

**THE MODERATING ROLE OF INTRAGROUP TRUST
AND TEAM TRANSFORMATIONAL LEADERSHIP ON
THE RELATIONSHIP BETWEEN PSYCHOLOGICAL
SAFETY AND LEARNING BEHAVIOUR IN TEAMS.**

BY

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE AWARD OF AN M.PHIL
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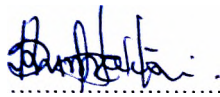
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DECLARATION

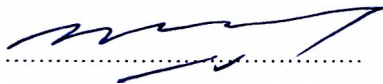
I hereby declare that, except for reference to other people's work which have been duly acknowledged, this thesis titled *The moderating role of intragroup trust and team transformational leadership on the relationship between psychological safety and learning behaviour in teams* is my own original work and presented to the Department of Psychology, University of Ghana, as partial fulfilment of the requirements for the award of an MPhil. Degree in Industrial and Organisational Psychology. I also wish to declare further that this work has never in its present form, or in any other form, been presented to any other examining body.



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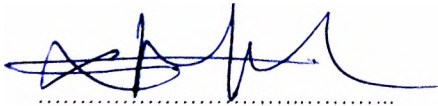
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DEDICATION

I dedicate this work to God the Father, God the Son and God the Holy Spirit. God has been faithful and merciful to me throughout my life even when I was undeserving of his mercies. All that I am and all that I will ever be is by His Grace.

I also dedicate this work to my parents, Mr. & Mrs. Kumako for all the sacrifices they made to give my siblings and me the best education.

Finally, I dedicate this work to my dear aunt, Madam Agnes Adjovi Ahadzi for believing in me and supporting me through all the challenges of my tertiary education.

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"Be not afraid of greatness. Some are born great, some achieve greatness, and some have greatness thrust upon them." - William Shakespeare

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TABLE OF CONTENTS

DECLARATION.....	'
DEDICATION.....	"
ACKNOWLEDGEMENTS.....	iii
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	ix
LIST OF FIGURES.....	x
ABSTRACT.....	ix

CHAPTER ONE

INTRODUCTION.....	1
1.1 Background of the Study).....	1
1.1.2 Team Psychological Safety.....	4
1.1.3 Team Learning behaviour.....	6
1.2.1 Intragroup trust as a Moderator of the Team psychological safety and team learning behaviour relationship.....	9
1.2.2 Team transformational leadership as a Moderator of the Team psychological safety and team learning behaviour relationship.....	14
1.3 Rationale of the Study).....	18
1.4 Research Questions.....	20
1.5 Aims of the Study.....	20
1.6 Relevanc of the stud v.....	21

CHAPTER TWO

LITERATURE REVIEW.....	23
2.1.0 THEORETICAL FRAMEWORK.....	23
2.1.1 Introduction.....	23
2.1.2 Social exchange theory.....	23
2.1.3 Transformational leadership theory.....	26
2.2 REVIEW OF RELATED STUDIES.....	30
2.2.1 Introduction.....	30
2.2.2 The relationship between team psychological safety and team learning behaviour.....	30
2.2.3 Intragroup trust as a Moderator of the Team psychological safety and team learning behaviour relationship.....	34
2.2.4 Team transformational leadership as a Moderator of the Team psychological safety and team learning behaviour relationship.....	37
2.2.5 Key Variables in the study.....	41
2.3 Statement of Hypotheses.....	41
2.4 Operational Definition of Key Terms.....	43

CHAPTER THREE

METHODOLOGY.....	44
3.1 Population.....	44
3.2 Sample.....	46
3.3 Sampling Techniques.....	48
3.4 Design.....	49
3.5 Instruments/Measures.....	50

3.6 Procedure.....	53
3.6.1 Pilot Study.....	53
3.6.2 Main Study.....	54
3.7 Common Method Variance.....	56
3.8 Ethical Considerations.....	56

CHAPTER FOUR

RESULTS.....	60
4.1 Introduction	60
4.2 Preliminary Analyses.....	60
4.2.1 Analysis of the Normal Distribution of variables.....	60
4.2.2 Computation of Descriptive Statistics.....	61
4.2.3 Empirical Justification of Data Aggregation.....	61
4.2.3.1 Team Level of Analysis.....	61
4.2.3.2 Inter rater agreement and data aggregation of team members' responses.....	62
4.2.4 Reliability Studies.....	66
4.2.5 Pearson's Correlation of Study variables.....	67
4.3 Hypotheses Testing.....	68
4.3.1 Hypothesis I.....	68
4.3.2 Hypotheses 2 and 3.....	69
4.4 Summary'of Findings.....	74

CHAPTER FIVE

DISCUSSION.....	75
5.1.1 Introduction.....	75

5.1.2 The relationship between team psychological safety and team performance.....	76
5.1.3 Does intragroup trust moderate the Team psychological safety and team learning behaviour relationship?.....	78
5.1.4 Does team transformational leadership moderate the Team psychological safety and team learning behaviour relationship.....	81
5.2 Limitations and recommendations for future research.....	83
5.3 Implications for practice.....	86
5.4 Conclusion.....	87
REFERENCES.....	89
APPENDICES.....	102
Appendix I (Questionnaires).....	102
Appendix II (Normal Distribution Curves).....	108

LIST OF TABLES

Table 1	Demographic statistics Tor team members and team leaders.....	47
Table 2	Descriptive Statistics, inter rater agreement indices and Reliability coefficients of the study variables.....	67
Table 3	Pearson correlations for the study variables.....	67
Table 4	Results of Standard Multiple Regression Analysis for Team Psychological Safety as a predictor of Team Learning Behaviour.....	68
Table 5	Results of Hierarchical Multiple Regression Analyses for the moderation effect of Intragroup trust (IT) and Team Transformational Leadership (TTL) on the Psychological Safety - TeamLearning Behaviour relationship	73



LIST OF FIGURES

Figure 1	A summary of hypothesized relationships between the independent, moderating and dependent variables.....	42
Figure 2	Path diagram of the moderating model (alter Baron & Kenny, 1986).....	70
Figure 3	A Summary of observed relationships among the independent, moderating and dependent variables.....	75

ABSTRACT

The study investigated the moderating role of intragroup trust and team transformational leadership on the relationship between team psychological safety and learning behaviour in teams. Fifty seven work teams comprising four hundred and fifty six respondents in teams of seven to nine members were purposively sampled from five financial institutions in Accra, Ghana. Team members completed questionnaires on Team Psychological Safety (Edmondson, 1999), Intragroup trust (Simons & Peterson, 2000) and Team Transformational Leadership (Carless, Wearing, & Mann, 2000), whereas team leaders provided ratings of the teams' learning behaviour (Edmondson, 1999). Team members' responses were aggregated and matched to their respective team leaders for each team. Hierarchical regression and moderation analysis were run on data at the team level of analysis. Results indicated a positive relationship between team psychological safety and team learning behaviour with team transformational leadership moderating the relationship as predicted. However, intragroup trust did not moderate the relationship between team psychological safety and team learning behaviour. It was concluded that a team will feel psychologically safe when there is some amount of trust among team members. However, no additional trust within the team may be necessary in reaping the positive effects of team psychological safety on team learning behaviour. Furthermore, team transformational leadership facilitates learning in the team by creating a climate where team members' opinions, questions and help are welcomed at no interpersonal risk.

CHAPTER ONE

INTRODUCTION

1.1.1 Background to the study

Organisations in Ghana today can be thought of as operating in very unstable and highly uncertain environments. This could be attributed to the fact that twenty first century organizations are complex and faced with increased global competition, new technology, and innovation amongst others. These factors are critical to the success of every' organization. In meeting this goal, organisations in Ghana and worldwide have focussed on more effective ways of utilizing its most valued assets, the human capital (Shonk. 1992). This has resulted in a shift from traditionally, vertical and functionalized structures to more decentralized general structures encouraging employees to take more responsibility and work in teams to achieve organisational goals. Parker (2003: 1) asserts that in organizations today, 'generalism has replaced specialization, collaboration has replaced autonomy, empowerment has replaced power, and teamwork has replaced individualism'.

The proliferation of teams in organisations has been termed a 'corporate renaissance' (Ranter. 1983) and the 'second industrial revolution' (Fisher, 1983). Organisations using teams are able to constantly monitor their external environment and respond to situations quicker than when work is being done individually. A conglomeration of factors including the pressures of global competition, the need to consolidate business models in complex and shifting environments and the pursuit of continuous innovation have led to a reappraisal of the team as a key element of the

basic organisational architecture. It is not surprising therefore that the joint action of individuals working together in a cooperative manner to attain shared goals through the differentiation of roles and functions, and the use of elaborate communication and coordination systems, are now viewed as essential to effectiveness and competitive advantage (Ko/Jowski & Bell, 2003).

Many definitions of teams have been offered in the literature (Tjosvold, 1991). Three central themes that run through these definitions of teams are their interaction, interdependence and common goals of individuals (Porter, Lawler & Hackman, 1987; Shonk, 1992). Kozlowski and Ilgen (2006: 79) conceptualize a team as “two or more individuals who socially interact (face-to-face or, increasingly, virtually) possess one or more common goals: are brought together to perform organizationally relevant tasks: exhibit interdependencies with respect to workflow, goals, and outcomes; have different roles and responsibilities; and are together embedded in an encompassing organizational system, with boundaries and linkages to the broader system context and task environment". Teams in organisations may be considered to be more adapt to surmount the complexities of organisational functioning by drawing on diverse and sometimes unique expertise, experiences, competencies, knowledge and skills of its members. These resources can then be properly coordinated through collaboration, cooperation, and adaptability to achieve organisational effectiveness.

The ubiquitous use of teams or groups in organisations has seen a concomitant increase in teams or groups research in organisational psychology. There has been a paradigm shift in the last 25 years or so from research in small interpersonal groups in social psychology to the study of work teams in Organisational psychology (Kozlowski & Ilgen, 2006; Levine & Moreland, 1990:

Simpson & Wood. 1992). Steiner (1986: 283) noted the necessity of this shift when he wrote 'The group is too important to an understanding of human behaviour and the knowledge of society to be forever neglected. If social psychologists do not research the group, someone else surely will'. Levine and Moreland (1990) recapitulate Steiner's (1986) view by concluding that research in small groups or a team 'is alive and well but living elsewhere'.

The use of teams in organisations is also not without its challenges. The individual identity of team members may be threatened by team membership. This is because being part of the team redefines employees 'sense of who you are' as one may have to alter ones' behaviour to conform to team norms (Bettenhausen. 1991). The personality of team members (Steiner. 1972). social loafing (Karau & Williams. 1993), group think leading to conformity and isolation of members with conflicting views (Janis, 1972) are just a few of the challenges associated with team work.

In Ghana, the daunting task for industrial and organisational psychologists therefore, is to understand the dynamics underlying the effective use of teams in organisations. Among various factors that can affect the smooth functioning of teams in organisations, the interpersonal climate in the team is very critical for the team to be effective. A climate that is enabling and devoid of tension will allow for team members to "be themselves" and work hard to meet their set goals reflective of a team with psychological safety. Unique expertise and viewpoints of each team member have to be harnessed as the team learns from its collective experiences and collaborate effectively. Recently, there has not only been an increased interest in the effects of psychologically safe interpersonal climates in teams on group processes and outcomes but also researchers are interested in identifying variables that may strengthen or weaken the positive

effects of team psychological safety on team processes and outcomes. The focus here is the ability of these variables to moderate the relationship between an independent variable and a dependent variable. A moderator or a moderating variable is a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable (Baron & Kenny, 1986). In the present study, intragroup trust and team transformational leadership respectively were hypothesized to moderate the relationship between team psychological safety and team learning behaviour.

1.1.2 Team psychological safety

Researchers interested in maximizing learning behaviour in teams to ensure team performance have emphasized the importance of the conduciveness of the interpersonal climate in teams. The decision to speak up, seek feedback, offer help or other learning behaviours in a team is informed on the knowledge that the interpersonal risk to one's self is minimal. Working in teams could be a buffer to learning behaviours and could also prevent learning if team members do not feel psychologically safe to do so. Schein and Bennis (1965) first underscored the importance of psychological safety of employees in ensuring organizational change as system-wide changes in organizations would be facilitated to the extent that individuals felt safe to alter their behaviour. Schein (1985) argued that psychological safety reduced the threat posed to individuals when faced with uncertain or unexpected information in their environment thus mitigating the 'defensiveness or threat-rigidity' associated with such experiences and which can affect learning behaviours.

Psychological safety has been identified as one of the three psychological conditions -namely psychological meaningfulness, psychological safety and psychological availability- which are a function of situational characteristics and individuals' experiences and their work roles and ensured engagement or disengagement at work. Factors such as interpersonal relationships, group and inter-group dynamics, norms and a supportive management style and process have been identified as elements of the social system that foster psychological safety and allowed individuals to engage fully in their work roles (Kahn, 1990; May, Gilson, & Harter, 2004).

Psychological safety has been conceptualised at multiple levels of analysis. Recent research has studied the construct as both an individual level (Kahn, 1990; May et al. 2004; Tynan, 2005) and organisational level of analysis (Baer & Frese, 2003) in addition to the team or group level. Edmondson (1999) first introduced team psychological safety as a team or group construct implying that such a climate is characteristic of the team as a unit rather than the individual team members. Edmondson (1999) describes team psychological safety as a shared belief that the team is safe for interpersonal risk taking. This shared team or group characteristic develops in intact teams over time as a result of interactions and collective on the job experiences (Edmondson 1999, 2004). Team members cognitively calculate the perceived consequences of their actions or inactions and the perceived threat to their image. People would avoid engaging in behaviours that are likely to present them as ignorant, incompetent, negative or disruptive in their teams unless there is a climate of psychological safety shared in the team (Edmondson, 1999, 2002).

Studies have associated psychological safety with team learning behaviour and team performance (Edmondson, 1999), firm goal achievement and return on assets (Baer & Frese, 2003), personal engagement at work and job involvement (Brown & Leigh, 1996; Kahn, 1990; May et al., 2004), and face giving (Tynan, 2005). Edmondson, Bohmer and Pisano (2001) found that psychological safety plays a critical role in the successful adoption of a new surgery technique in hospitals by members of Emergency Room teams. Teams characterized by a higher degree of psychological safety displayed more effective and satisfactory use of the new technology, compared to teams where people did not feel safe. Furthermore, Edmondson and Woolley (2003) demonstrate that psychological safety has a positive impact on the acceptance of an organisation-wide change program in a large manufacturing company. Team psychological safety also leads to learning from failure (Carmeli, 2007). These findings imply that psychological safety reduces defensiveness and "learning anxiety" in uncertain and unknown situations (Schein, 2004). Thus for teams that are engaged in activities that present them with an opportunity to learn, team psychological safety may be an important precursor of behaviours indicative of team learning.



1.1.3 Team learning behaviours

Team learning has been viewed both as an outcome and a process. Edmondson (1999) conceptualises team learning as the process by which relatively permanent changes occur in the behavioural potential of the group as a result of group interaction activities through which members acquire, share, and combine knowledge. She further explains that team learning is an ongoing process of reflection and action, characterized by asking questions, seeking feedback.

experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions. Team learning is a process by which team knowledge is gained by evaluating different opinions, openly discussing these opinions, forming new routines, and adjusting performance strategies in response to negative feedback (Edmondson. 1999; Edmondson, Bohmer. & Pisano, 2001). Team learning also includes a process of reflection about the team's processes and behaviours (West. 2004).

