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**A MULTI-LEVEL STUDY OF PERCEIVED MULTIPLE TEAM MEMBERSHIP VARIETY AND ITS
EFFECTS ON THE OUTCOMES OF PRODUCTIVITY AND INNOVATION**

OLUWATOBILOBA SOYEMI

Doctor of Philosophy in Management

ASTON UNIVERSITY

May 2018

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Thesis Summary

Research in multiple team membership is limited. Even more scarce is empirical work in perceived multiple team membership variety (Perceived MTM variety), which is the perceived diversity in the teams' members belong to. This thesis sought to address the gap in literature by examining the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. Through the challenge-hindrance framework I investigated the potential benefits and costs of perceived MTM variety at the individual and team level of enquiry. A valid and reliable scale that measured the perceived MTM variety construct was developed as there was no valid scale that psychometrically measures the perceived MTM variety construct. Through a sample of 216 employees in 50 teams from a public sector organisation in Nigeria, I hypothesised that perceived MTM variety at both levels of enquiry will positively predict challenge stressors (time pressure and cognitive demand) and hindrance stressors (role conflict and role ambiguity). I hypothesised that challenge stressors will elicit positive responses from individuals and teams alike in the form of positive coping responses such as time management and knowledge integration at the individual level and information elaboration at the team level. The moderating effect of polychronicity on both group of stressors at the individual level was examined. The obtained findings supported the prediction of a relationship between perceived MTM variety and challenge and hindrance stressors at both the individual level and team level, however, there was no support for the relationship between challenge stressors and positive coping responses. This research did find support for the negative coping responses of hindrance stressors, as team role ambiguity negatively mediated the relationship between perceived team MTM variety and team productivity, role ambiguity at the individual level negatively mediated the relationship between perceived MTM variety and productivity at the individual level. In addition, team members with higher levels of polychronicity experienced higher levels of time pressure.

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Chapter 1: Introduction

Introduction

The need to maintain competitive advantage has prompted organisations to effectively and efficiently allocate resources (Delarue, Van Hootegeem, Procter, & Burrige, 2008). To achieve this, organisations have sought to collaborate and coordinate resources among multiple projects (Ren, Kiesler & Fussell, 2008; Cummings & Haas, 2012). Thus, individuals (resources) with unique expertise increasingly find themselves working in multiple teams (Cummings & Haas, 2012). This way of structuring work enables organisations to leverage resources and promotes knowledge transfer and thus enabling productivity and learning (O'Leary, Mortensen, & Woolley, 2011).

The allocation of individuals to multiple teams is a recent trend among knowledge intensive organisations, as it is now common for people to belong to five, ten or more teams at a time (Martin & Bal, 2006; Zika-Viktorsson, Sundstrom & Engwall, 2006; Mortensen, Woolley & O'Leary, 2007). In addition, O'Leary and colleagues suggest that between 65 percent – 95 percent of knowledge workers across Europe and the United States belong to more than one project team at a time (O'Leary, et al, 2011). This is a significant diversion from the traditional teams' literature, which until recently has largely assumed that employees only belong to one team at a time and are thus entirely focused and committed to this team (Martin & Bal, 2006; Lu, Chudoba, & Watson-Manheim, 2003; O'Leary et al, 2011; Zika-Viktorsson et al, 2006). Despite the prevalence, there are very few studies examining the dynamics of multiple team membership and its effects on individual and team outcomes (Bertolotti, Mattarelli, Vignoli & Macri, 2015; O'Leary, et al, 2011, Maynard, Mathieu, Rapp & Gilson, 2012). Thus, this research focuses on examining the competing mechanisms under which perceived MTM variety affects individual and team outcomes. Specifically, this research contributes to the MTM literature by examining the mechanisms under which perceived MTM variety affects individual and team outcomes of productivity and innovation. This research further supports the notion that individuals in organisations are not members of one team at a time and sheds insight into how individuals and teams in the MTM context work. This research goes further to elaborate on the potential for advantages and disadvantages of structuring work this way. In the effort to examine the mechanisms through which perceived MTM variety affects the outcomes of productivity and innovation, this research theoretically integrates the MTM literature and the challenge-hindrance

framework as this research explains mechanisms through which perceived MTM variety affects the individual and team outcomes of productivity and innovation.

As suggested above, organisations are increasingly adopting multiple team membership as a way to structure work (O’Leary et al, 2011). MTM can have a positive effect such as increased knowledge sharing and productivity (O’ Leary et al, 2011; Bertolotti, Mattarelli, Vignoli & Macri, 2015), but it can also have negative effects such as excessive demands that lead to stress for the individual and at the team level it could disrupts the coordination for team activities (Pluut, Flestea & Curseu, 2014). There is very little research exploring the balancing effects of MTM for both the individual and the team. In addition, the underlying mechanisms explaining how either the positive or negative effects of MTM can unfold are unknown. As a matter of practical importance to organisation, research into MTM is needed to advise organisations about the best way to structure and manage this new way of working given the challenges its poses for organisational performance, team effectiveness and wellbeing. Thus, this research aims to address this gap in literature by examining the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation.

1.1. Background

Multiple team membership (MTM) is operationalised by been a member of more than one team at a time. It is further defined as a structural arrangement whereby individuals are members of more than one team at a time (Espinosa, Cummings, Wilson & Pearce, 2003; O’Leary et al, 2011). This construct was brought to prominence in an academy management review paper by O’Leary and colleagues. There are two distinct but related elements of MTM namely: the number of MTMs and MTM variety. The number of MTMs is captured at the team level as the number of unique non-overlapping “other” teams the focal team members are involved with (O’Leary et al, 2011). For example, a university lecturer might belong to several project teams at the same time, as well as working with various other teams related to their teaching and administrative responsibilities. The more teams they belong to, the higher the number of unique MTMs. Variety of team memberships which is the focus of this research, refers to the diversity characterising the different teams that individuals are members of and that a given focal team overlaps with (O’ Leary et al, 2011). For example, a university lecturer might belong to several project teams where the tasks performed by the lecturer for each of the project teams are different, or there is diversity in location (where the

lecturer works on collaborative projects with other academic staffs from a different department) and technologies used in different teams. O'Leary and colleagues conceptualised MTM variety as a form of diversity which is usually measured using entropy indices such as Blau's indices which measures how broadly spread an entity is across different categories which is then standardized and accumulated across diversity variables appropriate in a specific context (Blau, 1977; O'Leary et al, 2011). However, this study took a different approach by capturing perceived MTM variety instead of MTM variety. At the individual level, this is perceived diversity in the tasks, technologies, and locations characterising the teams individuals belong to. At the team level, perceived MTM variety is the aggregation of team members' perception of the diversity in tasks, technologies, and locations characterising the teams each member of the team belongs to. Theoretically, it is the perception of the unique overlapping other teams that individuals belong to.

The practical use of MTM can be seen among software developers, academics, research and development employees and management consultants, as organisations seek to spread the expertise of these employees across multiple important projects (Mortensen et al. 2007). Productivity and learning is increased through MTM. Productivity is increased by the efficient utilisation of human resources, as it reduces employees' idle time (O'Leary et al, 2011). While learning is increased through exposure to unique experiences in multiple projects. Yet, despite the prevalence of this type of work arrangement, very little is known about its implications for either teams or individuals (Tannenbaum, Mathieu, Salas & Cohen, 2012). West and Lyubovnikova (2013) have suggested that more needs to be known about how MTM affects both team and individual outcomes. In addition, Mathieu and colleagues have described MTM as one of six areas in teams' research that warrants urgent attention (Mathieu, Maynard, Rapp & Gilson, 2008), suggesting very little is known about the implications of MTM for individuals and teams alike (O'Leary et al, 2011; Zika-Viktorsson et al, 2006).

Knowledge about how individuals who work in the multi-teaming environment cope with diverse demands for their time is limited in literature. Knowledge is also deficient about the mechanisms through which individuals engage in efficient work practices. In addition, there is limited knowledge on how individuals in the MTM context access and manage the diverse information they are exposed to. Very little is also known about how MTM aids or distorts team processes that enhance team

effectiveness (O. Leary et al, 2011). For example, we know little about mechanisms that enable teams in the MTM contexts to access and integrate information to achieve their outcomes. Knowledge is limited about the mechanisms affecting the coordination of work in the MTM context due to MTMs. Finally, the operationalisation of the MTM constructs as so far received limited attention in literature, there is little known of any scale that measures perceived MTM variety. In addition, building on the Challenge-Hindrance framework (Lepine, Lepine & Jackson, 2004; Lepine, Podsakoff & Lepine, 2005), this thesis seeks to explain how perceived MTM variety can have both positive and negative effects on productivity and innovation at both the individual and team level. This research focuses on perceived MTM variety because it gives the researcher the opportunity to thoroughly understand how different elements of MTM might affect individual and team outcomes. For example, a concentrated focus on perceived MTM variety gives the researcher the opportunity to examine the effects of perceived diversity on individual and team outcomes of productivity and innovation, individuals and teams in the perceived MTM variety context are able to access diverse amount of information which in turn should have productivity and innovative benefits for the individual and team (Van Knippenberg, Dreu & Homan, 2004; Kearney & Gebert, 2009). A holistic focus on MTM will not offer a detailed examination of the conditions under which perceived MTM variety affects individual and team outcomes. A focus on perceived MTM variety informs the researcher of the specific element of MTM that is influencing the individual and team outcomes of productivity and innovation.

1.2. Research Objectives

This research has several objectives which includes theoretical, methodological, and practical contribution to the field of multiple team membership. This will be considered in turn below.

Firstly, due to the workload inherent in the multi-teaming context (Mortensen et al, 2007; Zika-Viktorsson et al, 2006) and the potential for both positive and negative effects of perceived MTM variety, this research adopts the Challenge-Hindrance framework (Lepine, Lepine & Jackson, 2004; Lepine, Podsakoff & Lepine, 2005) to examine the effect of perceived MTM variety on the individual team member and the focal team. On one hand, the effects of perceived MTM variety could be positive through challenge stressors and on the other hand, the effects of perceived MTM variety on individual and team outcomes could be negative through hindrance stressors. Thus, the overall objective of this thesis is to investigate these competing explanations. For example, O'Leary and

colleagues in their conceptual paper on MTMs posit that MTM variety could improve team cognition and potentially elicit efficient work practices and create information acquisition, learning and networking opportunities. However, on the other hand they also suggested that it could lead to loss of coordination for the team and increase work demand for team members (O'Leary et al, 2011).

