behavior (LTB)

Item	Item-Total Correlation	Cronbach's Alpha if Item Deleted
LTB	.544	.846
LTB	.569	.843
LTB	.573	.843
LTB	.618	.838
LTB	.597	.841

LTB	.556	.844
LTB	.624	.838
LTB	.588	.841
LTB	.557	.844

3.7.3 Schneider's Organizational Culture Scale

Schneider's Culture Assessment Scale cited in Sahota (2012) also divides the organizational culture into four categories namely: Control, Cultivation, Collaboration and Competence. The items of the questionnaire are already categorized into options and the highest score on each culture type out of 20 would determine the dominant culture of the organization. Due to the design of the culture that does not measure culture in any dimension but rather identifies and classifies it into one of four categories based on the responses on forced-choice items, it is difficult to calculate the psychometric property reliability however, literature has found Schneider's culture assessment survey to be one of the most valid instruments for categorizing the culture type of any organization even though it bears similarities with other models like Quinn and McGrath (1985) and O'Toole (1985) cited in Hawkins (1997). Much like the leadership grid, the culture assessment also identifies the dominant culture type by examining how the organization functions based on their concern for people and the company and the orientation of the company towards reality/possibility.

3.7.4 Team Effectiveness Questionnaire

Team Effectiveness Questionnaire (2014) by London Leadership Academy, was adopted to include the four dimensions: goals, roles, team processes and inter-personal relationships keeping the GRPI model of team effectiveness in the framework of the study.

The lowest score on this scale would 35 and the highest would be 140. The 35 items on a 5-point Likert scale, showed strong reliability with a Cronbach value of α=0.77. The sub-constructs of the Team Effectiveness Questionnaire are:

- Goals: 7 items
- Roles: 7 items
- Processes: 7 items
- Inter-personal relations: 7 items

Table 3.11 Team Effectiveness Questionnaire

Mean	Variance	Std. Deviation	N of Items	Cronbach's Alpha
103.31	383.80	19.59	28	0.77

Table 3.12 Reliability Analysis of Team Effectiveness (TE)

Item	Item-Total Correlation	Cronbach's Alpha if Item Deleted
Goals	0.57	0.72
Roles	0.57	0.72
Processes	0.59	0.71
Inter-Personal Relations	0.58	0.72

Table 3.11 and 3.12 show the results of the reliability analysis of TEQ which had a Cronbach alpha value of 0.77 which indicates good internal reliability.

3.8 Data Collection and Management

After carefully designing the study especially selecting the population, drawing the samples and adopting or developing scales using which the required data was collected, came an important and testing part of the research process. At this stage, the researcher ensured the quality before during and after the process of data collection. The data collection of this study started in February, 2019 and ended in January,2020. It is important to note here that the data collected was before the first reported case of the pandemic Corona Virus on 26th February, 2020. Therefore, this study reported on basis of the data collected before the pandemic hit Pakistan and influenced all aspects of life. The unique situation of the ongoing pandemic could have impacted the variables of the study especially leadership behavior and the team's shared beliefs of psychological safety. Furthermore, with the nation-wide school closures and the shift to online teaching the data might not have been completely unbiased. Data collection and management was an essential part of the research design. However, additional quality assurance and quality control during this process was considered to achieve scientific validity of the results (Most et al., 2003).

Data collection Step 1

To ensure that prior to the data collection procedure which is both costly and time-consuming, steps to prevent possible problems were taken. To start off, minimizing the missing data was the study target. The questionnaires that were administered face-to-face were reviewed at the spot for any missing answers and the respondents were asked to provide the answers if any missing response was found. Secondly, the pilot testing of the instruments provided valuable

information for administering the question effectively. Following the guidelines provided by Morley (1995), the respondents were given clear verbal as well as written instructions and queries were addressed about the purpose of the survey, the ethical consideration of anonymity and confidentiality and how to respond to the different sections of the survey. Clear printed copies of the questionnaire were provided so that there may not be any difficulty in reading and responding to the survey.

Data collection Step 2

Quality control during data collection process entails the following steps detect-act. Whenever an error-systematic or intentional is detected in the data collection process, the researcher should be able to identify and act to resolve or minimize its effects on the study results. These errors may be missing values in individual data sets, falsified data provided by the respondents and incomplete or no-response or other types of response biases typical to the survey research design. Attempts were made to control the quality of data collection by consciously working on achieving the targeted response rate after contacting participants for the study. Furthermore, items that were reverse coded and cross-checking of extreme responses was reviewed for every individual data set. After the data collection process was completed, the data was coded and entered directly into the computer for keeping a backup record. The data was also reviewed in two steps to check for errors in data entry and missing values followed by data cleaning and preliminary analyses.

3.8.1 Pre-Testing

The scale that was used for collecting data for this study were standardized valid scales with high validity and reliability. However, despite numerous studies having used these scales to get results, it was deemed important to pre-test and pilot test the scale before administering

it to the sample. This step was important in research because it is cost and time effective since it highlights any errors or major issues in the scale which could not have been foreseen. Therefore, these considerations were addressed in two steps: pre-testing and pilot testing. The scale was given to 12 people from a regional branch of a private school in Islamabad. The purpose of conducting the pre-test was to check for response latency, evaluate respondents' understanding of the questions, identifying inconsistencies or unclarity in the items of the questionnaire.

The respondents all fit the characteristics of the study population as in they were all part of the same work team in the O/A level in a private school working under the same team leader. The respondents completed the questionnaire in a group and the process was followed by a group de-briefing assessment during which they read out the questions aloud and shared their suggestions, queries and feedback. The checklist mentioned in (SAGE Publications 2014, page 114), on the results of the pre-test and the focus group discussion the following explanations were added to the cover letter/introduction of the questionnaire

- The term "leader" means "principal/section head" to which the respondent would answer based on their own schools' administrative structure
- The term "organization" means "school"
- The question-order was altered to bring culture assessment scale in the middle of the questionnaire in order to bring variety in the order of question types: Multiple choice questions, Likert scale items, forced-response categories and ending the questionnaire with Likert scale items.
- The cover letter of the survey was re-phrased to emphasize the confidentiality and anonymity of responses, following the ballot-box method and the importance of

answering all questions. It was also suggested that the cover letter shows the purpose of research and how the data will be used.

3.8.2 Pilot Testing

The pilot study led to reviewing the research design and also presented interesting results and the expected findings of the actual survey including strong associations between leadership and psychological safety as well as a clear picture of the current state of psychological safety and the prevalent leadership style and school culture. Pilot testing is also known as a feasibility study and is done prior to the full-scale administration of the survey. This step was considerably important to undertake before the actual study as it allowed the researcher to get an idea about the possible problems that may be encountered during the actual survey. Consequently, an action plan was devised to best ensure the smooth administration of the survey, data entry, data coding, the robustness of the analyses and the expected results. According to Courtenay (1978), a pilot study may include around 30 to 100 participants belonging to the population of the study. The current study piloted the questionnaire on 60 participants after having conducted the pre-testing of the scale and the necessary revisions in the scale. The pilot study and its subsequent analyses brought to light certain considerations with respect to access to the respondents. The pilot study also helped in making decisions about recruitment approaches to the respondents. In face of some challenges to data access faced during the pilot study, a recruitment approach was planned to facilitate data access keeping the ethical considerations as a priority. Some teachers were accessed via the school management while others were contacted using social media.

3.8.3 Access to Respondents

During the pilot study, accessing the teachers through the school administration was challenging in a few schools as the reluctance to share the school's data was imminent in the administration's response. Furthermore, some teachers were also hesitant to respond to the questionnaire within the school premises. For these reasons, the following approach was planned to access the respondents for data collection:

1. Informing the school heads of the survey was the first step and seeking their permission to administer the questionnaire within the school premises was sought while informing them of the purpose of research and the assurance of data confidentiality and anonymity.
2. In the second step, the teachers who were involved in senior management teams or were involved in shared leadership activities were identified with the help of the administration. The teachers were contacted personally from those schools that did not allow the questionnaires to be administered on the premises. These teachers were identified using their public LinkedIn social media profiles.
3. The respondents also cooperated in the data collection process by further helping to get in touch with their colleagues.
4. Since face-to-face administration of the questionnaire was not feasible for the entire sample due to certain limitations posed by a few schools' administration, 219 teachers responded to the survey online while 342 teachers self-reported to the questionnaire in face-to-face administration and 75 teachers responded to the questionnaire outside school premises.

3.8.4 Face to Face Administration

The respondents of face-to-face administration of the survey were isolated to avoid response bias and ballot box method was used to assure them of the confidentiality of data. Out of the 46 schools, 26 schools allowed the questionnaire to be administered on premises which led us to collect data face-to-face from 342 respondents. No monetary incentives were offered to the respondents however, a group discussion with the participants after the data collection, on the importance of team psychological safety was done to gain insights as well as to share strategies for boosting psychological safety for innovation. Some respondents were hesitant to respond to the questionnaire in school premises, 75 of these respondents were provided with the copy of the survey which was later collected by the researcher.

3.8.5 Online Survey Administration

The alternate of face-to-face survey administration are mail survey or telephone survey. With the recent technological advancements, there are a variety of online tools which make data collection and management not only feasible but also time and cost effective. Although face-to-face administration provides a multitude of benefits in terms of clarity and authenticity of data and reduced number of missing values, sometimes limitations may arise in terms of accessibility to respondents. In the current study, certain school management did not permit the administration of the survey within the premises of their school, the respondents had to be accessed online for data collection. Using google forms as the main tool for online survey, the links to the form was shared with the respondents and the data of 219 teachers was collected in this way. Besides other benefits, the forced response option also ensured that there was minimum missing data in the submitted forms. It was also easier to send in reminders to

complete the form and ensured the anonymity of the submitted forms further helping in reducing response bias.

3.9 Data Analysis Plan

3.9.1 Data Screening and Cleaning

The data for this study was collected online as well as through face-to-face administration of the questionnaires. The collected data was checked for errors during the collection process as well as a thorough data screening and cleaning phase to reduce errors. Thorough screening and cleaning of data saves time and minimizes the probability of incorrect analyses and interpretations due to errors in the data set.

The preliminary data screening and cleaning included the following steps:

1. Coding values and data entry in SPSS
2. Screening for missing values, coding errors and incorrect entries
3. Logical consistency of individual responses
4. Screening the frequency tests and descriptive statistics for discrepancies or errors
5. Identifying and treating missing values and outliers
6. Preparing the final data set for analysis

3.9.2 Preliminary Analyses

The first phase of data analysis included the preliminary analysis which were:

- Reliability Analysis
- Descriptive Statistics
- Normality Tests

- Identification of Outliers

First, the reliability analysis was carried out in SPSS in which the Cronbach alpha coefficient was used to gauge the reliability of scales. Once the scales showed strong internal reliability, the next step of the analysis was running the descriptive statistics. The descriptive statistics were examined to look for measures of central tendency in the data sets, the normality of the data set using measures of skewness and kurtosis. These steps were important for later testing the assumptions of the inferential statistics for hypotheses testing. Normality of the data is generally an important assumption for most of the parametric tests. After running the preliminary analysis on the data set, the major part of the data analysis was the inferential statistics tests. There were a few outliers that were identified during the preliminary analysis but they were examined to check for errors or discrepancies. It was found that those were extreme reporting of data on the part of the respondents and did not show any inconsistencies in the responses. Furthermore, outliers were not removed from the data set as that leads to reducing deviations from normality and homogeneity of variance-both of which are major assumptions of ANOVA. (Sawyer, 2009) Since ANOVA was to be applied for most of the hypotheses of the study, it was therefore decided to retain the outliers to not affect homogeneity of variance.

- Middle of the Road leadership was non-existent in the sample
- Participants belonging to the Silent Generation (born in 1940s) were no longer a part of the private school work force
- The Chi-square assumption requiring 5 or more cases in each cell and no cell containing a value of less than one Bewick et al., (2004) could not be met. This assumption was violated by the personal factors i.e., organizational tenure, generation type and years of

professional experience was not met which is why ANOVA was conducted on these variables in relation to psychological safety scores

3.9.3 Statistical Analysis

Inferential Statistics were used to extrapolate the findings to a wider population. Upon finding the results of robust statistical tests, they were interpreted leading to inferences about characteristics of a population based on the parameters of the sample and whether those findings from the sample were generalizable to the wider population. The type of inferential tests varies based on the research design and the characteristics of the sample as well as the objectives of research and the type of data at hand. The following parametric tests were used for the data analysis and hypothesis testing.

1. Independent Samples T-test

Independent samples t-test was conducted to compare mean of a dependent variable between two groups that are unrelated and have a pre-existing difference. This is to say that the values in one group are not related or dependent on any other value in the second group- i.e., they are unrelated. Before conducting the independent samples t-test, it was important to conduct the normality test which is the major assumption of this statistical test; it goes without saying that most parametric tests assume normality of the data set (Gerald, 2018). T-test has been used to compare gender differences in various variables although gender is sometimes considered as a quasi-independent variable because it cannot be controlled or changed but t-test can be used to examine the difference in variables based on gender (Arkellin, 2014).

In this study, it was hypothesized that male and female teachers do not have a statistically significant difference in their reported psychological safety. To test this statement,

male and female teachers who participated in this study were categorized into two sub-groups and underwent a t-test for hypothesis testing.

2. One-way ANOVA.

Analysis of Variance is a parametric test that is used to compare the difference between group means based on one factor. The rationale for selecting ANOVA as the choice of statistical test was due to it robustness despite violations of assumptions of normality for large sample sizes and the possibility of multiple comparisons to see which group reports the higher psychological safety. (Sawyer, 2009) ANOVA is used when the difference in mean of more than two groups are compared to test whether the difference is statistically significant. The null hypothesis for ANOVA is: H0: $\mu 1 = \mu 2 = \mu 3$ however the alternative hypothesis for ANOVA is that at least two groups differ in their mean scores. To further find out the difference and interpretation of these groups, Tukey's post-hoc analysis is conducted also categorized under multiple comparison procedures which help in further interpreting the results of the analysis.

In case of this study, psychological safety of the teachers is the dependent factor which has been compared between independent variables including organizational culture type of the schools, leadership style of the school principal, generation type of the teachers, job status, professional experience and tenure with the organization.

3. Simple Linear Regression

Simple linear regression is employed when a single quantitative dependent variable is examined in relation to a single quantitative independent variable. The independent variable is tested to the extent to which it predicts the dependent outcome variable (Chatterjee & Simonoff, 2013). This method is popular choice of statistical analysis when a linear relation is postulated between the two variables; however, for more than one independent variable

multiple regression is used. In the current study, linear regression was selected to test the effect of leadership task-oriented behavior separately and leadership relation-oriented behavior in a separate linear regression model. The reason for separating the regression models was to avoid multi-collinearity between the two independent variables which was considered a structured multi-collinearity (Chapter 37, (Springer, 1997).

4. Moderated Regression Analysis

Moderated regression analysis is the addition of a third variable in the moderation model which is the moderator variable. Baron & Kenny (1986) call it the variable that has a strengthening, weakening or directional effect on the relationship between the predictor and the outcome variable. In this study, team effectiveness was examined as a moderator variable on the relationship between the exogenous variable (leadership behavior) and the endogenous variable (psychological safety). Moderated regression is expressed in the form of the following model also known as the interaction model (Helm & Mark, 2012):

$$\mathbf{Y} = B_0 + B_1X + B_2M + B_3XM$$

Like the previously mentioned regression model, this model includes an interaction effect denoted as the product of X (leadership behavior) and M (team effectiveness) denoted as XM. This regression model was also run as two separate moderated regression models for task-oriented leadership behavior and relations-oriented leadership behavior. The moderated regression analysis posed a challenge because of the multicollinearity between the task-oriented leadership behavior and relations-oriented leadership behavior. Due to the possibility of high correlation between these two variables, the regression models had to be separated.

SPSS had limited options for moderated regression analysis requiring precise mathematical calculations and mean centering, which is why an extension software names Process by Andrew Hayes (2017) had to be used to test for the moderated regression models

3.10 Ethical Considerations

Best practices in research call for ethical considerations when dealing with public and their data. Besides academic honesty, researchers need to be aware of the ethical consideration entailing collection of data and must be honest and respectful in their dealings with the participants of the study causing them no type of harm. American Association for Public Opinion Research (AAPOR) highlights certain ethical guidelines for survey research which were adhered to in the current study. They include the following:

- Permission to use the scale in the study was sought from the author of the scales whereas the scales available for public use were adapted. The annexure includes the permission letter for use and re-printing of the scales.
- Anonymity and confidentiality of the respondents and the schools that allowed the data collection on their premises was maintained throughout the research process
- Informed Consent of school administration was sought before administering the questionnaire on their premises
- Transparency in purpose of research and use of respondents' data was clearly communicated in the cover letter and during face-to-face and online interviews
- None of the participants was coerced or pressured to partake in the study and it was 100% voluntary participation on their behalf

- No monetary incentives were offered to the respondents in return for their participation in the survey
- The data presented in this study is self-report data by the respondents and was not falsified or fabricated
- All sources including research papers and books have been cited in the reference list

3.11 Summary

This chapter presented the details of the research methodology that was undertaken in this study. The aims of the study included examining personal and organizational factors as antecedents of teachers' psychological safety. In order to achieve this end, the research approach was to gather empirical data on leadership behavior, type of organizational culture and personal factors and examine them in relation to teachers' psychological safety scores by conducting a survey. The relationship between the variables were tested using inferential statistics to gauge whether they are statistically significant antecedents of psychological safety of teachers or not. The study examined variables based on literature review from all levels of the organization, this multi-level approach was adopted considering that psychological safety is a complex phenomenon that results after an inter-play of various constructs at organizational, team and individual level. That is why, the interaction effect of team effectiveness with leadership behavior was also tested as a part of the study. The scope of the study is examining the factors that may help educational leaders in fostering an environment of psychological safety, therefore, the study aims to present empirically-backed findings on which factors lead to higher levels of psychological safety. In nature, the study was entirely descriptive using a sample of 600 secondary/higher secondary school teachers from 46 private schools of urban Islamabad.

Survey research requires the findings to be generalizable, therefore, probability sampling and parametric tests in the analysis were used. Chapter 3 described in detail, the steps taken by the researcher to ensure the effectiveness of a survey research design by careful data collection, reducing biases and using standardized valid and reliable scales for collecting the responses. The chapter also discussed, the data analysis procedures which were selected to be applied on the data and testing the hypotheses in Chapter 4. The research approach, which was positivist/post-positivist guided the design of the study which emphasized on gathering empirical evidence to test the hypothesis and use deductive reasoning to inquire if the findings were valid, reliable and generalizable. The rationale for selecting the tests and their assumptions and robustness will be discussed in the next chapter. Furthermore, Chapter 4 presents the data cleaning, preliminary analysis of the data, demographic details of the sample, findings of the study in detail along with testing the hypotheses of the study and the results.

CHAPTER 4

DATA ANALYSIS & INTERPRETATION

4.1 Overview

This section of the dissertation includes the data analysis and interpretation of the statistics that led to answer the research questions of the study and to test the hypotheses. Before analyzing the data to test for hypotheses, initial data treatments were carried out which included cleaning the data; treating missing values; normality tests; and testing assumptions of the chosen statistical tests. The chapter is further divided into three sections where the demographic details of the sample, the initial findings of the descriptive statistics and the hypothesis testing with inferential statistics are descried in detail.

4.2 Data Screening and Cleaning

The data that was collected from questionnaires was on 5-point Likert scale which was then coded and entered into SPSS by attributing value labels to it. Prior to subjecting the data to robust statistical analysis, it was carefully screened twice to find out any missing values or errors and to ensure precision in the data entry process. In the first step, all entries were examined case by case to check for any missing value or incorrect entry. In the second phase,

the frequency of all entries was checked using descriptive statistics to see any observation beyond the set range of the values.

The next major step after screening the data for errors was cleaning it by treating any missing values and outliers. Prior to collecting the data, a target was set to minimize missing data so that it does not affect the analysis of the study. Therefore, it was ensured in each cluster during data collection, that all participants provide complete responses to the questionnaire. When the returned questionnaires were examined for completeness, it was found that 36 questionnaires were more than 25-30% incomplete due to which they were omitted from the final data set and a final number of 600 cases were retained for further analysis. The reason for not including the incomplete responses was because it not only reduces the statistical power of the sample but also has the potential to cause bias and lead to invalid conclusion. (Kang, 2013)

Once the data was screened for errors and the corrections made, descriptive statistics were run on all major variables to examine the mean, standard deviation and frequency distribution to get a general idea about the characteristics of the data set. Skewness and Kurtosis help in assessing the normality of the distribution and provide key insights into the characteristics of the distribution such as the degree of distortion from a normal bell curve, the symmetry or asymmetry of the distribution and the presence of outliers.

The proceeding sections of this chapter include the following:

Section I includes details of the sample demographics

Section II has details on the initial findings based on the descriptive statistics

Section III carries out the hypotheses testing and other inferential statistics which leads to the major findings of the study.