Another definition of team learning that has been offered in the literature views it as a 'relatively permanent change in the team's collective level of knowledge and skill produced by the shared experience of the team members' (Ellis, Hollenbeck, Ilgen. Porter, West & Moon. 2003: 822). Team learning depends on each member's individual ability to acquire knowledge, skills, and abilities as well as his or her ability to collectively share that information with team members. The focus of this conceptualization and definition of team learning is as an outcome (Day. Gronn & Salas. 2004).

Team learning is characterised by help seeking, feedback seeking, speaking up about concerns and errors, innovative behaviour and innovation and boundary spanning (Edmondson. 2004). These behaviours enable team members to improve their collective understanding of a given situation and discover the consequences of previous actions, thereby helping them to detect and respond to changes in their operational environment (Edmondson. 1999; Schippers. Den Hartog. Koopman, & Wienk. 2003). These behaviours in a team are referred to as learning behaviour. It is through these activities that learning occurs at the team level. Engaging in these behaviours

will result in knowledge being embedded within the team, which ultimately promotes performance improvement (Argote & Olivera, 1999).

Team learning has been differentiated from other related constructs including adaptation and innovation. Burke, Stagl, Salas & Pierce (2006) assert that team learning translates to an increased behavioural repertoire to learn which may remain latent and never manifest. Adaptive teams are teams that actually use this behavioural capacity manifested in knowledge gained through team learning to adjust or respond to situational requirements. Team innovation has also been conceptualized as a process variable which like team learning is a precursor to team adaptation. However, whilst team learning contributes to team performance (Edmondson, 1999), team innovation may or may not lead to functional outcomes (Burke et al. 2006).

Team learning behaviour has been found to mediate the relationship between team psychological safety and team performance (Edmondson, 1999). Team learning as an outcome is typically inferred from changes in team performance. It is rarely assessed directly as a construct in its own right (Kozlowski & Ilgen, 2006). These arguments thus follow that whilst team learning behaviour is seen as a proximal outcome of team psychological safety, other outcome variables such as the team's performance may be considered more distal outcome.

1.2.1 Intragroup trust as a moderator of the team psychological safety and team learning behaviour relationship

There has been a large body of research that seeks to unlock the nature of the relations between trust and important organisational outcomes as the former is seen as an essential lubricant of successful working relationships such as teamwork (Dirks & Ferrin, 2001). Research has shown that a search for a concise and universally accepted definition of trust has not only remained elusive but also is the 'holy grail' of trust research (Creed & Miles. 1995; Kramer. 1999).

Jones and George (1998) posit that trust is an expression of confidence between the parties in an exchange of some kind - confidence that they will not be harmed or put at risk by the actions of the other party or confidence that no party to the exchange will exploit the others vulnerability. Mayer. Davis and Schoorman (1995) proposed the Integrative Model of Organisational Trust, a theoretical framework examining trust in an organisational setting involving two focal individuals: a trustor (the individual trusting) and a trustee (the individual being trusted). They conceptualised trust as the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.

Mayer et al.'s definition of trust has become widely accepted in the organisational literature (e.g.. Rousseau, Sitkin, Burt, & Camerer, 1998; Jones and George. 1998; Kramer. 1999). Unlike past conceptualizations of trust, the definition offered in this model separates trust from its antecedents. In Mayer et al.'s (1995) model, both the disposition of the trustor and the perceived characteristics of the trustee influence trust. Furthermore, trust does not involve risk per se on the

part of the trustor, but rather a willingness of the trustor to engage in risk-taking with the trustee (e.g., sharing sensitive information).

At the team level of analysis, intragroup trust can be seen as an aggregation of individual team member's perception of group-wide trust (Simons & Peterson, 2000). The trustor in this conceptualisation of intragroup trust is the individual team member and the trustee is the team or group as a unit. At the group level of analysis, trust entails generalized expectations for all group members (Zand, 1972).

The decision to trust is based on choice. Kramer (1999) identified two models of choice - the rational and relational models. The rational model of choice indicates that people trust when it is rational to do so. The decision to trust is informed on risk evaluation with the intent to maximize expected gains or minimize expected loss. Schelling (1960) as cited in Kramer (1999) asserts that such rational choices are made through conscious calculation of advantages, a calculation that in turn is based on an explicit and internally consistent value system. The relational model of choice highlights social aspects of trust and conceptualises it not only a calculative orientation towards risk but also a social orientation towards people and towards society as a whole (Kramer, 1999).

Edmondson (1999, 2004) notes that trust is an important antecedent to psychological safety. Team psychological safety is a conceptually different but related construct to intragroup trust. Edmondson (2004) connects the concepts of psychological safety and trust, stating that they have much in common: they both describe psychological states involving perceptions of risk or

vulnerability and making choices to minimize negative consequences and both have potential positive consequences for work groups and organisations.

The nature of this vulnerability is more broadly defined for trust than for psychological safety. A key difference is that trust, presumes the extent to which you give others the benefit of the doubt - a focus on 'others' whereas for psychological safety the interest is if others would give you the benefit of the doubt - a focus on 'self' (Edmondson, 2004). Edmondson asserts that the tacit calculation of interpersonal risk typical in psychological safety is more focused on the 'short term effect' of an action or inaction as against the more 'long term effect' of trust.

Trust has been researched a lot in the literature and can be conceptualized as a trait, an emerging state or as a process (Burke, Sims, Lazzara & Salas, 2007). As a process, trust may be seen as an intervening process through which other important behaviours, attitudes, and relationships are either bolstered or weakened. Various trust researchers in the literature have conceptualized trust as unidimensional (Mayer et al. 1995) or multidimensional (Cummings & Bromiley, 1996).

Dirks and Ferrin (2001) distinguish between the two models by which trust operates on work place behaviours, affects and performance outcomes. Trust can either be seen as having a main effect or as a moderating effect. These two models represent important distinctions because they imply different theoretical rationales, methodological designs, forms of statistical evidence, and different ways of using trust as a managerial intervention.

In the main effect model, trust is conceptualised as operating directly to affect desired outcomes such that higher levels of trust are expected to result in more positive attitudes, higher levels of cooperation and other forms of workplace behaviour, and superior levels of performance (Dirks & Ferrin. 2001). Overall, the effects of trust on various workplace behaviours and performance outcomes are weaker and less consistent. For many outcomes, some studies revealed a significant effect, while others did not. For example, the literature indicates significant effect (Smith & Barclay. 1997; Boss. 1978; O'Reilly. 1978; Zand, 1972) and no significant effects (De Dreu, Giebels & de Vliert. 1998; Dirks, 1999; Roberts & O'Reilly. 1974) between trust and various cognitive, behavioral and performance outcomes.

The most promising main effect of trust according to Dirks and Ferrin (2001) is its relationship with organisational citizenship behaviour which reported very high and consistent effect sizes. According to them, the evidence does not seem to provide strong support for the conventional wisdom that is represented by the main effect model-that trust, on average, results in desirable behaviours and outcomes. A typical example is the mixed evidence for the effects of trust on dyad or group performance, a relationship that has long been assumed to exist (Golembiewski & McConkie. 1975). Following from the inconsistent findings on the main and direct effects of trust on outcomes, it is plausible to assert that trust does not act in a direct causal role or elicit particular outcomes itself.

Intragroup trust, as earlier mentioned, can be considered as a psychological state that provides a representation of how individual team members understand their relationship with the team members in situations that involve risk or vulnerability. It follows therefore that intragroup trust

is influenced by the accumulated experiences with, and knowledge about, the team in situations involving vulnerability. Dirks & Ferrin (2001) explain that because it represents an individual's understanding of a relationship, trust involves two distinct processes through which positive outcomes in the relationship is strengthened or weakened. First, intragroup trust affects how one assesses the future behaviour of team members with whom one is interdependent (or whom may take action that affects oneself)- Second, intragroup trust also affects how one interprets the past (or present) actions of the other party, and the motives underlying the actions. It is through these processes, according to Dirks & Ferrin (2001) that trust moderates the effect of primary determinants (causal factors) on outcomes by affecting how one assesses the future behaviour or interprets the past actions of another party. Using a rational and tacit calculation of the other party's future or prior actions, trust could reduce some of the concomitant uncertainty and ambiguity in the team.

Dirks (1999) found that trust within group significantly moderates the relationship between motivation and group process and performance. Intragroup trust also significantly moderates the relationship between task conflict and relationship conflict (Simons & Peterson, 2000). Hwang and Burgers (1997) proposed that trust is a necessary, but not sufficient, condition for cooperation. This terminology has come to be understood to imply or suggest that trust may act as a moderator (Dirks & Ferrin, 2001). Following from this analogy, it is plausible to posit that intragroup trust acts as a moderating variable affecting the relationship between psychological safety and team learning behaviour consistent with Edmondson's (1999) assertion that trust is a necessary but not sufficient condition for team psychological safety.

Psychological safety in the team will lead to team learning behaviours. Trust has been identified as an important antecedent of psychological safety (Edmondson, 1999; Kahn, 1990; May et al, 2004). However, it stands to reason that as team members cognitively calculate the short term effect of psychological safety which in turn will affect the nature of learning and the behaviours indicative of learning in the team, the interpretation of team members past behaviour and an assessment of future behaviors may influence the extent to which team members engage in learning behavior as a result of feeling psychologically safe. For example, a team member who finds the climate in the team to be safe for interpersonal risk taking may be more likely to speak up, seek feedback, and ask questions to the extent that based on past experiences with the team, the team member is able to predict the future behavior of the team members. Thus intragroup trust may provide the mechanism by which the relationship between team psychological safety and learning behaviour is fostered or inhibited.

1.2.2 Team transformational leadership as a moderator of the team psychological safety and team learning behaviour relationship.

In teams, a difficult challenge is the issue of team leadership. Zaccaro, Rittman and Marks. (2001; 452) assert that 'indeed we would argue that effective leadership processes represent perhaps the most critical factor in the success of organisational teams'. On the contrary, ineffective leadership is often seen as the reason teams fail (Stewart & Manz, 1995). Leadership functions in a team can be performed by the formal functional team leader and or could be shared in the team. Day, Gronn and Salas (2004) refer to this distributed or shared leadership in the team as team leadership capacity.

The functional approach to leadership has been tailored by a number of theorists investigating both organizational and team leadership. When viewed from a functional dimension, team leadership can be described as a series of problem solving steps: diagnosing group deficiencies, taking remedial action, forecasting impending changes, and preventing harmful environmental changes or their effects (McGrath, 1984). This process is accomplished through the leader's generic responses to social problems. According to Fleishman, Mumford, Zaccaro, Levin, Korotkin and Hein (1991), these generic responses are captured in taxonomy of leadership performance functions having four super ordinate dimensions and thirteen subordinate dimensions. The four super ordinate or broad categories are: (1) information search and structuring, (2) information use in problem solving, (3) managing personnel resources and (4) managing material resources. This taxonomy of leadership dimensions though originally developed with regard to organizational leadership can also be applied to individual, team, and unit level leadership.

An implication of seeing team leadership from a functional perspective assumes that leaders in teams play a boundary spanning role linking the teams to their environments (Katz & Kahn, 1978). Functional team leaders exercise discretion and choice as to the best solution amongst alternatives to achieve team effectiveness (Zaccaro et al. 2001). Taking a slightly different perspective, Hackman (2002) identified five conditions that leaders can create to ensure team effectiveness. The first three of the conditions (i.e., real team, compelling direction, enabling structure) have been argued to be core conditions while the later two (i.e., supportive context, expert coaching) are enablers. A real team is one in which there is a task with some level of interdependence, clear boundaries, some degree of membership stability, and authority to

manage work processes. Once this has been established, leaders ensure the team has received direction that is clear, consequential, and motivating. Finally, leaders provide the team with structural components (i.e., design of work that is motivating and empowering, functional norms, and team composition) that facilitate the achievement of the direction and corresponding goal. Once core conditions have been established, creating and maintaining a supportive context (i.e., updated information, resources—educational and task related) and coaching assistance can further facilitate performance.

These functional leader behaviours of the team leader are very similar to the characteristics of transformational leaders (Bass, 1978; Bass, 1988, 1998). According to Avolio (1999), transformational leadership focuses on improving the performance of followers and developing followers to their fullest potential. Bass (1985) argues that transformational leadership motivates followers to do more than the expected by (a) raising followers' levels of consciousness about the importance and value of specified and idealized goals, (b) getting followers to transcend their own self interest for the sake of the team or organisation, and (c) moving followers to address higher level needs.

Focusing on functional leadership in teams, the behaviour and orientation of the team leader is critical to creating a climate of psychological safety (Edmondson, 2003). Edmondson explains that team leaders create psychological safety not only by facilitating the willingness to speak up but also by employing the strategies of articulating a rationale for change. Encouraging team members to speak up and also by playing down the power differential characteristic of teams is also an important desired characteristic of team leaders. This is very important as it provides an

additional criterion for which team leader behaviour can be measured. Transformational leader behaviours go beyond team leader coaching (Edmondson, 2003) and team leader inclusiveness (Nembhard & Edmondson, 2006) and include behaviours that influence the motivation of team members and leads to increased performance. Edmondson (2003) provides a new dimension of seeing team leader behaviour not only as an antecedent or input to psychological safety but also as an integral part of an ongoing team learning process. When viewed from this perspective, transformational team leader behaviour can be thought of as influencing the strength of the relationship between psychological safety and desired group processes and outcomes such as team learning behaviour.

Kozlowski and Doherty (1989) conjecture that leaders shape the interpretation of climate for those team members with whom they have a good leader-member exchange (LMX; Graen, Orris, & Johnson, 1973) relationship. Results from this study, showed that team members with good LMX relations had climate perceptions that were both similar to their leader and consensual with each other, relative to those with poor LMX relations, whose perceptions were discordant with the leader and each other. More recent research has provided results consistent with this, showing that team leaders and the quality of their LMX relationships they enact with team members play a key role in shaping the nature and strength of climate perceptions (Hofmann & Morgeson, 1999; Hofmann, Morgeson, & Gerras, 2003; Zohar, 2002; Zohar & Luria, 2004, as cited in Kozlowski & Ilgen, 2006). Thus, a climate of psychological safety in the team leading to team learning behaviour is likely to be affected by the team leaders' transformational behaviour.

1.3 RATIONALE FOR THE STUDY

Previous research has examined the relationship between psychological safety and variables such as team learning behaviour and team performance (Edmondson, 1999), firm goal achievement and return on assets (Baer & Frese, 2003), personal engagement at work and job involvement (Brown & Leigh, 1996; Kahn, 1990; May et al., 2004), face giving (Tynan, 2005) and the successful adoption of a new surgery technique in hospitals by members of Emergency Room teams (Edmondson et al, 2001).

In the current study, the relationship between team psychological safety and team learning behaviour will be examined. Edmondson (1999) found support for a significant relationship between team psychological safety and self-reported team learning behaviour and observer rated team learning respectively. However, these studies were done in Western and individualistic cultures like the United States and as such much proper inference may not be made to the Ghanaian collectivist culture.

Culture can be characterized along numerous dimensions. Hall (1976) asserts that a primary characteristic of cultures is the degree to which they focus on the individual (individualistic) or on the group (collectivist). Hofstede (2001) identified five major dimensions on which cultures differ: uncertainty avoidance, individualism-collectivism, masculinity-femininity, power distance and long-term-short-term orientation. The Global Leadership and Organisational Behaviour Effectiveness (GLOBE) research program studied 62 countries and identified 10 regional clusters that provided a convenient way to analyse the similarities and differences between cultural groups. The characteristics of the 'Anglo' cluster in which the United States of America



falls is significantly different from the 'Sub-Saharan Africa cluster which includes countries like Ghana (Hofstede, 2001). This current work would examine if the results from this study in a Ghanaian organisational context will be consistent with Edmondson's findings. This work will also provide very important national data for Ghana on learning behaviour and the interpersonal climate in teams.