This thesis also aims to examine the mediating mechanisms that explains the relationship between perceived MTM variety and the individual and team outcomes of productivity and innovation. O'Leary and colleagues noted this gap in literature and presented a model to examine such relationships. Thus, this thesis is building on their conceptual model by explaining the mediating mechanisms driving the effects of perceived MTM variety on the outcomes of productivity and innovation through the Challenge and Hindrance framework. This thesis hopes to explain the distinct effects of perceived MTM variety on individual and team outcomes through these mediators.

Thirdly, this research aims to examine the conditions that explains the relationship between perceived MTM variety and the outcome of productivity and innovation. Thus, this research examines under what boundary conditions are the positive effects of perceived MTM variety enhanced or diminished and under what conditions are the negative effects of perceived MTM variety increased or decreased. In examining the boundary conditions, this research examines the role of polychronicity (individual characteristic) as a moderator of the effects of perceived MTM variety on the individual outcomes of productivity and innovation. It is intuitively appealing to investigate polychronicity as an important trait among individuals who operate in a context where individuals undertake work in more than two teams simultaneously. Contextually, the MTM context is plagued with multitasking and task switching from one team to the other is the norm (O'Leary et al, 2007; Zika-Viktorsson et al, 2006) and thus individuals' preference for working on two or more tasks simultaneously is an important personality trait in the MTM context. Individuals will need to switch among task and engage in multiple tasks simultaneously and as such a preference to engage in multiple tasks simultaneously would be an important individual difference in the MTM context. Teams with high numbers of individuals who have a polychronic orientation would be expected to manage and coordinate task better than a team that has high numbers of team members with monochronic orientation. To further buttress this point, this research suggests that individual with high polychronic

orientation will experience lower levels of role stress (Fournier, Weeks, Blocker & Chonko, 2013). Finally, this research aims to operationalize the perceived MTM variety construct by creating a valid and reliable scale that captures perceived MTM variety. And through this, this research expands the understanding of MTM as a construct through the challenge hindrance framework and provides a measure that can be used and further developed in future enquiries.

1.3. Thesis Structure

Following the research objectives, this thesis will be systematically structured to address these objectives. In chapter 2, this thesis reviewed the importance of teams in organisations and how they are a source of competitive advantage for the modern day organisation. Then, team working, and team effectiveness were reviewed to explain how team working is carried out. The I-P-O and IMOI model of team effectiveness were also reviewed to examine how team working is transformed into team effectiveness. Finally, in second chapter of this thesis, the changing nature of teams is discussed specifically, team virtuality and multiple team systems are discussed.

In chapter three, the MTM literature is reviewed alongside with the conceptual framework of this research. Specifically, the existing literature in the field of MTM is reviewed alongside with the theoretical approach used in these studies. In this chapter, I later introduced the challenge hindrance framework as an approach in this research.

In chapter 4, I presented the effects of perceived MTM variety on the individual outcomes of productivity and innovation. The individual level model was developed and the individual level hypothesis that examined the effects of perceived MTM variety were presented. Following chapter 4, I present the effects of perceived MTM variety on the team outcome of productivity and innovation by developing a model and presenting the team level hypothesis in chapter 5.

Chapter 6 describes the methodology of the thesis. First the philosophical approach of the research was declared followed by the research design. While presenting the research design, the research design adopted by previous studies of MTM were presented before presenting the research design for the current study. Sample data, collection procedures and measures of the study variables were also described. Chapter 7 presents the development and validation of the perceived MTM variety scale. This chapter provides the rationale for the scale development and how items in the scale were generated. This was followed by the validation of the scale through different analysis to ensure the

validation and reliability of the scale.

In chapter 8, I presented the result of individual level hypothesis that was presented in chapter 4. The results of the confirmatory factor analysis of the individual level variables were presented. The results of the main effects were presented followed by the mediations result and moderation results. Chapter 9 presents the results of the team level hypothesis presented in chapter 5. Similarly, the results of the confirmatory factor analysis of the team level variables were presented with main results following the moderation results. Chapter 10 discusses both the individual and team level results. Theoretical and methodological contributions were presented. In addition, the practical implication of this research was discussed followed by the limitations and directions for future research.

Chapter 2: Teams in Organisations.

2.1 Introduction

Over the years, the number of organisations adopting team-based structures has increased (Devine, Clayton, Philips, Dunford, & Melner, 1999). In their study of 128 organisations, Devine and colleagues estimated that more than one half of US organisations used teams (Devine et al, 1999). Similarly, a study of manufacturing companies in the United Kingdom found that almost all employees were formally designed in teams (Cully et al, 1998).

The reality for many organisations is that work has become too complex that teams are needed at all hierarchical levels (DeChurch & Mesmer-Magnus, 2010) Organisations use teams to tackle most of their difficult and pressing needs (Tannenbaum, Mathieu, Salas & Cohen, 2012). This is due to the ability of teams to efficiently and effectively adapt to their ever-changing environment (Catska, Bamber, Sharp & Belohoubek, 2001; Kearney, Gebert & Voelpel, 2009). In addition, Jackson (1996) posits that organisations have found teams useful in managing the ever-changing conditions in their environment. Furthermore, a comprehensive review of literature showed through ample evidence that team-based forms of organising often bring about higher levels of organisational effectiveness in comparison with traditional bureaucratic forms (Guzzo & Dickson, 1996). Thus, success in organisations seems to hinge upon the effectiveness of teams and their ability to efficiently solve complex problems.

2.2. Team Working and Team Effectiveness

Team researchers have identified numerous factors and models to explain how teams function. While these models vary in detail, they all can be explained through the Input–Process Outcome Framework (Guzzo & Dickson, 1996; Mathieu, Goodwin, Heffner, Salas, & Cannon-Bowers, 2000). The Input-Process Outcome framework (I-P-O) has a key assumption that input states affect team outputs through the interaction that

takes place among team members (Hackman, 1987). Thus, processes mediate the relationship between inputs and outputs. Inputs are conditions that exist prior to a performance episode and may include task, team member and organisational characteristics while, processes are important because it describes how team inputs are transferred into outputs via team member interactions during a task (Mathieu, Maynard, Rapp & Gilson, 2008).

Inputs have been grouped into three categories: individual level characteristics which includes individual member attributes, group level factors which includes team structure and team size and environmental factors such as task characteristics and reward structures (Barrick, Stewart, Neubert & Mount, 1998; Mathieu, et al, 2008). In turn, outputs are results and by-products of team activity that are valued by one or more constituencies (Mathieu, Heffner, Goodwin & Cannon-Bowers 2000; Lepine, Piccolo, Jackson & Saul, 2008). This may include performance in the form of quality and quantity, innovation, and members' affective reactions such as satisfaction and commitment (Mathieu et al, 2008).

Thus, processes have been grouped into teamwork and task-work (Stout, Cannon-Bowers, Salas, & Milanovich, 1999). Where teamwork is how team members interact and task-work are duties that individuals must perform to accomplish the team's task. Marks and colleagues built on the above taxonomy and developed a classification of team processes which includes transition, action, and interpersonal phases (Marks, Mathieu & Zaccaro, 2001). When teams are in the transition phase, team members focus on activities such as task analysis, planning, goal specification, and framing strategies. Afterwards, during the action phase, team members concentrate on task accomplishments, monitoring progress and systems, coordination of team members, as well as monitoring and supporting their fellow team members. Lastly, the interpersonal phase includes conflict management, motivation and confidence building, and affect management which is relevant across all the episodic phases discussed (Mark et al, 2001; Mathieu et al, 2008; Maynard et al, 2012).

Subsequently, Cohen and Bailey (1997) sought to advance the I-P-O framework to depict environmental factors as drivers of team and compositional inputs. And as such they proposed, the Input–Mediator Outcome framework of team effectiveness which acknowledges the inherent multilevel nature of teams, in that individuals are nested in teams, which in turn are nested in organisations, which exist in environments (Cohen & Bailey, 1997; Mathieu et al, 2008).

Despite remaining as the dominant theoretical framework in teams' literature, the IPO model is not without its limitations. Ilgen and his colleagues suggest that the I-P-O framework fails to capture the recent emerging consensus about teams as complex and adaptive systems (Ilgen, Hollenbeck, Johnson & Jundt, 2005; Maynard, Mathieu, Rapp & Gilson, 2012). Further, there are suggestions that the I-P-O framework is insufficient for characterising teams, given that most of the mediational factors that influence the conversion of inputs to outcomes are not processes, but emergent cognitive or affective states (Moreland 1996). Emergent states thus refer to the cognitive motivational and affective states of teams (Marks, Mathieu & Zaccaro, 2001); for example, team efficacy or trust. Conversely, team processes are how members work interdependently to utilize various resources (Marks et al, 2001).

Finally, the I-P-O framework limits research by suggesting a single-cycle linear path from inputs through to outcomes, even though authors clearly stipulated the potential for feedback loops (Ilgen et al, 2005). Maynard and colleagues suggested that the I- P-O model seems to more the exception rather than the norm in modern day organisation (Maynard et al, 2008).

Based on these shortcomings, Ilgen and colleagues more recently proposed the Input Mediator Output and Input Model (IMOI). The IMOI reflects and accommodates a broader range of variables that have important mediational influences in explaining variability in team performance and viability (Ilgen, Hollenbeck, Johnson & Jundt, 2005). Further, the “I “at the end of the model implies the notion of causal feedback and the elimination of the hyphen between the letters suggests that causal linkages may not be linear or

additive, but rather nonlinear or conditional. Furthermore, this framework sees team processes and emergent states as mediating mechanisms between team inputs and team outputs (Langfred, 2007; Costa, Passos & Bakker, 2014).

In a similar vein, Wageman, Gardner and Mortensen (2012) posit that the nature of collaboration in organisations has been changing at an alarming rate over the last decade. They further put forward that traditionally defined 'teams' are becoming obsolete as new forms of teams emerge at an exponential rate (Wageman et al, 2012). Tannenbaum, Mathieu, Salas and Cohen (2012) also suggest that the study and application of teams as reached a turning point due to the change in the nature of teams and the environment in which they operate. The following section therefore considers the changing nature of teams in organisations, and the implications this has for research.

2.3. The Changing Nature of Teams

New emerging forms of teams in contemporary organisations have challenged the traditional understanding of teams and notion of boundaries as members span multiple context, time zones, cultures and even languages (O'Leary & Cummings, 2007). Maynard and colleagues posit that two trends are increasingly common in team-based settings, which includes working virtually in teams and working in multiple teams simultaneously and literature needs to catch up and provide insights in to this new form of working (Maynard et al, 2012).