Section I

Sample Demographics

4.3 Demographic Profile of Respondents

Demographic details of any sample provide valuable insight in understanding the background of the respondents and also help in identifying and analyzing various trends and relationships between variables. In our study, collecting demographical data of the respondents was a vital step as our research questions require these details to examine the effect of personal factors of the teachers on their psychological safety. Affirming the condition of anonymity and confidentiality at the beginning of the questionnaire, the demographic data of the required factors was recorded. Excluding factors that were irrelevant to our study, such as marital status, income and race, the demographic questions included the following factors:

- Gender
- Birthyear (to identify the generation type)
- Education
- Employment Status
- Professional Experience (in years)
- Organizational Tenure (in years)

Table 4.1 Sample Demographic: Gender

Gender	Frequency	Percentage
	n	**%**
Female	383	63.8
Male	217	36.2

Note. $N = 600$ (*n* reflects the total number for each characteristic).

The first item of the questionnaire inquired the gender of the teacher responding to the survey by providing them two options of male and female. Table 4.2 shows that the total sample consisted of 383 female teachers and 217 male teachers in the secondary/higher secondary level of the selected private schools. The female teachers formed 63.8% of the total sample and the male teachers made up 36.2% of the sample. This imbalanced occupational distribution was expected since research shows that females show more preference for education as a career choice as compared to men. Similarly, Pakistan Education Statistics 206-2017 also reported an imbalanced distribution of male and female teachers in the higher secondary grade with 61% female teachers and 39% male teachers. The same percentage distribution is reflected in our study sample.

Table 4.2 Sample Demographic: Generation Type

Generation	Frequency	Percentage
	n	**%**
Baby Boomers (1946-1964)	55	9.2
Generation X (1965-1976)	178	29.7
Millennials (1977-1995)	275	45.8
Generation Z (1996 onwards)	92	15.3

Note. $N = 600$ (*n* reflects the total number for each characteristic).

The next item of the questionnaire required the respondents to select the option which contained their year of birth in order to identify the generation they belong to. According to our findings, the sample consisted of 55 teachers from the Baby Boomers generation born between (1946-1964) forming 9.2% of the sample and 178 teachers from Generation X (1965-1976) which was 29.7% of the sample. The largest portion of the sample was the Millennials generation (1977-1995) with 275 teachers forming 45.8% of the sample. The youngest teachers of the sample were 92 teachers from Generation Z (1996 onwards) which formed 15.3% of the sample. Figure 4.1 helps illustrated the distribution of the respondents according to the generation type currently teaching at O/A level sections in the private education sector of urban Islamabad, Pakistan. Figure 4.1 shows the distribution of generation in the study sample and Table 4.3 shows the descriptive statistics of the generation types.

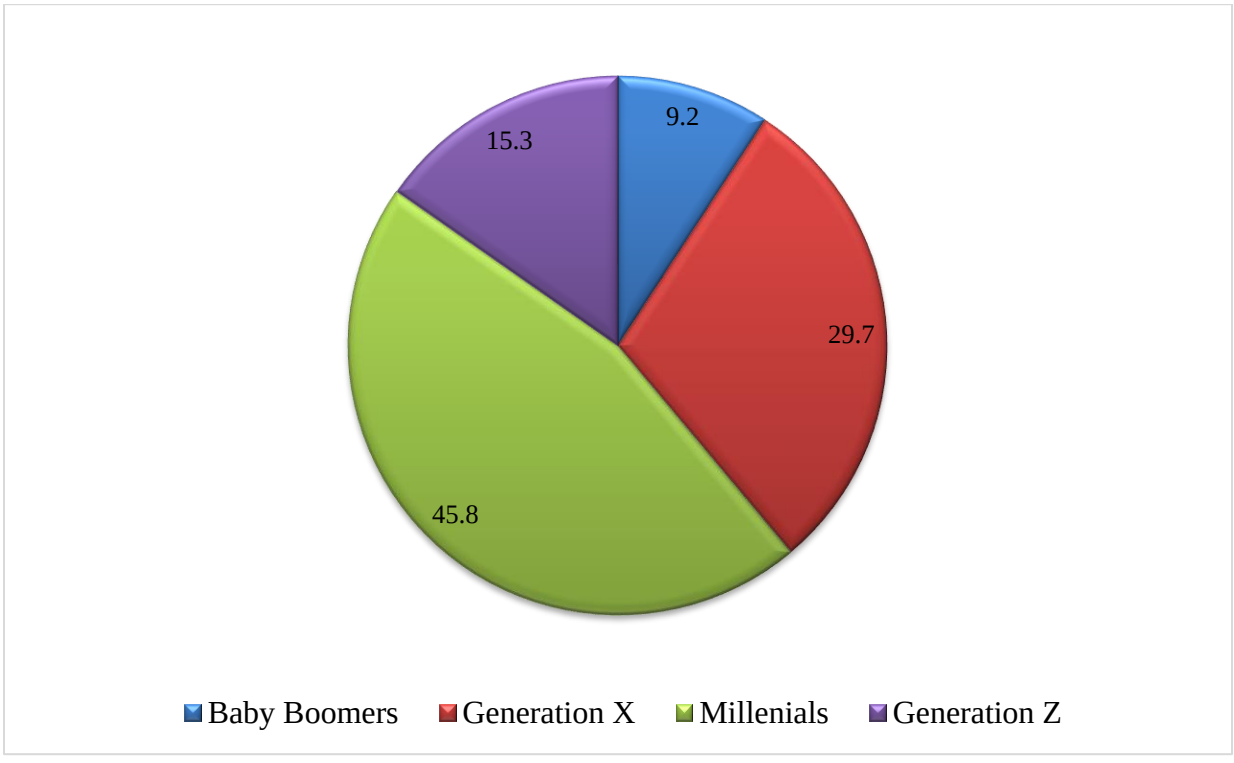

Figure 4.1. Generation-wise Distribution of the Participants

Table 4.3 Sample Demographic: Education

Education	Frequency	Percentage
	n	%
Undergraduate	183	30.5
Graduate	334	47.3
Postgraduate	83	13.7

Note. N = 600 (*n* reflects the total number for each characteristic).

The respondents were further asked to provide their academic qualification in which the options ranged from Intermediate to Doctorate. The data showed that 183 respondents which is 30.5% of the sample held Undergraduate/Bachelor's degree which includes B.A./BSc/BS (Hons.) and 334 respondents, forming the largest section of the sample i.e., 47.3%, had Graduate/Masters degrees including M.A./MSc. This item of the questionnaire also contained the option of Postgraduate degrees i.e., M.Phil. and Ph.D. Out of the 600 respondents 76 teachers had an M.Phil. degree and 7 held Ph.D. collectively forming 13.7% of the sample.

Table 4.4 Sample Demographic: Employment Status

Employment Status	Frequency	Percentage
	n	%
Permanent	278	46.3
Fixed-term Contract	211	35.2
Probation	111	18.5

Note. N = 600 (*n* reflects the total number for each characteristic).

Three questions in the survey provided the information regarding the professional profiles of the participants including their employment status in their current schools, their total years of professional experience and their tenure with the current school also recorded as the number of years. These three variables along with gender, generation type and education made up the category of the teachers' personal factors which were examined against their psychological safety. Table 4.5 shows that out of the 600 respondents, 278 teachers were employed as permanent employees in their organizations and these permanent employees made up 46.3% of the sample leading to the conclusion that almost half of the teachers at secondary/higher secondary grade level in the private sector of urban Islamabad hold permanent teaching positions in their respective schools. Additionally, 211 teachers were hired on a fixed-term contract which means their duration of employment with the school was definite. A common practice in various organizations is to initially hire employees on probation to work for a certain duration while evaluating their performance, after which they may or may not continue with their tenure. In the study sample, 111 teachers which was 18.5% of the sample were serving their probation period in their respective schools.

Table 4.5 Sample Demographic: Professional Experience and Organizational Tenure

Characteristic	Frequency	Percentage
	n	%
Professional Experience		
Less than 5 years	142	23.7
5 to 10 years	184	30.7
10 to 15 years	84	14.0
15 to 25 years	112	18.7

More than 25 years	78	13.0
Organizational Tenure		
Less than 5 years	271	45.2
5 to 10 years	158	26.3
10 to 15 years	86	14.3
15 to 25 years	65	10.8
More than 25 years	20	3.3

Note. $N = 600$ (*n* reflects the total number for each characteristic).

As seen in Table 4.5, professional experience of the employee was counted as the number of years they had been formally working as teachers with different schools. 142 teachers (23.7%) were in the initial years of their teaching career which was less than 5 years; 184 teachers (30.7%) had the teaching experience of 5 to 10 years forming the largest section of the study sample. In addition, 84 teachers (14%) had the professional experience of 10 to 15 years; 112 teachers (18.7%) had been teaching for 15 to 20 years; 78 teachers (13%) had been in the teaching field for more than 25 years.

Besides the number of years teachers had been in the education sector, their tenure with the current organization was also recorded in order to compare how their psychological safety differs with the number of years they had worked in their respective schools. The statistics show that 271 teachers (45.2%) had only been working with their respective schools for a period of less than 5 years; 158 teachers (26.3%) had been working at their school for 5 to 10 years; 86 teachers (14.3%) for 10 to 15 years; 65 teachers (10.8%) for 15 to 25 years and 20 teachers (3.3%) had served their schools for over 25 years. The decrease in tenure with current organization as compared to the professional experience shows that in the private sector teachers do work with various organizations instead of only working with a single school for a long duration.

Section II

Descriptive Statistics

In this section, the descriptive statistics of all personal and organizational factors are presented and the initial findings of those factors in relation to psychological safety as per the data of the study sample are discussed. Firstly, a preliminary analysis of the study variables to assess the normality of data shows that the distribution is approximately normal. The skewness and kurtosis values for all four variables are within the range of ± 1.0 as seen in Table 4.7, which means that the skewness and kurtosis is within the range of normality so the data can be considered normally distributed. The statistics further tell us that the distributions for psychological safety, team learning, leadership relation-oriented behavior, leadership task-oriented behavior and team effectiveness are negatively skewed. The kurtosis values are also within the range of ± 1.0 which indicate that all four distributions are mesokurtic i.e., approximately normal.

Table 4.6 Descriptive Statistics of the Independent and Dependent Variables

Variable	Mean	Std. Deviation	Skewness	Kurtosis	Range
Psychological Safety (PS)	23.37	6.56	-0.61	-0.04	(7,35)
Leadership Relations-Oriented Behavior (LRB)	29.61	8.54	-0.64	-0.17	(9,45)
Leadership Task-Oriented Behavior (LTB)	30.67	7.24	-0.71	0.34	(9,45)
Team Effectiveness (TE)	103.37	19.60	-0.84	0.97	(28,140)

Note. $N = 600$

4.4 Personal Factors: Initial Findings

4.4.1 Gender and Psychological Safety

Table 4.8 presents the descriptive statistics of male and female teachers of the study sample and their psychological safety. The mean psychological safety reported by 217 male teachers in the sample was 23.7 with a standard deviation of 5.96 and the 383 female teachers reported a mean psychological safety of 23.18, standard deviation 6.87. It is evident that the difference in the psychological safety of male and female teachers from the sample is negligible and both genders reported almost the same mean psychological safety.

Table 4.7 Descriptive Statistics: Gender and Psychological Safety

	Gender					
	Male			**Female**		
Psychological Safety	Mean	Std. Deviation	n	Mean	Std. Deviation	n
	23.7	5.96	217	23.18	6.87	383

Note. N = 600 (*n* reflects the total number for each characteristic).

4.4.2 Generation and Psychological Safety

The data showed that there are no teachers belonging to the traditionalist generation type as they have now mostly retired. The mean psychological safety scores of the remaining four generation types. Table 4.9 depicts that the Millennials reported the highest psychological safety with a mean score of 24.13, followed by Generation X with 23.14 and Baby Boomers

with 22.76. The lowest mean psychological safety was reported by Generation Z which was 21.90. The mean score comparison of the generation type is illustrated in Figure 4.2.

Table 4.8 Descriptive Statistics: Generation Type & Psychological Safety

Generation	Birth Year Start	Birth Year End	Current Age	n	Mean	Standard Deviation
Traditionalists	Before 1946	-	75+	0		
Baby Boomers	1946	1964	57-75 years	55	22.76	6.33
Generation X	1965	1976	45-56 years	178	23.14	6.68
Millennials	1977	1995	26-44 years	275	24.13	6.11
Generation Z	1996	2009	12-25 years	92	21.90	7.46

Note. $N = 600$ (*n* reflects the total number for each characteristic).

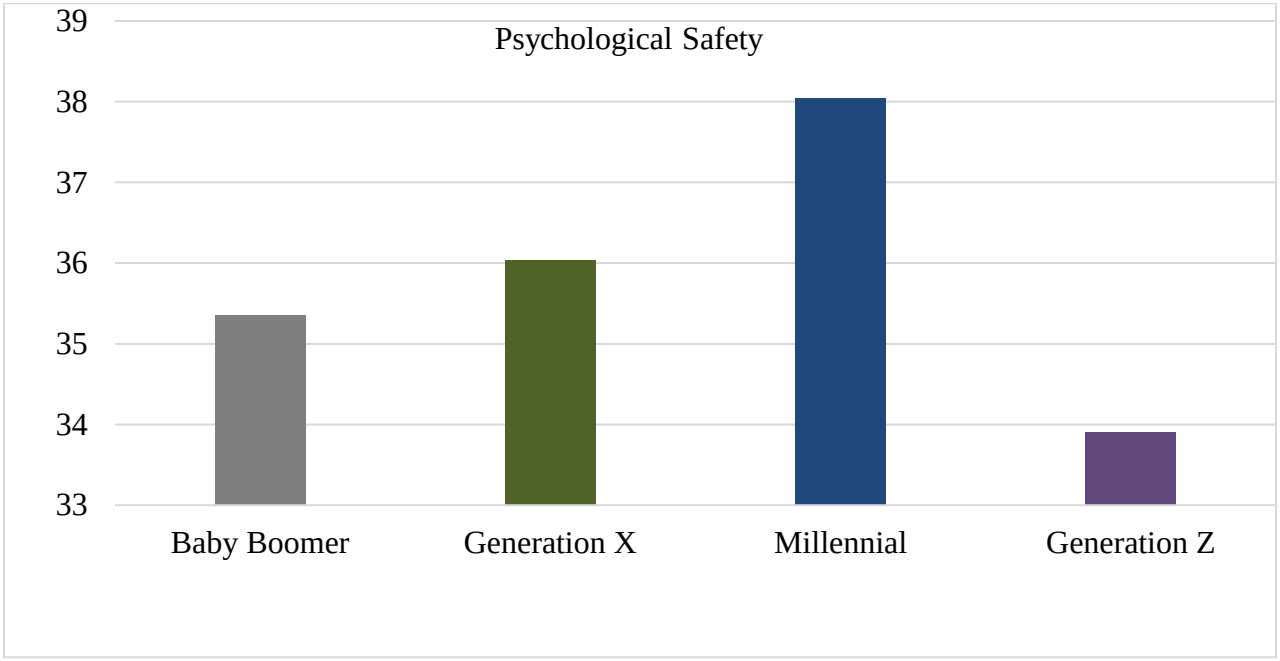

Figure 4.2 Mean Psychological Safety across Generation Types

4.4.3 Employment Status and Psychological Safety

The mean psychological safety scores of the teachers on different employment statuses in the schools can be seen in Table 4.10: permanent, fixed term contract and those serving their probation periods. The 275 permanent position teachers reported the highest psychological safety (M=23.98, S.D=5.97), followed by a marginal difference of fixed term contract teachers which was (M=23.66. S.D=6.76) and the lowest psychological safety was those who were serving the initial probation period of their employment (M=21.44, S.D=7.16)

Table 4.9 Employment Status Descriptive Statistics

Employment Status	n	Mean Psychological Safety	Standard Deviation
Permanent	275	23.98	5.97
Fixed Term Contract	207	23.66	6.76
Probation	118	21.44	7.16

Note. N = 600 (*n* reflects the total number for each characteristic).

As seen in Figure 4.3, the mean plot of the mean psychological safety in the three types of employment status, the teachers on probation reported the lowest psychological safety in comparison with the other two groups and the highest psychological safety was reported by teachers holding permanent teaching positions.

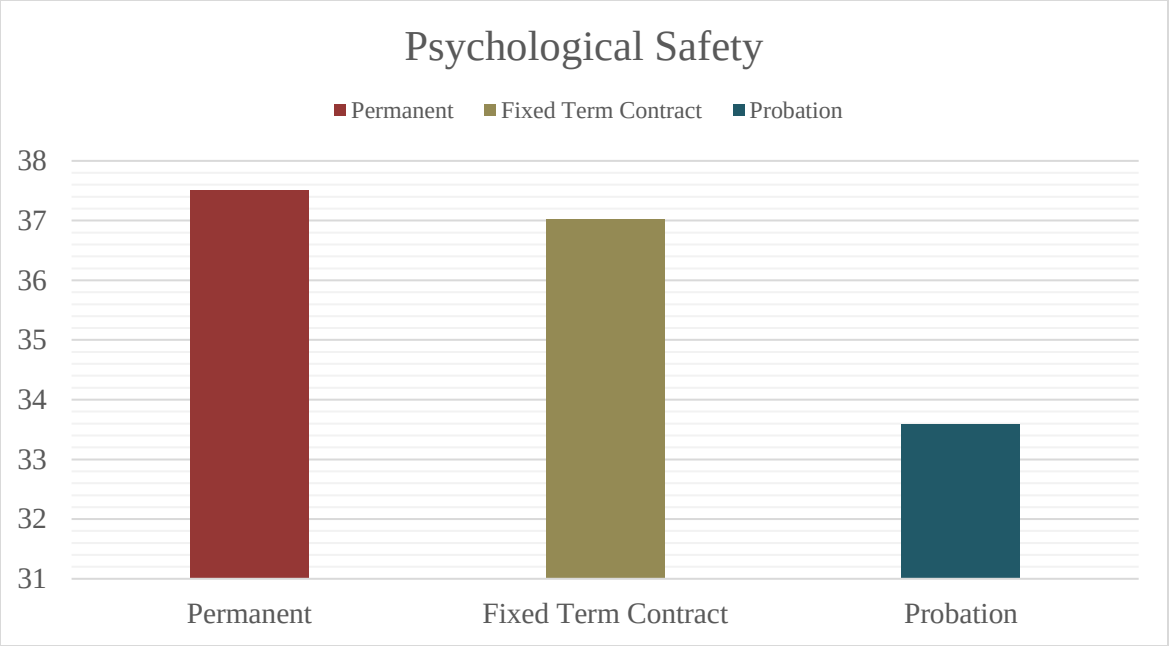

Figure 4.3 Mean Psychological Safety and Employment Status

4.4.4 Professional Experience and Psychological Safety

The figure shows the changes in psychological safety of teachers with increasing professional experience measured in years, the trend is inconsistent and inconclusive as each group shows variation in psychological safety which does not present any particular relationship between the variables. The lowest psychological safety is reported by teachers with the least professional experience (less than 5 years) followed by the most experienced teachers which is more than 25 years. The teachers between 11-25 years of experience report an average psychological safety whereas the highest psychological safety is reported by teachers within the range of 6-10 years of professional experience. One way to interpret the findings would be that the group with the highest psychological safety must be the Millennial generation whereas the group that reported the least psychological safety with more than 25 years of experience must be majorly baby boomers who also reported low psychological safety owing to the characteristics of their own cohort, as discussed earlier.

Table 4.10 Professional Experience Descriptive Statistics

Professional Experience	n	Mean Psychological Safety	Standard Deviation
Less than 5 years	142	22.3	7.63
6 to 10 years	184	24.09	5.55
11 to 15 years	84	23.55	6.42
16 to 25 years	112	23.82	6.58
More than 25 years	78	22.69	6.62
Total	600	23.37	6.56

Note. N = 600 (*n* reflects the total number for each characteristic).

Figure 4.4. Psychological Safety and Professional Experience

4.4.5 Organizational Tenure and Psychological Safety

The mean psychological safety for each group also shows an increase in reported psychological safety as the tenure in organization increased. The figure shows the trend of the reported psychological safety with the increase in organization, teachers with the longest tenure showed higher psychological safety.

Table 4. Organizational Tenure Descriptive Statistics

Tenure	n	Mean PS	Std. Deviation
Less than 5 years	271	22.7	6.80
6 to 10 years	158	23.6	6.07
11 to 15 years	86	23.9	6.78
16 to 25 years	65	23.8	6.10
More than 25 years	20	25.8	5.78

Note. N = 600 (n reflects the total number for each characteristic).