Kahn (1990) found support for a supportive management style in promoting psychological safety. Results of Kahn's study highlighting interpersonal relationships dynamics, of which trust is a component, as a social factor that promotes psychological safety leading to engagement is supported by Edmondson (2002, 2004). Edmondson identifies trust as an antecedent condition to the development of psychological safety in teams. Leader behaviour has also been identified as an antecedent of psychological safety' in teams (Edmondson, 2004). A supportive management style or the leader behaviour and trust have been identified as antecedents of psychological safety. Team work is dynamic and may involve a lot of processes that may affect conditions in the team. The relationship between team psychological safety and team learning behaviour may be affected by a plethora of factors beyond and above the antecedents of team psychological safety. As such this study will focus on some factors that may influence the relationship between team psychological safety and team learning behaviour.

The current study moves away from conceptualizing intragroup trust and leader coaching (a characteristic of transformational leadership), as inputs or antecedents of psychological safety leading to team learning behaviour (Edmondson, 2004) to a proposed model in which intragroup trust and team transformational leadership respectively moderate the psychological safety-team

learning behaviour relationship. This may provide greater explanatory power for the hypothesized relationship.

1.4 RESEARCH QUESTIONS

The current study thus seeks to find answers to the following questions:

1. Does team psychological safety promote team learning behaviours in team?
2. Does intra group trust affect the strength of the relationship between psychological safety and learning behaviour in teams?
3. Does a transformational team leader influence the relationship between psychological safety and learning behaviour in teams?

1.5 AIMS OF THE STUDY.

The proposed model in the current study extends work by previous researchers and seeks to examine the moderating role of intragroup trust and team transformational leadership on the relationship between psychological safety and learning behaviour in teams.

This study will specifically:

- (a.) examine the relationship between psychological safety and learning behaviour in teams
- (b.) examine if intragroup trust interacts with team psychological safety in affecting the psychological safety-learning behaviour relationship in teams. Specifically, if the positive effect of team psychological safety on learning behaviour in teams will be stronger for teams with high intragroup trust than those with low intragroup trust

(c.) examine if team transformational leadership interacts with team psychological safety in affecting the psychological safety-learning behaviour relationship in teams. That is, if the positive effect of team psychological safety on learning behaviour will be stronger for teams with a transformational team leader than for those teams whose leader is not transformational.

1.6 RELEVANCE OF THE STUDY.

Organizations increasingly are becoming 'learning organizations'. As managers try to improve learning throughout the organization, there is a need to focus on small work units that accomplish organisational tasks. Better conditions of service which may include higher pay and job security may not necessarily result in increased performance if the members of these teams do not feel psychologically safe to engage in their daily tasks. This study will thus provide support for focussing attention on the interpersonal climate within these teams if organisational goals are to be met.

The important role of intragroup trust and team transformational leadership in ensuring that team members feel safe psychologically to work and contribute to the achievement of team and organisational goals will be clarified. Results of the study may also be generalised to team leadership in cross functional hierarchical teams such as medical surgical teams, in which the team leader is critical in bridging the power and status differentials in the team in order to create a conducive interpersonal climate for team and organisational goals to be achieved. This is

particularly important in a culture like that of Ghana where much emphasis is placed on respect and reverence for leaders.

The findings of this study will provide support for a need to include an understanding of team processes and dynamics in the training of professionals who predominantly work as teams on a daily basis. It will also provide empirical support for training of team leaders in strategic and effective team leadership.

Finally, results of this study will also add on to existing literature on teams especially in Ghana since little literature exists in the area of team and team processes in Ghana.

CHAPTER TWO

LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

2.1.1 Introduction

There are quite a number of theorists that have contributed to our understanding of trust and transformational leadership and how they work in organisational settings to enhance desired outcomes in the organisation. Specifically, the affect theory of Social exchange (Lawler. 2001) offers an explanation about the mechanisms through which trust between two parties develops and is maintained. The transformational leadership theory (Bass. 1985) conceptualizes leader behaviours that are effective in motivating followers to achieve organisational goals. The affect theory of Social exchange (Lawler. 2001) and the transformational leadership theory (Bass. 1985) are discussed in the context of the present study to help explain the moderating role of intragroup trust and team transformational leadership respectively on the relationship between psychological safety and learning behaviour in teams.

2.1.2 Social Exchange Theory

There is widespread agreement in the literature that trust formation is a process that takes place over time through social interaction (Dirks & Ferrin. 2002; Jones & George. 1998). Social exchange theories were developed around the framework that social interactions, like economic transactions, reflect people's desire to seek rewards and avoid punishments (Simpson. 1976).

Social exchange theory describes social exchanges as interactions between two individuals in which one party does another a favour with the expectation of a favour in return, although no time period for this reciprocation is specified. Social exchange involves trusting that the other party will fulfil their obligations (Blau, 1964).

Theorists studying the way trust develops have adopted behaviourist definitions of rewards as anything valuable to the recipient and costs as any intrinsically unpleasant experience or foregone alternative reward. Profits are conceptualized as rewards minus costs (Simpson, 1976). It is not surprising, therefore, that people are motivated by a desire to obtain profitable outcomes. The quest to capture the profits or value of social interactions could be considered a more arduous task than quantifying profits in monetary terms in the economic world.

Lawler's affect theory of social exchange builds on prior work by placing affective responses - feelings and emotions - as the central component of social interactions (Lawler, 2001; 2006). From this perspective, social order and all interpersonal exchanges are affected by participant's emotional reactions to the process. Lawler's work builds on previous social exchange traditions by emphasizing that emotional reactions to exchanges are inherently self-reinforcing or punishing. The likelihood of attributing those rewarding or punitive emotional experiences to the exchange partner depends on the jointness of the task, with higher emotional responsibility assigned for activities with high degrees of interdependence (Lawler, 2006). In this framework, affective trust is generated by social exchanges around tasks which require interdependence, and thus provide a reason to attribute an emotional experience to the exchange partner. Within a general social exchange framework, trust is generated by returning benefits received from others

and gradually expanding the scope of exchanges over time (Whitener et al., 1998 as cited in Whitmore, 2009). The series of social exchanges initiated in a relationship enable individuals to develop trust via both cognitive and affective, or emotion-based, mechanisms.

As individuals interact with a trustee, they learn from their exchanges. Exchanges that result in a higher profit (i.e. more rewards than costs) lead to increased trust, whereas those that are not rewarding fail to reinforce trusting behaviour and cognitions. Cognitive re-evaluations of trust based on experience over time contribute to the more intellectual, cognition-based trust. The development of a rewarding interpersonal relationship, such as a friendship, with the trustee contributes to affective-based trust (McAllister, 1995 as cited in Whitmore, 2009). Within this framework, trust in interpersonal relationships relies heavily on reciprocity, with rewarding social exchanges increasing trust (Buchan, Crosson, & Dawes, 2002; Dirks & Ferrin, 2002; King-Casas, Tomlin, Anen, Camerer, Quartz, & Montague, 2005 as cited in Whitmore, 2009).

In a recent meta-analysis, Colquitt, Scott and LePine (2007) examined the impact of trust on three broad categories of job performance: task performance, citizenship behaviour, and counterproductive behaviour (including intentions to quit). Results indicated that trust in managers had moderately strong relationships with all three broad categories of job performance such that individuals who trusted their managers tended to engage in better task performance, more citizenship behaviours, and less counterproductive behaviour, including intentions to quit.

Social exchange theory suggests that when subordinates trust their managers, they are likely to have a history of successful exchanges (Blau, 1964). These 'profitable' exchanges create in the

subordinate a feeling of an obligation to reciprocate and high expectations of reciprocation (Cropanzano & Mitchell, 2005). This reciprocity demands that the trusting subordinates should be motivated by expectations of future benefits to engage in actions that preserve the relationship and benefit the manager, either directly or indirectly. This implies therefore that subordinates should be committed to remaining in the relationship and be motivated to put forth greater effort (Dirks & Ferrin, 2002).

Social exchange theories are the basic theory that helps to explain trust between a trustor and trustee. In the current study, the dynamic interpersonal relations between a team member and the other team members develop through reciprocity. The team members' cognitive evaluation of the profits derived from taking the risk of accepting to be vulnerable to the actions of the team based on past experience informs a team members' future decision to trust.

2.1.3 Transformational Leadership Theory

Burns (1978) introduced the term 'transforming leadership' in the general concept of political leadership. According to Burns (1978: 4), transforming leaders 'look for potential motives in the followers, seeks to satisfy higher needs and engages the full person of the follower' ultimately resulting in a 'relationship of mutual stimulation and elevation' for both leader and follower.

Burns integrates Maslow's theory of human motivation and Kohlberg's theory of moral development to build his conceptualization of transforming leadership which he views as going beyond simply satisfying the followers' wants or desires to being actually instrumental in

producing the social change that will satisfy both the followers and leader's authentic needs (Burns, 1978). which he sees at Maslow's level of self-actualization and Kohlberg's higher stages of moral development. Transforming leaders arouse the moral consciousness of followers and motivate them toward and through end-values such as justice and equality, liberty, peace and humanitarianism. Burns asserts that, transforming leaders were enlightened leaders who lead followers to self-actualize beyond their typical selves and become their "better selves" (Yukl, 1998).

Burns (1978) drew a distinction between transforming leadership and transactional leadership. He asserts that transactional leadership involves an exchange between leader and follower based on self interest. Transforming leaders motivate their followers to transcend personal goals of self interest and synergize with organizational goals and values to ensure organizational effectiveness.

Extending earlier work by Burns (1978), Bass (1985) defines transformational leadership as the process whereby a leader raises followers' levels of consciousness about the importance and value of certain designated outcomes; moves followers to transcend their own self-interest for the sake of the organization or policy; and alters the need levels of followers by expanding their "portfolio" of needs and wants. Bass identifies transformational leadership (different from Burns' (1978) transforming leader) and transactional leadership and according to him most leaders exhibit patterns of both transactional and transformational leadership *behaviors*, but in different amounts (Bass, 1985). This differs significantly from Burns' view that identifies a continuum on which transactional and transforming leadership *types* lie at different places. Bass delineates moral leadership and transformational leadership and simply views transformational

leadership as producing change (Bass, 1998), beyond good and evil. Bass indicates that “transformational leaders vary from the highly idealistic to those without ideals (Bass, 1985: 185).

Another distinction between Burns and Bass theories is that whereas Burns views the transforming leader as necessarily raising followers’ needs levels, Bass defines a transformational leader as one who expands the portfolio of needs and wants for followers; thus “political leaders can transform the economic and technological processes, moving people from a traditional * higher-level’ socially oriented culture to a modern culture dominated by crass materialism” (Bass, 1985: 16); therefore, while an upward shift in the level of need is seen as essential to Burns’ definition, Bass does not see it as a necessary condition of transformational leadership.

Specifically, Bass’ (1985; 1998) conceptualization of behaviours indicative of transformational leadership included four dimensions:

Idealized influence/Charisma: behaviour that inspires followers’ loyalty to the organisation, commands respect, instills trust, and acts as a strong role model for followers; provides a vision and mission for followers and generates the energy and enthusiasm to achieve goals.

Intellectual Stimulation: behaviour that arouses in followers an awareness of problems, an awareness of their own thoughts and imagination, and recognition of their beliefs and

values; stimulates followers to be creative and innovative in finding solutions to problems.

Inspirational motivation: behaviour that communicates a clear vision and high performance expectations to the followers; leader uses symbols and emotional appeals to inspire followers to transcend self interest and be motivated to achieve organisational goals.

Individualized consideration: behaviour that fosters a supportive climate; focuses attention to individual differences in subordinates' needs for growth and development; coaches and mentors followers to become fully actualized.

In the context of the present study, the behaviour of the team leader which includes idealized influence, intellectual stimulation, inspirational motivation and individualized consideration can be considered very instrumental in reducing the ambiguity and uncertainty in a team learning situation which will lead to team members feeling psychologically safe to learn from their collective experiences. These transformational leaders' behaviours include leader coaching behaviour (Edmondson, 2003) and leader inclusiveness (Nembhard & Edmondson, 2006) which is related to team psychological safety and leads to learning within the team. Therefore, team transformational leader behaviour is likely to moderate the relationship between team psychological safety and team learning behaviour. That is, the positive effect of team psychological safety on learning behaviour will be stronger for teams with a transformational team leader than for those teams whose leader is not transformational.



2.2 REVIEW OF RELATED STUDIES

2.2.1 Introduction

This section reviews some of the studies that have been conducted on psychological safety and learning behaviour in teams. The main argument being advanced here is that, intragroup trust and team transformational leadership respectively will moderate the team psychological safety - team learning behaviour relationship. In this regard, this section will begin with a review of studies that establish a relationship between psychological safety and learning behaviour in teams. Once the empirical basis for this relationship has been established, studies that provide conceptual and empirical evidence to support the argument that intragroup trust and team transformational leadership will individually moderate the relationship between team psychological safety and team learning behaviour will be reviewed.

2.2.2 *The relationship between Psychological safety and learning behaviour in teams.*

Employees working in an organisation that provides a personally non-threatening and supportive climate should be more likely to take the risk of proposing a new idea than in an environment where 'proposing a new idea will lead to an attack, to him or her being censored, ridiculed or penalized . . . (West, 1990: 312). According to Baer and Frese. (2003), organisations with a climate for psychological safety will enhance learning behaviour as well as the use of employees' creative potential. They emphasised that potential mechanisms by which climate for psychological safety produces a higher degree of performance are: ease and reduced risk in

presenting new ideas in a safe climate (Edmondson, 1999; West, 1990), better team learning (Edmondson, 1999), higher level of job involvement and exertion of greater effort (Brown & Leigh, 1996), and smoother collaboration in solving problems. Baer and Frese (2003) studied 47 mid-sized German companies and found direct relations between climates for initiative and psychological safety respectively and firm performance. This implies that companies displaying a strong climate for initiative and psychological safety perform better than companies that fail to establish such conducive climates in the organisation.

Carmeli (2007) explored failure-based learning behaviours in organisations. He examined the role of social capital and psychological safety in the development of failure-based learning behaviours. Survey data were collected from 137 members of 33 organisations in a variety of industries in Israel. The results indicate that in organisations where there is strong social capital, the development of psychological safety and failure-based learning behaviours is enabled. Specifically, results show that when people feel psychologically safe, learning from failures is enabled ($r = .61$, $p < .001$). It was also found that social capital, through psychological safety, is directly and indirectly associated with failure-based learning behaviours. Carmeli also conducted follow-up analyses to trace the practices organisations use for expanding learning capacities and their outcomes at both the organisational and individual levels.

Edmondson (1999) tested a model of work-team learning and introduced the construct of team psychological safety. She argued that beliefs about the interpersonal context (team psychological safety and team efficacy) vary between teams in the same organisation and investigated their effects on team learning behaviour and performance. Fifty-one management, new-product

development, sales and production teams in a manufacturing company were studied using qualitative (observation and interviews) and quantitative (surveys) data to test the various propositions. The results of the study indicate that psychological safety, as a shared team belief, is significantly related to learning behaviour in teams ($r = .80, p < .05$), which in turn promotes team performance ($r = .72, p < .05$). Team efficacy was not significantly related to team learning behaviour. Team psychological safety was found to mediate the effects of team-leader coaching and context support on team learning behaviour. The hypothesis that team learning behaviour mediates the relationship between psychological safety and team performance was also supported. Edmondson concluded that team learning behaviour helped translate effective team design and leadership into team performance.