2.3.1. Team Virtuality

Rapid advancements in information and communication technologies have enabled organisations to expand their reach, as organisations are now able to construct teams of the most qualified individuals regardless of their geographic location (Dixon & Panteli, 2010; Maynard et al, 2012; Carter, Seely, Dagosta, DeChurch, & Zaccaro, 2015). Some researchers have argued that it is rare to find teams that are not, to some extent, virtual (Kirkman & Mathieu, 2005). A survey suggests that 66% of multinational organisations uses virtual teams and the number is expected to rise (Gilson, Maynard, Jones Young &

Hakonen, 2015). The emergence of team virtuality as seen literature switch its focus from geographical dispersion to team virtuality, although geographical dispersion is considered as an antecedent of team virtuality (Kirkman & Mathieu, 2005). Virtuality suggests a reliance on communication technologies for interaction (Cohen & Gibson, 2003; Hoch & Kozlowski, 2014). This poses coordination, communication and decision-making challenges for the team, in fact it also affects team composition (Tannenbaum et al, 2012). The rapid development of communication technologies has also facilitated individuals' ability to work on multiple projects seamlessly across team boundaries (Maynard et al, 2012; Wageman, Gardner & Mortensen, 2012; Cobalt, Yee & George, 2016).

2.3.2. Multiple Team Systems

Increasingly, many employees belong (or share membership) to multiple teams simultaneously and allocating time across many projects seems to be the norm (Zika-Viktorsson et al, 2006). Multiple team systems are a hybrid of organisational form that comprises of part traditional and part large organisation (Davison, Hollenbeck, Barnes, Sleesman & Ilgen, 2012). When multiple teams act interdependently towards a proximal goal, this is referred to as a multiple team system (O'Leary, Woolley & Mortensen, 2011*b*). Multiple team systems (MTS) are defined as when two or more teams interact directly and interdependently in response towards superordinate organisational goal (Mathieu, Marks & Zaccaro, 2001). MTSs are usually utilised when complex nature of the task necessitates the formation of large interdependent teams (Davison et al, 2012). Interdependence in MTSs suggests that teams can share inputs, processes and outputs (O'Leary, Woolley & Mortensen, 2011*b*). While in multiple team membership, teams only share memberships (O'Leary, Woolley & Mortensen, 2011*b*).

Inherent in both multiple team membership and multiple team systems are the issues of coordination, communication, and scheduling. Although, some scholars' have acknowledged the prevalence of MTM (e.g., Mortensen et al, 2007; Maynard et al, 2008; Espinosa, Cummings, Wilson, & Pearce, 2003; Majchrzak, Rice, Malhotra, King, & Ba, 2000; Meyer, 1994), empirical work on MTM has been limited (O'Leary et al, 2011).

In the next chapter, I start to develop the conceptual framework of the thesis.

Chapter 3: Multiple Team Membership: Review and Conceptual Framework

3.1: Multiple Team Membership

Multiple team membership (MTM) is a structural arrangement where individuals are members of more than one team at a time (Espinosa et al, 2003; Wageman, Gardner & Mortensen, 2012; O’Leary, et al, 2011). MTM has challenged traditional team discourse that assumes team membership is stable, non-overlapping and unambiguous (Wageman et al, 2012).

MTM has been argued to impact productivity and learning at the individual and team level, while at the same time creating and shaping relationships among teams within a larger system of teams (Mortensen et al, 2007; Wageman et al, 2012). MTM is becoming predominant in the workplace because it improves the utilisation of resources and prevents teams from engaging in overlapping or redundant work (Pluut, Flestea & Curseu, 2014; O’Leary et al., 2011). This is achieved by encouraging the development of efficiency enhancing practices in teams as they become more task focused and concentrate on getting most of the limited time available (O’Leary et al.; Pluut et al, 2014). Furthermore, through the flexibility inherent in MTM, managers are able to design effective teams that enhances expertise and skill complementarity among team members (Pluut et al, 2014).

Orlikowski (2002) study of global software development organisations found that engineers needed to engage in boundary spanning activities in order to perform their job duties. Consequently, through the boundary spanning activities inherent in the MTM environment, MTM encourages the drive and development of team cognition, which subsequently increases team-level performance (Ancona & Caldwell, 1992).

At this point, it is important to distinguish between team boundary spanning and multiple team membership. Team boundary spanning is defined as the activities of the team to establish linkages and manage interactions with parties in the external environment of the team in an effort to meet team objectives (Marrone, 2010; Marrone, Tesluck & Carson, 2007; Harvey, Peterson & Anand, 2014). These activities include but are not

limited to acquiring of information resources, negotiating project resources, and managing stakeholders expectations (Marrone et al, 2007). Although, individuals in the MTM context engage in boundary spanning activities, a significant difference between boundary spanning activities and MTM is that individuals in the MTM context do not only span their focal team's boundary, they are also members in the other teams they interact with. Another notable distinction between boundary spanning and MTM is that the boundary spanning activities carried out by individuals in the MTM contexts are not directly in the interest of the focal team, they span the boundary of their focal team to perform tasks of the secondary team. In addition, boundary spanning is an intra-team process while MTM is an inter-team process.

3.2. Benefits of MTM

Based on existing theorising (O'Leary et al, 2011), the two elements of MTM (i.e. the number of MTMs and the variety of MTMs) are posited to affect productivity and learning differently. The number of MTMs is captured at the team level as the number of unique non-overlapping "other" teams the focal team members are involved with (O'Leary et al, 2011). Where a focal team is one which the individual spends most of their time and is regarded as their main team. Furthermore, the variety of team membership on the other hand refers to the diversity characterising the teams that individuals are members of and that a focal team overlaps with (O'Leary et al, 2011). However, this research focuses on perceived multiple team membership variety (Perceived MTM variety) which is defined as the perceived diversity in the tasks, technologies, and locations characterising the teams individuals belong to.

Thus, perceived MTM variety signifies the variance in tasks and context in other memberships individuals might hold. An increase in the number of team membership individual holds is likely to motivate the individual to find more efficient work practices and thus increasing productivity (Kc & Terwiesch, 2009; Waller, Conte, Gibson & Carpenter, 2001). For example, the number of teams' individuals belong to could be argued to have a positive effect on productivity, as individual workers seek out more efficient working

practices and teams focus on key priorities in their work (O'Leary et al, 2011). At the team level, Kc & Terwiesch (2009) discovered that a team productivity increased at higher levels of workload. In the hospital context where this research was conducted, they found that the time patients spent (service time) in the hospital unit (team) decreased with an increase in workload (Kc & Terwiesch, 2009). Thus, limited time to perform task could also serve as catalyst that motivate teams to complete tasks (Gersick, 1989; Waller et 2001; Waller, Zellmer-Bruhn & Giambatista, 2002). Furthermore, the potential for multiple deadlines because of increases in the number of MTMs could have motivating effect on productivity.

Consequently, perceived variety of memberships held by focal team members exposes the individual and the focal team to more unique information, which can stimulate learning, (O'Leary et al, 2011). The perceived variety of teams that individuals are members of arguably enhances both team and individual learning through their exposure to diverse amount information, functional knowledge and experiences (Mortensen et al, 2007; Dougherty, 1992; Kilduff, Angelmar & Mehra, 2000). A study of 266 professionals found that team diversity significantly predicted individual and team learning (Sun, Teh, Ho & Lin, 2017).

Learning is made possible through members' exposure to diverse novel ideas, processes, and routines that are available from other teams (Zaheer & Soda, 2009). At the team level, the team benefits from varied team member perspectives that directly influences the amount of information available to the team (Dahlin, Weingart & Hinds, 2005). Thus, through shared information processing activities such as elaboration of task relevant information shared mental models are developed which facilitates team learning (Argote & Todorova, 2007; Homan, Hollenbeck, Humphrey, Van Knippenberg, Ilgen & Van Kleef, 2008).

As the individual engages in perceived MTM variety and span several team boundaries, knowledge is transferred within teams and within the organisation (Argote, McEvily & Reagans, 2003) which can result to innovation (Hargadon, 1998; Marrone, 2010). For example, Ancona and Gladstein (1992) found that new product development teams

engaging in a variety of boundary spanning activities were significantly more innovative over a period of time. Thus, interacting with other teams enhances the possibility of obtaining new knowledge and revealing new perspectives that could spark the development of new ways of doing things. In addition, a study of 219 work teams found a positive relationship between team knowledge sharing and team innovation (Hu and Randel, 2014). Finally, Eisenhardt and Tabrizi (1995) suggests that knowledge sharing among team members facilitate learning and encourages innovation.

Furthermore, it is plausible to say that an individual engaging in perceived MTM variety will experience job variety through varied task in different teams. Utilising the job characteristics model (Hackman & Oldman, 1976, 1980), job variety is the degree to which a job involves a variety of activities and engages a variety of skill (Parker, 2014). The notion that job characteristics are related to job satisfaction is well established in literature (Wong, Hui & Law, 1998; Thatcher, Stepina & Boyle, 2002). Wong and colleagues in a longitudinal study of the effects of job perception on job satisfaction found that skill variety predicted intrinsic job satisfaction (Wong et al, 1998). Similarly, Thatcher and colleagues found a positive relationship between task variety and job satisfaction for information technology workers. Finally, a study of 2794 employee in a telecommunications firm found that task variety was positively related to job satisfaction (Morris & Venkatesh, 2010).

3.3. Challenges of MTM

Although MTM has its benefits, there are also competing difficulties that accompany the use of MTM in organisations. These challenges include switching costs, loss of coordination in teams, time allocation and communication challenges.

Increase in the number of MTMs for the individual affects the time available to concentrate on other teams and consequentially reduces idea generation (Maynard et al, 2012; Engwall & Jerbrant, 2003; Utterback, 1971). Team members in this context are more likely to distribute their time between the focal team and non-focal teams who may span a variety of geographical locations (Cummings & Haas, 2012). In this context, a

focal team is the most important team where the individual usually allocates the majority of his or her time. The challenge for the individual and the team is the allocation of time between focal teams and non- focal teams (Sole & Edmondson, 2002). The issue of time implies that individual team members' attention is spilt between different teams.

An attention-based view of team design posits that attention is valuable to organisational outcomes but is a scarce resource in organisation (Cummings & Haas, 2012). Recent studies on attention have drawn focus to the cognitive, motivational and behavioural cost resulting from managing high work schedules (Leroy, 2009). Empirical research supports these arguments, result from an experimental study found that individuals have difficulties transitioning their attention from task to task which consequently affected performance in the subsequent task (Leroy, 2009). In addition, Utterback (1971) found that spending less than 50 percent of time on a single project reduced idea generation, suggesting that after a certain number of MTMs, individuals' idea generation might decline, as they are likely to be splitting their time across many teams.