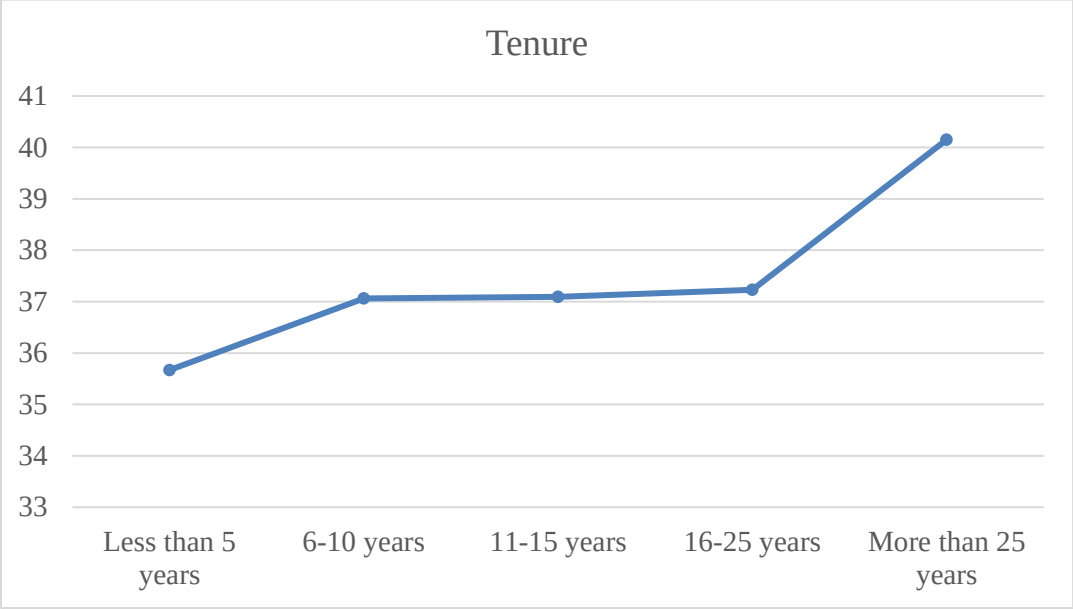

Figure 4.5 Organizational Tenure and Psychological Safety

4.5 Organizational Factors

4.5.1 Leadership Style and Psychological Safety

Based on the descriptive statistics, the highest number of teachers reported a team leadership which also shows the prevalent leadership style in the private sector of Islamabad forming 49% of the sample, followed by authoritarian leaders (23%), impoverished leadership (14%) and country club leadership ((13.6%) The data set had no account of a Middle of the road management style and only reported the other four leadership style, which was a surprising finding but we can attribute that to either being a characteristic of the sample, the socio-cultural context or the respondents' extreme response bias by refraining from describing their leadership as mediocre or average.

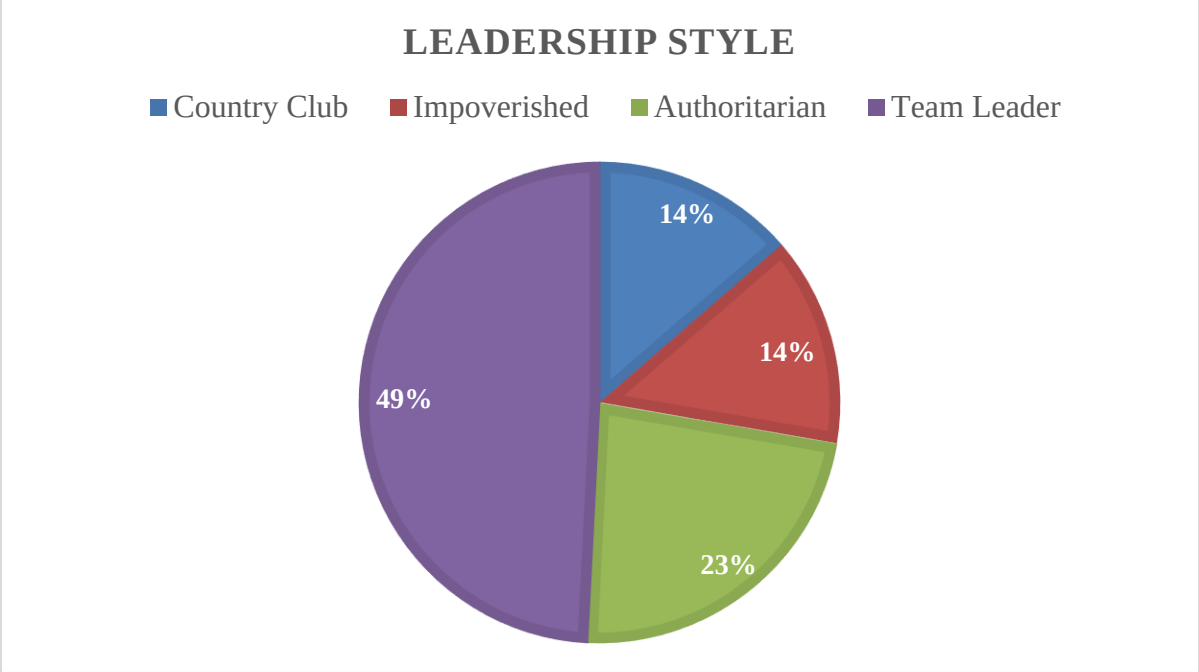

Figure 4.6 Leadership Styles in the Study Sample

The pie chart shows the breakdown of the existing leadership style in the sample which shows inequality especially the highest being team leadership which is almost half of the

sample and impoverished and country club leadership styles were also underrepresented with group sizes<15.

Table 4.12 Leadership Style Descriptive Statistics

Leadership Style	n	Mean Psychological Safety	Standard Deviation
Authoritarian	138	20.42	7.28
Country Club	82	22.07	5.68
Team Leadership	295	26.51	4.13
Impoverished	85	18.3	7.18

Note. N = 600 (*n* reflects the total number for each characteristic).

The figure also shows the comparison of the mean scores of the four leadership styles where Impoverished leadership style which is both low on people and production focus is the lowest on psychological safety, and team leadership which is plotted with high scores on both people and production focus, showed the highest psychological safety of teachers. Authoritarian leadership was reported by 138 teachers who had a mean psychological safety score of 32.02 (SD=11.69) whereas 85 teachers reporting to an impoverished leadership had a mean psychological safety of 28.51 (SD=11.62). The largest section of the sample was team leadership which was 295 had the highest psychological safety with a mean of 41.38 (SD=6.3) and the smallest section was country club leadership of 82 teachers with a psychological safety of 33.67 (SD=8.63).

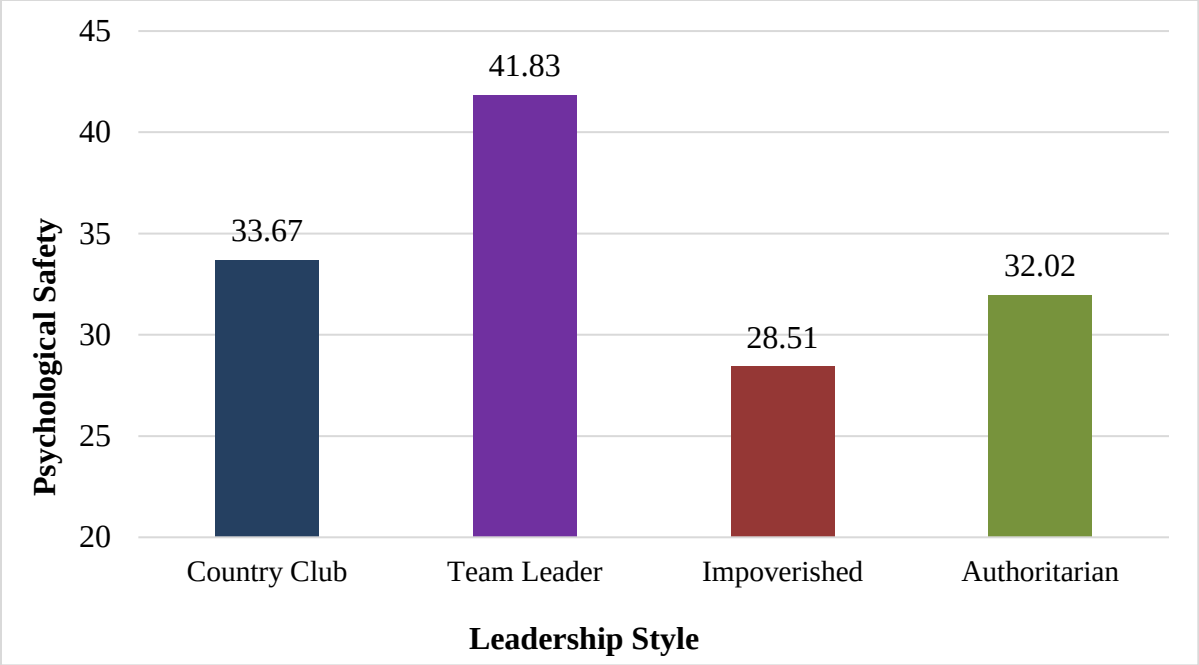

Figure 4.7 Mean scores of Psychological Safety across four Leadership Styles

4.5.2 Organizational Culture and Psychological Safety

The Table shows the descriptive statistics of the sample with respect to the organizational culture types of the schools included in the sample. The highest number of culture type that appeared in the study sample was Collaborate culture with a frequency of 198 making 33% of the sample. The culture type is categorized by an increased focus on the employees as well as the realistic achievement of organizational goals. This culture type is followed by Competence culture with a frequency of 139 that is 23% of the sample. Cultivate culture which is reality-oriented and people-oriented had 137 cases and was 22.8% of the sample. The smallest group in the sample was the Control culture with the frequency of 126 cases forming 21% of the sample.

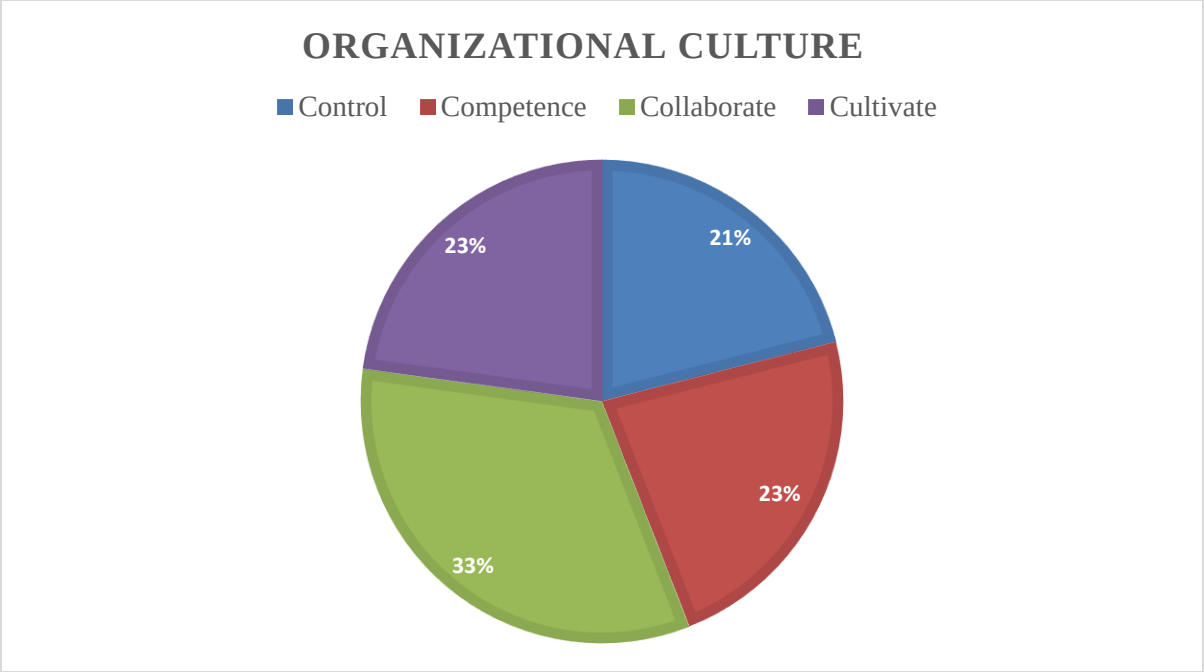

Figure 4.8 Organizational Culture

Table 4.13 Organizational Culture Descriptive Statistics

Organizational Culture	n	Mean Psychological Safety	Standard Deviation
Control	126	21.85	6.84
Competence	139	21.97	6.86
Collaborate	198	24.53	6.55
Cultivate	137	24.51	5.39

Note. N = 600 (n reflects the total number for each characteristic).

The 126 teachers in a Control culture had an average psychological safety of 21.85 (SD = 6.84); the 139 cases of a Competence culture reported a mean psychological safety of 21.97

(SD = 6.86); the 198 participants from a Collaborate culture reported a mean of 24.53 (SD = 6.55) and the 137 teachers in a Cultivate culture scored an average 24.51 (SD=5.39).

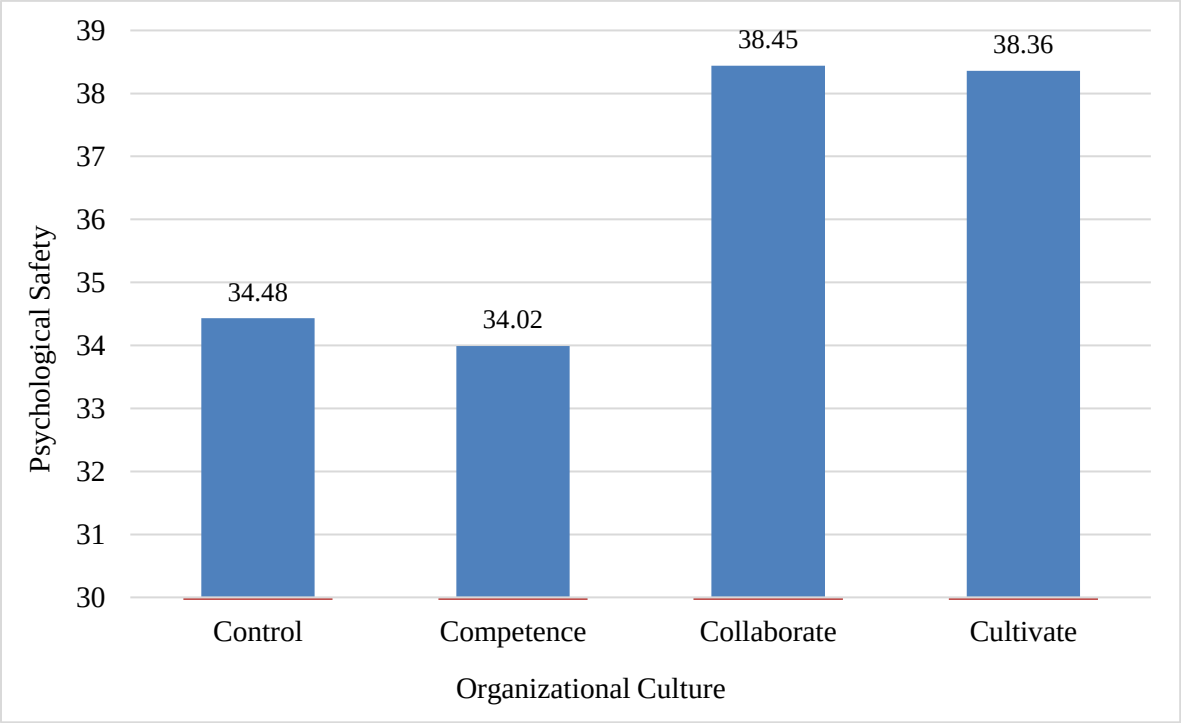

Figure 4.9 Mean scores of Psychological Safety across Organizational Culture

Section III

Inferential Statistics

This section includes the data analyses and the inferential statistical tests that were run to acquire the key findings by testing the hypotheses using robust statistical analyses. The analyses were carried out using IBM SPSS® Statistical Package for the Social Sciences along with PROCESS macro written by Hayes (2017), an SPSS extension tool for testing moderated regression models. Demographics of the data, the results of the statistical tests, hypotheses testing and interpretation of the findings are described in detail in the following sections. The three major inferential statistical tests applied in this section are:

- Independent samples t-test
- Simple Linear Regression
- Moderated Regression
- Analysis of Variance (ANOVA)

The data was analyzed with respect to the hypotheses of the study and the two categories of independent variables that were analyzed against the dependent variable, psychological safety.

4.6 Hypotheses Testing

Statistical inference includes the testing of hypotheses on the basis of the observed data to accept or fail to reject a null hypothesis at a set level of significance. The hypotheses are set on the basis of the research objectives and phrased according to the statistical test of interest. A statistical hypothesis may test a relationship between variable or the statistically significant difference between two or more groups. The null hypotheses of the present study are:

The theoretical framework of the study included personal factors of teachers as factors that are related to their psychological safety in a team. These factors may vary from individual to individual and the organization has no causal role to play in these factors. With theoretical support, the personal factors that were examined in relation to psychological safety included the gender, employment status, generation type, years of professional experience and tenure with the current school. In the following section, these factors will be analyzed in relation to psychological safety to find out to what extent psychological safety varies with these factors.

4.7 Effect of Gender on Psychological Safety

The first personal factor to be examined in relation to psychological safety in gender. It was hypothesized that psychological safety does not vary between male and female teachers because of their gender. The following null hypothesis was tested using an independent samples t-test:

$H0^5$: There is no significant difference in psychological safety of male and female teachers

4.7.1 Independent Samples t-test

An independent-samples t-test was conducted to compare mean psychological safety in male and female teachers.

Assumptions of Independent Samples t-test:

- **Independence of groups:** The first assumption of an independent samples t-test is that the two categorical groups must not be the same or related in any way. Since the male and female groups are the categorical variables in this analysis, the assumption is fulfilled.

- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which showed that the variances of the two groups were not equal F=6.56, p=0.01 therefore the output was interpreted without the assumption of equal variances using Welch's t-test
- **Normality:** The second assumption is the normality of the distribution in both samples of the t-test. Psychological safety was checked for normality in both female and male group using graphical methods and by examining skewness and kurtosis values. The distributions in both male and female groups were approximately normally distributed with skewness and kurtosis values within range.

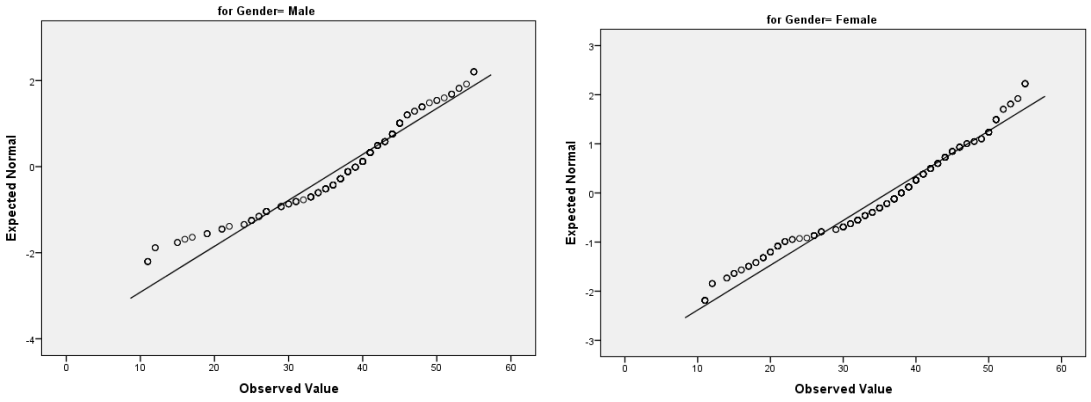

Figure 4.10 Normal Q-Q Plots of Male and Female teachers and PS scores

Even though in the findings, male teachers reported a higher level of psychological safety as compared to female teachers, the mean difference of 0.51 was found to be statistically insignificant since the p-value was greater than 0.05. The difference in the scores of psychological safety between male (M=23.7, SD=5.96) and female (M=23.18, SD=6.87) teachers; t (598) =0.95, p=0.34 was not significant therefore, null hypothesis was retained. We conclude that gender of the teachers does not play a significant role in determining the psychological safety. This implies that the difference in psychological safety between male

and female teachers is not statistically significant and that psychological safety does not vary between male and female teachers.

Table 4.14 Results of t-test for Psychological Safety by Gender

	Gender									
	Male			Female			95% CI for Mean Difference			
	M	SD	N	M	SD	n		t	Df	Sig.
Psychological Safety	23.7	5.96	217	23.18	6.87	383	-0.54, 1.56	0.95*	598	0.34

* p <.05.

4.8 Effect of Generation on Psychological Safety

In the present study, psychological safety was examined in relation to the generation types to find out if it varies with the type of generation the teachers belong to. Each generation has a different experience from the other generations since the cohort is born and raised at the same time and face the same socio-economic changes and the advancement of technology. Therefore, the mean psychological safety scores of each generation type were compared to see if the difference are statistically significant.

$H0^6$: There is no significant difference in psychological safety of teachers in Baby boomers, Generation X, Millennials and Generation Z

Assumptions of ANOVA for Generation

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. Since each respondent reported for their own generation types, the assumption is fulfilled.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which showed that the variances of the four groups was not equal $F=2.79$, $p=0.04$ therefore the output was interpreted without the assumption of equal variances using Welch's ANOVA and Games-Howell post-hoc analysis
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in all four generation groups using graphical methods and by examining skewness and kurtosis values. The distributions in all generation groups were approximately normally distributed with skewness and kurtosis values within range. The Q-Q plots of the four groups are given below, and there are no significant outliers.