Edmondson, Bohrer and Pisano (2001) while studying surgical teams qualitatively identified four steps of the learning process (enrolment, preparation, trials, and reflection) in which each surgical case was a "trial" from which to learn (through collective discussion, or reflection). In this field study of 16 operating room teams learning to use an innovative (and extremely challenging) new technology for minimally invasive cardiac surgery, the researchers found that psychological safety allowed non-surgeons to speak up - despite facing longstanding status barriers - with observations, questions or concerns about the new technology. Established hierarchical roles and routines in the operating room were renegotiated to allow the technology to be implemented successfully. Rather than only waiting for the chief surgeon to issue commands, all team members (nurses, perfusionists, and anaesthesiologists) had to speak up about and act upon crucial information from each other. Teams that were able to establish a degree of psychological safety were better able to renegotiate the ingrained hierarchy within the

surgical team, and speaking up was a predictor of successful implementation of the technology (Edmondson, 2002).

In a related study, Tjosvold, Yu, and Hui (2004) surveyed members of 107 teams from a variety of Chinese companies and industries and found that cooperative goals were positively related to group problem solving ($r = 0.63, p < 0.01$). Results also indicate that groups that reported a problem solving approach learned from their mistakes measured both by ratings of their managers ($r = 0.46, p < 0.01$) and group members ($r = 0.73, p < 0.01$). Teams with cooperative goals were more likely to engage in learning behaviours (than teams with competitive or independent goals) and more likely to report learning from their mistakes (measured as an outcome). Learning behaviour only partially mediated this relationship. Findings suggest that cooperative goals within a team may be a foundation for the problem-solving interaction among members that helps teams learn from their mistakes.

In summary, these studies make a strong case for the association between team psychological safety and team learning behaviours leading to improved performance in teams. Organisations in Ghana could also be affected by the complexities of team work that could promote or inhibit team learning thus affecting performance. With most of the studies reviewed above being set in individualistic cultures like the United States, the dynamics of team psychological safety in a collectivist society like Ghana in imparting learning behaviour and performance may be of theoretical and practical relevance.

2.2.3 *Intragroup trust as a moderator of the psychological safety and learning behaviour relationship in teams.*

A lot of research has tried to understand the mechanisms through which trust acts on organisational outcomes. Whereas some researchers support the school of thought that proposes a direct effect of trust on outcomes including organisational citizenship behaviour, performance etc the inconsistency of findings have led to researchers rethinking the role trust plays in ensuring effective work group processes and performance. Trust has thus been conceptualised as having an indirect effect on group processes and outcomes through a moderating role. Dirks (1999) asserts that conceptual arguments by three researchers though not empirically supported gives impetus to the foregoing proposition that suggests that trust operates by facilitating the effects of other variables on group process and performance.

Hackman and Morris (1975: 48) stated that team building (e.g., trust building) activities are intended to "remove some of the emotional and interpersonal obstacles to effective group functioning and thereby permit group members to devote a greater proportion of their energies toward actual task work". Furthermore, Hwang and Burgers (1997) proposed that trust is an important "condition" for cooperation.

Using an experimental method with a between-subjects design. Dirks (1999) studied forty-two three-person work groups consisting of undergraduate students to examine 2 possible roles through which interpersonal trust could affect group performance: a main effect and a moderating effect. Results from this study indicate that trust did not have a main effect on group

processes and performance, but did moderate the relationship between group members' motivation and group processes and outcomes. Groups with high levels of motivation directed their efforts toward group goals in the high-trust condition, but they directed their effort toward individual goals in the low-trust condition. Motivation had a significant, positive effect on group performance in the high-trust condition, but motivation had no effect on performance in the low-trust condition. He asserts that the group's energies in terms of motivation were channelled toward either group or individual goals, depending upon the level of trust within the group.

In another study, Kimmel, Pruitt, Magenau, Konar-Goldband and Carnevale (1980), as cited in Dirks & Ferrin (2001), found that trust in business partner did not produce a main effect on information exchange or outcomes (joint benefit), but it did interact with aspiration levels to influence negotiation processes. Under high trust, high aspiration levels produced high levels of information exchange and integrative (cooperative) behaviour. On the contrary, in low trust conditions, high aspiration levels produced extremely low levels of information exchange and high levels of distributive (competitive) behaviour. They suggested that negotiators deemed risky, cooperative behaviours to be prudent tactics under conditions of high trust only whereas under low trust, negotiators chose to use methods that put them at lower risk to reach their goals.

Read (1962) found a significant moderating effect of trust in supervisor on the relationship between mobility aspiration and information sharing. Schurr and Ozanne (1985) in another study also found that trust in a partner moderates the relationship between bargaining toughness and negotiation processes and outcomes. A significant effect was reported.

The above discussion focussed on studies that conceptualised trust as a moderator of the relationship between motivational constructs and performance outcomes. Other studies have also tried to understand how trust moderates the relationship between a trustee's action and the trustors' reaction or interpretation of the trustee's actions. Benton, Gelber, Kelley and Liebling (1969) as cited in Dirks and Ferrins (2001) found evidence that trust influenced the relationship between deceit by a partner and doubting the partner's word. The researchers found a significant moderating effect of trust in partner on the relationship between partner's past behaviour and individual's doubt of partner. More specifically, after being deceived by a partner to a limited extent, individuals with high levels of trust in the partner tended to hold little doubt about the partner's truthfulness. Alternatively, under the same level of deceit, individuals with low levels of trust in their partner tended to have significant doubt about the partner's truthfulness.

These results are similar to findings by Robinson (1996) in an organisational context with the referent being the employee and the employer. She found that initial trust in an employer moderated the relationship between a psychological contract violation and subsequent trust in the employer. She argued that because of the tendency toward cognitive consistency, initial trust in the employer acts on individuals' differential and selective perception and interpretation of violations of the psychological contract. Thus an individual with high initial trust will tend to perceive the violation as unintentional or a misunderstanding consistent with their level of trust. Rousseau and Tijoriwala (1999) in study of employees' interpretation of organisational change found some evidence that trust in management moderated the relationship between management's reasons for change and the perceived legitimacy of those changes.

More recently, Simons and Peterson (2000) found that trust moderated the relationship between task conflict and relationship conflict within groups. They proposed that, under low trust, task conflict within a group is interpreted negatively and subsequently results in relationship conflict. Alternatively, under high levels of trust, they suggested that task conflict would be more likely to be interpreted positively and hence would not be translated into relationship conflict.

From the foregoing conceptual and theoretical arguments, the moderating effect of intragroup trust on the relationship between team psychological safety and learning behaviour in teams seems plausible. As such, the repetitive interactions of team members will lead to the development of intragroup trust within the team which will work to strengthen or weaken the relationship between a climate of psychological safety and learning behaviour in the team.

2.2.4 Team transformational leadership as a moderator of the psychological safety and learning behaviour relationship in teams.

Employing a case study design with four cross-functional process-improvement teams in a large high-tech manufacturing firm, Brooks (1994) found that members' perceptions of the interpersonal risk created by within-team power differences appeared strongly related to learning behaviour. Further, those teams lacking in learning behaviour found it difficult to span team boundaries, and members "described the climate at the team meetings as 'stifling,' 'intimidating,' and 'damaging.'" with leaders "publicly ridiculing them" for voluntary contributions to meetings. In contrast, in other teams, leaders encouraged member participation and deemphasized power differences.

In a related study, Edmondson (1996) discovered differences across 8 hospital teams in a specific learning behaviour—speaking up about mistakes. Edmondson used surveys, interviews, observations and archival data to investigate the effects of the structure of teams on the rate of medication errors. Eight hospital unit teams from two hospitals were studied over a six months period. The results from 159 respondents in these 8 teams indicated systematic differences in both the frequency of medication errors and the possibility that the errors would be identified and that team members would learn from this experience. Hospital teams that detected and reported highest error rates were teams that were high in performance. These teams were characterized by an openness to discuss errors and were composed of highly skilled nurse managers whereas teams that detected and reported less error were lower on these dimensions. Unit leader behaviour which included direction setting and coaching reinforces the climate within the team and increases or decreases the reporting of errors. This unexpected result indicated the presence of differing levels of psychological safety across teams that were studied. Teams with better team leaders, higher quality team interpersonal process, and greater team effectiveness had higher - rather than lower - detected error rates. Qualitative data (interview and observational), collected by an independent researcher blind to the unexpected quantitative results, gave credence to Edmondson's *et post* explanation that better teams were more likely to report rather than hide, errors which is very critical for learning to take place within the team. Some team leaders (nurse managers, in this setting) had fostered a climate of openness that encouraged a willingness to engage in learning behaviour which is consistent with earlier findings by Brooks (1994).

Edmondson (2003) described ways that team leader actions promote and inhibit psychological safety and learning behaviours in surgical teams. Using a multiple case study design, Edmondson used data from 165 respondents interviewed from 16 operating room teams who were learning to use a new technology for cardiac surgery to investigate learning in interdisciplinary action teams in these hospitals. Results from the study support the hypotheses that ease of speaking up and team boundary spanning was strongly associated with successful implementation of the new technology. Team leader coaching was also associated with ease of speaking up and team boundary spanning. Effective team leaders (surgeons) fostered “speaking up in the service of learning” by motivating the need for learning and deemphasizing power differences within the team. The findings that team leader coaching is significantly related to learning behaviours which in turn imparted performance - successful implementation of the new technology, is consistent with findings from Edmondson (2004, 2002, 1996) and Edmondson et al (2001). Edmondson argued that significant variance in learning processes should exist for different types of teams. Specifically, learning in interdisciplinary action teams, in which real-time improvisation and coordination is critical to performance, was not likely to be explained by the same variables as in routine production or functional teams.

In a related study focusing on team leaders, Sarin and McDermott (2003) surveyed 52 product development teams in six high-tech companies. Results indicate that team leaders, who involved members in decision making, clarified team goals and provided bridges to outside parties via the leader’s status in the organisation, facilitated team learning. Consistent with earlier findings (eg. Edmondson, 1999) learning in the team was related to speed to market and innovation which

were the indicators of team performance. Sarin and McDermott conceptualised learning in the team as a first-order outcome which in turn enhanced performance, a second-order outcome.

Edmondson et al (2001) using an embedded multiple case qualitative design studied cardiac surgery operating-room teams in 16 hospitals in investigating the role of a climate of psychological safety in hierarchical interdisciplinary teams breaking away from routine in implementing a new innovative technology for cardiac surgery. Using interviews and archival data, the researchers found considerable variance in implementation success across teams in the 16 hospitals. They observed from data that the success of new routines depended on how the collective learning process unfolds after a strategic decision to implement a new technology is made. More importantly, they identified that the team leader behaviour in this hierarchical context of surgical teams supported team learning and contributed to a climate of psychological safety within the teams which was characterised by team members being more willing to 'speak

Nembhard and Edmondson (2006) employed a survey design to study 1440 health care professionals from the neonatal intensive care unit in 23 hospitals. These teams were hierarchical with the team leader being the physician and having higher status than other professionals on the team. The researchers introduced the construct of leader inclusiveness and hypothesized that in these cross disciplinary teams, higher status individuals will experience greater psychological safety than team members with lower status. They hypothesized that this relationship will vary across cross-disciplinary unit teams. They also tested the hypotheses that leader inclusiveness is associated with psychological safety and moderates the relationship between status and

psychological safety. The researchers conjecture that psychological safety predicts engagement in quality improvement work and mediates the relationship between leader inclusiveness and engagement. All the researchers six hypotheses stated above were supported.

In view of the literature reviewed above, it is revealing that the team leader plays a very important role in creating and maintaining a climate of psychological safety among the team members. The leaders coaching behaviour and the leaders' inclusiveness are much desired behaviours that contribute to learning and performance in the team. These behaviours fall under the broader specific behaviours outlined by Bass (1985) as characteristic of transformational leaders. It is thus plausible to posit that the team leaders' transformational behaviour will moderate the relationship between team psychological safety and team learning behaviour.

2.2.5 Key variables in the study

- Independent variable - Team psychological safety
- Moderating variable - Intragroup trust
- Moderating variable - Team transformational leadership
- Dependent variable - Team learning behaviour

2.3 HYPOTHESES

Based on the literature reviewed above, the study will test the following hypotheses:

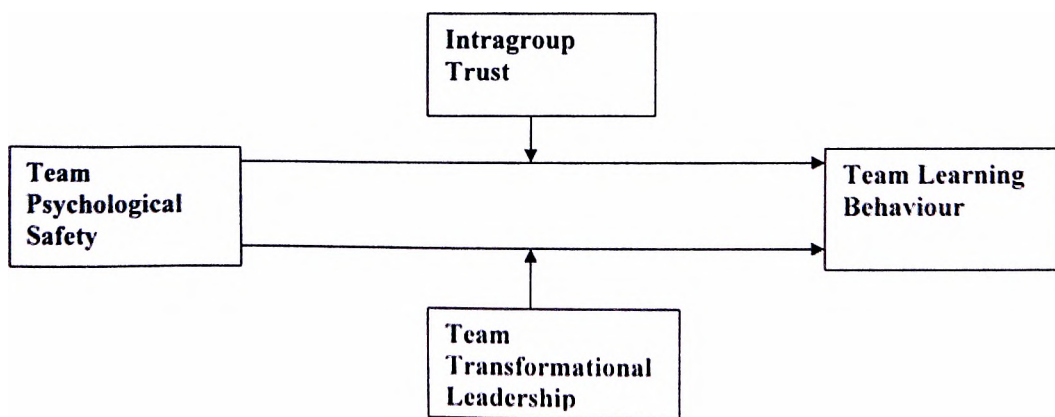
1. Team psychological safety will be positively related to team learning behaviour (Edmondson, 1999).

2. Intragroup trust will moderate the relationship between team psychological safety and team learning behaviour. Specifically, the positive effect of team psychological safety on learning behaviour in teams will be stronger for teams with high intragroup trust than those with low intragroup trust (Dirks & Ferrin, 2001).

3. Team transformational leadership will moderate the relationship between team psychological safety and team learning behaviour. That is, the positive effect of team psychological safety on learning behaviour will be stronger for teams with a transformational team leader than for those teams whose leader is not transformational (Bass, 1998).

A summary of the hypothesized relationships to be tested in this study are illustrated in the figure below.

Figure 1: A summary of hypothesized relationships between the independent, moderating and dependent variables



2.4 OPERATIONAL DEFINITION OF KEY TERMS

In the context of the present study, the following terms have been defined as follows:

- **Team:** Seven to nine people working together and interdependently to meet a common goal who have worked together for a minimum of six (6) months and have a functional team leader.
- **Team psychological safety:** An aggregation of individual team member's shared belief that the team is safe for interpersonal risk taking.
- **Intragroup trust:** An aggregation of individual team member's perception of group-wide trust.
- **Team transformational leadership:** An aggregation of individual team member's perception of team leaders' transformational behaviour with team members that raises the level of motivation and morale in the team in order to meet the teams' full potential.
- **Team learning behaviours:** Team leaders' assessment of team members' behaviours that are indicative of an ongoing process of reflection and action, characterized by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions (Edmondson, 1999).