This collaborates with the thoughts of O'Leary and colleagues who suggests that after a certain point, additional membership for the individual will decrease learning (O'Leary et al, 2011). As the demand for the attention of team members increase, they experience time famine, with too much to do and not enough time to do it (Perlow, 1999). In a nine-month field study of work practices among software engineers, engineers had difficulties completing their tasks because of interruptions (Perlow, 1999). Time allocation is a structural feature of team design and it fundamentally shapes the extent to which the attention of team members is concentrated on the focal team or diffused across other non- focal teams (Cummings & Haas, 2012).

Even more difficult is the allocation of time in geographically dispersed teams. These teams rely heavily on communication technologies to achieve their objectives (O'Leary & Cummings, 2007). Because of this geographical dispersion, team members experience communication challenges (Hackman, 2002), resulting from the use of more emails and conference calls as a means of communication. Consequently, there

is reduction in the speed of communication (Mortensen et al, 2007) as well as the richness of information that is shared. Thus, the issue of information delivery and information processing will delay task completion since team members' tasks are likely to be highly interdependent. Multiple team memberships have implications for how individuals manage and communicate with multiple team members about their work (Mortensen et al, 2007). Team members are expected to dedicate less of their time to focal teams and are distracted by their responsibility to other geographically dispersed non-focal teams (Cummings & Haas, 2012). In addition, the switching cost of disruptions, Zika- Viktorsson, Sundstrom and Engwall (2006) posited that an increase in MTM increases the switching costs of disruption for the individual and thus lead to bottlenecks. At this point productivity has reached its tipping point, and individuals are experiencing work overload and are over stretched. As a result, coordination of tasks from several teams becomes cumbersome and tedious as the team is faced with the issue of effectively managing members' schedules (Mortensen et al, 2007). Coordination issues will further lead to slow turnaround and a slippage in one project can create a domino effect that will affect other projects causing schedule delays.

Switching cost has been found to be more problematic when tasks are not completed or are being undertaken synchronously (Leroy, 2009). In addition, resuming work on a focal project has been shown to be more difficult when interruptions are longer and more demanding (Monk, Trafton & Boehm-Davis, 2008). The cumulative demand created by multiple competing goals may exceed team members' perceptions of their capabilities (Schmidt & Dolis, 2009). This is due to the increasing need for coordination and managing information about each other's priorities, constraints, and contexts (Montonya Weiss & Hung, 2003). MTM further requires individuals to be able to multi- task, as there are competing tasks demanding for the individuals attention (Zika-Viktorsson, Sundstrom & Engwall, 2006). Multi-tasking is a skill requirement in many job roles and it is described as the ability to accomplish "multiple task goals in the same general time period by engaging in frequent switches between individual tasks" (Delbridge, 2000 p.3; Konig,

Buhner & Murling, 2005). While multi-tasking occurs, each cognitive task is stimulated by an external stimulus, which requires an appropriate configuration of mental resources (Norman & Shallice, 1986). In order to switch from one task to another, a sort of 'mental gear changing' must happen before appropriate task specific processes can happen (Monsell, 2003). Monsell further suggests that time is consumed as individuals switch from one 'mental gear' to the other referred to as switching costs (Monsell, 2003; Kiesel, Steinhauser & Wendt, 2010). Monsell (2003) studied the control processes that reconfigure mental resources for a change of task. He suggested that responses are substantially slower and usually more error-prone immediately after a task switch (Monsell, 2003). However, opportunity for preparation is said to reduce switching costs. Thus, individuals in the context of MTM are likely to encounter time loss as they cognitively switch between team tasks, as there is usually little time to prepare for the task switching. These arguments make a clear justification as to the challenges associated with MTM and how this form of work design poses differences to traditional single team membership.

Finally, MTM complicates the assessment of the future viability of teams as individuals of a particular team are not certain if they will work together again under the same configuration (Wageman et al, 2012). Given that MTM is still a relatively new construct, there are very few empirical studies that have been conducted in the area. However, a review of recent literature below highlights several notable studies that were considered in the design of this research. Below the studies are reviewed in a chronological order.

3.4. Existing Evidence of MTM

This section summarises the limited empirical studies on multiple team membership. These empirical studies have informed the approach of this research. The first notable empirical work to examine the effects of MTM is the study carried out by Zika Viktorsson and his colleagues who examined the effects of multiple project memberships on individual efficiencies in multi-project settings. They primarily focused on the challenges and benefits of operating in the MTM contexts among 392 project workers. As a result,

they argued for the existence of fragmentation, disturbances, and interruptions in relation to project work in a multi- project setting (Zika-Viktorsson, Sundstrom & Engwall, 2006). Their findings suggest that individuals in these settings lose focus because project members continuously alternate between projects (context switching). The major finding of this study was that being members of so many teams simultaneously result in project overload which in turn leads to stress and decreased individual incompetence (Zika-Viktorsson et al, 2006). However, this study was insufficient in our understanding of MTM, as it did not capture perceived MTM variety nor did it examine the effects of MTM at both individual and team levels.

Furthermore, Mortensen, Woolley, and O'Leary (2007) also investigated the prevalence and implications of working in MTM environment. In their grounded exploratory study of 401 MBA students at two universities, they were able to discover through interviews the challenges, benefits and enabling conditions associated with the MTM contexts. However, this study fails to examine in detail the competing mechanisms through which MTM affect team and organisations, which this research will address.

Subsequently, Maynard and his colleagues quantitatively explored how team effectiveness is achieved in the context of MTM and virtuality. They applied both existing and new theories, including transactive memory system and team virtuality to challenge the traditional notion of teams. Maynard et al (2012) suggests some of the previous drivers of team effectiveness are still effective in the modern teams such as transactive memory system. Using a sample of 60 global virtual supply teams from a large multinational corporation, they found that transactive memory systems are important for teams that operate in the context of virtuality and MTMs. Thus, they established the importance of transactive memory system in the MTM context. Primarily in terms of MTM, they found that the percentage of time an individual dedicates to a focal team positively predicted preparation activity in that focal team. MTM was operationalised by asking individuals the percentage of time dedicated to a focal team

Chan (2014) considered the relationship between MTM and performance in 85

engineering project teams. At the individual level, this study gives empirical evidence for an inverted-U shaped relationship between MTM and individual innovative performance which collaborate with the stance of O'Leary, and colleagues (Chan, 2014; O'Leary et al, 2011). However, this study exhibited a positive relationship rather than inverted U-shaped relationship between MTM and team performance. This empirical finding does not support the conceptual proposition of O'Leary and colleagues.

Pluut and colleagues examined whether MTM is a demand or resource for employees. They engaged the job-demands resource framework and role theory in their study. In their study of 151 respondents, they measured MTM by asking respondents how many teams they belonged to and the percentage of time dedicated to each team. Their findings suggest that multiple team membership increased demands associated with team work but not with task-work, while at the same time reducing social support from team members (Pluut, Flestea & Curseu, 2014).

Furthermore, Bertolotti and colleagues explored the relationship between and MTM and team performance by investigating the role of social network and collaborative technology (Bertolotti, Mattarelli, Vignoli & Macri, 2015). Specifically, the use of instant messaging and external advice receiving in the MTM context and how this affects the focal team's performance. This study was carried out in the R&D unit of an Italian company. MTM was measured collecting the list of open projects from management and asking respondents to indicate which projects they were simultaneously involved with. In addition, MTM for a focal team was measured as the average number of simultaneous team memberships held by the focal team's individual members. Their finding supported the existence of an inverted U-shaped relationship between MTM and team performance. They found that external advice seeking, and the use of instant messaging moderated this relationship between MTM and team performance.

Mo and Wellman (2016) explored how MTM and team features shape individual - networks. Using multilevel multimember modelling to consider how diversity of teams is related to individual behaviours and networks. Their study was carried out among

Canadian scholars, they measured MTM by through a roster and by asking respondents to identify whom they have collaborated with. They found that MTM and diversity in teams have a positive effect on an individual's network.

Furukawa (2016) in her qualitative study explored the dynamics of critical problem-solving project teams and creativity throughout the life cycle of the project in a multiple project environment. She conducted 104 semi-structured interviews in Japan and Germany and found that the creativity to deal with critical problems came from the diverse knowledge and information at different levels in the organisation. MTM was operationalised by asking interviewees the variety in the team memberships they had. This suggest that the researchers attempted to measure perceived MTM variety through qualitative methods.

Finally, and most recently, Van De Brake and colleagues examined whether MTM is a challenge or hindrance stressor at the individual level (Van De Brake, Walter, Rink, Essens & Van Der Vegt, 2017). Using multisource data from a large organisation in applied research in Netherlands with a sample size of 1211. MTM was measured by using employees' work hour's registrations to capture the number of team individuals were actively engaged within any given week. It is important to note that they did not measure the perception of MTM variety in their study. They found that the less experienced multi-teamers were less likely to appraise MTM as challenge and more of a hindrance which resulted in higher absenteeism and lower level of performance. However, MTM was not related to absenteeism and performance for experienced team members.

Overall, the handful of empirical studies reviewed provides initial attempts to examine the relationship between MTM and team performance. In addition, given that the effects of MTM on individual and team performance is not conclusive, it is imperative that we understand the contingency factors through which MTM uses to affect individual and team performance. For the individual team member MTM can focus the attention of team members on efficiency practices and at other hand reduce team member's time and attention (O'Leary et al, 2011). Consequently, team performance is affected by increasing

coordination cost and enhanced by information exchange among team members' (O'Leary et al, 2011). The existing studies above, have not examined perceived MTM variety of the MTM construct and this thesis aims to explore this gap by developing a perceived MTM variety construct. This research will extend what is currently known about perceived multiple team membership variety and its effects on individual and team outcomes. The researcher is unaware of any study that has specifically looked at the mechanisms through which perceived MTM variety impacts the outcomes of productivity and innovation for the individual and team.

For organisations to maintain effectiveness in the rapidly dynamic and challenging business environments, organisations need to be innovative (West & Anderson, 1996) to sustain competitive advantage in the markets (Mathieu, Hollenbeck, Van Knippenberg & Ilgen, 2017). This is due to the increase in customer requirements, and the need to acquire market share (Miron-Specktor, Erez & Naveh, 2011). To achieve innovation organisations have increasingly depended on teams (Ilgen, Hollenbeck, Johnson & Jundt, 2005) and as such this research decided to examine the mechanisms at which perceived MTM variety affect innovation at the team and individual level. Furthermore, this research aims to capture the conflicting effects of perceived MTM variety on productivity and innovation at the individual and team level of inquiry. To do so, a scale that measures the individual's perception of MTM variety will be developed due to the absence of such scale in literature.