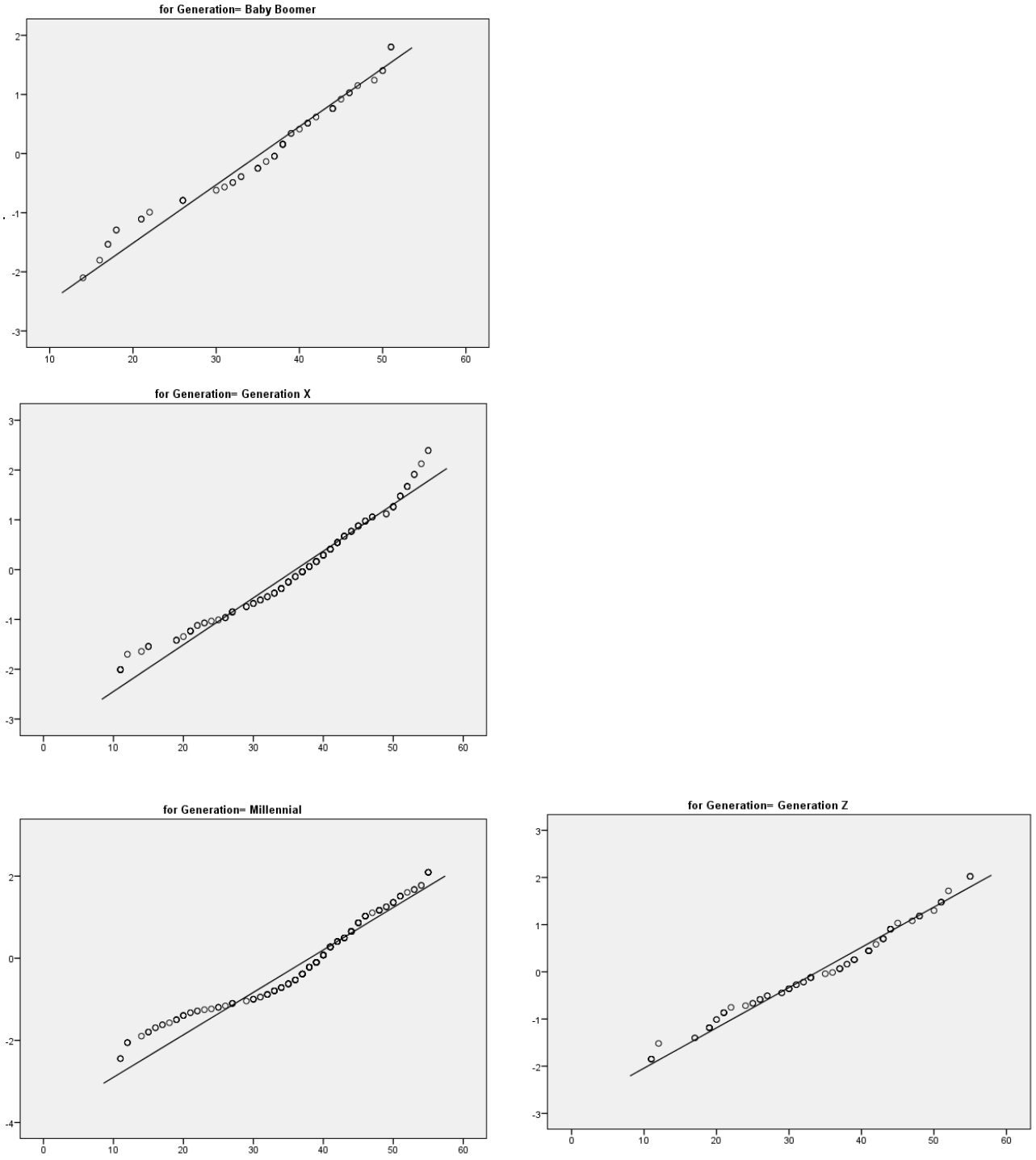

Figure 4.11. Normal Q-Q Plot of Generation Type

Table 4.15 Analyses of Variance in Psychological Safety and Generation

	Sum of Squares	df	Mean Square	F-statistic	Sig.
Between Groups	390.08	3	130.03	3.05*	0.02
Within Groups	25400.2	596	42.61		

*Note, *p* < .05.

As shown in Table 4.17, there was a significant difference in psychological safety in the four generation types at the p<.05 level in the four groups F (3,596) = 3.05, p=0.02. Further analysis included the Levene's statistics for homogeneity of variances which was 2.79, p=0.02. Welsch and Brown-Forsythe statistics for robust test of equality of means, were 2.79, p=0.04= and 2.88, p=0.03 respectively. Games Howell Post-hoc analysis showed the mean difference between Millennials and Generation Z to be statistically significant p=0.02. Overall, considering the results of Welsch's ANOVA the difference between the generation types was statistically significant which means that psychological safety does vary across the generation types where Millennials report the highest psychological safety and Generation Z reports the lowest psychological safety.

4.9 Effect of Employment Status on Psychological Safety

In the review of literature, it was found that job security contributed to employee's perception of team psychological safety and they would only engage in proactive, learning or innovative behavior if they help permanent positions in the organization, temporary workers reported lower levels of psychological safety. This study also collected data on the employment status held by the teachers in the schools and their reported psychological safety. To compare

the psychological safety between permanent, contractual and teachers on probation ANOVA was conducted and the following null and alternate hypothesis were tested:

$H0^7$: There is no significant difference in psychological safety of teachers on employment status in the permanent, fixed-term contract or probation group

Assumptions of ANOVA for Employment Status

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. Since each respondent reported for their own employment status the assumption is fulfilled.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which showed that the variances of the three groups was not equal $F=6.10$, $p<0.05$ therefore the output was interpreted using Welch's ANOVA **and** Games-Howell post-hoc analysis for multiple groups means comparison
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in the three groups by examining the Q-Q plots which showed little deviation from expected normal and no significant outliers.

Table 4.16 Analyses of Variance in Psychological Safety and Employment Status

	Sum of Squares	Df	Mean Square	F-statistic	Sig.
Between Groups	561.01	2	280.50	6.63*	0.001
Within Groups	25229.3	597	42.26		

*Note, *p* < .05.

As shown in Table 4.18, there was a significant difference in psychological safety in the three groups at p<.05 level, F (2,597) = 6.63, p=0.001. Further analysis included the Levene's statistics for homogeneity of variances which was 6.63, p=0.06. Welsh and Brown-Forsythe statistics for robust test of equality of means, were 5.81, p=0.003 and 6.19, p=0.002.

Tukey's post-hoc analysis showed that the difference of psychological safety of teachers on probation and those on permanent teaching positions was statistically significant. Also, the difference was statistically significant between fixed term contractual and teachers on probation. However, permanent teachers and fixed term contract teachers reported statistically insignificant different psychological safety scores.

4.10 Professional Experience and Psychological Safety

The study aimed to find out if the total professional experience of teachers influenced their psychological safety. For this end, ANOVA was conducted by categorizing years of experience into five categories. The null and alternate hypothesis are given below:

$H0^8$: There is no significant difference in psychological safety of teachers in the five groups of durations of professional experience

Assumptions of ANOVA for Professional Experience

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. This assumption was met.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which was 5.37 p=0.00 which showed that the variances of the five groups was equal, therefore this assumption of ANOVA was also met.
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in the five groups by examining the Q-Q plots which showed little deviation from expected normal and no significant outliers were observed.

Table 4.17 One-Way ANOVA in Professional Experience & Psychological Safety

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	308.29	4	77.07	1.8*	0.12
Within Groups	25482.07	595	42.82		

*Note, *p*<0.05.

As shown in Table 4.19, there was a statistically insignificant difference in psychological safety in the five groups at p<.05 level, F (2,597) = 1.8, p=0.12. Further analysis included the Levene's statistics for homogeneity of variances which was 5.3, p=0.00. Welsh and Brown-Forsythe statistics for robust test of equality of means, were 1.68, p=0.14 and 1.76, p=0.13 respectively Although the finding of the ANOVA is insignificant and cannot be applied to the wider population, future researches can further investigate with equal sample sizes if

professional experience of the teachers actually has no effect on their team psychological safety. This aspect has also not been explored widely in literature.

4.11 Organizational Tenure and Psychological Safety

In order to find out if the teachers' organizational tenure affected their reported psychological safety on the basis that with increasing number of tenure teachers would feel safer to speak up in team setting knowing how their voice behavior would be evaluated in the organization. ANOVA was conducted by categorizing tenure on the basis of a 5-year difference and making five categories. The null and alternate hypothesis are given below:

$H0^9$: There is no significant difference in psychological safety of teachers in the five groups of organizational tenure

Assumptions of ANOVA for Organizational Tenure

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. This assumption was met.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which was 1.5 p=0.17 which showed that the variances of the five groups was equal, therefore this assumption of ANOVA was also met.
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in the five groups by examining the normal Q-Q plots which showed little deviation from expected normal and no significant outliers were observed.

Table 4.18 One-Way ANOVA in Organizational Tenure & Psychological Safety

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	276.23	4	69.05	1.6*	0.17
Within Groups	25514.13	595	42.88		

*Note, *p* > .05.*

As shown in Table 4.20, there was a statistically insignificant difference in psychological safety in the five groups at p<.05 level, F (4,595) = 1.6, p=0.17. Further analysis included the Levene's statistics for homogeneity of variances which was 2.05, p>0.05. Welsh and Brown-Forsythe statistics for robust test of equality of means, were 1.71, p=0.15 and 1.74 , p=0.14. However, the analysis showed insignificant results and therefore generalizable conclusions cannot be drawn based on the findings alone. Therefore, we retain the null hypothesis which states that organizational tenure has an insignificant difference in the five groups of organizational tenure.

4.12 Organizational Factors and Psychological Safety

Organizational factors in this study included both the team and organizational factors in an umbrella term since team level included a single variable of team effectiveness. Employees more or less have to encounter the same kind of organizational factors and they do not vary from person to person however they may have inter-team variations. The variables included in this level of analysis were organizational culture, leadership style, leadership behavior and team effectiveness at team level of analysis. These organizational factors were

analyzed as antecedents of psychological safety using robust inferential analysis i.e., regression analysis, one-way ANOVA and moderated regression analysis. The details of these analysis as well as the decisions of hypothesis testing and major findings are discussed in the subsequent sections.

4.12.1 Leadership Style and Psychological Safety

The Managerial Grid by Blake and Mouton (1984), based on a dual concern model, was used for identifying the leadership style of the principals/section heads of the 600 teachers that responded to the questionnaire of the study. As mentioned in previous chapters, the leadership style was determined based on how the teachers scored their leader on the leadership's concern for people and production which this study has termed as leader relations-oriented behavior and task-oriented behavior on the basis that Blake & Mouton (1981) describe the scale as a measure of leadership behavior and not only an attitudinal measure of the leadership. The data was interpreted in two different ways. The scores on the 18-items of the scale were then plotted on the leadership grid to identify the reported leadership style of the respondent's leader. The psychological safety scores were compared in the four groups of leadership style. The study hypothesized that psychological safety differed according to the leadership style of the school principal/section head of the teachers. With this consideration, the following null hypothesis and alternate hypothesis was tested using one-way ANOVA:

$H0^1$: There is no significant difference in psychological safety of teachers across Country Club, Impoverished, Authoritarian and Team leadership styles

Assumptions of ANOVA for Leadership Style

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. This assumption was met.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which was 37.31, p=0.00 therefore Welsch's ANOVA was used for interpreting the findings
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in the four groups of leadership style examining the normal Q-Q plots which showed little deviation from expected normal and no significant outliers were observed.

Literature suggests that ANOVA is fairly robust however in case of unequal sample sizes, Welsh's ANOVA may be referred to which provides reliable and significant results and in unaffected by heterogeneity of variance. The violation of homogeneity of variance is not surprising and also could not be controlled either because it would have significantly reduced the sample size and statistical power if the sample size was reduced to equate all groups.

The null hypothesis for testing the difference in psychological safety of teachers based on their principal's leadership style were compared using one-way ANOVA. All assumptions of ANOVA that were previously discussed were tested and were found to fulfill the requirement except homogeneity of variance which was caused by the unequal sample sizes in the four groups. Therefore, Welsch's ANOVA was used to test the null hypothesis and the Table 4.21 shows the ANOVA statistics. As seen in Table 4.21, the statistics indicate that the

difference in psychological safety between the four types of leadership style is statistically significant at a $p<0.05$ which means that the alternate hypothesis is accepted.

Table 4.19 Analyses of Variance in Psychological Safety & Leadership Style

	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	6538.80	3	2179.6	67.47*	0.00
Within Groups	19251.5	596	32.30		

*Note, *p* < .05.

Table 4.21 demonstrates a statistically significant effect that the leadership style may have on the psychological safety of teachers, seen in four distinct leadership styles $F(3,596) = 67.47$, $p<0.05$. The data set showed heterogeneity of variance in the four groups, as calculated by Levene's statistics for homogeneity of variance 37.31, $p<0.05$. Therefore, the Welsch's statistic, F was considered for this $H0^6$ which was 63.61, $p=0.00$ quite close to the F-value of the one-way ANOVA. Brown-Forsythe statistic for robust equality of means was 53.7, $p=0.00$. As the null hypothesis was not accepted and the alternate hypothesis was accepted based on the significance level, the findings of the data set were statistically significant meaning generalizable to the population of the study. This shows that team leadership was related to the highest levels of psychological safety in their teacher, further supported by Tukey's post-hoc analysis which showed this difference to be statistically significant from the other three leadership styles.

4.12.2 Organizational Culture and Psychological Safety

Organizational Culture of the schools, the respondents of the study were employed in was categorized by using Schneider's Organizational Culture Assessment Model which provides a simple tool for identifying the current culture of any organization. There is striking similarity in this tool with Blake and Mouton's managerial grid with respect to the dual concern on people/production or relations/task. The organizational scale provided 20 items to the respondents with a forced-response four categories where each category described the organization's culture based on their orientation on people/production based on how the organization functions and their orientation on Reality/Possibility with respect to where the aims of the organization lie, resulting in four categories of organizational culture types. Literature has supported the role of various aspects of organizational culture and climate with its effects on psychological safety, this has been extensively discussed in Chapter 2. In order to find out, how the psychological safety of the teachers differed based on the culture types of the school as a whole, the following null hypotheses were tested using One-way ANOVA for comparing mean psychological safety scores in Control, Competence, Collaborate and Cultivate culture categories:

$H0^4$: There is no significant difference is psychological safety of teachers across the Control, Competence, Collaborate and Cultivate cultures

Assumptions of ANOVA for Organizational Culture

- **Independence of groups:** The first assumption of ANOVA is that the categorical groups must not be the same or related in any way and are recorded independently of each other. This assumption was met.
- **Homogeneity of Variance:** The homogeneity of variance was tested using Levene's statistics which was 3.91, p=0.009 therefore Welsch's ANOVA was used for interpreting the findings
- **Normality:** The second assumption is the normality of the distribution in all groups of ANOVA Psychological safety was checked for normality in the four groups of leadership style examining the normal Q-Q plots which showed little deviation from expected normal and no significant outliers were observed.

The statistics lead us to conclude that culture types that are on a people-orientation, Collaborate and Cultivate, have higher psychological safety scores as compared to culture types on a company-orientation which are Control and Competence. The highest psychological safety was reported by Collaborate Culture and the lowest by Competence Culture. To find out if the differences in these groups were statistically significant, One-way ANOVA was carried out. As previously discussed, the assumptions of ANOVA were tested prior to running the test. The assumption testing using Levene's statistics for homogeneity of variance which was 4.88, $p<0.05$ which showed that the sample heterogenous. The same can be observed in the descriptive statistics where the comparison of the group's frequency show the samples are unequal. To address the violation of this assumption, Welsch's ANOVA was used.

Table 4.20 One-Way ANOVA in Psychological Safety and Organizational Culture

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1007.53	3	335.84	8.07*	0.00
Within Groups	24782.83	596	41.58		

*Note, *p* < .05.

Table 4.22 shows the results of the one-way ANOVA which shows that the difference in psychological safety between the four groups of organizational culture type is statistically significant and the findings can be generalizable to the population. The results of ANOVA also show that psychological safety of teachers does vary depending on the organizational culture of the school. It is important to note that the two people-oriented organizational cultures showed barely any difference in the mean psychological safety from each other, which were Cultivate and Collaborate The difference in mean psychological safety of the company-oriented culture types Control and Competence was also marginal. To sum it up, the people-oriented organizational culture had significantly higher levels of teachers' psychological safety. As shown in Table 4.22, there was a significant difference in the organizational culture on psychological safety at the p<.05 level in the four groups F (3,596) = 8.07, p<0.05. Further analysis included the Levene's statistics for homogeneity of variances which was 3.91 p=0.09. Welsh and Brown-Forsythe statistics for robust test of equality of means, were 7.93, p=0.00 and 8.09, p=0.00

Tukey's post-hoc statistics indicated a statistically significant difference between the highest scoring culture being a Collaborate culture and lowest being a Competence culture (p<0.05). This leads to the rejection of null hypothesis and it is concluded that there exists a statistically significant difference in psychological safety between different school cultures.

Figure shows the psychological safety mean comparisons in Control, Competence, Collaborate and Cultivate organizational culture types of the schools included in the study sample.

4.12.3 Team Effectiveness and Psychological Safety

The study took a multi-level approach by examining organizational and personal factors with psychological safety of teachers which was operationalized as a variable existing at team level of the organization as per Edmondson (1990). The team effectiveness was measured across four sub-constructs which are related to the structural aspect of teams (Goals, Roles) as well as the functional aspect (Processes, Inter-personal relations). The final scores on team effectiveness as reported by the teachers in the sample were examined in relation to psychological safety by not only finding out its interaction effect with leadership behavior but also its effect on psychological safety as an individual construct. For this purpose, the null hypothesis and the alternate hypothesis of the study were tested by using linear regression analysis. The hypotheses are given below:

$H0^{10}$: There will be no significant prediction of teachers' psychological safety by the team effectiveness

The descriptive statistics of the team effectiveness and its four sub-constructs showed a positive correlation with psychological safety as seen in Table 4.15 It can also be observed that Team effectiveness as a whole strongly correlates with psychological safety whereas clarity of goals in team and inter-personal also adequately account for affecting psychological safety of team members.

Table 4.21 Team Effectiveness Correlations

Team Effectiveness	Mean	Std. Deviation	Correlation with PS
Team Effectiveness (TE)	103.37	19.6	.58
Goals	25.71	6.20	.50
Roles	25.74	6.45	.41
Processes	25.83	6.30	.45
Inter-personal relationships	26.02	6.28	.48

Note. $N = 600$

Assumptions of Linear Regression for Team Effectiveness and Psychological Safety

1. **Variable Type:** The predictor and outcome variable are to be measured at a continuous scale. This assumption was met because psychological safety and team effectiveness were measured on a 5-point Likert scale ranging from a lowest score of 7 to 35 for psychological safety and 35 to 140 for Team Effectiveness.
2. **Linearity:** The second assumption of linear regression is that there has to be a linear relationship between the two variables; this can be tested by making a scatterplot between the dependent and independent variable and assess linearity. The plot showed that despite marginal deviation from the straight line, there was an additive linear relationship between the two variables such that as team effectiveness increased so did psychological safety.
3. **Independence:** The third assumption of linear regression is the independence of observation in other words there should be no auto-correlation. To test this assumption,

Durbin-Watson statistics was assessed which was 1.91, the range of this statistic should be between 1.5 and 2.5 to conclude that there is no auto-correlation

4. **Outliers:** Regression also assumes that there are no significant outliers in the data set. The variables were analyzed by calculating Mahalanobis and Cook's distance and there were no significant outliers which would affect the regression analysis. The marginal outliers were retained in the data set.
5. **Normality:** Another important assumption of regression analysis is that the residuals are assumed to be normally distributed. To check this normality, the Normal Q-Q plot of the residuals was checked in the SPSS output. The output showed that the residuals were normally distributed as they all fell on the straight line.
6. **Homoscedasticity:** To check for homoscedasticity, scatter plot graph between residuals and fitted values was plotted. The data showed no particular pattern therefore it was concluded that the data was homoscedastic.

As enlisted above, all assumptions of the linear regression analysis were met by the data set and therefore the data was suitable for running the linear regression.

Table 4.22 Results of Regression Analysis of TE & PS

		$CI_{95\%}$ for *b*				
Predictor	***B***	**Lower**	**Upper**	**B**	***T***	**p-value**
Constant	3.16	35.52	36.67		2.70	0.007
TE	0.19	0.16	0.22	0.58	17.59	0.000

Note. Fit for model R^2 =.34, F (1, 598) = 309.4, p < .05.

The results of the linear regression can be seen in Table which shows that the overall model was statistically significant and team effectiveness is a significant predictor of psychological safety F (1,598) =328.5, $p<0.05$ which means the alternate hypothesis is accepted. The findings lead to the rejection of null hypothesis and logically lead to the alternate hypothesis **HA[10]** establishing that there is a significant prediction of psychological safety by team effectiveness. The regression equation is:

$$\mathbf{Y}=0.2\ \mathbf{X}+3.16$$

The table shows the correlation matrix of team effectiveness, its sub-constructs as well as the sub-constructs of psychological safety. The correlation matrix shows that all sub-constructs are positively related with one another, which means a linear relationship between TE and PS exists and is statistically significant. All correlation values have two-tailed significance where $p<0.01$ The figure also shows the slope of regression where team effectiveness has a linear relation with psychological safety.

Based on the findings of the analysis where $R^2=0.34$, we can conclude that according to the regression equation, team effectiveness accounts for 34% of the variation in psychological safety as an outcome which indicates a strong evidence for TE as an antecedent of psychological safety.