CHAPTER THREE

METHODOLOGY

3.1 *Population*

The population for the study comprised of companies listed in the Ghana Club 100 since 2000. The Ghana Club 100 (GC100) is an annual compilation of the top 100 companies in Ghana to give due recognition to successful enterprise building. The GC100 is about corporate excellence. The award system is guided by a set of transparent, impartial and objective criteria in the choice of the winners. The eligibility criteria includes: all prospective entrants must be limited liability companies; companies with state interest must have Government's share being below 50%; all companies must have cumulative net profits that are positive for the three years preceding the entry; and must have engaged in significant corporate social responsibility.

The GC100 ranks companies based on three very objective parameters. The size of the company is measured using the company's turnover for the year being ranked. Turnover for the banks is measured by their gross interest income plus commissions and fees whilst turnover for insurance companies is measured by net premium earned plus investment income. The company's profitability is measured using the return on equity (ROE) which indicates the return that management has created for the shareholders of the company. This is calculated using the 3years average ROE for the companies. The final parameter is the company's growth which gives recognition to companies that are growing at impressive rates. These companies are growing because of excellence in product development, marketing and effective management. The

company's growth is measured using the 3 year compounded annual growth rate of turnover over the period 2 years before the year being ranked to the year being ranked.

The GC100 companies were chosen as the population of interest because these companies were the top-performers in their respective sectors and are assumed to face a lot of competition and uncertainty from their environment. Cascio and Aguinis (2005) state that the changing nature of organisations' environment, global competition and the effect of new technology have given rise to a change in organisational structure. Organisations faced with competition are transforming to flattened structures and getting work done in teams. Thus, much work in the GC100 companies may be considered to be done in teams. The GC100 companies also include private and public organisations thus making the population representative of the population of Ghanaian companies.

There were a number of necessary criteria for teams to be selected into the study. The organisations had to have functional teams. These functional teams should have an identified team leader. This was important as team members were required to assess their team leaders' transformational behaviour. The team members and their team leader should also have worked together for a period not less than six (6) months prior to the study. This is to ensure that the team processes being investigated have been adequately developed within the team. It was also a necessary criterion for team selection and inclusion to ensure that team members and their leader have interacted enough to know each other well.

3.2 *Sample*

Teams were selected from the head offices and branches of five (5) banking institutions in the Accra metropolitan area. Teams were purposively selected to meet the aforementioned criteria. A total of sixty four (64) teams were sampled for the study. Of these sixty four (64) teams, thirty nine (39) were from bank branches of these five (5) banking institutions across the metropolis whilst the remaining twenty five (25) teams were sampled from the head offices of the five (5) banks. These teams had between seven (7) to nine (9) members. The researcher set an arbitrary 60% response rate for each team as an additional criterion for inclusion of team data in the analysis since individual responses were aggregated to the team level (Somech, 2006). This means that at least 60% of team members in each team have to respond to and return the questionnaires for that teams' data to be included in the analysis. All sixty four (64) teams returned their questionnaires, however not all were used in the analysis. Data from fifty seven (57) teams comprising four hundred and fifty six (456) team members and their fifty seven (57) team leaders respectively were used in the analysis. In total, seven (7) teams were excluded from the analysis. Two (2) teams were excluded from analysis because the team leaders' questionnaire was not completed though it was returned. Another three (3) teams were excluded because less than 60% of team members in these teams returned their questionnaires. The final two (2) teams that were excluded met the 60% return rate but most of the questionnaires were not filled.

The fifty seven (57) teams used in this study meet Stevens (1996) recommendation that for social science research, about fifteen (15) respondents per predictor are needed for a reliable equation. The level of theory, measurement and analysis for this study is the team level, therefore according to Stevens (1996), fifteen (15) teams per predictor is required. Since there are three

predictors (team psychological safety, intragroup trust and team transformational leadership) in this study the minimum sample size according to Stevens' recommendation is forty five (45).

The demographic characteristics of the team members and their respective team leaders are presented in Table 1 below.

Table 1. Demographic statistics for team members and team leaders.

VARIABLE	FREQUENCY		PERCENT	
	<i>Team Members</i>	<i>Team Leader</i>	<i>Team Members</i>	<i>Team Leader</i>
SEX				
Male	242	28	53.1	49.1
Female	214	29	46.9	50.9
MARITAL STATUS				
Single	304	10	66.7	17.5
Separated/Widowed/	9	0	2	0
Divorced				
Married	143	47	31.4	82.5
EDUCATIONAL LEVEL				
SHS	3	0	.7	0
Training College	1	0	2	0
Polytechnic	32	0	7	0
Univ. Degree	337	22	73.9	38.6
Postgrad. Degree	83	35	18.2	61.4

Demographic data also show that the mean age of team members was 29.1 years, with team members' ages ranging from 22 years to 55 years. Team members had worked with the organisation for between 1 year to 33 years with 35.7% of team members having worked with the organisation for only 1 year. Tenure with the team for team members ranged from 1 year to 9 years with 59.6% of team members being with the team for just 1 year. Ninety six point seven

percent (96.7%) of team members had worked as a professional for 10 years or less with a range of 1 year to 33 years.

For the team leaders, demographic data also revealed that the mean age of team leaders' was 36.3 years, with team leaders' ages ranging from 27 years to 59 years. Team leaders had worked with the organisation for between 1 year to 37 years with 57.9% of team leaders having worked with the organisation for 5 years or less. Tenure with the team for team leaders ranged from 1 year to 5 years with 63.2% of team leaders being with the team for 3 years or less. Seventy three point seven percent (73.7%) of team leaders had worked as a professional for 10 years or less with a range of 2 years to 37 years.

3.3 Sampling techniques

The organisations were conveniently sampled. This is in cognizance of the fact that not all organisations with functional teams were forthcoming in granting approval for their organisations to be used as a source for data to be collected. In view of this, organisations who granted approval were used. It must also be noted that organisations where the researcher could easily secure approval were selected. The purposive sampling technique was however used in selecting teams for the study. This technique allowed for teams which met Kozlowski & Ilgen's (2006) definition of teams to be selected. The study also focused on teams that had a functional team leader since the study was interested in teams and their transformational team leader as such the purposive sampling technique was appropriate. The criteria that teams for the study should have worked together on the same team for at least six (6) months prior to the study was met by employing the purposive sampling technique in selecting the teams for the study. In view

of these aforementioned criteria, in each organization, teams that qualified for the study were first identified after which various teams and their team leaders were given the questionnaires to fill after getting their consent.

3.4 *Design*

A cross-sectional survey and predictive correlational design was employed for the study. This research was a cross-sectional survey because respondents from the various organizations sampled, who were not only from different organizations but also comprised of professionals with varying academic backgrounds, job grades, departments, experience, age, tenure, sex etc., responded to the researcher's questionnaire at one point in time. The study was predictive correlational in nature as the study sought to investigate the predictive relationship between team psychological safety and team learning behaviours. Multiple regression analysis was used to test the extent of this predicted relationship and the moderating role of intragroup trust and team transformational leadership on the team psychological safety-team learning behaviour relationship.

The variables of interest in this study are team psychological safety', intra group trust and team transformational leadership as the independent variables and team learning behaviors and team performance as the dependent variables.

3.5 Instruments/ Materials.

The instrument for the study was a self-report questionnaire. It was categorized into four (4) main sections; A, B, C, and D for the *team members*. Team member's perception of psychological safety in the team comprised section A. Sections B and C investigated intragroup trust and the team members' perception of team leader's transformational behavior respectively. Section D was used to collect the demographic characteristics of the respondents.

Section A *Team Psychological Safety*

Team Psychological Safety scale developed by Edmondson (1999) was used in this study (Appendix 1). The scale with a Cronbach alpha of .82 reported in Edmondson (1999) study is a seven-item scale developed using both positively and negatively worded items to reduce response bias. Sample items include "If you make a mistake on this team, it is often held against you" (reverse scored) and "It is safe to take a risk on this team". Responses were scored on a 5-point Likert scale from 1(very inaccurate) to 5(very accurate). The possible range of scores is from 5 to 35 with higher scores indicating more reported psychological safety. Cronbach alpha for this study was .75.

Section B *Intragroup trust*

Intragroup trust was measured using the Simons & Peterson (2000) intragroup trust scale, which is a five-item summative Likert-type scale (Appendix 1). In this scale, respondents rated items from 1 = never to 5 =always, and the item responses were summed. Items assessed group members' perception of group-wide trust; their perception of group-wide expectations of truthfulness, integrity, and living up to one's word; and their sense of shared respect for group

members' competence. Items were expressed explicitly at the group level and phrased as extremes (e.g., "We are all certain that we can fully trust each other.") to attenuate ceiling effects that could emerge from social desirability (Simons & Peterson, 2000). Reliability of .89 for the intragroup trust scale has been reported in previous studies by Simons and Peterson (2000). Cronbach alpha of .87 was reported in this study.

Section C *Team Transformational leadership*

Transformational leadership was measured using the Global Transformational Leadership Scale developed by Carless, Wearing, and Mann (2000) (Appendix 1). It consists of seven (7) items and has been found to have a high degree of convergent validity with more established and lengthier questionnaires such as the Multifactor leadership questionnaire (MLQ) and the Leadership Practices Inventory (LPI) (Carless et al., 2000). Examples of items are: "my leader communicates a clear and positive vision of the future", "my leader gives encouragement and recognition to staff", and "my leader encourages thinking about problems in new ways and questions assumptions". Response categories ranged from 1 (To a very large extent) to 5 (To a very small extent). Cronbach's alphas of .90 and .94 have been reported in previous studies (Carless et al, 2000). Cronbach alpha in this study was .97.

Section D *Personal Data/Demographics*

It consisted of items which solicited information such as the highest academic qualification, age, gender, marital status, length of time participant has worked together with team members, tenure with the organisation and number of years as a professional from team members. These variables are control variables that could predict psychological safety and team learning behavior at the

individual level of analysis and as such a need to control for them. The demographic information was also to enable the researcher give some description of the sample used

For the *team leaders'* questionnaire. Sections A measured the team's learning behaviour. Section **B** was used to collect the demographic characteristics of the respondents

Section A (Team leader) *Team Learning behaviour*

A seven-item scale adapted from Edmondson (1999) was used to capture team learning behaviour (Appendix 1). The scale has a reported Cronbach alpha of .78 in previous studies (Edmondson. 1999). Examples of items on this scale are 'This team frequently seeks new-information that leads us to make important changes', in this team, someone always makes sure that we stop to reflect on the team's work processes'. Responses are on a 5-point Likert scale from 1 (never) to 5(always). The possible range of scores is from 5 to 35 with higher scores indicating a team that displays more learning behaviour. Cronbach alpha for this study was .69. The teams learning behaviour was assessed by the team leader.

Section B (Team Leader) *Personal Data/Demographliics*

It consisted of items which solicited information such as the highest academic qualification, age, gender, marital status, length of time participant has worked together with team members, tenure with the organisation and number of years as a professional from team members. These variables are control variables that could predict psychological safety and team learning behavior at the individual level of analysis and as such a need to control lor them. The demographic information was also to enable the researcher give some description of the sample used.

3.6 Procedure.

The procedures involved in the study included a pilot study which was then followed by the main study. The specific procedures employed in the conduct of the study are discussed below.

3.6.1 Pilot study

Polit, Beck and Hungler (2001) conceptualize a *pilot study* in two different ways in social science research. According to these authors, it can refer to feasibility studies which are small scale versions or trial runs, done in preparation for a major study. However, a pilot study can also be the pre-testing or 'trying out' of a particular research instrument (Baker, 1994). Teijlingen van, Rennie, Hundley and Graham (2001) assert that one of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. A pilot study can reveal deficiencies in the design of a proposed experiment or procedure and these can then be addressed before time and resources are expended on large scale studies.

The aim of the pilot study was to test the reliability of the various measures and their appropriateness on a Ghanaian sample. The sample for the pilot study consisted of ten (10) functional teams from two (2) banking institutions in the Accra metropolis. This consisted of ninety seven (97) team members and ten (10) team leaders. Convenience sampling technique was used to select the organisations for the study. The purposive sampling technique was used in selecting teams for the study. Data was collected for the predictor variables from team members and aggregation of individual data to the team level for the ten (10) teams was preceded by

empirical justification through statistical methods. Team leaders' responses on the dependent variables represented their respective teams.

The Cronbaeh's a from the reliability studies for the ten (10) teams are as follows. The Team Psychological safety scale had a Cronbaeh's a of .93 whilst a Cronbaeh's a of .86 was observed for the intragroup trust scale. The team transformational leadership scale had a Cronbaeh's a of .96. The scales for the criterion variable which team leaders responded to had a Cronbach alpha of .80 and for team learning behaviour. All the observed reliabilities were acceptable for the various scales. The pilot study began in the first week of February, 2010 and data collection lasted for three weeks.

3.6.2 *Main study*

The sample for the study comprised of functional teams in the head offices and branches of five banking institutions in the Accra Metropolitan area. The researcher/research assistants sought permission from the human resource departments of the various organisations of interest. This was facilitated with a letter of introduction from the Department of Psychology, University of Ghana, Legon. It must be noted that introductory letters were sent to other banking institutions but only the five banking institutions responded favorably to the researchers request to conduct the study in their organisations. Once permission was granted, the researcher and/or his assistants sought specific information about the teams from the HR department. This was to purposively select only those teams that met the criteria for inclusion of teams in the study. Specifically, teams for the study should have a functional team leader and should have worked together for at least six (6) months prior to the start of the study. Team leaders of these teams were then

contacted and their assistance sought for the study. The researcher sought informed consent from all participants before the questionnaires were administered. Due to the fact that the questionnaires had to be administered, collected and analyzed on a team by team basis, each team leader distributed and collected the questionnaires from team members. There was information about the study as well as instructions as to how to fill the questionnaires on the informed consent form. There was also contact information for the researcher and his principal supervisor on the informed consent form if team members/leaders needed any clarification.

The questionnaires for team members consisted of four sections. These comprised the team psychological safety scale, the intragroup trust scale, the team transformational leadership scale and a demographic information section. Team leaders' questionnaire consisted of the team learning behaviour scale and a demographic information section.

Participants were assured of confidentiality of their responses. In this regard, each participant was given an envelope into which he/she was to place and seal the completed questionnaire before returning it. They were also asked not to write their names or any identification on any part of the questionnaire or envelope to ensure anonymity. Participants were given one week to complete the questionnaires taking into consideration the busy nature of work in the banking sector. Completed questionnaires were completed and sealed in envelopes and returned to the leaders of the respective teams. The researcher then collected the sealed envelopes from the team leaders. The duration for the data collection was seven weeks. Data collection started in the second week of March, 2010 and ended in the last week of April, 2010. Returned questionnaires were coded by team and data entered for analysis.



3.7 Common Method Variance

Common method variance is variance that is attributable to the measurement method rather than to the constructs the measures represent. A potential source of common method bias is the common rater effect. This refers to any artifactual covariance between the predictor and criterion variable produced by the fact that the respondent providing the measure of these variables is the same person (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

An important advantage of this procedure in controlling common method variance is that it makes it quite impossible for the mindset of the source or rater to bias the observed relationship between the predictor and criterion variables. Specifically, obtaining predictor and criterion variables from different sources eliminates the effects of consistency motifs, implicit theories, social desirability tendencies, dispositional and transient mood states, and any tendencies on the part of the rater to acquiesce or respond in a lenient manner (Podsakoff et al, 2003).

In the conduct of this study, common method variance was controlled by obtaining measures of the predictor and criterion variables from different sources. As such responses for the predictor variables (team psychological safety, intragroup trust and team transformational leadership) were obtained from team members whilst the team leader provided an assessment of the teams' learning behaviour (criterion variable).