3.5. Theoretical Framework

3.5.1. Challenge - Hindrance Stressor Framework

The theoretical underpinning of this research is the challenge-hindrance framework and these theoretical assumptions informed the development of the conceptual model. Lepine and colleagues developed a theoretical model for investigating the different effects of various contextual demands (Lepine, Lepine, & Jackson, 2004; Boswell, Olson-Buchanan, & Lepine, 2004; Lepine, Podsakoff, & Lepine, 2005; Podsakoff, Lepine, & Lepine, 2007), in their research, they posited the importance of conceptually

distinguishing between challenge stressors and hindrance stressors. Challenge stressors refer to job demands that are viewed by employees as rewarding work experiences that create opportunity for personal growth (Cavanaugh, Boswell, Roehling & Boudreau, 2000). Examples of challenge stressors include: high workload, time pressure and high responsibility (Lepine Podsakoff & Lepine, 2005). These demands serve as high order factor signaling the degree to which stressful work environment has the potential to promote mastery, personal growth, or future gains (Zhang, Lepine, Buckman & Wei, 2014). There is an appraisal process where the individual evaluates stressful situations as either potentially threatening or potentially promoting mastery, personal growth or future gains (Lazarus & Folkman, 1984; Lepine et al, 2005).

Hindrance Stressors refers to job demands that are perceived as potentially stressful typically, they are perceived as unmanageable stressful demands (Wallace, Edwards, Arnold, Frazier & Finch, 2009) and do not present the potential for personal growth and rewards (Cavanaugh et al, 2000). If a stressor is perceived or appraised as negative with no possible benefits, an emotional coping response of anxiety, withdrawal, and apprehension and eventually disruptive behaviours as the individual perceive the stress to be beyond the person's grasp (Spector, 2002). Examples of hindrance stressors include role conflict, role ambiguity, administrative hassles and organisational politics (Pearsall, Ellis & Stein, 2009; Crawford, Lepine & Rich, 2010; Zhang et al, 2014).

Thus, the challenge-hindrance framework is different from other models, because at its core is the transactional theory of stress which suggests the psychological mechanisms of evaluation and coping that makes up the stress process of individuals (Lazarus, 1966; Lazarus & Folkman, 1984; Cooper, Dewe & O'Driscoll, 2001; Pearsall et al, 2009). Consequently, researchers have supported the validity and usefulness of distinguishing between the empirical associations among work stressors and job performance (Rodell & Judge, 2009). Although both types of stressors result in the depletion of energy that is seen through strains such as anxiety and burnout, researchers have posited that they both have different association with job performance (Boswell et al, 2004).

Furthermore, the outcome of this process triggers specific emotional and coping styles

that in turn influence behaviours such as increasing effort or withdrawing from tasks (Duhacheck & Lacobucci, 2005; Karasek, 1979).

In a sample of 215 employees across 61 geographically dispersed offices across the state of Louisiana, a positive relationship was obtained between challenge stressors and role-based performance, and a negative relationship between hindrance stressors and role-based performance (Wallace et al, 2009). Furthermore, a meta analytic study of 101 samples found that challenge stressors had a positive direct effect on performance as well as an offsetting indirect effect on performance through strains (negative) and motivation (positive), while hindrance stressors have a negative direct effect on performance as well as a negative indirect effect on performance through strains and motivation (Lepine, Podsakoff & Lepine, 2005).

At the team level, Pearsall and colleagues utilised the challenge-hindrance framework to examine the effects of different environmental stressors on behavioural, cognitive and affective outcome at the team level (Pearsall et al, 2009). In their experimental study in 83 teams working in a command and control simulation environment, they found out that the introduction of a challenge stressor positively affected team performance and transactive memory system, while the introduction of hindrance stressors negatively affected team performance and transactive memory system of the team and positively affected psychological withdrawal. A field study of the differences in employee's job performance under stress in a Chinese context found a positive relationship between challenge stressors and employee job performance and a negative relationship between hindrance stressors and employee job performance in a study of 164 employee-supervisor dyads (Lu, Du & Xu, 2016)

A multi-level study of 158 primary school teachers that integrated the challenge-hindrance framework in job demands resource theory found that daily hindrance job demand had a negative relationship with daily positive affect and work engagement and challenge stressors had a positive relationship on daily positive affect and work engagement (Tadic, Bakker & Oerlemans, 2015).

The multifaceted nature of the challenge-hindrance stressors framework which enables individuals to evaluate and appraise stressors made it appropriate for the study of the complexities in the perceived MTM variety context. In addition, the duality of the appraisal process corresponds with the nature of stressors in the perceived MTM variety context. Thus, the challenge-hindrance framework was appropriate for this research because it is of the view that not all job demands are obstacles to personal growth and job performance (Boswell, Roehling & Boudreau, 2000). Particularly, in the perceived MTM variety context, job demands such as time pressure and cognitive demand are suggested to elicit positive individual and team outcomes (O'Leary et al, 2011), while role ambiguity and role conflict can elicit negative individual and team outcomes (Zika- Viktorsson, et al, 2006). However, other studies in literature have used alternative frameworks to study MTM

For example, in a study that explores whether MTM was a resource or a demand, Pluut and her colleagues adopted the job demands resource framework (Pluut et al, 2014). The job demand resource model categorises working conditions into either job demands or job resources (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). Job demands are associated with exhaustion and negative work outcomes while job resources are associated with positive work outcomes. However, in the context of MTM variety, stressors (job demands) such as time pressure and cognitive demand are theorised to be positively related to beneficial work practices and behaviours (Mortensen et al, 2007; O'Leary et al, 2011; Bertolotti et al, 2015).

Also, a recent study in MTM has also adopted the challenge-hindrance stressor framework as they seek to argue that individuals' will appraise MTM as a challenge or hindrance based on organisational tenure (Van De Brake, Walter, Rink, Essens & Van Der Vegt, 2017).

It is however important to note that the variables adopted in this study as either challenge (time pressure and cognitive demand) or hindrance stressors (role ambiguity and role conflict) were chosen from previous empirical studies of challenge and hindrance stressors. For example, Rodell and Judge in their empirical study of the effects of

challenge and hindrance stressors on citizenship and counterproductive behaviours among 100 full time employees in the united states measured the perception of time pressure and cognitive demand as challenge stressors and the perception of role ambiguity and role conflict as hindrance stressors (Rodell & Judge, 2009). A recent study multi-level study of 339 full-time employees and their 88 supervisors in a pharmaceutical organisation operationalised challenge stressors as time pressure and cognitive demand and role conflict and role ambiguity as hindrance stressors in their study of how leadership and justice influence the relationship stressors and job performance (Zhang, Lepine, Buckman & Wei, 2014).

In addition to the Challenge-hindrance framework, this research also engaged the categorization elaboration model and role theory to examine the effects of MTM variety at the individual and team level.

3.5.2. Categorisation Elaboration Model

In the attempt to adequately account for the positive and negative effects of diversity in work groups, and to integrate both the social categorisation and information decision making perspective, the categorisation-elaboration model was proposed (Van Knippenberg, Dreu & Homan, 2004). They proposed that a group's diversity is positively related to elaboration of task - relevant information and perspectives within the group and elaboration of task-relevant information and perspectives is positioned to relate to group performance (Van Knippenberg et al, 2004). In addition, they proposed that elaboration of task relevant information is the primary process that underlines the positive effects of diversity on performance (Kearney & Gebert, 2009). Thus, through diversity, teams engage in information elaboration brought by the wider pool and variety of perspectives in a more diverse group (Van Dick, Van Knippenberg, Hagele, Guillaume & Brodbeck, 2008). On the other hand, they also proposed that diversity is negatively related to outcomes due to bias which negatively affects group identification which leads to decreased work performance (Van Knippenberg et al, 2004). However, this study focusses on the information processing approach. In a quantitative study of 62 research and development teams, Kearney and Gebert (2009)

found that the elaboration of task relevant information was positively associated with team performance. Differences in perspectives are a popular part of many diversity attributes that is classified as job related, in this case intrapersonal functional diversity (Bunderson & Sutcliffe, 2002; Hoever, Van Knippenberg, Van Ginkel, & Barkema, 2012). Intrapersonal functional diversity focuses on the extent to which individuals on a team are narrow functional specialist with experience in a limited range of functions or broad generalist whose work experiences span a range of functional domains (Bunderson & Sutcliffe, 2002). Thus, increasing perceived MTM variety suggests that members of a focal team will be experiencing work in different teams, where tasks performed vary and can therefore bring knowledge acquired in those teams to the focal team (Ruff, 2006).

Following the discussion in the previous paragraphs and drawing on the categorisation elaboration model. I used information elaboration to tease out the positive effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. Next, I engaged the use of role theory to solidify the theoretical model of this research

3.5.3. Role Theory

Based on the definition of perceived MTM variety, working in this context would suggest that individuals have multiple roles that span various teams. Thus, role theory guided the conceptual model of this thesis. Role theory posits that individuals will generally seek to act in ways that are consistent with the way their roles are defined (Khan, Wolfe, Quinn, Snoek, & Rosenthal, 1964). In addition, role theory suggests that inter-role conflict and tension often occurs as individuals find it increasingly challenging to successfully execute each of their roles because of constrained resources and incompatibility among different roles (Bolino & Turnley, 2005).

Two major concepts from role theory are role conflict and role ambiguity (Schuler, Adlag & Brief, 1977). Role Conflict is a type of work demand that arises when two or more role pressures exist and complying with one of these pressures impedes the accomplishment of the others (Kahn et al, 1964; Rizzo, House & Lirtzman, 1970;

Jawahar, Stone & Kisamore, 2007). It is also seen as the concurrent appearance of two or more incompatible expectations for the behaviour of one person (Biddle, 1996). While role ambiguity is a consequence of the discrepancy between the information available to the person and what is required for adequate performance of his or her role (Kahn et al, 1964; Marginson, 2006; Burney & Widner, 2007). In other words, Role ambiguity occurs when an individual lacks clarity regarding the expectations of his/her role, the methods for fulfilling those expectations and the consequences for effective or ineffective performance (Biddle, 1979; Van Sell, Brief & Schuler, 1981). Consequently, flexible work arrangement, autonomous working conditions has been suggested to lead to role ambiguity (Applebaum & Berg, 1997). In addition, Kahn et al (1964) suggests the lack of predictability in an employee's job role can lead to role ambiguity.