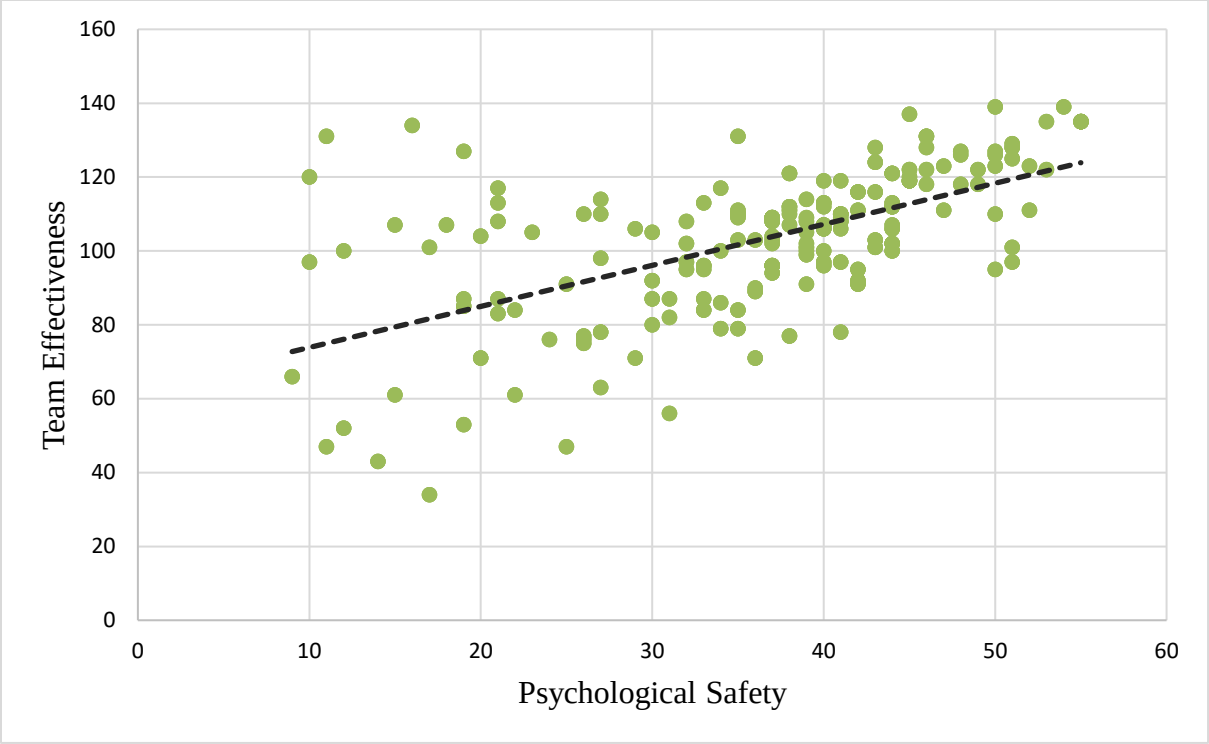

Figure 4.12 Scatterplot of TE & PS

Table 4.24 Correlation Matrix of TE and PS

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Psychological Safety	36.5	10.4	—						
2. Team Effectiveness	103.3	19.6	.65**	—					
3. TE Goals	25.7	6.2	.50**	—	—				
4. TE Roles	25.7	6.4	.41**	—		—			
5. TE Processes	25.8	6.3	.45**	—			—		
6. TE IP Relations	26.0	6.2	.48**	—				—	
7. PS Individual Safety	13.5	3.8	.91**	.55*	.47*	.37**	.42**	.43**	—
8. PS Team Respect	9.8	3.1	.82*	.53*	.45*	.38**	.38**	.42**	

Note. **p<0.01

4.13 Moderation Effect of Team Effectiveness on Psychological Safety

Psychological safety research has numerous studies that have examined moderation and mediation. The theoretical framework of the study posited that psychological safety emerges with a complex inter-play of various variables that we can attempt to understand by examining how multi-level variables interact to result in increased psychological safety. In this section, the results of the moderation analysis are presented which was conducted using the plugin PROCESS macro by Andrew Hayes (2017) Team Effectiveness (TE) was hypothesized to moderate the relationship between leadership behavior and psychological safety. To avoid unreliable results caused by multi-collinearity, leadership task-oriented (LTB) and leadership relations-oriented behavior (LRB) were separated into two moderated regression models and the variables were centered before the analysis (subtracting the mean from each value results in a standardized/centered value). The assumptions of moderated regression analysis were tested for both models. The assumptions of moderated regression are the same as linear regression.

Assumptions of Moderated Regression Analysis

1. **Variable type:** Regression assumes all variables to be measured on a continuous scale. In case a variable is categorical, it is advised to dummy code it and then run the analysis. In the case of this study, psychological safety, team effectiveness and LRB and TRB were measured on 5-point Likert scale that led to scores on a continuous scale; hence, this assumption was met by the study data set.
2. **Linearity:** Linearity is an important assumption in all multivariate techniques such as regression, since its absence would result in an underestimation of the strength of the relationship between the variables. To check linearity, visual interpretation of Normal

P-P plot which is a type of scatterplot of residuals was interpreted and despite minor deviations from the line most of the observation fell on the line. Minor deviations are expected in large sample sizes such as this study which has 600 observations for each variable. This assumption was met and regression analysis was proceeded.

3. **Homoscedasticity**: Homoscedasticity is another major assumption of regression analysis. The purpose of checking for homoscedasticity is to check if residuals fall equally across the regression line. This can be done by visually interpreting the scatterplot of residuals and looking for any pattern. If a pattern is found, such as formation of a cone shape then the data is heteroscedastic. The scatter plot of the residuals showed no particular pattern along the regression line therefore, the homoscedasticity of the data was concluded.

4. **Normality:** Like all parametric tests, regression also assumes normality of data however unlike most tests that assumes normality of the dependent variables, regression assumes normality of the residuals. The normality of regression standardized residuals was visually interpreted in SPSS output. The data was normally distributed in the shape of a bell-curve and centered around zero. Therefore, this assumption was fulfilled.

5. **Multicollinearity:** In moderation analysis, multicollinearity is a major problem because the independent variable, the moderator and the interaction term are the input predictor variables. It is more than likely, in this case that these variables may correlate with one another and affect the findings. Earlier, it was mentioned that multicollinearity was attempted to be avoided by separating the leadership behavior into two separate models as literature shows the expected correlation between

leadership task-focus and relations-focus. Multicollinearity is also a problem specific to multiple regression analysis, therefore the variables were centered and the Variance Inflation Factor (VIF) was calculated to check if the analysis was fit to proceed. The VIF statistics were <10 which shows that there was no multicollinearity between the variables for both models. Multicollinearity is also checked by examining the correlation matrix, the R-value should not exceed 1. Since the R-value for LRB, LTB, team effectiveness and psychological safety all ranged from 0.3 to 0.7, it indicated the absence of multi-collinearity.

7. **No significant Outliers:** Extreme values within the data set tend to distort the findings of the analysis therefore regression assumes that there are no significant outliers in the data set. The variables were analyzed by calculating Leverage, Mahalanobis and Cook's distance and there were no significant outliers which would affect the regression analysis. The marginal outliers were retained in the data set.

8. **Independence of observations:** To test this assumption, Durbin-Watson statistics was calculated which was 1.5 (RLB model) and 1.53 (TLB model), the range of this statistic should be between 1.5>d<2.5 to conclude that there is no auto-correlation.

Since the models were separated, two regression analysis were carried out where Model 1 tested the effect of LRB on psychological safety with team effectiveness as a moderator. Model 2 on the other hand, tested LTB and psychological safety with team effectiveness as moderator variable. The null hypotheses, output of regression analysis, slope analysis of moderation and the key findings are presented in the next section.

4.13.1 Model 1 LRB-TE-PS

Model 1 tested the following null hypotheses where Psychological Safety (Outcome), LRB (Predictor) and Team Effectiveness (Moderator)

H0^{3}: There is no significant prediction of teachers' psychological safety by the leadership relations-oriented behavior

H0^{11}: The effect of leadership relations-oriented behavior on teachers' psychological safety is not moderated by team effectiveness

The results of the moderated regression analysis run in PROCESS macro showed a significant linear equation. The table 34shows that the interaction effect of relations-oriented leadership behavior (LRB) with team effectiveness is significant even though it is a marginal moderation effect. Based on the findings of the analysis, we can conclude that according to the regression equation, LRB accounts for 54% of the variation in psychological safety as an outcome, team effectiveness accounts for 37% of the change and the moderation effect is 12%. The findings provide a rather strong based evidence for the independent variables including the moderator variable as statistically significant antecedents of psychological safety.

Table 4.24 Moderation effect of Team Effectiveness (TE) on the Relationship between Leadership's relation-oriented behavior (LRB) and Psychological Safety (PS)

Predictor	*B*	$CI_{95\%}$ for *b*		B	*t*
		Lower	Upper		
Constant	36.08	35.51	36.65		123.14
LRB	0.66	0.59	0.73	0.54	17.93
TE	0.29	0.17	0.23	0.37	11.60
LRB x TE	0.01	0.002	0.01	0.12	4.48

Note. Fit for model R^2 = .60, F (3, 596) = 296.70, $p < 0.05$.

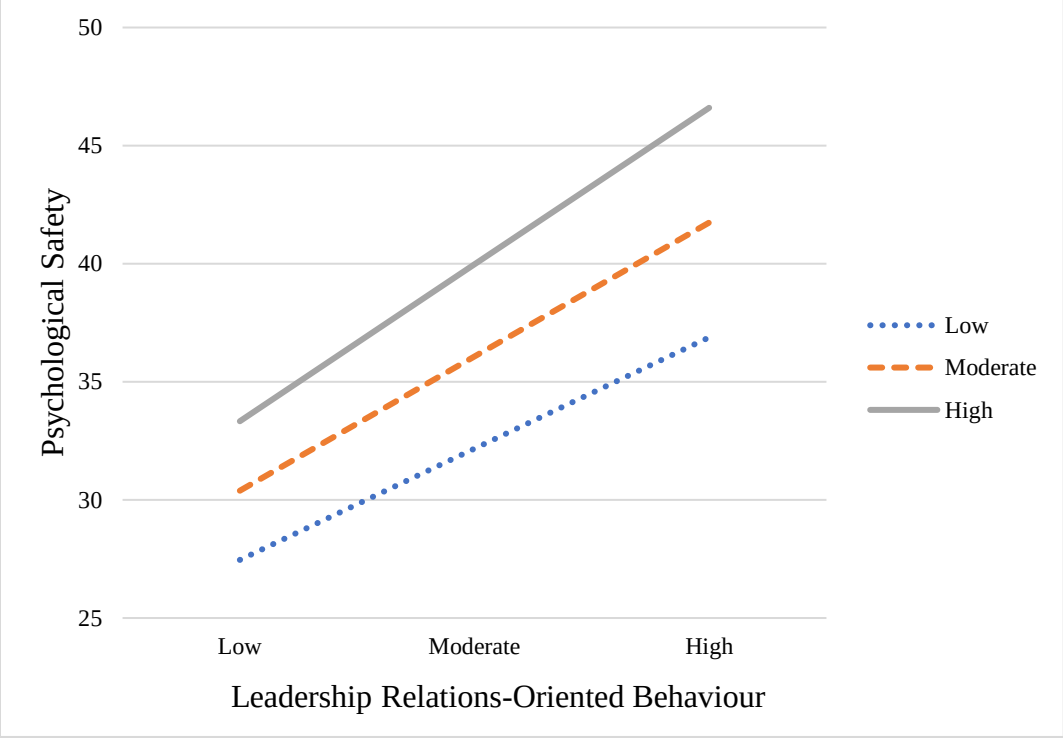

Figure 4.13 Simple Slope Plot of Moderation of TE on PS and LRB

As shown in Table, Model 1 is overall significant F (3,596) = 296.70, p<0.005, R =0.77 and R^2 = .60; F (3, 596) = 296.70, p < .05 which leads to the rejection of the null hypothesis. According to the data analysis, LRB and psychological safety are positively related at all levels

of team effectiveness. As team effectiveness increases, LRB psychological safety also strengthen in relationship as team effectiveness increases. Figure 19 illustrates a simple slope plot of LRB and psychological safety at different levels of team effectiveness. The plots shows that when team effectiveness and LRB are high, psychological safety is the highest. Similarly, at lower levels of LRB, team effectiveness may marginally increase psychological safety.

The findings lead to the rejection of null hypothesis $H0^{8a}$ and $H0^{8b}$ and logically lead to the alternate hypotheses establishing that leadership relations-oriented behavior is a significant predictor of psychological safety and the relation between the two variables is moderated by team effectiveness.

4.13.2 Model 2 LTB-TE-PS

$H0^{2}$: There is no significant prediction of teachers' psychological safety by the leadership task-oriented behavior

$H0^{12}$: The effect of leadership task-oriented behavior on teachers' psychological safety is not moderated by team effectiveness

The results of the moderated regression analysis run in PROCESS macro showed a significant linear equation. The table… shows that the interaction effect of relations-oriented leadership behavior (LRB) with team effectiveness is significant even though it is a marginal moderation effect. Based on the findings of the analysis, we can conclude that according to the regression equation, LRB accounts for 54% of the variation in psychological safety as an outcome, team effectiveness accounts for 37% of the change and the moderation effect is 12%. The findings provide a rather strong based evidence for the independent variables including the moderator variable as statistically significant antecedents of psychological safety.

Table 4.25 Moderation effect of Team Effectiveness (TE) on the Relationship between Leadership's task-oriented behavior (LTB) and Psychological Safety (PS)

		$CI_{95\%}$ for *b*			
Predictor	***B***	**Lower**	**Upper**	**B**	***t***
Constant	35.95	35.26	36.64		102.37
LTB	0.54	0.44	0.64	0.54	10.35
TE	0.22	0.18	0.26	0.37	11.11
LTB x TE	0.01	0.002	0.01	0.12	3.81

Note. Fit for model $R^2 = .47$, F (3, 596) = 174.03, $p < 0.05$.

As shown in Table, Model 1 is overall significant F (3,596) = 296.70, $p<0.005$, R =0.77 and $R^2 = .60$; F (3, 596) = 296.70, $p < .05$ which leads to the rejection of our null hypothesis. According to the data analysis, LRB and psychological safety are positively related at all levels of team effectiveness. As team effectiveness increases, LRB psychological safety also strengthen in relationship as team effectiveness increases. Figure 20 illustrates a simple slope plot of LRB and psychological safety at different levels of team effectiveness. The plots shows that when team effectiveness and LRB are high, psychological safety is the highest. Similarly, at lower levels of LRB, team effectiveness may marginally increase psychological safety.

The findings lead to the rejection of null hypothesis $H0^{8a}$ and $H0^{8b}$ and logically lead to the alternate hypotheses establishing that leadership relations-oriented behavior is a significant predictor of psychological safety and the relation between the two variables is moderated by team effectiveness.

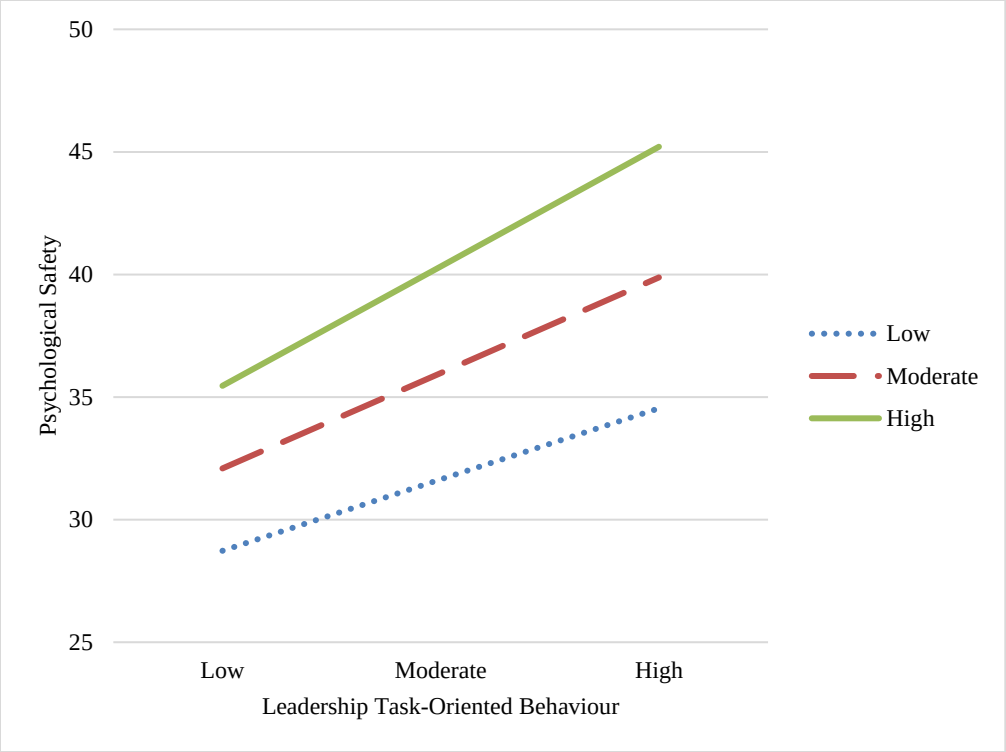

Figure 4.14 Simple Slope Plot of Moderation of TE on PS and LTB

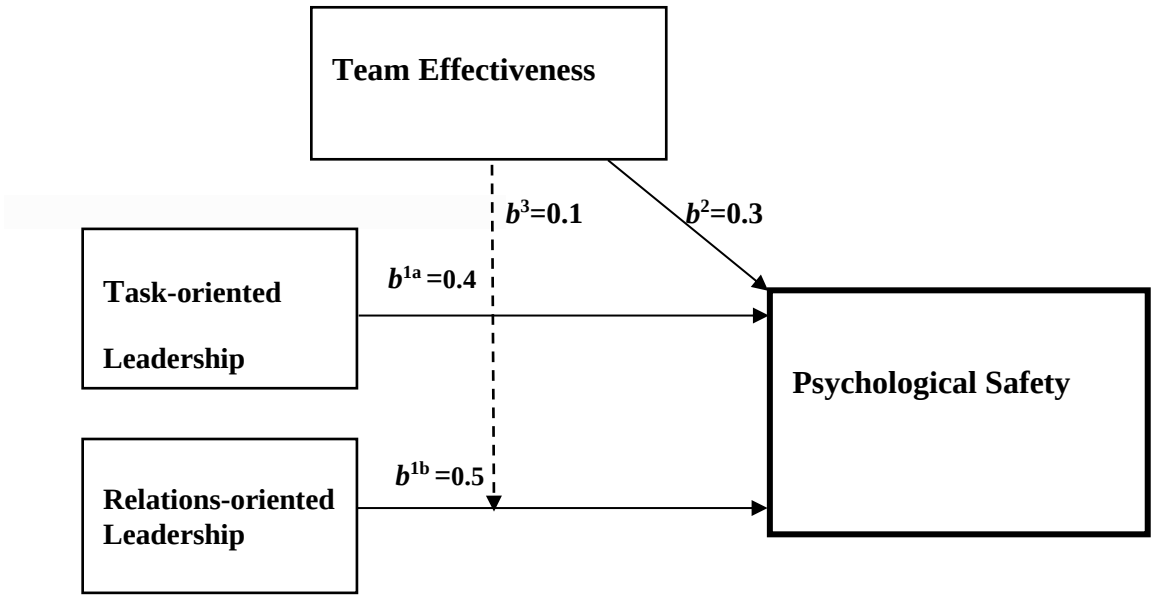

Figure 4.15 Statistical Model

4.14 Summary of Findings

This chapter included the results of the data analysis procedures including the preliminary analysis and the results of the hypothesis testing considering the objectives of the study. In order to examine organizational and personal factors as antecedents of school teachers' psychological safety including the extent of their effects as well as the statistical significance of the findings, the null hypothesis was tested. The table shows a brief overview of the results of the analyses as well as the decisions on the null hypotheses of the study.

Table 4.26 Summary of Hypothesis Testing

Null Hypotheses	Statistical Test	Decision	Result
Personal Factors			
$H0^1$: There is no significant difference in psychological safety of male and female teachers	Independent Samples t-test	Failed to reject Null Hypothesis	t=1.39, p<.05
$H0^2$: There is no significant difference in psychological safety of teachers in Baby boomers, Generation X, Millennials and Generation Z	Welch's (ANOVA)	Null Hypothesis rejected	F=4.29, p<0.05
$H0^3$: There is no significant difference in psychological safety of teachers on employment status in the permanent, fixed-term contract or probation group		Null Hypothesis rejected	F=6.2, p<0.05
$H0^4$: There is no significant difference in psychological safety of teachers in the five groups of durations of professional experience		Failed to reject Null Hypothesis	F=2.3, p>0.05

H0[5]: There is no significant difference in psychological safety of teachers in the five groups of tenure with current organization		Failed to reject Null Hypothesis	F=1.3, p>0.05
H0[6]: There is no significant difference in psychological safety of teachers across Country Club, Impoverished, Authoritarian and Team leadership styles of the principals	One-way (ANOVA)	Null Hypothesis rejected	F=71.39, p<0.05
H0[7]: There is no significant difference is psychological safety of teachers across the Control, Competence, Collaborate and Cultivate cultures		Null Hypothesis rejected	F=8.25, p<0.05
H0[8a]: There is no significant prediction of teachers' psychological safety by the principal's relations-oriented behavior **H0[8b]:** The effect of principal's relations-oriented behavior on teachers' psychological safety is not moderated by team effectiveness	Moderated Regression Analysis	Null Hypothesis rejected	Fit for model R^2 = .60, F (3, 596) = 296.70, p < 0.05.
H0[9a]: There is no significant prediction of teachers' psychological safety by the principal's task-oriented behavior **H0[9b]:** The effect of principal's task-oriented behavior on teachers'	Moderated Regression Analysis	Null Hypothesis rejected	*Fit for Model* R^2 = .47, F (3, 596) =

psychological safety is not moderated by team effectiveness			174.03, $p <$ 0.05.
H0[10]: There is no significant prediction of teachers' psychological safety by the team effectiveness	Simple Linear Regression	Null Hypothesis rejected	Fit for model $R^2 = .35$, F (1, 598) = 328.5, $p < .05$.