3.8 Ethical considerations.

The Ethics Code as set out by the American Psychological Association (APA, 2002) outlines a common set of principles and standards upon which psychologists build their professional and

scientific work. This Ethics Code is intended to provide specific standards to cover most situations encountered by psychologists. It has as its goals the welfare and protection of the individuals and groups with whom psychologists work and the education of members, students, and the public regarding ethical standards and considerations when planning, conducting and reporting research in the discipline.

Organisational research must take into consideration the ethical conduct of the research and this process must start at the research planning stage through the recruitment and selection of research participants. It also includes ethical considerations during the conduct and reporting of the research (Aguinis & Henle, 2002)

In the conduct of the present study, the researcher gave particular attention to his knowledge and understanding of the ethical guidelines in the design of the experiment. The soundness of the research design and methodology and the ethical acceptability of the study in terms of ensuring that the benefits of conducting the research far outweighed the costs of not conducting it were taken into consideration. In the selection and recruitment of research participants, no amount of coercion (subtle or otherwise) was involved and no inducements offered for participation. Organisations and teams that were interested and volunteered to take part in the study were used.

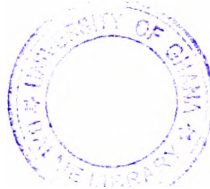
As directed by the APA's Ethics Code Standard 3.10. Informed Consent, psychologists conducting research should inform participants about (1) the purpose of the research, expected duration, and procedures; (2) their right to decline to participate and to withdraw from the research once participation has begun; (3) the foreseeable consequences of declining or

withdrawing; (4) reasonably foreseeable factors that may be expected to influence their willingness to participate such as potential risks, discomfort, or adverse effects; (5) any prospective research benefits; (6) limits of confidentiality; (7) incentives for participation; and (8) whom to contact for questions about the research and research participants' rights. They also provide opportunity for the prospective participants to ask questions and receive answers.

In the conduct of this study, the researcher took particular steps to adhere to the APA ethics code. In every organisation used for this research, permission was sought from the human resource department and their assistance sought in administering the questionnaire. Each participant was given an information sheet outlining the research purpose, procedure, risks, extent of anonymity and confidentiality, institutional approval and seeking their signed informed consent (see Appendix 1).

The information sheet outlined the purpose of study and assured participants that there were no risks to them for participating in this study. The extent of anonymity and confidentiality' was also explained to participants. In this regard, participants were informed that the results of this study will remain strictly confidential and that at no point will their name be required. The researcher explained that the only identification will be the researcher's code which will identify respondents by their teams. This researcher's code exists only to provide a reference for the researcher. The participants in the study were assured that at no time will the researcher release the data collected in the study to anyone, other than those individuals working on the research project. To assure participants of the confidentiality that would be attached to the data that they would provide, each of them was given an envelope into which lie she was to place and seal the

completed questionnaire before returning it. Participants were also informed of the freedom to withdraw from this study at any time without penalty and also the freedom not to answer any questions that they choose without penalty.



CHAPTER FOUR

RESULTS AND INTERPRETATION

4.1 *Introduction*

The aim of the present study was to investigate the influence of intragroup trust and team transformational leadership on the relationship between team psychological safety and team learning behaviour. As such intragroup trust and team transformational leadership were the moderating variables of interest. Thus this study involved moderation analysis. The statistical package for social sciences (SPSS) version 17.0 was employed in the analysis. The analysis was done in two main stages. The first involved the preliminary analyses while the second involved testing the hypotheses of the study.

4.2 *Preliminary Analyses*

The preliminary analysis was done in five steps. These were: *Analysis of the normal distribution of the variables. Descriptive statistics analysis, empirical justification for data aggregation. Reliability analysis* and computing the *Pearson correlations among the variables of the study.*

4.2.1 *Analysis of the normal distribution of the variables*

This step involved ascertaining that data for the study was normally distributed. Regarding issues of normality, all the variables were normally distributed (see table 2 and Appendix 11). According to labachnick and Fidell (2001) normality is acceptable when skewness and Kurtosis is between -1 and +1. Pallart (2001) asserts that in regression analysis, it is more important that

the dependent variable is normally distributed. All the variables were accordingly used in the parametric statistical tests, specifically regression analysis.

4.2.2 Computation of Descriptive Statistics

The next step involved computing the descriptive statistics of the data. This involved summarising the raw data obtained in terms of its demographic characteristics. Results from this analysis are outlined in chapter three (refer to Table 1).

4.2.3 Empirical justification for Data aggregation

4.2.3.1 Team Level of analysis.

The unit of theory in the present study was the team. That is, all the hypotheses were posited at the team level, and the study variables were conceptualised, measured and analysed at the team level. This meets Klein & Kozlowski (2000) recommendation that the level of theory, measurement and analysis should be the same in multilevel research.

Theoretically, Rousseau (1985) advocated the use of composition theories, which specify the functional similarities of constructs at different levels. Referent-shift composition models were developed in climate research (Chan, 1998; Click, 1985) to avoid conceptual confusions between individual (psychological) and organizational (collective) climate. In employing a referent-shift model, individuals respond to items focusing on the higher-level unit of interest (work group or organisation) as the case may be. The referent is thus changed from "I" to "we", 'this team' or 'this group'. Example of an item using this model is "In this team, we all trust each other". It follows therefore that key characteristics of this model are (a) focusing responses of individuals

on the higher unit (instead of self-reports) and (b) a prior evaluation of agreement to justify aggregation (since agreement would indicate a collective construct).

4.2.3.2 Inter rater agreement and Data Aggregation for team members' responses

An essential advantage for referent-shift models is the assessment of agreement prior to aggregation. Aggregation is justified by theoretical as well as empirical arguments (Rousseau, 1985). Inter rater agreement (IRA) refers to the absolute consensus in scores furnished by multiple judges for one or more variables (James, Demaree, & Wolf, 1993). Estimates of IRA are used to address whether scores furnished by judges are interchangeable or equivalent in terms of their absolute value.

According to van Vijver and Fisher (2007), data should only be aggregated if there is sufficient agreement in team member responses for each variable. In order to empirically justify data aggregation of individual team members' data to the team level for *team psychological safety*, *intragroup trust* and *team transformational leadership*, two IRA indices were computed for the three variables for each team. These are within group agreement (r_s) index and average deviation (AD_M) index. The Intraclass correlation ($ICC\ 1\ \&\ 2$) were also computed for each variable.

Within Group Agreement (r^{\wedge}) index

The individual $r_{.,g}$ statistics for the three team constructs were calculated for each team. The r_{Kg} coefficient is an indicator of homogeneity of individual ratings within teams. The r_{wg} was developed by James, Demaree and Wolf (1984, 1993). This index focuses on consensus or

agreement within a single unit such as a work group or team. The r_{wg} index compares the variability of a variable within a team to some expected variability. If the observed variability is significantly smaller than the expected variance, the resulting value of r_{wg} is closer to 1, suggesting high agreement and that aggregation is possible. The index ranges from 0 to 1, although negative or values larger than 1 are possible (James et al., 1984; Klein & Kozlowski, 2000).

The r_{wg} operationalize agreement for a single attribute as:

$$r_{wg} = 1 - \frac{S^2}{a^2}$$

= A $\frac{1}{12}$

where the term "null distribution" means a distribution where raters exhibit no agreement and A represents the number of scale anchors.

According to James et al (1993), individual ratings within groups for each variable should have a high degree of agreement of at least $r_{wg} > .70$. More recently, LeBreton and Senter (2008) recommend revised Standards for Interpreting Inter rater Agreement (IRA). According to them, r_{wg} estimates of .51 to .70 indicate *moderate agreement*, .71 to .90 reflects *strong agreement* and .91 to 1.00 shows *very strong agreement*.

Thus, within group agreement (inter rater agreement) indices were computed for each of the predictor variables that team members responded to (ie team psychological safety, intragroup trust and team transformational leadership) for each team. All r_{wg} values computed showed moderate to very strong agreement consistent with LeBreton and Senter. (2008. see Table 2).

Average deviation (ADM) index

The use of this index was to provide additional conceptual, empirical and statistical support for the aggregation of team members' individual data to represent their respective teams. The AD_u index has been proposed by Burke, Finkelstein, and Dusig (1999) as another measure of IRA. This measure, like r_{wg} , was developed for use with multiple judges rating a single target on a variable using an interval scale of measurement. These authors described this index as a "pragmatic" index of agreement because it estimates agreement in the metric of the original scale of the item.

The AD_u is represented by

$$AD_{M(j)} = \frac{1}{n} \sum_{k=i} \left| X_{jk} - \bar{X}_j \right|$$

Burke and Dunlap (2002) suggested a critical value of .80 or less for establishing agreement when using a 5-point scale. All the scales used in this study were 5-point scales and AD_u index for all teams were less than .80 (see Table 2).

Intraclass correlation (ICC) (1&2).

The ICC was introduced to determine inter-rater reliability in Shrout & Fleiss (1978) classical study. The $ICC(1)$ is calculated using the results of a one-way analysis of variance. $ICC(1)$ provides an estimate of the proportion of the total variance of a measure that is explained by unit membership (Bliese, 2000). $ICC(1)$ may also be interpreted as an estimate of the extent to which raters are interchangeable—that is, the extent to which one rater from a group may represent all

the raters within the group. $ICC(J)$ values may be interpreted as the level of consensus + consistency one would expect if a judge was randomly selected from the population of judges and his or her scores were compared to the mean score (i.e., estimated true score) obtained from the sample of judges (Bliese, 2000). According to LeBreton and Senter (2008), $ICC (I)$ values may also be interpreted as an effect size estimate revealing the extent to which judges' ratings were affected by the team membership. Klein and Kozlowski (2000) assert that researchers using $ICC (I)$ to justify aggregation usually conclude that aggregation is justified when the F test for these values is significant.

The intraclass correlation (2), or $ICC (2)$, answers the following question: How reliable are the group means within a sample? The $ICC (2)$ gives an index of the extent to which the mean rating assigned by a group of judges is reliable. In such cases, an $ICC (2)$ may be calculated that estimates the stability (i.e., reliability) of mean ratings furnished from K judges.

The following $ICC (I)$ values were obtained: team psychological safety. .13; intragroup trust. .42; team transformational leadership, .80. These effect sizes are relatively acceptable, suggesting that ratings on these variables were heavily influenced by team membership.

The $ICC (2)$ values for the three variables were: team psychological safety. .50; intragroup trust. .79; team transformational leadership. .97. The $ICC (2)$ values reveals acceptable levels of Inter Rater Reliability + Inter Rater Agreement and suggests that the mean ratings (taken over judges) reliably distinguish the fifty seven teams. $ICC (I)$ and $ICC (2)$ values all had a significant F test thus justifying aggregation of individual team member data to the team level.



LeBreton and Senter (2008) recommend that moderate to high revalues, AD_M values below .80, acceptable $ICC (1)$ effect sizes and a sizeable $ICC (2)$ provides adequate empirical justification for aggregation of data to the team level. As such team members' data on team psychological safety, intragroup trust and team transformational leadership were aggregated to the team level for analysis. Aggregation was done by computing the mean of individual item responses for each team variable and summed up to represent the teams score on that particular variable.

In order to get complete data for each team, the team members' responses were matched to their corresponding team leaders' data. Using coding procedure, the aggregated data for each team could be appropriately matched to their respective team leaders' data. This was done before the testing of hypotheses.

4.2.4 Reliability Studies

Coefficient of internal consistency (Cronbach's α) was also computed to establish the reliability of each of the scales in this study. Measures had satisfactory reliabilities, with alpha values ranging from .69 to .97 (see Table 2).

Table 2. Descriptive Statistics, inter rater agreement indices and Reliability

coefficients of the study variables.

Variable	Mean	SD	Skewness	Kurtosis	r_m	A Dvi	Cronbach's α
Team psychological safety	24.86	1.80	-.294	-.188	.75	.54	.75
Intragroup trust	20.26	1.59	-.294	-.664	.95	.22	.87
Team transformational leadership	18.08	3.97	.264	-.894	.96	.20	.97
Team learning behaviour	18.46	3.48	-.796	-.469			.69

The statistics r_{wg} and AD_M represents agreement within groups averaged across all teams for each variable team members responded to.

4.2.5 Pearson correlations among variables

The final step in the preliminary' analysis was the computation of Pearson Product moment correlations among all the study variables. This is presented in table 3.

Table 3 Pearson correlations for the study variables

VARIABLE	1	2	3	4
1. Team Psychological Safety				
2. Intragroup Trust	-.220	-		
3. Team Transformational Leadership	-.270'	-.118		
4. Team Learning Behaviour	.679"	-.306*	-.025	-

*. Correlation is significant at the 0.05 level

**. Correlation is significant al the 0.01 level

An examination of the correlations among the study variable reveals that team psychological safety was the variable that was significantly related to most of the other study variables. Team psychological safety had a significant negative relationship with team transformational leadership ($r = -.270$). This result was however not expected. Intragroup trust, surprisingly, did not relate to team psychological safety. Team psychological safety was also significantly positively related to team learning behaviour ($\beta = .679$).

4.3 Hypotheses testing.

4.3.1 Hypothesis 1

Hypothesis one (1) investigated the relationship between team psychological safety and team learning behaviour. It was predicted that *there will be a significant positive relationship between team psychological safety and team learning behaviour*. This hypothesis was tested using multiple regression analysis. Table 4 contains a summary of the results.

Table 4:
Results of Standard Multiple Regression Analysis for Team Psychological Safety as a predictor of Team Learning Behaviour

Model	<i>B</i>	<i>Std. Error</i>	<i>B</i>
1 (Constant)	-30.213	7.120	
Team Psychological Safety	1.963	.286	.679**

$\beta = .461$, $\beta = .000$

Summary of the results of the standard multiple regression analysis to examine the effect of Team psychological safety on Team Learning Behaviour indicated that Team psychological safety positively influenced Team Learning Behaviour, [$F(1, 55) = 47.100, p < .000$]. It explained 46.1% of the variance in Team Performance. Therefore, the hypothesis that there will be a significant positive relationship between team psychological safety and team learning behaviour was also supported by the results.



4.3.2 Hypothesis 2 and 3

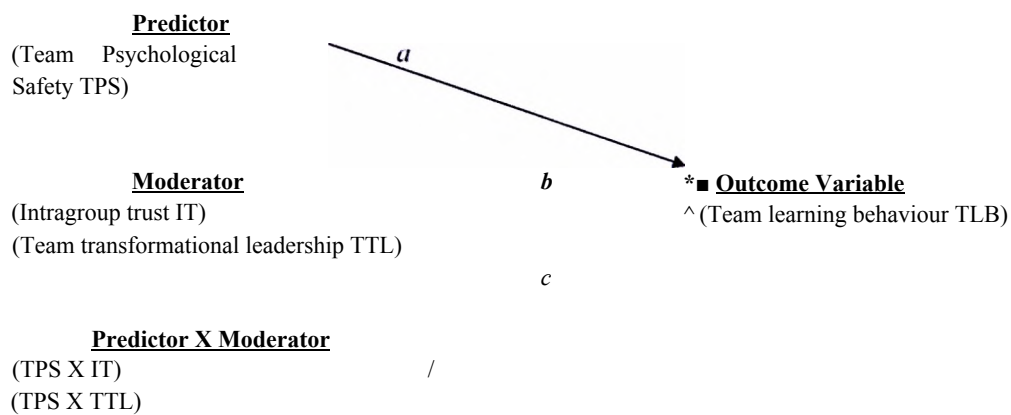
Hypotheses 2 and 3 were moderating hypothesis. Hypothesis 2 examined if intragroup trust will moderate the relationship between team psychological safety and team learning behaviour. Specifically, it was *hypothesized that the positive effect of team psychological safety on learning behaviour in teams will be stronger for teams with high intragroup trust than those with low intragroup trust*. Hypothesis 3 also investigated if team transformational leadership will moderate the relationship between team psychological safety and team learning behaviour. That is, it was hypothesized that *the positive effect of team psychological safety on learning behaviour will be stronger for teams with a transformational team leader than for those teams whose leader is not transformational*. To test these two hypotheses, moderation analysis was used. The conceptual and statistical basis for moderation is outlined below.

a. Conceptual meaning of moderation hypothesis

Baron and Kenny (1986) assert that a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the

relation between an independent or predictor variable and a dependent or criterion variable. This study examined if intragroup trust and team transformational leadership moderated the team psychological safety-learning behaviour relationship. Baron and Kenny suggest that a common framework for capturing both the correlational and the experimental views of a moderator variable is possible by using a path diagram as both a descriptive and an analytic procedure. Using such an approach, the essential properties of the moderator variables as used in the present study are summarized in Figure 2.