Research suggests that a negative relationship between role conflict, role ambiguity and job performance can be expected (Tubre and Collins, 2000). In a study of 41 managers in German-Indian joint ventures, findings showed that managers experiencing high levels of role conflict also reported lower job satisfaction (Mohr & Puck, 2006). In addition, a study of 2115 junior doctors in Netherlands found that role conflict fully mediated the relationship between workaholism and burnout (Schaufeli, Bakker, Van der Heijden & Prins, 2009). Similar negative relationships have been found between role ambiguity and outcomes. In a multi-industry sample of 312 salesmen in the United States, findings showed that role ambiguity negatively affected organisational commitment (Amyx, Sharma & Alford, 2014). Fisher examined the relationship between elements of role stress and external auditor job performance, he found that role ambiguity was negatively associated with auditor's job performance and job satisfaction in quantitative research of 123 auditors (Fisher, 2001). Furthermore, a study that examined the managerial behavioural responses associated with the extent to which a firm's performance system is linked to its strategy found that managerial performance is higher when role ambiguity is lower (Burney & Widener, 2007). In addition, to the challenge hindrance framework, categorization elaboration model and

role theory, this research also integrates the polychronicity concept in order to examine the conditions under which perceived MTM variety affect the individual outcome of productivity and innovation.

3.5.4. Polychronicity

Hall (1959) first identified polychronicity at the cultural level, since then the construct has been redefined and operationalised in different ways (Conte & Gintoft, 2005) and has come to be understood as an individual difference variable rather than a cultural level variable (Conte, Rizzuto & Steiner, 1999). Polychronicity is the preference for working on multiple tasks simultaneously and a belief that this way of working (multitasking) is the best way to approach work (Schell & Conte, 2008). There have been increasing interest in polychronicity due to the demand for multitasking in the workplace (Lindbeck & Snower, 2000). In addition, the need to engage in complex problem solving in most modern day organisations suggests that higher levels of polychronicity are important to adequately perform in a variety of roles (Kantrowitz, Grelle & Beaty, 2012). Furthermore, the prevalence of information technology and many other workplace transformations such as job enrichment and the changing nature of job performance has led to the increasing interest in polychronicity (Ilgen & Pulakos, 1999; Poposki & Oswald, 2010). Finally, organisations often create teams with the expectation that they will simultaneously coordinate multiple projects (O'Leary et al, 2011; Stachowski & Kaplan, 2009) as teams are increasingly expected to juggle diverse team tasks under dynamic and time-pressured conditions (Waller et al, 1997; Tannenbaum et al, 2012). O'Leary and colleagues suggested that the MTM setting would benefit from the investigation of the role of individual differences in managing the relationship between MTM and performance. (O'Leary et al, 2011). Polychronicity is said to have important implications for how people perform in their jobs, especially in contexts where managing multiple responsibilities simultaneously is a prerequisite for job performance (Bluedorn, 2002; Onken, 1999; Conte & Gintoft, 2005) such as in the MTM setting.

Previous research has suggested that polychronicity plays an important role in

motivating individuals to perform multiple tasks simultaneously (Konig & Waller, 2010). Although polychronicity encapsulate the preference for engaging in more than one task simultaneously rather than actual multitasking behaviours (Konig & Waller, 2010; Mohammed & Nadkarni, 2014) research evidence suggests that individuals with polychronic preference like to in engage in multitasking (Konig, Oberacher & Klienmann, 2010), they also perform better than individuals with monochronic preference (Zhang, Goonetilleke, Plocher & Liang, 2005). Thus, the ability and preference of individuals to switch between multiple tasks in the perceived MTM variety environment is an important individual characteristic due to the need to balance multiple tasks across different teams (Cotte & Ratneshwar, 1999). When there is a mismatch between multi-tasking preference of an individual and the multi-tasking preference of a role, work role anxiety, stress and dissatisfaction may arise (Mcdonald, DeChurch, Ascencio, Carter, Mesmer-Magnus & Contractor, 2015). Kaufman, Lane and Lindquist (1991) in an exploratory study of polychronicity found that a polychronic orientation was predicted lower levels of role overload and larger hours worked per week. Thus, this research posits that polychronicity will enhance the positive effects of perceived MTM variety and reduce or nullify the negative effects of perceived MTM variety on individuals in the MTM context.

In the next section, this research uses the above theoretical frameworks built a conceptual model to access the effects of perceived MTM variety on the individual and team outcomes of motivation

3.6. CONCEPTUAL MODEL

At the individual level, Figure 3.1 represents the mechanisms through which perceived MTM variety affects the individual level outcomes of productivity and innovation. As shown in figure 3.1 perceived MTM variety is posited to relate directly to challenge stressors (time pressure and cognitive demand) and hindrance stressors (role conflict and role ambiguity). Consequently, it posited a direct relationship between challenge stressors and positive behaviors (time management and knowledge integration) and a negative relationship between hindrance stressors and negative emotion (burnout).

Consequently, the model posits a direct relationship between time management, knowledge integration, burnout and the outcomes of productivity and innovation. In addition, perceived MTM variety is posited to indirectly relate to the individual outcomes of productivity and innovation through a chain of mediating mechanisms. Furthermore, it proposes that polychronicity will moderate the effects of perceived MTM variety on first stage mediators (time pressure, cognitive demand, role conflict, role ambiguity). Lastly, the model posits the indirect effects of perceived MTM variety on productivity and innovation through the mediation chain at different values of polychronicity.

At the team level, Figure 3.2 denotes the effects of perceived MTM variety at the team level on the team level outcomes of productivity and innovation. As represented in figure 3.2, perceived MTM variety at the team level is posited to relate directly to the challenge stressor (team time pressure) and hindrance stressors (team role conflict and team role ambiguity). Also, a direct relationship between team time pressure and information elaboration and a direct relationship between team role conflict/ team role ambiguity and coordination loss. Consequently, the model posits a direct relationship between this information elaboration/coordination loss and the outcomes of productivity and innovation. In addition, perceived MTM variety at the team level is posited to indirectly relate to the team outcomes of productivity and innovation through a chain of mediating mechanisms.

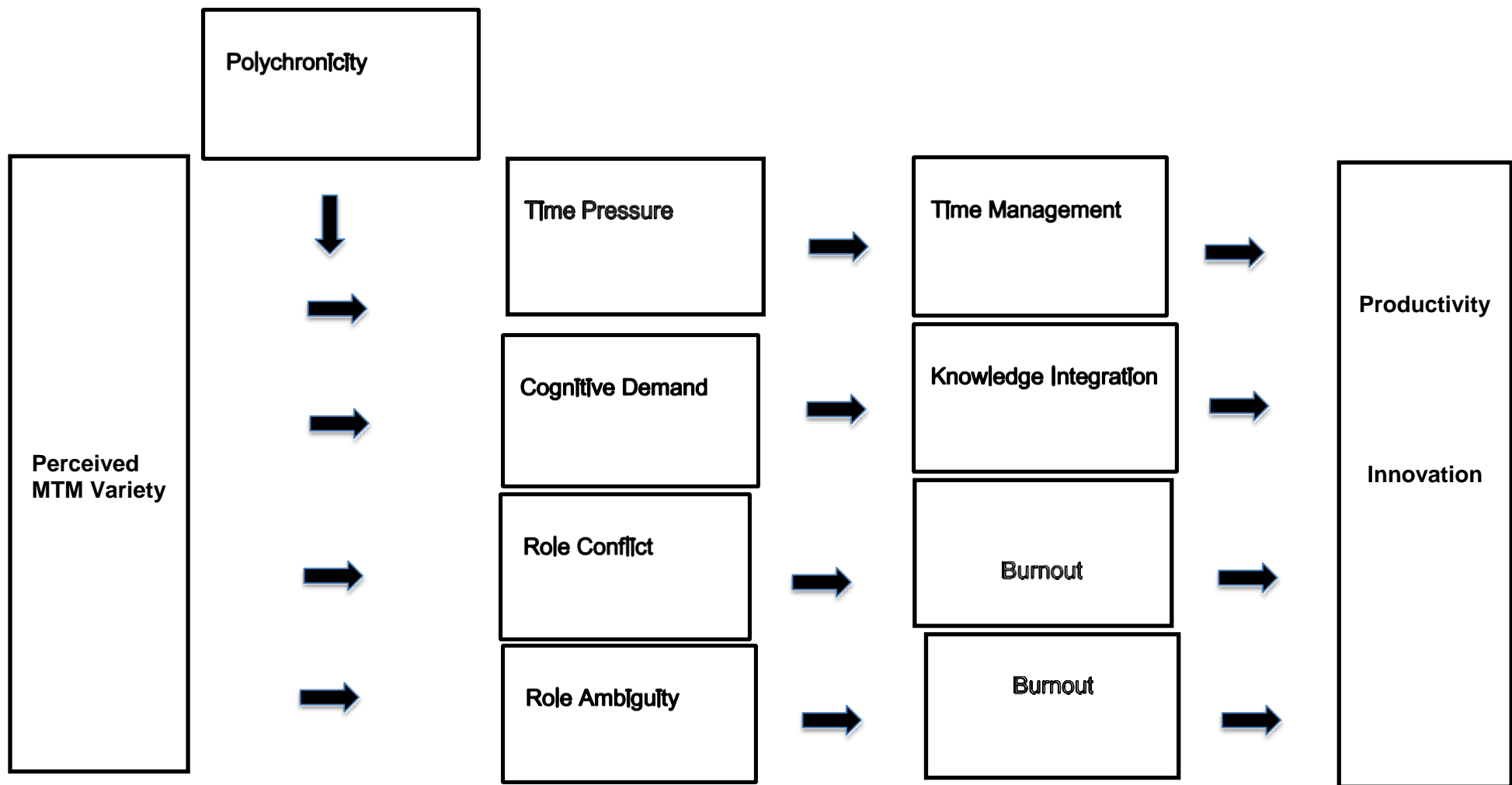


Figure 3. 1: Conceptual Model of the Effects of MTM variety on the Individual Level Outcomes of Productivity and Innovation