CHAPTER 5

SUMMARY, FINDINGS, DISCUSSION, CONCLUSION & RECOMMENDATIONS

5.1 Summary

The study is an empirical investigation into the antecedents of psychological safety amongst teachers who form the majority of the workforce in educational institutions. At present, psychological safety is a variable that is of interest to research in organizational learning especially innovation and learning behavior in work teams. Psychological safety has been backed by researchers to be instrumental in organizational learning besides numerous other desirable work outcomes. Keeping Edmonson's theory of psychological safety as the conceptual framework of the study, leadership behavior, leadership style, organizational culture and team effectiveness were examined in relation to psychological safety. In addition, personal factors that were specific to individual teachers were also examined to see how levels of reported team psychological safety differs with respect to the teachers' gender, organizational tenure, professional experience in years, employment status and the generation type of the teachers.

The findings of the study may help educational leaders in understanding how psychological safety is fostered, which factors contribute towards increasing it in the work team and how they can to some extent gear the organizational and team factors towards improving their team's psychological safety. Higher levels of psychological safety in teachers would encourage them to speak up about new ideas, mistakes and innovative solutions to existent educational problems. Having psychologically safe teams and teachers who feel safe enough to exhibit employee voice behavior is beneficial for whole-school improvement, team and organizational learning.

To examine the effects of the aforementioned multi-level variables in an organization on the teachers' psychological safety, this study undertook a quantitative approach. The inquiry was centered on finding out the effect of variables at organizational, team and individual level on the outcome of psychological safety in teachers. Furthermore, the study also aimed to explore the existing state of psychological safety in Pakistani teachers and the prevalent leadership styles and schools' organizational culture. To examine these variables in relation to psychological safety, a survey was conducted in the O/A level section of private schools in urban Islamabad Capital Territory. The standardized instruments used in this study provided rich data which was subjected to robust parametric and non-parametric tests for testing the hypotheses. The robust statistical yielded significant results leading to inferences about the population especially, as discussed in the review of literature, regression and moderated regression analysis is a popular choice in studies on psychological safety and its antecedents and outcomes. The population chosen for this study was the teachers of O/A level sections in the private schools offering Cambridge system of education where teamwork and distributed

leadership is prevalent, therefore, the population and the subsequent data provided valuable insights into examining the construct of psychological safety in the education sector.

Besides bridging the gap in literature pertaining to a multi-level approach in examining psychological safety, this study is also the first of its kind in the Pakistani context. As mentioned in the review of literature, there are limited studies on psychological safety in local organizations let alone educational institutions. It is therefore of utmost importance to conduct inter-disciplinary research to extend theory and guide practice. The need for school leaders to be cognizant of the needs of the team members and to become "pedagogical leaders' to lead the schools towards becoming 'learning organization' is of dire importance if it is to be at par with the rapidly rising standards of educational management worldwide. In this sense, the study and its approach in analyzing the data quantitatively helps in achieving the objectives of the study and critically examining the relationship between variables. The study has laid the groundwork for psychological safety research in Pakistan in the educational sector. It has provided general findings about the prevalent conditions of psychological safety amongst the teachers, the leadership styles and culture that govern high levels of psychological safety, how teachers' individual personal factors may cause variations in their psychological safety and finally, the role of team effectiveness as an antecedent and moderator of psychological safety. The underlying drive to carry out research in this particular area was to highlight how educational leaders must be cognizant of psychological safety of their teachers for whole-school organizational learning.

In the subsequent sections of this chapter, the findings of the study in relation to the objectives of the study are discussed. Additionally, conclusions derived from the findings are

discussed in light of the existing related literature will also be discussed along with the implications of the study for theory and practice. Finally, the strengths and limitations of the study are presented towards the end of the chapter followed by the recommendations for future research and practice.

5.2 Findings

The study was planned to explore the effects of organizational and personal factors on school teachers' psychological safety in order to find out how schools and school leadership can use to their benefit this team construct that could lead to desirable work outcomes.

5.2.1 Effect of Organizational Factors on Psychological Safety

At the first level of analysis, the variables selected for inquiry in relation to psychological safety were the school's organizational culture and the leadership style on the basis of their focus on relations and task. The hypotheses were tested to find out how psychological safety differs with respect to the leadership style. The leadership styles were identified based on the scores on leadership behavior:

1. Impoverished (low task/low relations)
2. Authoritarian (high task/low relations)
3. Team Leader (high task/high relations)
4. Country Club (low task/high relations)

ANOVA was used for analyzing the difference in mean psychological safety scores of the four-leadership styles. These four leadership styles are broadly categorized based on relations-oriented leadership behavior and task-oriented leadership behavior. The former focuses on

nurturing the people within the organization and puts the objectives of the organization at a secondary priority whereas the latter tends to emphasize the achievement of organizational objectives over the focus on developing the human resource. The results of the ANOVA showed F (3,596) = 67.47, p=0.00 where the difference between the four leadership styles showed a statistically significant difference generalizable to the population. These findings led to reject the null hypothesis and the alternate hypothesis was retained. Further analysis also showed that team leadership style which emphasizes on both the task and relations is the one with the highest levels of teachers reported psychological safety. Adding to the analysis, the other hypothesis testing the effect of task-oriented leadership behavior on teachers' psychological safety. A separate regression analysis for this aspect of leadership behavior was run and it was found that task-oriented leadership behavior is also a significant predictor of psychological safety which accounts for 47% variation in psychological safety, Fit for model $R^2 = .47$, F (3, 596) = 174.03, $p < 0.05$.

The previously mentioned leadership styles were identified on the basis of leadership scores on two dimensions which were scores on leadership relations-oriented behavior which entails an increased emphasis on the feelings, needs and development of the team members and little focus on organizational productivity. A leadership style entirely focused on this leadership behavior is called a country club leadership style. Although country club leadership style yielded lower psychological safety as compared to the other leadership styles, the study also aimed to explore how psychological safety may be predicted on the basis of relations-oriented leadership behavior. A regression analysis of these two variables showed that relations-oriented leadership behavior had a significant effect on psychological safety Fit for model $R^2 = .60$, F (3, 596) = 296.70, $p < 0.05$ where leadership relations-oriented behavior in

relation with team effectiveness accounts for 60% variation in psychological safety (b=0.54, t=17.93)

Organizational Culture was the second variable at the organizational level of analysis which was examined in relation to teachers' psychological safety. The instrument that was chosen for this purpose was Schneider's Organizational Culture Assessment Scale which categorizes the organization culture type into four quadrants, on the basis of the organization's emphasis and the company's which is either possibility-oriented or reality-oriented and the decision-making is based on the people/company (similar to the leadership scale used in the study). The rationale for choosing this scale was to use similar scales to ease the data analysis process and better explain the findings of how psychological safety differs with respect to the organizations and leadership orientation. The four culture types based on the quadrants they fall in are given below:

1. Control (Actual/Impersonal)
2. Competence (Possible/Impersonal)
3. Collaborate (Actual/Personal)
4. Cultivate (Possible/Personal)

The results of the one-way ANOVA which shows that the difference in psychological safety between the four groups of organizational culture type is statistically significant and the findings can be generalized to the wider population. There was a significant difference in the psychological safety at the $p<.05$ level in the four groups of organizational culture $F(3,596) = 8.07$, $p=0.00$ The results of ANOVA also show that psychological safety of teachers does vary depending on the organizational culture of the school. It is important to note that the two

people-oriented organizational cultures showed barely any difference in the mean psychological safety from each other, which were Cultivate and Collaborate culture types. The difference in mean psychological safety of the company-oriented culture types Control and Competence was also marginal. To sum it up, the people-oriented organizational culture had significantly higher levels of teachers' psychological safety.

5.2.2 Effect of Personal Factors on Psychological Safety

Based on the second objective of the study which aimed at examining the effect of personal factors of the teachers as individuals on their reported psychological safety, demographic variables were tested, the first of which was gender of the teachers.The mean score comparison of psychological safety between 217 male and 383 female teachers was carried out using independent samples t-test. The difference in the scores of psychological safety between male (M=23.7) and female (M=23.18) teachers; t (598) =0.95, p=0.34 was not significant which is why the null hypothesis was returned.

The study also compared the psychological safety of four generations who are currently a part of the workforce in the private sector of urban Islamabad. ANOVA was conducted to compare the mean score difference between the four generations and to analyze if the difference is statistically significant and generalizable to the wider population. The results of the analysis showed that F=3.05, p=0.02 the Millennials reported the highest psychological safety with a mean score of 24.13 followed by Generation X with 23.14 and Baby Boomers with 22.76. The lowest psychological safety was reported by Generation Z which was 21.9. The ANOVA was overall significant which means that these differences in psychological safety between the generations of teachers were statistically significant.

Employment status in this study was limited to three types of work arrangements that may be agreed upon by the teachers and the school administration: permanent teaching positions, contract-based teaching position and newly inducted teachers serving the probation period of their employment. The hypothesis was tested using ANOVA to compare the mean psychological safety scores between the three categories of employment status. The results of the analysis between 275 permanent positions, 207 contract positions and 108 teachers on probation status of teachers indicated that the calculated difference in psychological safety was statistically significant at $p<.05$ level, $F(2,597) = 6.63$, $p=0.001$. Multiple group comparison showed that permanent employment status has the highest psychological safety and probation has the lowest. However, the difference between permanent and fixed-term contract is insignificant while their difference from probation category is large and statistically significant.

The study has found that generally there is no difference between teachers' psychological safety with reference to how long they had been working with their current organization of employment or their years of professional experience. The ANOVA which compared the group means between five categories of tenure:

- Less than 5 years
- 5 to 10 years
- 10 to 15 years
- 15 to 25 years
- More than 25 years

There was a statistically insignificant difference in psychological safety in the five groups of tenure at $p<.05$ level, $F(4,595) = 1.6$, $p=0.17$ The mean psychological safety ranged

from the lowest of 22.3 in the group of teachers with a tenure of less than 5 years (271 teachers) and 22.69 in the group of teachers with a tenure of more than 25 years (20 teachers). The findings cannot be considered statistically significant because the null hypothesis was retained, there were unequal sample sizes between the categories of organizational tenure as our sample showed that there was a larger number of low tenured teachers in the current workforce.

Even though ANOVA is fairly robust to unequal sample sizes, there is insufficient evidence to conclude that tenure contributes to how an employee perceives himself to be psychologically safe in a team. Similarly, for professional experience as well the null hypothesis was retained., there was a statistically insignificant difference in psychological safety in the five groups at $p<.05$ level, $F(2,597) = 5.3$, $p>0.05$.

5.2.3 Moderating Effect of Team Effectiveness on Leadership and Psychological Safety

The results of the linear regression showed that the overall model was statistically significant and team effectiveness is a significant predictor of psychological safety $F(1,598) = 328.5$, $p<0.05$ which means the alternate hypothesis is accepted. Based on the findings of the analysis where $R^2=0.35$, we can conclude that according to the regression equation, team effectiveness accounts for 35% of the variation in psychological safety as an outcome which indicates a strong evidence for TE as an antecedent of psychological safety.

Based on the findings of the analysis, we can conclude that according to the regression equation, LRB accounts for 54% of the variation in psychological safety as an outcome, team effectiveness accounts for 37% of the change and the moderation effect is 12%. The findings provide a rather strong based evidence for the independent variables including the moderator

variable as statistically significant antecedents of psychological safety. LRB and psychological safety are positively related at all levels of team effectiveness. As team effectiveness increases, LRB psychological safety also strengthen in relationship as team effectiveness increases. When team effectiveness and LRB are high, psychological safety is the highest. Similarly, at lower levels of LRB, team effectiveness may marginally increase psychological safety.

5.3 Discussion

The study took a multi-level approach towards the inquiry which is based on organizational behavior theory. All constructs in organizational theory are divided into three levels of analysis: organization, team and individual.

The first objective of the study is given below:

Objective 1: To investigate the effects of organizational factors on school teachers' psychological safety

The first objective was further broken down to examine the effects of organizational factors which included the school's organizational culture, the team leaders' leadership behavior and leadership style:

Objective 1.a: To analyze the effect of leadership on psychological safety of teachers within their work teams

The population of the study included O/A level teachers in the well-established private schools of urban Islamabad offering Cambridge system of education in their secondary

sections. Since the sample was 40% of the population and was selected using a probability sampling technique, the findings of the study can be generalized to the population. It was found that the teachers reported a mean psychological safety of 23.37 where the minimum was 7 and the maximum was 35. The findings depict that the teachers in the urban private sector of Islamabad report moderate levels of psychological safety. Although, the prevalent state of psychological safety is not alarmingly low, for effective teamwork in its true essence improvements in certain aspects of the organization could exponentially lead to higher psychological safety amongst teachers and ultimately innovative work behavior (Madjar & Ortiz-Walters, 2009), as well individual and team learning (Carmeli et al., 2009) and team learning (Edmondson, 1999; Wong et al., 2010). The school administration may consider reviewing the team leadership behavior in teacher team and the team dynamics which includes as per the current study findings: clarity in goals and roles, systematic team processes and improving the team inter-personal relationships. The teachers who responded to the study questionnaire were asked to assess the leadership style of their team leaders based on their leadership behavior on two dimensions: the focus on the people and the focus on the tasks.

The descriptive statistics of the study sample showed, team leadership style emerged as the preferred leadership style of team leaders in the O/A level sections of the private schools in Islamabad. Team leadership style was reported by 49% of the sample which is almost half of the sample. The study also found statistically significant relationship between this leadership style and psychological safety. Team leadership style is characterized by a high emphasis on both the people and the task. Such a leadership focuses on developing relationships with the employees as well as achieving the goals set by the organization. The counterpart of this leadership style in impoverished leadership with low scores on people and task-oriented

leadership behavior. The findings are also consistent with the Contingency leadership theory which emphasizes an equal emphasis on task and people focus in organizations for effective leadership. A similar was conducted in Lahore, Pakistan by Waqar et al., (2008) which was a sectoral comparison of school principals' leadership style in public and private schools of Lahore. The study found that private school principals scores higher than public school principals, on both relations and task-oriented behavior, consistent with the findings of the current study which found team leadership as the dominant leadership style and high scores on task and relations-oriented leadership behavior.

While examining the organizational factors that have an effect on psychological safety of teachers, literature showed a strong support for the association of leadership behavior and leadership style on psychological safety of team members. An interesting finding in this study was that team leadership style focuses equally on task and relations oriented leadership behavior although most researches that examined psychological safety in relation with psychological safety found positive, relations-oriented and supportive leadership practices to be more effective in yielding high psychological safety such as humble leadership (Wang et al., 2018); benevolent leadership (Erkutlu and Chatra ,2016); servant leadership (Chughtai, 2016) and most importantly transformational leadership Zhou and Pan (2015). Although there is a gap in literature which examines task-focused leadership style, Fielder's (1993) Contingency Leadership theory where task-oriented and relations-oriented leaderships both are effective given the favorable situational factors are present which are leader-member relations, task structure and leader position power. The study also examined team effectiveness (goals, roles, interpersonal relations, processes) as a moderator of relationship between leadership behavior and psychological safety where the sub-constructs can be explained as situational

factors that positively moderate leadership behavior and psychological safety. Both models were found significant as discussed later in this chapter. This analysis is resonant with the findings of the ANOVA analysis on leadership style which showed Team leadership, a type of leadership style with equal focus on task and relations by the leader, as the leadership style that has the highest level of teachers' psychological safety. We can therefore, conclude that the construct of psychological safety may be fostered with the leadership's emphasis on not only the employees but also the organization.

This finding led to the conclusion that although relations-oriented leadership behavior contributes largely to high levels of psychological safety, there must be other factor influencing the psychological safety of the teachers since our analysis showed that country club leadership style has lower levels of reported psychological safety amongst the teachers. The findings can further be explained by how leadership style and leadership behavior that are overtly focused on relations and people in the organization such as Country Club Leadership styles may actually lead to inequality within the team relations as the team members will resort to impression management or formation of principal's in-group (Gerlach & Gockel, 2017).

Objective 1.b: To examine the effect of organizational culture on psychological safety

Organizational Culture when it comes to a school is not related to the environment which the students also experience as a part of their learning when they come to school. It is more about what teachers experience as they work with their team members on achieving shared goals which could range from academic achievement of the whole section, developing targeted skills amongst the students and the teachers alike and also effective administration in

which teachers also play a shared role. The categorization of organizational culture was based on Schneider's (1994) model, on the same dimensions as the managerial grid used for assessing the leadership style that is people and company focus in decision making. The other axis was the emphasis on actuality vs reality orientation of the organization.

The descriptive statistics showed that Collaborate culture which emphasizes teacher collaboration and teamwork is the prevalent organizational culture type in the private school sector of Islamabad. This culture type emphasizes open communication and voice behavior from the team members and is most often linked to flat hierarchies in an organization. However, this may only be specific to the region selected for the study as Ali et al. (2016) reported a controlled, bureaucratic school organizational culture reported in private secondary schools in KPK. Similar findings were reported by Fatima (2016) where clan culture which is a collaborate culture is the dominant culture in the corporate sector of Islamabad and Rawalpindi. The study found strong empirical evidence for clan culture with increased job performance in the organizations. Furthermore, a study on the school culture comparison further showed that school cultures that encourage teamwork and familiarity with the administration were linked with school effectiveness in the private and public sector of Southern Punjab. (Hassan et al., 2021) Another similar finding was in the analysis of management structures of private schools in the region was found by Muhstaq (2014) as having flatter hierarchies with shared leadership which encourages collaboration and teamwork.

The culture of the school which is specific to the faculty or the teachers influences the whole school. It is developed by social interaction, communication pattern, decision making styles and most importantly leadership. The study found that school culture that encourages

professional discourse, increased collaboration and an emphasis on open communication and keeping an internal focus on the satisfaction of the employees much like a clan/familial culture is more likely to increase the members' psychological safety. In addition, a cultivate/adhocracy culture which also emphasizes innovation, creativity, risk taking and experimentation also develops the social context that encourages psychological safety of the members. Since the mean difference between these two culture types was marginal, we can conclude that people-oriented organizational culture types are more likely to develop high levels of psychological safety and team learning behavior even though collaborating culture plays a significant role in developing psychological safety. The analysis also showed the difference within groups and between groups to be significant therefore the empirical evidence suggests that organizational culture is a significant organizational factor that influences the teachers' psychological safety. The findings are consistent with existing literature with foremostly Edmondson & Mogelof's (2004) study on influences of organizational culture on psychological safety and team learning behavior. Other studies have related supportive organizational cultures with psychological safety such as the landmark study of Kahn (1990 who concluded organizational culture as a precursor to psychological safety and employee engagement at the workplace), Taştan and Türker (2014) where organizational culture affects psychological safety and results in job involvement. Lucas & Kline (2008) found that organizational culture interacts with leadership to affect psychological safety. Similarly, Baer & Frese (2002) and Ali Taha et al., (2016) found that organizational cultures that are innovation and creativity oriented not only enable the development of psychological safety but also learning within the organization. Encouraging free expression of ideas, conflict and reporting mistakes and taking them as opportunities to grow rather than a chance for penalizing or punishing an employee would create a culture that is friendly towards learning and psychological safety. To sum it up, the leaders are the ones

who influence that organizational culture the most, they may in turn make it safe for the members of the organization to be truly engaged with their work and have the security that the other members will be give the individual members the benefit of the doubt even if a half-formed idea or a mistake is communicated to the team. In short, organizational culture of the school is a significant factor that influences psychological safety. The lowest psychological safety was reported by Competence culture which emphasizes high standards of knowledge, skills and performance from the employees which may inhibit their learning because of fear of negative evaluation, being thought of as incompetent by the team members and even personal and professional consequences of speaking up in an organizational culture that does not allow open communication (Kish Gephart et al., 2009) , fear of social exclusion as a consequence of speaking up (Han & Hovav, 2019) and other issues that arise related to how an individual perceives himself in the organization based on the way the organization culture emphasizes competence and non-competence. (McAuley, 1994) Therefore, if the organizational culture has an overt focus on meeting the standards and high expectations of performance of the employees and little room for mistakes, psychological safety is lowered in such teams and they may resort to impression management (Gardner & Martinko, 1988; Drory & Zaidman, 2007), employee silence and not reporting their errors or sharing ideas.