Figure 2: Path diagram of the moderating model (after Baron & Kenny, 1986).



The model diagrammed in Figure 2 has three causal paths that feed into the outcome variables (team learning behaviour): the impact of the team psychological safety as a predictor (Path *a*), the impact intragroup trust and team transformational leadership as moderators (Path *b*), and the interaction or product of the predictor (TPS) and each moderator (ie. TPS X IT, TPS X TTL) (Path *c*). The moderator hypotheses are supported if the interaction (Path *c*) is significant.

b. Statistical test for moderation analysis

A general requirement for testing for a moderation effect is that, there should be an association between the independent and dependent variables. This requirement was met (see table 3). Hierarchical Multiple Regression was employed to test for the moderation effects of intragroup trust and team transformational leadership on the relationship between team psychological safety and team learning behaviour. In a hierarchical regression procedure, a single variable or set of variables are entered into an equation in a specified hierarchical order, and on the addition of each new set, an R^2 (the proportion of the variance in the criterion variable accounted for by the predictors) is determined (Cohen & Cohen 1983). Specifically, the procedures proposed by Baron and Kenny (1986) were employed. This is because it is generally accepted and widely used in other studies testing moderation effects. According to Baron and Kenny, testing a moderation effect involves four stages;

1. Centre (standardize) both the predictor & the moderator. Centring is a linear transformation method which eliminates problems associated with multi-collinearity. It is achieved by subtracting the mean value for a variable from each score for that variable (Aiken & West, 1991; Lingard & Francis, 2006).
2. Calculate the interaction term (i.e., predictor X moderator) using the standardized values.
3. Regress the outcome variable on the predictor, moderator, and their interaction. That is, in the hierarchical regression analysis, the predictor should be entered in the first block, the moderator(s) in the second block and the interaction terms in the third block.

4. If the interaction effect is significant (i.e., if f^2 of predictor X moderator is significant), then there is a moderation effect. However, if the interaction term was not significant, no moderation effect was apparent.

To test hypotheses 2 & 3, the procedures proposed by Baron and Kenny (1986) for testing for moderation effect using hierarchical multiple regression was used. TPS (ie. the independent variable) and IT & TTL, the moderators, were centred or standardized using the standardization procedures by Aiken and West (1991). Next, the interaction terms were created. This was done by multiplying the centred TPS scores by the centred IT scores (TPS X IT) and also by the centred TTL scores (TPS X TTL). Following this, the dependent variable, that is, TLB was regressed on TPS, IT & TTL and then on the interaction terms. Specifically, TPS (the independent variable) will be entered in the first block. IT & TL (the moderators) in the second block and TPS X IT and TPS X TTL (the interaction terms) in the third block.

Table 5:
Results of Hierarchical Multiple Regression Analyses for the moderation effect of
Intragroup trust (IT) and Team Transformational Leadership (TTL) on the Psychological
Safety - Team Learning Behaviour relationship.

	<i>B</i>	<i>Sid. Error</i>	<i>P</i>
<i>Step 1</i> Constant	18.597	.452	
Team Psychological Safety	.185	.200	.124
<i>Step 2</i> Constant	18.595	.438	
Team Psychological Safety	.171	.195	.114
Intragroup Trust	-.618	.260	-.310*
Transformational Leadership	-.046	.112	-.054
<i>Step 3</i> Constant	18.689	.420	
Team Psychological Safety (TPS)	.293	.195	.195
Intragroup Trust (IT)	-.688	.253	-.345**
Transformational Leader (TTL)	-.097	.109	-.113
TPS X IT	.140	.105	.170
TPS X TTL	.140	.057	.327*

$f^2 = .015, .110$ and $.219$ for steps 1, 2 and 3 respectively. $\Delta f^2 = .095$ and $.109$ for steps 2 and 3 respectively.

* $p < .05$, ** $p < .01$

As hypothesized, Team Psychological Safety was also found to positively influence Team Learning Behaviour. [$F(1, 55) = 47.100, p < .000$], explaining 8.6 % of the variance in Team Learning Behaviour. This indicates that as Team Psychological Safety increases, Team Learning behaviour also increases. On the other hand, as Team Psychological Safety decreases Team Learning behaviour also decreases.

In line with the prediction made, the interaction between Team Psychological Safety and Team Transformational Leadership (TPS X TTL) was statistically significant ($f^2 = .327, p < .05$). Contrary to prediction however, Team Psychological Safety did not interact with Intergroup Trust (TPS X IT) to significantly predict Team Learning Behaviour ($f^2 = .170, p > .05$). This indicates that while Team Transformational Leadership moderated the Team Psychological Safety-Team Learning Behaviour relationship, intragroup trust did not. In view of this, hypothesis 2, stated as *intragroup trust will moderate the relationship between team psychological safety and team learning behaviour* was not supported. However, hypothesis 3 stated as *Team transformational leadership will moderate the relationship between team psychological safety and team learning behaviour* was supported by the results.

4.4 Summary of Findings

In summary, hypotheses 1 and 3 were supported while hypothesis 2 was not supported.

The following findings were consistent with predictions made by the study;

- There was a significant positive relationship between team psychological safety and team learning behaviour (Hypothesis 1).
- Team transformational leadership moderated the relationship between team psychological safety and team learning behaviour (Hypothesis 3).

The following findings were however not consistent with predictions made;

- Intragroup trust did not moderate the relationship between team psychological safety and team learning behaviour (Hypothesis 2).

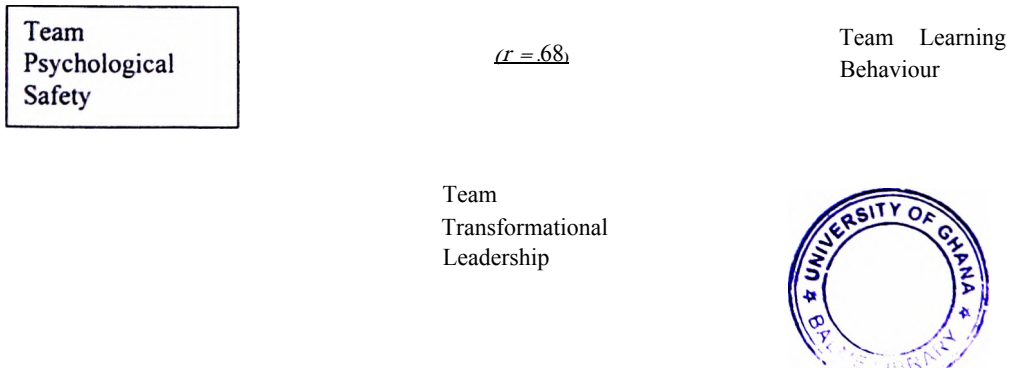
CHAPTER FIVE

DISCUSSION

5.1.1 Introduction

The current study examined the moderating role of intragroup trust and team transformational leadership on the relationship between team psychological safety and team learning behaviour. Prior to test for moderation effects, the study examined if team psychological safety significantly predicts team learning behaviour. Results from this study indicate that team psychological safety significantly predicts team learning behaviour. Also, team transformational leadership was found to significantly moderate the team psychological safety - team learning behaviour relationship. Contrary to prediction, intragroup trust did not moderate the team psychological safety - team learning behavior relationship. Based on the results of the study, the proposed conceptual model was revised and is presented below.

Figure 3: A summary' of the observed relationships between the independent, moderating and dependent variables



These findings are discussed below. This is followed by a discussion of the limitations of the current study, recommendations for future research, implications for practice and concluding remarks.

5.1.2 *The relationship between Team Psychological Safety and Team Learning Behaviour*

The study sought to find out if team psychological safety was related to team learning behaviour.

In view of this the first hypothesis was stated as *Team psychological safety will be positively related to team learning behaviour*. This hypothesis was supported by the results of the study.

This indicates that team psychological safety positively predicted team learning behaviour.

The findings from this study suggest that Team Psychological safety is likely to increase the chances of team members exerting extra effort and engaging in interpersonally risky learning behaviours, such as help seeking, experimentation and discussion of error. This finding is consistent with other findings in the literature. For instance, Edmondson (1999) found empirical support that team psychological safety promoted team learning, which in turn facilitated team performance. She explained that an implication of this finding is that people's beliefs about how others will respond if they engage in behaviour for which the outcome is uncertain affects the willingness to take interpersonal risk in the team. This implies that failure to engage in behaviours indicative of a climate of psychological safety may prevent team learning which could affect team performance adversely.

In Ghana, organisations can be said to be transforming to 'learning organisations', as such there is a need to understand team learning as most learning in the organisation may be considered to

occur within teams. In a climate of psychological safety, team members are more likely to engage in behaviours such as seeking feedback from the team, asking questions about team tasks and speaking up about one's own mistakes in the team. Team members engaging in these learning behaviours will in turn provide an opportunity for team members to learn by reflecting on particular task related behaviours and making the necessary' behavioural modifications. These behavioural modifications are indicative of learning in the team and this could ultimately have an impact on team and organisational productivity.

The result in this study is also consistent with Carmeli (2007) who investigated failure-based learning behaviours in organisations. The results showed that when there is social capital, people feel psychologically safe and learning from failures is enabled in organisations. The situation in Ghana may be similar as team members feeling of psychological safety may be determined by the quality of social interactions the team members have. A climate of psychological safety will engender a learning orientation in the team where mistakes and performance errors are considered as an opportunity to learn and prevent a recurrence of the particular errors.

The positive effect of team psychological safety on team learning behaviour is a very important relationship. This implies that when team members feel psychologically safe they will be more willing to engage in learning behaviours within the team. This position is supported by previous research and indicates that team members' feeling that the team is a safe environment to take interpersonal risk will make them less worried of the perceived risks of being oneself. When team members feel psychologically safe in the team, they tend to feel there is no consequence for interpersonal risk taking and as such feel 'at home' in the team. Thus, they are likely to believe

that others will give them the benefit of the doubt and will not think of them as ignorant, disruptive and incompetent, should they engage in learning behaviours in the team. Consequently, team members will be more likely to speak up about their mistakes, seek feedback or ask very important questions that will help in achieving the team and organisational goals.

5.1.3 *Does intragroup trust moderate the team psychological safety-team learning behaviour relationship?*

The study further sought to investigate if intragroup trust will moderate the relationship between team psychological safety and team learning behaviour. Specifically, it was *hypothesized that the positive effect of team psychological safety on learning behaviour in teams will be stronger for teams with high intragroup trust than those with low intragroup trust*. Contrary to predictions, results from the study indicate that intragroup trust did not moderate the team psychological safety and team learning behaviour relationship. This implies that the relationship between team psychological safety' and team learning behaviour is not significantly affected by the amount of intragroup trust among team members.

This result is inconsistent with conceptual arguments advanced by Dirks and Ferrin (2001) as to the indirect mechanisms through which trust affects organisational variables. Specifically, they argued that the inconsistent findings of the direct effects of trust on organisational outcomes is perhaps due to the fact that trust moderates the effect of primary' determinants (causal factors) on outcomes by affecting how one assesses the future behaviour or interprets the past actions of another party.

Following from this conceptual argument therefore, results of this study are inconsistent with research findings that support trust as a moderator of organisational variables. For instance, Simons and Peterson (2000) showed that trust negatively moderates the effects of task (cognitive) conflict on relationship (affective) conflict. Trust reduced the likelihood of relationship conflict in top management teams, such that task conflict (productive disagreement over the content of one's decisions and ideas that deepen cognitive understanding of the problem) was able to help the team produce better solutions.

Findings from this study are also inconsistent with Dirks (1999). Dirks found that trust moderated the relationship between group members' motivation and group processes and outcomes. Specifically, highly motivated groups channelled their efforts toward group goals in the high-trust condition, whereas in the low-trust condition effort was directed towards individual goals. Thus, trust affected the strength of group members' motivation on group processes. The finding from this study, in a Ghanaian organisational context, provides tentative evidence that instead of perceiving trust as a variable that indirectly affects team performance, researchers should consider trust as a concept that works through different mechanisms depending on the unique characteristics of the group. In this current study, team members demographics indicate that over a third (35.7%) of the teams had worked together for at least one year. It is therefore arguable that teams had developed a certain amount of trust among team members through their every day experiences and thus intragroup trust did not significantly affect the strength of the relationship between team psychological safety and team learning behaviour.

Inconsistent with the findings of this study, Rousseau and Tijoriwala's (1999) study found empirical support for the moderating role of trust in management on the relationship between management's reasons for change and the perceived legitimacy of those changes. Furthermore, Robinson (1996) found that initial trust in an employer moderated the relationship between a psychological contract violation and subsequent trust in the employer.

In this study, the finding that intragroup trust did not moderate the relationship between team psychological safety and team learning behaviour is contrary to expectation. A number of reasons could account for this result. First, Pearson correlations computed for the study variables indicate that there was an insignificant negative correlation between team psychological safety and intragroup trust ($r = -.22$). This is inconsistent with previous findings. May et al (2004) showed that co-worker trust had a significant positive effect on psychological safety. Kahn (1990) also found that "interpersonal relationships promoted psychological safety when they were supportive and trusting." Participants in his study felt free to share ideas and concepts about designs when they believed that any criticism would be constructive rather than destructive. It could be assumed that the sample studied had already set standards of trust that was independent of their perceptions of psychological safety.

Furthermore, Edmondson's (1999) assertion that trust is a necessary but not sufficient condition for team psychological safety presupposes that a certain amount of trust among team members is necessary for team psychological safety to develop. Thus, trust can be seen as an antecedent to psychological safety in the team. Social exchange theory suggests that when a team member gives other team members the benefit of the doubt (an indicator of trust), the other team

members will be more likely to reciprocate this trust. Intragroup trust not moderating the relationship between team psychological safety and team learning behaviour may be attributable to the fact that team members will feel psychologically safe when there is some amount of trust among team members. However, no additional trust within the group may be necessary in reaping the positive effects of team psychological safety on team learning behaviour. This may be as a direct consequence of team members having a repertoire of knowledge of the team and team members' previous action or inaction in interactions that involves one being vulnerable to them.