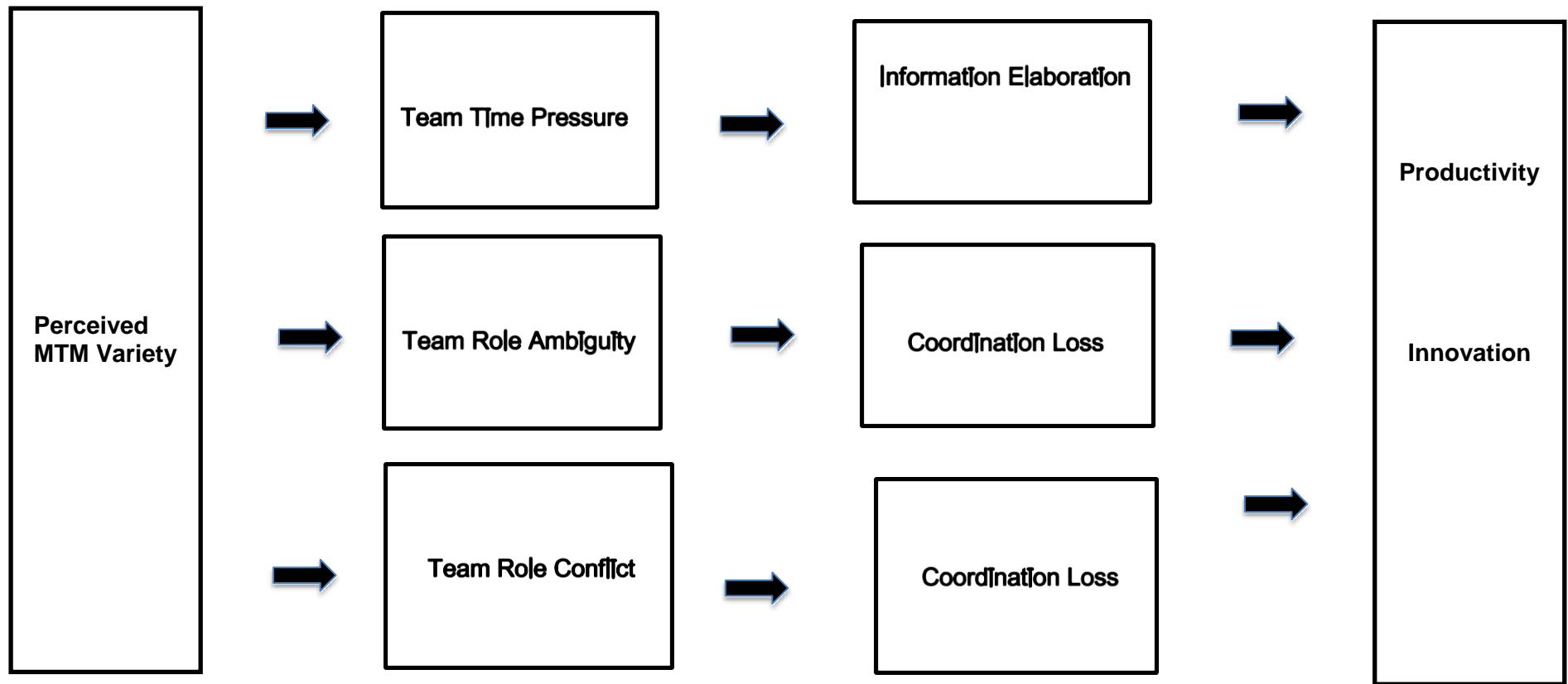


Figure 3. 2: Conceptual Model of the Effects of Team MTM variety on the Team Level Outcomes of Productivity and Innovation

Chapter 4: Effects of Perceived MTM variety on Individual Productivity and Innovation

4.1. Introduction

In this section, I developed the individual level hypothesis of this research. Firstly, the hypotheses for the main effect were presented between the individual level variables. Afterwards, the serial mediation hypothesis was developed followed by the hypothesis that argued for the moderation effects. Finally, I developed the hypothesis for the moderated mediation.

4.2. Model Development Hypothesis Development.

Time pressure is known to be a common feature of the modern organisational environment and in this research, it is defined as the scarcity of time available to complete a task, set of tasks, relative to the demands of the tasks (Kelly & McGrath, 1985; Maruping, Venkatesh & Thatcher, 2015). Teams, especially new product development teams often face demanding schedules and expectations to deliver, making time pressure a common practice in the workplace (Maruping et al, 2015). In the context of perceived MTM variety, employees are likely to experience time pressure as their perceived team membership variety rises (Mortensen et al, 2007). Edwards and Baglioni (1991) suggested that excessive workload may create a sense of time pressure among individuals. In addition, the time individuals dedicate to any one team will reduce as they engage in perceived MTM variety and juggle different tasks and roles in different teams. For example, O'Conaill and Frohlich (1995) suggest that interruptions from task switching can consume up to 41% of the manager's time leaving them little time to work with. Furthermore, Pluut and colleagues suggested that the perceived MTM variety environment generates competing demands which imply individuals are under considerable time pressure (Pluut et al, 2014). The need to divide time across different teams where task performed varies from one team to the other put project team members under intense team pressure (Zika-Viktorsson et al, 2006). I propose that as team members distribute their time across diverse teams, the time

available will become increasingly smaller which will lead the individual to experience time pressure

Hypothesis 1: Perceived MTM variety will positively predict time pressure for the individual.

Perceived MTM variety creates and increases cognitive demands for employees because they must shift their attention across several teams that are highly diverse in terms of their tasks, technologies and location (O'Leary et al, 2011). In addition, Mortensen and colleagues suggests that competing commitments like those inherent in a multi- teaming environment are sources of cognitive demand for individuals (Mortensen et al, 2007). Mainly, task switching, and multi-tasking are a source cognitive demands for the individual team member (Mortensen et al, 2007; O' Leary et al, 2012, Bertolotti et al, 2015). Consequently, employees will experience an increasing demand for their cognitive resources as workload accrues (O'Leary et al, 2011; Zika-Viktorsson et al 2006) due to the perceived variety of tasks been carried out in different contexts. This is due to the synchronization between tasks and interactions with diverse team members (Mortensen et al, 2007). As the demand for the attention of individuals increase, they experience time famine, with too much to do (cognitive demand) and not enough time to do it (Perlow, 1999). Consequently, the cumulative demand created by multiple competing goals will result in the individual experiencing time pressure and a demand on their cognitive resources to solve this problem of increasing job demand. This research then posits that perceived MTM variety will positively predict cognitive demand at the individual level.

Hypothesis 2: Perceived MTM variety will positively predict cognitive demand for the individual team member.

Consequently, O'Leary and colleagues suggested that increase in team memberships would lead to slow turnaround and bottlenecks (Slomp & Molleman, 2002). These effects could be further amplified when team members have greater perceived MTM variety given that they are working between teams that are highly diverse in terms of

task, team members, or geographical location. Individuals would appraise this as a hindrance stressor, which will consequently deter personal growth and development (Rodell & Judge, 2009). Hindrance stressors refer to job demands viewed as obstacles to personal growth (Rodell & Judge, 2009) or demands that hinder one's ability to achieve valued goals (Cavanaugh et al., 2000). Hindrance stressors place employees' in a position where they are compelled to expend energy without a guarantee of reward. With hindrance stressors, employees usually view the stressors as out of their control and usually anticipate a negative relationship between effort expended and goal actualization, as they believe that they do not have direct control (Lepine et al, 2005). In addition, Lepine and colleagues suggest that hindrance stressors such as role ambiguity, red tape, organizational constraints and interpersonal conflict are perceived as uncontrollable factors that needlessly impede personal goals (Lepine, et al, 2005; Dawson, O'Brien & Beehr, 2016). Furthermore, role conflict and role ambiguity are usually appraised as potentially threatening to personal growth and individual goal attainment (Cavanaugh et al., 2000; Boswell et al., 2004; Podsakoff, Lepine & Lepine, 2007). Finally, role strain perspective argues that engaging in multiple roles can result in role strain that emanate from conflicting expectations which is detrimental to employee wellbeing (Goode, 1960; Mark, 1997; Pluut et al, 2014). Thus, a team member who occupies multiple roles in different teams simultaneously may experience role conflict between the roles when the pressures and demands of one role becomes incompatible with the pressures of the other roles (Pluut et al, 2014).

Jawahar and colleagues suggests that individuals who occupy multiple roles are usually experiencing incompatible role demand (Jawahar et al, 2007; Ghorpade, Lackritz, & Singh, 2011). In addition, Schulz (2013) suggested that working simultaneously in several groups is an antecedent for role conflict due to conflicting information about what their role is (Jackson & Schuler, 1985). That is working in multiple groups create role conflict. For example, role conflict is usually viewed as a hindrance stressor, as individuals feel they cannot simultaneously satiate multiple roles regardless of their effort and resources allocated (Wallace et al, 2009). As perceived MTM variety increases for

each team member, it is likely that multiple incompatible roles for individuals will ensue. Morgeson and Humphrey (2008) suggests that the intersection between multiple roles on specific tasks and social responsibilities can create role conflict. As the diversity of teams increase for the individual team member, the roles performed in these teams will reflect the range of the individual's team membership and could therefore lead to role conflict. In addition, in the perceived MTM variety context, individuals would have multiple leaders in the various teams they work, these team leaders will have multiple requests which might not be compatible with each other and thus leading to confusion for the individual team member. Finally, individuals in this context will span boundaries of their focal team (O' Leary et al, 2011) and boundary spanning activities have been positively associated with role conflict. (Friedman & Podolny, 1992). Kahn and his colleagues further suggest that role ambiguity emanates from the complexities associated with increasing demands in the organisation (Kahn et al, 1964). These complexities might be because of changes in organisational size, frequent changes in technology, and changes in the environment of the organisation that places new demands on the members and frequent changes in personnel which disturb interdependencies (Rizzo et al, 1970).

Perceived MTM variety can foster an environment where employees feel uncertain about what they are doing because they perform several roles in different teams (O' Leary et al 2011). In addition, as perceived MTM variety increases for the individual, they have limited time to process information in their environment and might find it difficult to keep track of their responsibilities (Zika-Viktorsson et al 2006) and as such can lead to role ambiguity. Furthermore, individuals with perceived MTM variety perform boundary spanning activities and although they gain status and influence through access to unique knowledge, they might experience role ambiguity due to facing conflicting and simultaneous pressures from different roles. (Marrone, Tesluk & Carson, 2007). In a situation where perceived MTM variety increases for the individual member, the individual will find it difficult to process multiple requirement of several roles at the same time (Zika-Viktorsson et al, 2006). Thus, this research posits that

perceived MTM variety will be positively related to role conflict and role ambiguity.

Hypothesis 3: Perceived MTM variety will positively predict role conflict for the individual team member.

Hypothesis 4: Perceived MTM variety will positively predict role ambiguity for the individual team member

As stated in the preceding paragraphs, a challenge stressor will usually evoke positive emotions such as feelings of eagerness and confidence that leads to an active problem-solving style of effort expenditure and managing the source of stressors (Wallace et al, 2009). In addition, an interpretation of a work demand as a benefit (Challenge stressor) and not a cost (Hindrance stressor) should promote greater motivation and resource allocation towards the stressors in order to obtain gains (Rodell & Judge, 2009).

Although coping with challenge stressors needs the employee to invest a significant amount of energy, which may result to strain, theory and empirical evidence suggest that employees are able to recognise a potential return on effort expended (Zhang et al, 2014). For example, employees are likely to believe that time pressure and increased cognitive demand in the work context can be met with coping in the form of increased effort, and if they cope successfully they will experience a sense of personal accomplishment and receive formal recognition in terms of promotion or increased remuneration. In a different vein, self-determination theory suggests that situations perceived to foster growth tend to increase motivation that in turn facilitates higher engagement and performance (Ryan & Deci, 2000).