An important aspect to consider is the specific cultural context of Pakistani educational organization. As national culture does affect the way organizational behavior manifests in different nations (Hofstede 1980). Research has shown that Pakistani organizations are highly oriented towards collectivism and hence have mostly relations/kinship based organizational cultures (Islam, 2004). This may affect how individuals may prefer leaders who give high value to employee-relations and consequently, Pakistani employees feel safer in an environment

where leadership behavior is mostly relations-oriented. Furthermore, our results also showed a high relationship between task-orientation which is mostly structured and emphasizes organizational outcome, Islam (2004) also asserts that due to high uncertainty avoidance Pakistani organizations lead to following elaborate rules and procedures and maintain and respect power distance. Therefore, all participants belong to a particular culture, replicating the study in different culture would lead to more conclusive findings specifically the relation between task-oriented leadership behavior and psychological safety which is a surprising finding given that literature supports mostly positive, participatory, relations-oriented leadership styles as antecedent of psychological safety. (Wong, Tjosvold, & Lu, 2010; Roussin, 2008)

The importance of organizational learning and the need for schools to realize the importance of becoming learning organizations has been repeatedly emphasized in educational literature. Psychological safety is one of the many dimensions of organizational learning that also needs to consider changing the school culture which is not only robust but also ready to change in positive and meaningful way. Schools with high psychological safety can lead to a learning orientation which emphasizes collective learning. There is a growing need for schools in Pakistan to become "learning organizations" which are characterized by flexibility, collaborative learning, adapting to the global technological changes and acquiring as well as sharing innovative practices and knowledge. In order to become learning organizations, the orientation towards learning require changes in existing paradigms which should influence all levels in a school; the administration, leadership, the teams and the individual. In this case, a special consideration must be given to the contextual factors that enable and ameliorate the learning processes in a school. Adapted from the adjacent organizational behavior theory,

psychological safety is one of those factors. With an increased focus on becoming a learning organization, team leadership and providing a school culture that facilitates psychological safety is recommended. Practitioners and policy makers can strive to make necessary changes that are conducive to whole-school learning. The learning culture would cascade from the organizational level to the individual level affecting teachers, students and the school leadership.

By increasing teachers' voice (Frazier et al, 2017) and focusing on developing their work satisfaction by increasing their psychological safety (Newman et al, 2017). If the schools continue with their existent patterns of organizational structures, leadership and cultures, the teachers would continue to engage in avoidant behavior, employee silence behavior, withholding information and errors, not taking imitative and holding back on creative ideas and let go of any opportunity that asks for learning and growth (Detert & Edmondson, 2005). An important distinction to consider here is that inter-personal conflict between teachers does not mean hot-headed arguments but it rather means that the teachers feel safe enough in a culture of collegiality, care and support where voicing opinions or debating an idea does not mean any negative outcome. Learning in a team is risky but with a psychologically safe environment, adult learning of the teachers can take place with a sense of perceived support and safety within the teams. In order to have teams with psychologically safe teachers, school administration would have to collectively let go of tradition and be more open to newness and experimentation. The private education sector of Pakistan has embarked on the journey and the future may hold these changes in the public sector of Pakistani schools as well. For as long as there is resistance to change and environments of low psychological safety, learning at any level of the organization cannot take place.

Objective 2: To explore the effects of personal factors (gender, generation type, work experience and tenure with the organization) on school teachers' psychological safety

Personal factors have been used as an umbrella term in this study. Such knowledge may help organizations in making selection decisions as well understanding how employees of different demographic profiles may have variations in their psychological safety.

1. Gender and Psychological Safety

It is generally understood that gender differences do exist regardless of the complex interplay of biological, psychological and social factors. Therefore, most studies do study variables and its differences across the two genders: male and female. It provides valuable insight into not only understanding the study variable but also how male and female employees respond differently to the same situation. Similar findings have been reported by studies which show that psychological safety is independent of the gender. Although gender has been a variable often attributed with differences in various phenomena however in this case, gender had no effect on the psychological safety of individuals. This finding has implications for selection decisions in human resource departments of the organization who may assume differences in voice behavior of employees based on their personal bias. In fact, gender diversity in the teams would bring more benefits to the team processes such as team creativity and effectively managing team conflicts (Lee et al., 2018) and gender also does not affect cognitive abilities in the work place (Halpern, 2000). Hence, an important team construct

psychological safety, sought by leaders for innovation and creative learning behavior in the team, does not vary from male to female team members.

2. Generation and Psychological Safety

Besides gender, another prominent demographic characteristic that various scientific studies explore is the age of the participants. However, in the present study generation of the employees was examined against their psychological safety. Sociologists have characterized these generations based on their birth years which classify the individuals based on the time of their birth, their shared experiences in the world over the course of history which played a significant role in developing their worldview, values, preferences and certain facets of their personalities. According to The Center for Generational Kinetics, generation may be defined "*a group of people born around the same time."* Organizations must be familiar with their common characteristics in order to manage them successfully as research on generational studies provide invaluable insight to leaders on how to tap into each generation's potential.

Understanding generation differences has been in the interest of researchers so that they may find out how employees belonging to different generations behave in the workplace to manage them effectively, what the generations value and the input each generation may bring to a team. Research on generational differences has been instrumental in helping leaders in effectively managing employees. One may have assumed with the decrease in psychological safety in subsequent generations that increasing age may reduce psychological safety. Our analysis, however indicates otherwise where Millennials report a higher psychological safety than Generation Z which is the youngest generation in the work place. Two interesting findings in Robert Half (2017) research on finance leaders and show that Millennials prefer collaboration whereas Generation Z prefer one-on-one communication. The study also showed that baby boomers have a reserved communication style whereas Generation X prefers

following the chain of command in communication. Studies also show that Millennials have more self-assurance and confidence as compared to their previous generations (Glass, 2007). They also value teamwork, collaboration and open communication (Zemke et al., 1999). This explains the findings of the study as with more confidence these individuals may be more psychologically safe. On the other hand, Generation Z scored the lowest on psychological safety because of various reasons such as their individualistic nature. Dan Schwabel (2014) found that Generation Z also seeks one-to-one personalized communication with their supervisors and that may make them more individualistic and more conscious of impression management within teams. Studies also show that this generation is less skilled than the other generation which could also make them more conscious of being thought of as incompetent in a team setting. These generational attributes may explain why Generation Z scored lower in psychological safety.

These generational differences in communication styles and preferences, show how psychological safety which is a pre-requisite for speaking up in a team and exhibiting voice behavior may be lower in other generations as compared to Millennials who thrive in a team environment. The other finding presented by Robert Half which is relevant to our study findings is based on how generations view change and innovation. In this case, Millennials see it as an opportunity and baby boomers are cautious around it. These differences in generations should not affect selection decisions while hiring but managers could make informed decisions while making teams to ensure generational diversity in teaching teams. Teachers belonging to various generations would all bring their own value to the team however our results show that leaders can consciously develop psychological safety in the employees that belong to baby boomers or generation Z as their values, life experiences and socio-economic factors besides

other personal factors, may hold them back for fully engaging and voicing their concerns, reporting their errors openly in their work teams.

3. Employment Status

Employment Status has been found to be linked with various job outcomes which majorly includes job insecurity stemming from probation, part-time or fixed duration employment. This study aimed to find out if psychological safety varies with the employment status of the teachers. The findings lead us to conclude that employment status does affect how employees perceive their safety in a work team especially if there in uncertainty in whether the teacher in probation would be given a relatively stable tenure position or not. Literature also supports that employment status affects the work outcomes of employees especially between permanent and temporary workers (Wickramasinghe & Chandrasekara, 2011). Building upon the findings of the study that showed low psychological safety in teachers holding temporary/probation job position, it is evident that they have experienced feelings of job insecurity which leads to lower levels of psychological safety. A study by Kim (2020) shows that job insecurity because of temporary employment status lowers psychological safety and ultimately negatively affects the employee's commitment in an organization. Organizational decisions of downsizing, outsourcing and offering temporary teaching positions may contribute to job insecurity among members of the organization but logically, teachers on probation period experience lower levels of psychological safety possibly due to the perception of job insecurity as explained by literature. Plomp et al. (2019) in the comparison of permanent and temporary workers found that psychological safety is experienced majorly by employees on permanent positions and may also only have a positive mediating effect towards proactive work behavior such as innovation and speaking up about their ideas. Whereas, temporary

workers or workers without a permanent formal position in the organization have reported significantly lowers levels of psychological safety. These findings can be attributed to the decrease in job empowerment that teachers on probation may feel as compared to permanent teachers (Han et al., 2009). Furthermore, teachers on probation may also experience lower levels of psychological safety and exhibit low psychological safety behavior such as employee silence, withholding critical information and admitting errors because they do not believe they would get something in return from their organization. This can be explained in line with Vroom's expectancy theory which asserts that people only behave in certain ways after weighing the outcome of the behavior to be a valuable gain (Vroom, 1964, 2005).

4. Organizational Tenure & Professional Experience

There are limited researches linking individual tenure of employees and their professional experience to psychological safety, however studies that link tenure to innovative work behavior show that tenure does not affect innovative behavior (Ng & Feldman, 2013) whereas it showed a weak positive effect (r=0.04) in the study by Lieu & Peng (2016) Although some studies have linked longer team tenure to increased psychological safety Koopman et al. (2014; Sarti, 2018) which can be explained if psychological safety is measured and defined as a shared team construct.

Objective no. 3 To assess the moderating role of Team Effectiveness on the relation between leadership behavior and psychological safety

The present study assumed team effectiveness to be a moderating variable in the relationship between leadership behavior and the teachers' psychological safety. In simpler

words, it was supposed that leadership behavior leads to higher levels of psychological safety given the condition of team effectiveness. This goes back to the initial approach taken by the study which was a multi-level analysis of organizational factors. The notion supported is that factors at organization, team and personal level contribute towards fostering the psychological safety of the employees. Fritz & Arthur (2017) call the function of a moderator variable as that of providing the pre-requisite "condition" for the operation of any relationship between variables. Regardless of which term is used to represent the function of a moderator variable, these variables evidently influence a relationship in a number of ways: strengthening the relationship, weakening the relationship, negating it or altering it any way.

To find out the indirect effect of team effectiveness on psychological safety, two moderated regression analyses were conducted on the relationship between leadership task-oriented behavior and relations-oriented behavior and psychological safety. Both models were significant and showed a moderating effect of team effectiveness which hereby means that those teams which had clear goals, well-defined roles of the team members, team processes and good interpersonal relations would interact with leadership behavior to increase the outcome of teachers' psychological safety. Team effectiveness has not been examined in literature as a moderator in relation to psychological safety however the sub-constructs on their own have been linked with increased psychological safety of the team members. Edmondson & Mogelof (2004) Edmondson et al., (2014) and Edmondson & Roloff (2008) found that lack of clarity in the team goals which should ideally be shared goals of the whole team, reduces psychological safety. Post (2012) also related the role of team processes on innovation and psychological safety. Interpersonal relations between the team members influences the quality of social interactions within the teams which significantly affects their psychological safety

(O'Donnovan & McAuliffe, 2020; Cheng et al., 2014; Soares & Lopes, 2014; Roussin et al., 2016; Reese & Barnard, 2016; Akan et al., 2020; Schulte et al., 2010). Finally, consistent with the findings of the study, clearly defined team roles where each member knows who is doing what and what exactly are, they expected to do refers to clear team roles and was linked with psychological safety by Edmondson (1999), Chandrasekaran & Mishra (2012) and Huand & Jiang (2012).

Table 5.1 Key Findings of the Study

Objective	Hypothesis	Key Finding
O1: To investigate the effects of organizational factors on school teachers' psychological safety	**$H0^1$:** There is no significant difference in psychological safety of teachers in Country Club, Impoverished, Authoritarian and Team leadership styles of the team leaders	Team Leadership Style has the highest level of psychological safety in the teachers which focuses equally on task and relations
	$H0^2$: There is no significant prediction of teachers' psychological safety by the leadership task-oriented behavior	Relations-oriented leadership behavior and task-oriented leadership behavior are both significant predictors of teachers' psychological safety
	$H0^3$: There is no significant prediction of teachers' psychological safety by the principal's relations-oriented behavior	
	$H0^4$: There is no significant difference in psychological safety of teachers in Control, Competence, Collaborate and Cultivate Organizational Culture types	Collaborate culture marked by open communication and increased teamwork and it fosters the highest level of psychological safety as compared to other types of organizational culture.
		Organizational Culture has a significant effect on PS.

O2: To explore the effects of personal factors (gender, generation type, work experience and tenure with the organization) on school teachers' psychological safety	**H0[5]:** There is no significant difference in psychological safety of male and female teachers	Psychological Safety does not vary between male and female teachers. Gender has no effect on PS
	H0[6]: There is no significant difference in psychological safety of teachers in Baby boomers, Generation X, Millennials and Generation Z	Millennials report the highest levels of psychological safety. Generation has a significant effect on PS.
	H0[7]: There is no significant difference in psychological safety of teachers on employment status in the permanent, fixed-term contract or probation group	Teachers holding permanent teaching positions report higher psychological safety. Employment status has a significant effect on PS
	H0[8]: There is no significant difference in psychological safety of teachers in the five groups of durations of professional experience	Psychological Safety does not vary with the professional experience and tenure with organization
	H0[9]: There is no significant difference in psychological safety of teachers in the five groups of tenure with current organization	
O3: To assess the moderating role of Team Effectiveness on the relation between leadership behavior and psychological safety	**H0[10]**: There is no significant prediction of teachers' psychological safety by the team effectiveness	Team Effectiveness which is based on clarity of team goals, roles, good inter-personal relationships and team processes is a significant predictor of teachers reported psychological safety
	H0[11]: The effect of principal's relations-oriented behavior on teachers' psychological safety is not moderated by team effectiveness	Team Effectiveness marginally moderates the relationship between leadership behavior and psychological safety
	H0[12]: The effect of principal's task-oriented behavior on teachers' psychological safety is not moderated by team effectiveness	

Summary of Findings

1. Psychological Safety does not vary between male and female teachers.
2. Millennials report the highest levels of psychological safety.
3. Generation Z reports very low psychological safety.
4. Collaborate and Cultivate culture type fosters the highest level of psychological safety as compared to other types of organizational culture
5. Organizational cultures that emphasize hierarchy (Control Culture) while aiming at reaching high standards of excellence (Competence Culture) result in lower levels of psychological safety.
6. Team Leadership Style has the highest level of psychological safety in the teachers which focuses equally on achievement of tasks and building relations and human resource development in their teams.
7. Relations-oriented leadership behavior and task-oriented leadership behavior are both significant predictors of teachers' psychological safety.
8. Team Effectiveness marginally moderates the relationship between leadership behavior and psychological safety.
9. Psychological Safety is not affected by the professional experience and organizational tenure of the teachers.
10. Teachers holding permanent or contractual teaching positions report higher psychological safety whereas teachers on probation report the lowest psychological safety.
11. Team Effectiveness which is based on clarity of team goals, roles, good inter-personal relationships and team processes is a significant predictor of teachers reported psychological safety

5.4 Conclusion

The study examined the effect of organizational and personal factors on school teachers' psychological safety as well as the moderation effect of team effectiveness on leadership and psychological safety. Firstly, it was found that leadership style and leadership behavior have a significant effect on psychological safety in teachers. The leadership style that emerged as the most effective in facilitating psychological safety was the team leadership style which is characterized by a high emphasis on task completion as well as developing interpersonal relationships with the teachers. Other leadership styles such as Authoritarian and Country Club leadership which overlook one of the two dimensions of relation focus or task focus, tend to lead to lower levels of psychological safety of teachers. Similarly, the study also found that leadership task and relations-oriented behavior are significant predictors of teachers' psychological safety further supporting that leadership is a significant organizational factor that affects psychological safety.

Secondly, it was found that the school culture, which is also an organization level construct, is a major factor that provides the learning context to the teachers working in a team as well as other members of the organization. It was found that school cultures that are dominated by an increased focus on human resource development resulted in higher psychological safety of teachers. Collaborate and Competence culture is the name given to these culture types existing in these schools which have a strategic focus on synergy and growth. These culture types achieve their goals by building teams, increasing collaboration and enabling the growth of all individuals in the organization by providing encouraging

leadership, learning and voice behavior of the teachers, all done by fostering psychological safety. School cultures that provide the optimum conditions for psychological safety of teachers have mostly distributed leadership and adhocracy. Schools that prioritize learning, growth and being open to innovation and change are the breeding grounds for psychologically safe teacher who are engaged in their work. Contrarily, school cultures with tall hierarchies and centered authority, resistant to change and innovation and a decreased focus on human resource and only focusing on objectives and productivity reported lower psychological safety. A Control and Competence culture are characterized by the aforementioned characteristics which are good for achieving organization goals with high efficiency and productivity but may largely ignore the employees resulting in disengagement of the teachers. These culture types also showed low levels of psychological safety as per the findings of the study.

Moving further in the organization sector, team factors were examined in the umbrella term of team effectiveness, which was also concluded to be a significant predictor of whether teachers felt safe enough to exhibit voice behavior within their teams. Clarity in goals with a general agreement on what is to be achieved by the team or having a shared objective was found to be related with psychological safety. Further factors included clear team roles with respect to clarity in task delegation, authority and accountability. In addition, team processes which refers to how the team members managed conflict, made decisions, and communicate are also positive contributors of team psychological safety. Lastly, interpersonal relationships which entails interpersonal respect and amicable relationships within the team members is the most important team factor influencing the teachers' psychological safety. In addition, team effectiveness was found to have a moderation effect on the relationship between leadership

behavior and psychological safety of teachers. This means that leadership interacts with team factors to facilitate or impede psychological safety of the teachers.

It was also found that though organizational and team factors affected psychological safety, the effect of personal factors focused in this study was marginal. Primarily because the personal factors in the current study were most demographic factors which cannot be controlled or changed. The personal factors that were found to have a significant effect were generation type of the teachers and their employment status. It was found that male and female teachers exhibited the same levels of psychological safety so gender of the teacher had no role in determining the team psychological safety. However, an important finding of the study was how psychological safety significantly differed with respect to generational cohorts. School leaders should be aware of the generational differences and tackle the implications of generational difference in their teams. Millennials reported the highest psychological safety whereas Generation Z reported the lowest levels of psychological safety. This does not mean that one generation is a better team member than the other, however, there should be generational diversity during recruitment in teams and leaders can work closely with them to improve their psychological safety by being aware of inter-generational differences, their work behaviors, training needs and their expectations from their leaders and organizations. The study set the groundwork for examining psychological safety in the educational sector of Pakistan. The findings also presented the existent state of teachers' psychological safety and the prevalent leadership practices and the dominant school culture. The state of psychological safety was a little above average based on the mean scores which means that private school leadership may consider reviewing their organizational practices and team effectiveness for improving their teachers' psychological safety.

5.5 Recommendations

By understanding the social context required for encouraging psychological safety and learning, schools can develop effective teams and that would result in teachers who are engaged in their work and feel authentically safe about participating in functions of the school.

5.5.1 Recommendations for Team leaders

To develop psychological safety amongst the teachers, team leaders are recommended to:

- Encourage teachers to share ideas and voice opinions during team discussion to foster psychological safety and all ideas are to be valued and supported by the team leader through verbal or non-verbal affirmations.
- Develop an environment of innovation and creativity by allowing teachers to experiment and come up with innovative teaching strategies and activities
- Empowering the team members by involving them in decision-making processes of the team.
- Improve team structures and processes by having shared and clear team goals, well-defined team roles, develop a system of team processes and strategically improve team interpersonal relationships by reviewing and reflecting on these factors with the team members.
- Adopt a team leadership style which can be done by giving equal emphasis to the completion of team tasks and the development of good relations with the team members. Maintaining a balance in these two aspects may help leaders in keeping employees psychologically safe.

- Discuss the importance of shared goals, periodically reviewing team performance and reflecting on and arranging team activities as ways to improve team relations. Team leaders may also arrange to have team building activities, team discussions and brainstorming while consciously assessing the team psychological safety.
- To manage a variety of generation types in the teachers, leaders are recommended to pay special attention to Baby boomers and Generation Z. Baby boomers tend to view idea sharing as crossing hierarchy, their perception about voice behavior and speaking up may be changed by the leader's encouragement. Generation Z on the other hand tends to seek individual feedback with their supervisors. Guiding them towards working in collaboration while providing individual support may help in improving their psychological safety.

5.5.2 Recommendations for Educational Administrators and Policy Makers

The school administrators are recommended to reconsider whether their team structures are essentially performing the functions of the team and not merely serving as superficial adjustments in the organizational structure. Based on the findings of the study, the following recommendations are presented to practitioners, educational administrators and policy makers:

- Training the team leaders on the characteristics of different generational cohorts and their workplace behavior may prove beneficial in learning to manage, communicate with and improve the psychological safety of a team composed of members from a variety of generational types.

- Organizational culture of the school that is centered on increasing collaboration amongst the teachers as well as developing them professionally. This can be done by forming professional learning communities, increasing inter-team and intra-team collaborations and giving teachers the opportunities to voice their ideas and valuing creativity and idea sharing as a part of the school culture.
- Develop a culture of collaboration by appraising team performances rather than individual performance as it may develop a sense of accountability in the entire team.
- Encourage innovation, creativity and collaboration as a part of the school's organizational culture which is further disseminated by the team leaders.
- Teachers may be given permanent teaching positions or contractual work positions for increasing their psychological safety. It was found that teachers who are on probation have lower levels of psychological safety.