5.1.4 *Does team transformational leadership moderate the relationship between team psychological safety and team learning behaviour?*

The study further sought to examine if team transformational leadership will moderate the relationship between team psychological safety and team learning behaviour. Specifically, it was *hypothesized that the positive effect of team psychological safety on learning behaviour in teams will be stronger for teams with a transformational leader than those without a transformational leader*. Consistent with predictions, results from the study indicate that team transformational leadership moderates the team psychological safety and team learning behaviour relationship. This implies that the relationship between team psychological safety and team learning behaviour is significantly affected by the presence of team transformational leadership.

Edmondson (2002) asserts that the actions and attitudes of the team leader are critical determinants of the team learning process. Team leaders not only are a critical influence on psychological safety but also they can deliberately work to structure a learning process. Team

leaders also play a role in shaping, or at least communicating, the team's goal. Results of this study are consistent with empirical findings by numerous researchers. For example, Sarin and McDermott (2003) found that team leaders, who involved members in decision making, clarified team goals and provided bridges to outside parties via the leader's status in the organisation, facilitated team learning. Results from Nemphard and Edmondson's* (2006) study also indicate that leader inclusiveness is associated with psychological safety and moderates the relationship between status and psychological safety.

Furthermore, Edmondson et al. (2001) found that team leaders' (surgeons) behaviour in a hierarchical context of surgical teams supported team learning and contributed to a climate of 'psychological safety' within the teams where team members were more willing to 'speak up'. This is similar to collectivist cultures like Ghana where the social orientation places a lot of respect and recognition on leadership. Thus team members will seek direction and inspiration from their leader and transformational leaders who bridge the power and status differentials are more likely to have a team that feels safe psychologically and work to meet team and organisational goals.

The important role of the team transformational leader in ensuring collaboration among team members and coordinating these efforts to achieve team and organisational goals is very crucial to the organisation. A transformational team leader who serves as a role model for the team and models standards of effective and desired behaviour for team members to emulate is critical to the team members feeling psychologically safe. The team leaders' transformational behaviour which includes idealized influence, intellectual stimulation, individualized consideration and



inspirational motivation is likely to provide the structure in the team for learning to take place. For a team to be effective and be seen to be adaptive, innovative or engaging in learning behaviours, the team leader must set the tone or the right climate in the team where he welcomes the team members' opinions, questions and help at no risk to their person or image, [his would lead to psychological safety in the team and to desired organizational outcomes such as team learning behaviours, innovation and increased performance. On the other hand, when a team leader fails to create the right atmosphere in the team, it could adversely affect the team's learning behaviour.

5.2 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The findings of the current study are encouraging for team research in Ghana. However, it must be noted that the present study was somewhat limited by its design. In the first instance, the data were largely self-reported, hence subject to bias. This aspect of the study does not differ from previous work (Somech, 2006; Edmondson, 1999). It is also important to note that recent research suggests that self-reported data are not as limited as was previously believed and that people often accurately perceive their social environment (Alper, Tjosvold, & Law, 1998). This concern with the research design was addressed in the present study as the likelihood of common method variance was low because the criterion variable (team learning behaviour) was obtained from different sources (team leaders) (Podsakoff & Organ, 1986). However, the researcher does not have data to show that these perceptual measures of team learning behaviour are predictors of "objective" measure of team learning behaviour. Future research should use other sources for evaluating team learning behaviour (Oldham & Cummings, 1996).

A second limitation pertains to the uniqueness of the sampled teams, namely, functional teams in banking and financial institutions. Although theory cuts across team types, the question arises as to whether the functional teams studied are sufficiently similar to other teams or if they are so distinct as to require different ways of viewing and measuring the team variables of interest. Giving the limited time and space to conduct this research, it was not practicable to empirically study other types of teams. It is very critical to assess the generalizability of research findings from this study to other teams thus future research should focus on cross-functional teams such as hospital/surgical teams and military teams to ascertain how these team variables works in such teams.

The use of a cross - sectional survey design in this study limited the researcher's ability to predict causal relationships. Though associations were observed among the study variables, no direct cause-effect relationship can be concluded. It is also important to note that the use of the cross - sectional survey design also does not capture any dynamic or reciprocal relationships with the study variables. For example, it is plausible to posit that team psychological safety facilitates the risk of team learning behaviour, which, when unpunished by the team, further reinforces team psychological safety (Edmondson. 1999).

The unique characteristics of the sample - teams of bank workers - must be commented on. Bank workers in Ghana have very tedious and busy schedules as the banking environment can be considered a very' dynamic and fast-paced one. These workers had little or no time to spare to complete the questionnaires as evidenced by the long data collection period. Also, the banking sector is very lucrative in Ghana and issues of job security and mistrust for management have

culminated in these workers being very averse to research. This came to light during data collection when despite all the measures put in place to ensure confidentiality and anonymity, these workers were still reluctant to complete the questionnaire especially since they had to rate their team leaders' transformational behaviour. These workers also seem to have some mistrust for the organisation as evidenced by the numerous phone calls received by the researcher and his research assistants from team members to verify that the research was actually being conducted by the researcher though HR had circulated memos to that effect prior to the commencement of data collection. Future research should explore the use of completing questionnaires on the internet (online surveys) to help ameliorate this problem.

Finally, it was impracticable to perform any further analysis on the individual demographic information collected as data from team members was aggregated to the team level for analysis. This presents a unique problem associated with research that involves aggregation of data to a higher unit.

It is recommended that future research in a Ghanaian organisational setting should explore the personality traits of team members to ascertain the unique personality of team members that report a strong positive correlation between team psychological safety and team learning behaviour. This will be beneficial to organisations as they can fit individuals with compatible personality types in the same team to maximize team and organisational performance.

5.3 IMPLICATIONS FOR PRACTICE

Findings from this study have both theoretical and practical/organizational implications. By way of theoretical significance, findings of this study will add on to the literature on teams in Ghana. Since there is paucity of literature on teams in Ghana, findings of the study will provide benchmark data which can be used for future research.

Findings from the study are also very crucial to the effective use of teams in organisations by highlighting the important role of the team leaders' transformational behaviour. The consistent positive effects of team members feeling psychologically safe to be 'themselves' and assert themselves in promoting speaking up, seeking feedback, asking questions and discussing errors in the team is very revealing. Managers of organisations and team leaders have a very critical role in making this happen. As Edmondson (2002) asserts, team leaders can be seen to occupy an increasingly sophisticated and challenging role, especially when they lead teams that need to learn. These front-line organisational leaders must continually clarify' the meaning and importance of the team's goal, make sure that goal is serving the organization's strategic aims, and remain open to input from other team members about ways in which the goal must be modified to meet new changes in the team's environment. This implies that the transformational team leader needs to strike the right balance between exercising his authority as a leader and also 'letting go' of some of the authority by bridging the power differential between himself and other team members.

Team leaders in Ghanaian organisations would reap the benefits of team members feeling safe by accepting their own fallibility and that of their team members so that making a mistake on the

team is seen as a learning opportunity for the team and not a chance to ridicule, criticize or humiliates team members. Somech (2006) suggests that in functionally homogenous teams, the team leader must take a more active role in stimulating team members to promote team reflection and by extension team learning by providing them with a framework for decision making and establishing clear rules for behaviour.

Employing principles from reinforcement theory, behaviour modification will be possible if team leaders articulate clearly what the team norms are. Also the team leader must be direct in his communication with team members and avoid encouraging factions within the team by not being seen to 'take side' with particular team members. This can be achieved by training team leaders in the dynamics of developing and managing a team and the crucial leadership issues at each stage of development. For example at the forming stage of a team, when uncertainty is high, the team leader must be task focussed to clarify team objectives and coordinate efforts to achieve them.

5.4 CONCLUSION

This study's main aim was to examine the moderating role of intragroup trust and team transformational leadership on the relationship between team psychological safety and learning behaviour in teams. The results provided empirical evidence that team psychological safety significantly predicted team learning behaviour. The proposed model in which intragroup trust and team transformational leadership moderates the relationship between team psychological safety and learning behaviour in teams was not fully supported by the research finding. Specifically, research findings indicate that within a Ghanaian organisation setting, intragroup

trust did not significantly moderate the team psychological safety - team learning behaviour relationship, however team transformational leadership did.

Organisations are continuously going to be faced with increased competition, technological advancement and organisational restructuring to meet with the increased uncertainty organisations have to deal with. This implies that the use of teams in getting work done is fast becoming a pervasive reality in organisations and as such a need to understand team dynamics to improve team learning and performance. This work has paved the way for team research in Ghana by examining a number of variables that are related to teams and team learning in tandem with the paradigm shift from 'organisations that learn' to 'learning organisations'. Team leaders must be seen to be transformational in order to avoid a stilling environment in the team that will negatively affect team learning. Future research will thus help explain the dynamics of team processes and how organisations could benefit from their use.

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APPENDICES

APPENDIX I: SAMPLE OF RESEARCH QUESTIONNAIRE

TEAM MEMBERS

Information Sheet for Participants

Title of project: Psychological safety and learning behaviour in Teams

Investigator: Stephen Kodjo Kumako

Main Research Supervisor: Maxwell Asumeng, Ph.D.

Second Research Supervisor: A.A. Afrifa, Ph.D.

I am a Graduate student at the Department of Psychology, University of Ghana. As part of the requirements for the award of an MPhil degree in Industrial and Organisational Psychology, I am conducting a research to assess interactions between team members and their team leaders to ascertain variables which may contribute to a more conducive and professional interpersonal climate in the team to ensure increased performance. I will therefore need your assistance by completing this questionnaire as honestly and sincerely as possible.

There are no risks to you for participating in this study. The results of this study will remain strictly confidential. Completed questionnaires should be returned in envelopes provided.

It would take approximately 10 minutes to complete the questionnaire. You are encouraged to respond to all statements.

Participant's Responsibilities

I voluntarily agree to participate in this study. I give my consent to participate in this study and understand that should I have any questions about this research. I can contact:

Stephen Kodjo Kumako
(Investigator)
Department Of Psychology
University Of Ghana, Legon.
0244 388042

Dr. Maxwell Asumeng
(Main Research Supervisor)
Department Of Psychology
University Of Ghana, Legon,
0248 674405

Signature of Participant

Section A - TEAM PSYCHOLOGICAL SAFETY.

The following statements express various feelings towards and evaluations of your team. Please indicate the **extent of your agreement** with the following statements by circling the response that best reflects your opinion.

	<i>Very inaccurate</i>	<i>inaccurate</i>	<i>Neither accurate nor inaccurate</i>	<i>accurate</i>	<i>Very accurate</i>
	1	2	3	4	5
1					1 2 3 4 5
					1 2 3 4 5
2					1 2 3 4 5
					1 2 3 4 5
3					1 2 3 4 5
					1 2 3 4 5
4					1 2 3 4 5
					1 2 3 4 5
5					1 2 3 4 5
					1 2 3 4 5
6					1 2 3 4 5
					1 2 3 4 5
7					1 2 3 4 5

Section B - INTRAGROUP TRUST.

The following statements express various feelings towards and evaluation of your team. Please rate how often these statements are characteristic of your team by circling the response that best reflects your opinion.

	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>
	1	2	3	4	5
1					1 2 3 4 5
2					1 2 3 4 5
3					1 2 3 4 5
4					1 2 3 4 5
5					1 2 3 4 5

Section r - TEAM TRANSFORMATIONAL LEADERSHIP.

The following statements concern your feelings towards and evaluations of your **TEAM LEADER**. Please indicate the **extent of your agreement** with the following statements by circling the response that best reflects your opinion of your **team leader**.

<i>To a very large extent</i>			<i>To a small extent</i>				
<i>To a large extent</i>	<i>Somewhat</i>		<i>To a very small</i>				
1	2	3	4	5			
1	My team leader communicates a clear and positive vision of the future			2	3	4	5
2	My team leader treats staff as individuals, supports and encourages their development			2	3	4	5
3	My team leader gives encouragement and recognition to staff			2	3	4	5
4	My team leader fosters trust, involvement and cooperation among team members			2	3	4	5
5	My team leader encourages thinking about problems in new ways and questions assumptions			2	3	4	5
6	My team leader is clear about his/her values and practices what he/she preaches			2	3	4	5
7	My team leader instills pride and respect in others and inspires us by being highly competent			2	3	4	5

Section D.

For each of the following questions, please fill in the blank or check the appropriate space.

Sex: Male Female

Age: _____ years

Marital Status:

Single Separated. Divorced, Widowed Married

Highest Level of Education:

Senior Secondary school Training college Polytechnic
 University Degree Postgraduate degree

How long have you worked with your organisation? Years
How long have you worked with your present team? Years
How long have you worked as a professional? Years

TEAM LEADER

Information Sheet for Participants

Title of project: Psychological safety and learning behaviour in Teams
Investigator: Stephen Kodjo Kumako
Main Research Supervisor: Maxwell Asumeng, Ph.D.
Second Research Supervisor: A.A. Afrifa, Ph.D.

I am a Graduate student at the Department of Psychology, University of Ghana. As part of the requirements for the award of an MPhil degree in Industrial and Organisational Psychology, I am conducting a research to assess interactions between team members and their team leaders to ascertain variables which may contribute to a more conducive and professional interpersonal climate in the team to ensure increased performance. I will therefore need your assistance by completing this questionnaire as honestly and sincerely as possible.

There are no risks to you for participating in this study. The results of this study will remain strictly confidential- Completed questionnaires should be returned in envelopes provided.

It would take approximately 10 minutes to complete the questionnaire. You are encouraged to respond to all statements.

Participant's Responsibilities

I voluntarily agree to participate in this study. I give my consent to participate in this study and understand that should I have any questions about this research, I can contact:

Stephen Kodjo Kumako
(Investigator)
Department Of Psychology
University Of Ghana, Legon,
0244 388042

Dr. Maxwell Asumeng
(Main Research Supervisor)
Department Of Psychology
University Of Ghana, Legon.
0248 674405

Signature of Participant

Section A - TEAM LEARNING BEHAVIOUR.

The following statements express various evaluations of behaviour in your team. Please rate how often these statements are characteristic of your team by circling the response that best reflects your opinion.

	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>
	1	2	3	4	5
1				1 2	3 4 5
2				1 2	3 4 5
3				1 2	3 4 5
4				1 2	3 4 5
5				1 2	3 4 5
6				1 2	3 4 5
7				1 2	3 4 5

Section B.

For each of the following questions, please fill in the blank or check the appropriate space.

Sex: Male Female

Age: _____ years

Marital Status:

Single Separated Divorced Widowed _____ Married

Highest Level of Education:

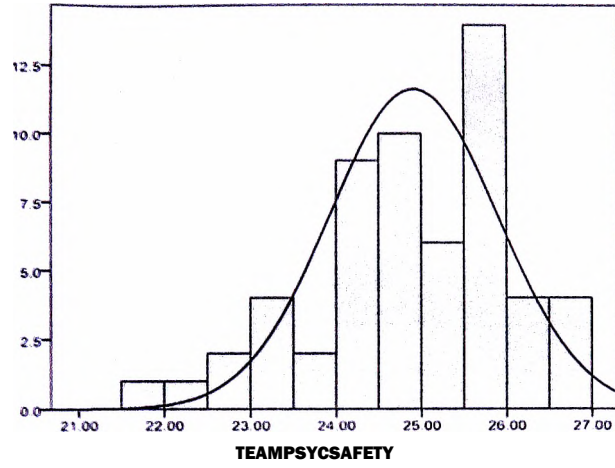
Senior Secondary school Training college Polytechnic
 University Degree Postgraduate degree

How long have you worked with your organisation!
How long have you worked with your present team?
How long have you worked as a professional?

Years
Years
Years

APPENDIX II: NORMAL DISTRIBUTION CURVES

Histogram



Histogram