5.5.3 Future Research Directions

Despite the notable findings, the study had its limitations in design, scope, analysis and access to data. Therefore, we present recommendations for future researchers who may address gaps in literature, replicate or extend the work:

- Future researchers are recommended to explore the outcomes of psychological safety with team learning behavior and other outcomes related to the educational sector. Another research direction is to further investigate the personal factors that contribute towards psychological safety and team learning behavior, proactive and innovative work behavior. They may explore personality styles, self-efficacy beliefs, emotional

intelligence. At the organizational level, constructs such as job empowerment, job security, power distance and further dimensions of organizational culture can be examined in relation to psychological safety

- The effects of other aspects of leadership behavior such as leadership incivility, ethical leadership, supervisor-employee relationship, leadership proactivity may be studied in relation to psychological safety
- Mixed-method research in the Pakistani educational sector, on psychological safety may be conducted to explore how teams differ in the educational setting. Interviews with teachers and leaders may provide valuable data regarding how psychological safety is perceived and fostered
- Finally, further research into defining, measuring and analyzing the construct of psychological safety at individual, team and organizational level as well as study its relationship with other variables with a multi-level approach is recommended. Additionally, statistical analysis that include SEM (structural equation modeling) or path analysis would be beneficial in examining the combined effect of variables from different levels of the organization as antecedents and outcomes of psychological safety.

5.5.2 Theoretical Implications

The findings of the study provided insights for how psychological safety is fostered amongst teachers working in diverse organizational cultures and how team-level factors such as leadership behavior and team effectiveness affect the development of psychological safety at team level. The study is also the first comprehensive investigation in the educational sector of Pakistan regarding teachers' psychological safety and its antecedents. The review of

literature has also identified a major gap in literature pertaining to the majority of the research focusing on the effects of leadership behavior that is people-focused and largely ignoring leadership behavior that emphasizes productivity, goals and structure. This study bridges the gap by examining task-oriented leadership behavior, resulting in unexpected results which indicated that task-oriented leadership behavior also improves psychological safety of the teachers.

In team-level research, the study also examined certain aspects of team effectiveness that were related to how the team functions based on how it is designed and how team members cooperate to carry out team tasks. For this end, the study was conceptualized using GRPI (Goals, roles, inter-personal relations and processes) model of team effectiveness. In all antecedents at organization level that were selected for inquiry in this study, the approach was to examine the dichotomy of relations/task orientation.

5.5.3 Practical Implications

The findings of the study provide knowledge that may act as basis for action by practitioners and leaders in the educational sector. The major practical implication of this study is that the findings have suggested the implication of leadership behavior for developing psychological safety amongst the teachers. More specifically, the study specifies which type of leadership behavior and leadership style yield the maximum psychological safety amongst the teachers working in a team. The school leader can be thought of as a “designer” of the team dynamics given that educational leadership programs provide essential understanding of how principals/school leadership can consciously develop a psychological safe climate for their teachers in an attempt to engage them in their work as well as working with a creative, innovative and a learning team. This in turn will have implications at organizational and

individual level of the employees as well the classrooms will students could benefit directly by reaping the potential advantages of psychologically safe teachers. This can be explored in detail by future researchers.

5.6 Limitations

The study encountered some limitations which arose during the stages of the research process. The limitations include the following aspects:

1. There is also a lack of prior research studies on psychological safety of teachers in Pakistan which made it challenging to situate the findings in literature since there is also scant literature on psychological safety in the education sector.
2. Due to multi-collinearity between leadership task-oriented and relations-oriented behavior, the regression models had to be separated and the moderation also had to be tested on two separate models.
3. Some respondents could not be accessed face to face due to restrictions imposed by the organizations for data collection. Other respondents had to be accessed through administration of online questionnaires.
4. Some assumptions of One-way ANOVA were violated i.e., homogeneity of variance between the groups due to which Welsh's ANOVA had to be used.
5. Chi-square analysis could not be conducted because certain groups were under-represented in our sample such as teachers with long tenures and professional experience, teachers belonging to the traditionalist generation and baby boomers. When the assumptions of chi-square were not met, ANOVA had to be conducted.

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ANNEXURE A

QUESTIONNAIRE

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Team Leadership Style					
Our principal encourages our team to participate when it comes decision-making time and tries to implement our ideas and suggestions.					
To our principal, nothing is more important than accomplishing a goal or task.					
Our principal closely monitors the schedule to ensure a task or project will be completed in time					
Our principal enjoys coaching people on new tasks and procedures					
The more challenging a task is, the more our principal enjoys it.					
Our principal encourages the teachers to be creative about their job.					
When seeing a complex task through to completion, our principal ensures that every detail is accounted for.					
Our principal finds it easy to carry out several complicated tasks at the same time.					
Our principal enjoys reading articles, books, and journals about training, leadership, and psychology; and then putting what he/she has read into action.					
When correcting mistakes, he/she does not worry about jeopardizing relationships.					
Our Principal manages his/her time very efficiently.					
Our Principal enjoys explaining the intricacies and details of a complex task or project to the teachers.					
Breaking large projects into small manageable tasks is second nature to him/her.					
For him/her, nothing is more important than building a great team.					
Our Principal enjoys analyzing problems					
Our Principal honors other people's boundaries					

Counseling the teachers to improve their performance or behavior is second nature to him/her.					
He/ She enjoys reading articles, books, and trade journals about his/her profession; and then implementing the new procedures he/she has learned.					
Team Effectiveness					
Goals					
Our team has a meaningful, shared purpose.					
We are strongly committed to a shared mission.					
We focus on big-picture strategic issues as much as on day-to-day activities.					
We set and meet challenging goals.					
We consistently produce strong, measurable results.					
We make sure our work helps the organization achieve its goals.					
The mission and goals of my team are well aligned with the organization's mission and goals.					
Roles and Responsibilities					
Team members clearly understand their roles.					
When an individual's role changes, an intentional effort is made to clarify it for everyone on the team.					
Team members understand one another's roles.					
Everyone values what each member contributes to the team.					
Team members avoid duplication of effort and make sure they are clear about who is doing what.					
When team members' roles change, specific plans are implemented to help them assume their new responsibilities.					
Overlapping or shared tasks and responsibilities do not create problems for team members.					
Team Processes					
Team problem solving results in effective solutions.					
We address and resolve issues quickly.					
People on my team are rewarded for being team players.					
Group meetings are very productive.					

Our team has mechanisms in place to monitor its results.					
Our team works with a great deal of flexibility so that we can adapt to changing needs.					
When we choose consensus decision-making, we do it effectively.					
Team Relations					
Team members appreciate one another's unique capabilities.					
Team members are effective listeners.					
Communication in our group is open and honest.					
Members of our team trust each other.					
Team members help one another deal with problems or resolve issues.					
We are able to work through differences of opinion without damaging relationships.					
Team members display high levels of cooperation and mutual support.					
PSYCHOLOGICAL SAFETY					
Part 1: Individual Safety					
In this team, it is easy to discuss difficult issues and problems.					
I won't receive retaliation or criticism if I admit an error or mistake.					
It is easy to ask members of this team for help.					
I feel safe offering ideas, even if they aren't fully-formed plans.					
Part 2: Team Respect					
In this team, people are accepted for being different.					
My teammates welcome my ideas and give them time and attention.					
Members of this team could easily describe the value of each other's contribution.					
Part 3: Team Learning					
On this team, people talk about mistakes and ways to prevent and learn from them.					
We take time to find new ways to improve our team's work processes.					

Members of this team raise concerns they have about team plans or decisions.					
We try to discover our underlying assumptions and seek counterarguments about issues under discussion.					

ORGANIZATIONAL CULTURE ASSESSMENT	
1. When all is said and done, the way we accomplish success in this school is to:	
A	Provide the conditions whereby the people within the organization can develop and make valuable accomplishments.
B	Get and keep control.
C	Create an organization that has the highest possible level of competence and capitalize on that competence.
D	Put a collection of people together, build them into a team, and charge them with fully utilizing one another as resources.
2. What do we pay attention to primarily in our organization and how do we decide about things?	
A	We pay attention to what might be and we decide by relying on what evolves from within the hearts and minds of our people.
B	We pay attention to what is and we decide by relying on what evolves from within the hearts and minds of our people.
C	We pay attention to what might be and we decide by relying on objective and detached analysis.
D	We pay attention to what is and we decide by relying on objective and detached analysis.

3. The people with the most power and influence in the organization:	
A	Are experts or specialists, who have the most knowledge about something important.
B	Have the title and position that gives them the right and authority to exercise power and influence.
C	Are charismatic, can inspire others, and are good at motivating others to develop their potential.
D	Are both contributors and team players, who are an essential part of the team. People like working with them.

4. In our organization, "success" means:	
A	Superiority. Success means that the school is the best, offering superior value. The school is the "state of the art" in all that it does.

B	Synergy. By teaming up with one another and with our students, we accomplish what we are after.
C	Growth. Success means helping others more fully realize their potential.
D	Dominance. Success means having more control than anyone else. Complete success would be for the organization to be the only game in town.

5. In our organization, leadership means:	
A	Being a catalyst. Leaders cultivate people. They create conditions in which people are inspired to fulfill their own and others' potential. At the same time, leaders build commitment to the organization.
B	Authority. Leaders are regulators and call the shots. They are commanding, firm, and definitive. What they say goes.
C	Setting standards and working hard to get people to achieve more. Leaders are intense taskmasters, who always challenge workers to be better.
D	Building a team that will work well together. Leaders are coaches. They behave as first-among-equals. They strive to represent the people in the organization.

6. When we worry about something in the organization, it is usually about:	
A	Vulnerability. We worry most about being in a position where others have more power or market share than we do.
B	Lack of unity. We worry most about the team being broken up or alienating our customers. We worry about a lack of trust among ourselves.
C	Losing. We worry most about being also-rans or having our reputation harmed because we couldn't deliver effectively.
D	Stagnation. We worry most about failing to progress, simply existing from day to day, or even going backwards.

7. Our organization's overall management style is best described as:	
A	Prescriptive. Methodical. Policy and procedure oriented.
B	Enabling. Empowering. Commitment oriented.
C	Challenging. Goal oriented. Very rational and analytical.
D	Democratic. Highly relational. Highly participative.

8. The essential role of the individual employee in our organization is to:	
A	Collaborate. To be a team player.
B	Be all you can be. To change, develop, and grow. To be committed to the organization and its purposes.

C	Perform according to policy and procedure. To meet the requirements of the job as outlined.
D	Be an expert. To be the best in your specialty or area of technical expertise.

9. What counts most in the organization is:	
A	Not losing. Keeping what we've got.
B	Winning. Being recognized as the best competitor around.
C	Accomplishing it together. Being able to say "we did it together"
D	Evolving. Realizing greater potential. Fulfilling commitments.

10. Which of the following best describes how you feel about working in your organization:	
A	People are able to count on one another.
B	This is a caring and "spirited" place. I feel supported.
C	Things are rather intense. I feel like I have to be on my toes all the time.
D	Things are no nonsense and restrained.

11. What counts most in the organization is:	
A	Merit.
B	Fulfillment.
C	Security.
D	Community.

12. Which of the following best describes the primary way decisions are made in the organization?	
A	We emphasize tapping into the experiences of one another. Our decision-making process centers on fully using our collective experiences and pushing for consensus.
B	We pay close attention to our values.We emphasize the fit between our values and how close we are to realizing them. Our decision-making process centers on the congruence between our values or purposes and what we have put into practice.
C	We pay close attention to our concepts and standards. We emphasize the fit between our theoretical goals and the extent to which we achieve them. Our decision-making process centers on how systematically our conceptual goals are achieved.
D	We emphasize what the organization needs. Our decision-making process centers on the objectives of the organization and on what we need from each function within the organization.

13. Overall, life inside our organization is:	
A	Subjective, dedicated, and purposeful.
B	Spontaneous, interactive, and free and easy.
C	Intellectually competitive, rigorous, and intense.
D	Objective, orderly, and serious.

14. In general, our attitude toward mistakes is:	
A	Mistakes are nearly taboo. We don't like them. A person who makes mistakes is looked down upon.
B	We tend to minimize the impact of mistakes and do not worry too much about them. People who make mistakes should be given another chance.
C	We pay attention to the kind of mistake. If the mistake can be quickly fixed, we go ahead and fix it. If the mistake causes a function to get into trouble or could cause the organization to become vulnerable, we marshal all our resources to fix it as quickly as possible. Mistakes that affect the organization as a whole could get someone in trouble.
D	Mistakes are inevitable, but we manage by picking up the pieces and making the necessary corrections before they grow into bigger problems.

15. Concerning control, which of the following is most emphasized?	
A	Everything critical to keeping us working together in the organization and retaining close ties with our customers
B	Just about everything. Getting and keeping control is central to what the organization is and does.
C	As little as possible. We are put off by the notion of control. We prefer to leave things up to the commitment and good will of our people.
D	Concepts and ideas. We control everything that is critical toward achieving or preserving our superiority in the marketplace.

16. The essential nature of work in the organization emphasizes:	
A	Specialists. Individuals stay in their technical or other specialty. Functions are channeled into the service of specialties.
B	Individuals do all three (choices)
C	Generalists. Individuals move in and out of numerous functions and specialties.
D	Functionalists. Individuals stay within their function. Specialties are subordinate to the service of functions.

17. The people who primarily get promoted in the organization are:	
A	Those who have performed consistently well in their function for many years and have demonstrated that they can seize authority and get things done.
B	People who can handle responsibility and who want it. We don't use the word "promotion".
C	Those who know the most about their area of expertise and have demonstrated their competence.
D	Generalists. They must also be capable people who are easy to work with.

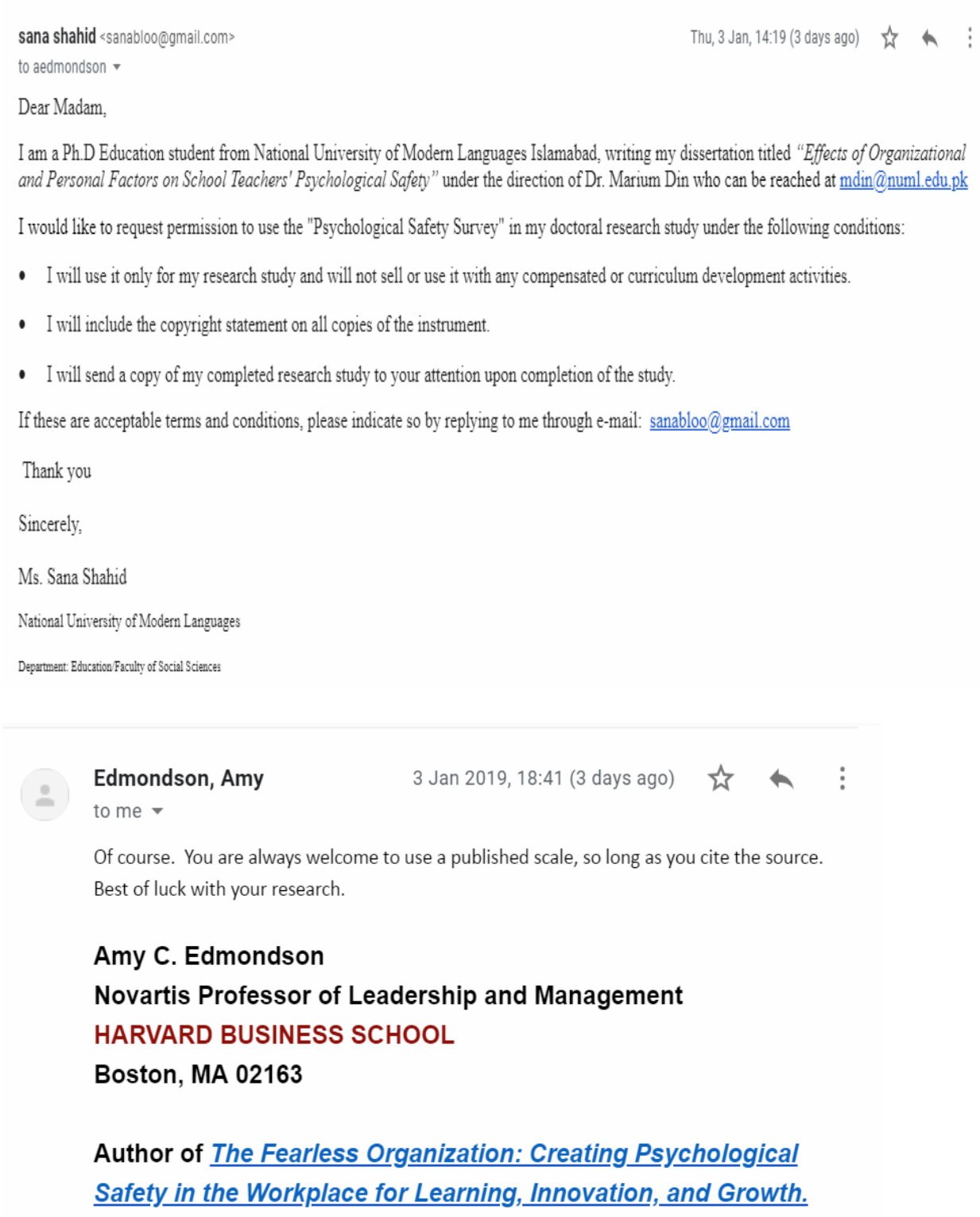
18. The compensation system in the organization is most similar to which of the following?	
A	Our compensation is tied primarily to team effort. If the whole organization does well, we share in the wealth. If the whole organization does poorly, we all sacrifice.
B	We emphasize fair and equitable pay for all. We also emphasize the long-term perspective. We plow a lot of money back into the organization to ensure continued growth and success, so personal financial compensation tends to be secondary to other more important matters.
C	Our compensation is highly individual and incentive oriented. Uniquely capable people who are recognized experts can make a lot of money.
D	Our compensation system is highly structured. The larger your role and function in the organization, the more money you make.

19. Which of the following best describes our organization's primary approach in dealing with customers?	
A	We emphasize uplifting and enriching our customers. We concentrate on realizing the possibilities and potential of our customers more fully.
B	We emphasize gaining the greatest market share that we can get. We would like to be the only game in town for our customers.
C	Partnership. We team up with our customers. We want to be able to say "We did it together".
D	We emphasize offering superior value to our customers. We try to provide state-of-the-art goods or services to our customers.

20. Which phrase best describes our organization?	
A	"We are the biggest at what we do."
B	"We believe in what we are doing, we make a commitment, and we realize unlimited potential."
C	"United we stand, divided we fall."
D	"We are the best at what we do."

ANNEXURE B

Permission Letter for Scale Usage and Re-print



sana shahid <sanabloo@gmail.com> Thu, 3 Jan, 14:19 (3 days ago)

to aedmondson

Dear Madam,

I am a Ph.D Education student from National University of Modern Languages Islamabad, writing my dissertation titled *"Effects of Organizational and Personal Factors on School Teachers' Psychological Safety"* under the direction of Dr. Marium Din who can be reached at mdin@numl.edu.pk

I would like to request permission to use the "Psychological Safety Survey" in my doctoral research study under the following conditions:

- I will use it only for my research study and will not sell or use it with any compensated or curriculum development activities.
- I will include the copyright statement on all copies of the instrument.
- I will send a copy of my completed research study to your attention upon completion of the study.

If these are acceptable terms and conditions, please indicate so by replying to me through e-mail: sanabloo@gmail.com

Thank you

Sincerely,

Ms. Sana Shahid

National University of Modern Languages

Department: Education/Faculty of Social Sciences

Edmondson, Amy 3 Jan 2019, 18:41 (3 days ago)

to me

Of course. You are always welcome to use a published scale, so long as you cite the source.
Best of luck with your research.

Amy C. Edmondson
Novartis Professor of Leadership and Management
HARVARD BUSINESS SCHOOL
Boston, MA 02163

Author of *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth.*

ANNEXURE C

LIST OF PRIVATE SCHOOLS OFFERING CAMBRIDGE EDUCATION SYSTEM IN ISLAMABAD CAPITAL TERRITORY-URBAN

1. AIMS Education System Sector F-8/4
2. Alta Vista College F-8/4
3. Urban ASAS International School F-8/3
4. Bahria Foundation College (O Level Campus F-11/3
5. Urban Beaconhouse School System Pitras Bukhari Road, Sector H-8/4
6. Urban Beaconhouse School System F-11/4
7. Urban Beaconhouse School System Sector F-10/3
8. Beaconhouse School System (F-11/4 Campus)
9. Beaconhouse School System F-11/3
10. Elite International School 218-Margalla Road (North), Sector F-10/3,
11. EMS High School House No. 33, Street No. 60, Sector F-11/4
12. Fazaia Education System School PAF Complex, Sector E-9
13. Fountainhead School House No. 7, Street No. 4, Sector F-7/3
14. Froebel's International School Sector F-7/2
15. System of Integrated Studies (GSIS)
16. Headstart School Building
17. Headstart School House No. 97, Main Double Road, Sector F-10/1
18. Urban Headstart School (Boys Branch) House
19. Imperial International School
20. International Grammar School
21. Islamabad Alma House
22. Islamabad College of Arts & Sciences
23. Islamabad Convent School Sector H-8/4
24. Islamabad International Science College
25. Islamabad Science School & College
26. Joan Mc Donald School
27. Kauthar College For Women
28. Ken Academy House
29. Khaldunia High School
30. Lahore Grammar School
31. Urban Liberal Arts High School
32. OPF Boys College

33. Pak - Turk International Schools & Colleges
34. Pak - Turk International Schools & Colleges
35. PBF International College (PBC Campus)
36. Urban Preparatory School Islamabad
37. Urban Resource Academia School System
38. Roots International School System
39. Roots Millennium Schools
40. Schola Nova
41. Sheikh Zayed International Academy
42. The City School (Capital Campus)
43. The Knowledge Point
44. The Science School
45. Wahid International School of Excellence
46. Westminster School & College