Thus, this research posits that individuals' motivational response to time pressure will be to engage in time management behaviour. Time management is defined as the behaviours that are aimed at achieving an effective use of time while performing certain goal-directed activities (Lakein 1973; Claessens, Van Eerde, Rutte & Roe, 2007). Time management is also seen as a coping behaviours that helps individual to alleviate stress and facilitate productivity (King, Winett & Lovett, 1986; Lay & Schouwenburg,

1993). These behaviours include time assessment, planning and monitoring (Claessens et al, 2007). In the current organisational climate, time is regarded as a highly valuable organisational resource due to the increasing demand for worker's time (Kearns & Gardiner, 2007). One of the elements of time management behaviour is planning behaviour (Macan, 1994; Britton & Tesser, 1991) which is referred to as the decisions about which task to perform, how the tasks should be prioritised and how to deal with possible disruptions, especially when one must perform multiple tasks simultaneously (Claessens, et al, 2004).

The conceptual paper by O'Leary and colleagues suggested that MTM variety would prompt individuals to engage in efficient work practices (O'Leary et al, 2011). Furthermore, perceived MTM variety will encourage individuals to enact specific effort to coordinate, manage and track their work in several teams (Gonzalez & Mark, 2005; O'Leary et al, 2011). Consequently, individuals in the perceived MTM variety environment will see an increase in workload, responsibilities, and time pressure as an opportunity to advance their career, overcome a challenge or as an opportunity to grow. For example, time pressure will motivate individual team members to prioritise and compartmentalise their available hours more actively (Tobis & Tobis, 2002). Furthermore, a positive view of time pressure suggests that it's a factor that promotes positive outcomes in situations of high time pressure because of the heightened sense of focus and urgency involved (Amabile, Hadley & Kramer, 2002; Maruping, et al, 2015). As a result, this research posits that time pressure generated from perceived MTM variety will prompt individuals to engage in time management behaviour.

Hypothesis 5: Time pressure experienced by individuals will positively predict time management behaviour.

Furthermore, this research posits that cognitive demands generated by perceived MTM variety will prompt individuals to engage in knowledge integration activities. Knowledge integration is defined as the combination of individuals' specialised knowledge into a situation-specific systematic knowledge (Alavi & Tiwana, 2002). Groups of individuals

such as teams provide the environment in which individuals' tacit knowledge can be pooled and recombined (De Boer, Van den Bosch & Volberda, 1999). As perceived MTM variety increases, the individual is exposed to different kinds of new information, experience and unique work ties that broadens the cognitive and behavioural repertoire of the individual and the team (Harrison & Klein, 2007; Zaheer & Soda, 2009).

Perceived MTM variety should facilitate information exchange as team members with different organisational roles hold diverse knowledge skills and expertise and hence larger informational resources and knowledge (Drach-Zahavy & Somech, 2001). Cognitive demands (problem-solving demand) are inevitable in a perceived MTM variety setting as the individual rises to the occasion to cope with the rising demand for their cognitive resources (O'Leary et al, 2011). This will facilitate knowledge-sharing practices among individuals through context switches and exposure to a wide range of information (Cummings, 2004). The constant context switching (cognitive demand) in the MTM environment increases knowledge stock and idea generation among individuals and teams as memberships fluctuate from one team to another (Kane, Argote & Levine, 2005; Bedwell, Ramsay & Salas, 2012). In addition, Ruff (2006) suggests that simultaneous work in unique projects encourages the discovery of latent opportunities and promotes the interchange of knowledge. Thus, this research proposes that cognitive demand in the perceived MTM variety context will positively predict individual knowledge integration behaviour.

Hypothesis 6: Cognitive demand will positively predict knowledge integration at the individual level.

Despite the benefits of perceived MTM variety as posited above, the proposed presence of hindrance stressors in the perceived MTM variety context makes it logical to examine the individual negative responses to these stressors. Burnout is seen as a state of physical, emotional and mental exhaustion caused by long term involvement in situations that are emotionally demanding (Harrison, 1999). It is rampant in modern organisations (Golembiewski, Boudreau, Sun & Luo, 1998) as it costs American

businesses up to \$200billion annually in terms of reduced productivity (Specter, Chen & O'Connell, 2000). It is a consequence of environmental conditions and it is manifested in several forms including emotional exhaustion, depersonalisation of others, and diminished personal accomplishment (Boles, Dean, Ricks, Short & Wang, 2000; Maslach 1982; Worley, Vassar, Wheeler & Barnes, 2008). Emotional exhaustion is described as conditions in which an employee's psychological resources have been depleted and are no longer able to give of themselves (Jawahar, Kisamore, Stone & Rahn, 2012). Thus, depersonalisation is described as a dysfunctional coping mechanism induced by job related stress that causes employees to become callous and detached from others (Ghorpade et al, 2011). Finally, diminished personal accomplishment involves repeated efforts that fail to produce results leading to a feeling of inefficacy and reduced motivation (Jawahar, et al., 2012)

A sizeable body of research has identified role demands as antecedents for employee burnout (Lee & Ashforth, 1996; Peeters, Montgomery, Bakker & Schaufeli, 2005).

Role conflict and role ambiguity have been a focal antecedent of stressors for employees (Holmes & Rahe, 1967; Ghorpade et al, 2011).

A meta - analysis study has found a correlation of .53 between role conflict and emotional exhaustion and .37 between role conflict and depersonalisation and a correlation of -.21 between role conflict and personal accomplishment (Lee & Ashforth, 1996). Consequently, perceived MTM variety implies that employees hold a range of roles across multiples teams (Mortensen, 2007; Zika-Viktorsson et al, 2006; O'Leary et al, 2011); compliance with the activities of one team might hinder the demands of other teams the individual belong to. Consequently, experiencing incompatible or irreconcilable expectations associated with multiple roles is premised to be psychologically uncomfortable and thus generate negative emotional responses (Jawahar, Stone & Kisamore, 2007). Based on the argument above, this research proposes that role conflict will predict burnout for employees.

Hypothesis 7: Role conflict will positively predict burnout at the individual level.

A meta-analysis by Lee and Ashforth (1996) also found that role ambiguity had a correlation of .21 with emotional exhaustion, a correlation of .34 with depersonalisation and a correlation of .11 with personal accomplishment. Afterwards, Verbeke (1997) corroborated the above and found a relationship between role ambiguity and all the three dimensions of burnout. Furthermore, a positive relationship between role ambiguity and the personal accomplishment dimension of burnout was established (Lewin & Sager, 2007; Lewin & Sager, 2009; Rutherford, Hamwi, Friend & Hartmann 2011). Finally, Ambrose and colleagues in their study of 2300 sales people across different sectors found a positive relationship between role ambiguity and burnout (Ambrose et al, 2014). It is likely that as perceived MTM variety increases, employees are unable to obtain the information required for adequate role performance due to work demand. Consequently, this research proposes the existence of a positive relationship between role ambiguity and burnout for the individual.

Hypothesis 8: Role ambiguity will positively predict burnout at the individual level.

Now I turn attention of this research to the negative effects of perceived MTM variety on performance outcomes. In environments where multiple goals exist, time management behaviours such as planning enables the integration of several action plans and the prioritisation of actions needed (Claessens, Vaneerde, Rutte & Roe, 2009). A central assumption is that planning is a prerequisite for successful action (Frese & Zapf, 1994). Consequently, planning behaviour enables individuals to structure their activities and schedule them in relation to the resources and opportunities available, which increases the likelihood of completing work as planned. In addition, since a focal team is the main team that the individuals identify with and from a social identity perspective (Tajfel, 1978) this would motivate the individual to prioritise the team's activities in order to enhance reputation or maintain the reputation of the focal team (Tajfel & Turner, 2004). Guilford suggest that creativity encompasses activities such as inventing, designing, contriving, composing and planning (Guilford, 1950) and evidence suggest that planning could be a crucial aspect of the creative process

(Osburn & Mumford, 2006). In a quantitative study of 216 engineering undergraduates that measures the relationship between employee's innovation and time management found a positive relationship between time and management innovation. In a quantitative study of 90 college students in North America, time management practices such as planning behaviour were found to positively influence college achievement (Britton & Tesser, 1991). Furthermore, a study of 102 salespeople also found a positive relationship between time management behaviour and job performance (Barling, Kelloway & Cheung, 1996). In addition, a survey of 70 engineers in a world leading semiconductor company found a direct relationship between planning behaviour and job performance (Claessens et al, 2004). Tripoli (1998) reported a similar finding, employees who reported higher level of planning received significant higher performance ratings from their supervisors and peers than those who reported low levels of planning behaviour. Also, a study of 186 participants that investigated the relationship between individual creativity and time management found a positive relationship between creativity and daily planning behaviour (Zampetakis, Bouranta & Moustakis, 2010). In the perceived MTM variety context, "time famine" can result due to various roles in multiple teams (Mortensen et al, 2006). Engaging in time management behaviours such as planning could prevent "time famine" from occurring and thus facilitate innovative endeavours. As a result, this research proposes a positive relationship between planning behaviour and the individual outcome of productivity and innovation (Ambrose, Rutherford, Shepherd & Tashchian, 2014).

Hypothesis 9: Time management behaviour will positively predict individual productivity in his/her focal team.

Hypothesis 10: Time management behaviour will positively predict individual innovative behaviour in his/her focal team.

One of the most important outcomes of teamwork is that individuals can share or integrate expertise knowledge with each other (Gardner, 2012). Consequently, integration of individuals' specialised knowledge to create organisational value is a key

source of competitive advantage (Grant, 1996). Srivastava and colleagues suggest that knowledge sharing among individuals was directly related to team performance (Srivastava, Bartol & Locke, 2006). Effective knowledge integration occurs when the right information is moving back and forth between the right team members at the right time so that they can solve the ongoing problems they encounter (Argote & Ingram, 2000). Consequently, solving this problem would improve individual performance.

A field study of loan officers at a Japanese bank found a positive relationship between information shared and individual performance, as it improved performance by 10 percent (Maggio & Alstyne, 2011). Quigley and colleagues also reported a direct positive relationship between knowledge shared and a unit manager's performance (Quigley, Tesluk, Locke & Bartol, 2007). In addition, a study of software development teams reported a positive relationship between knowledge sharing behaviours and actual software development. Finally, a multi-industry survey of 248 employees and their supervisors discovered that knowledge sharing mediated the relationship between learning goal orientation and innovative performance (Lu, Lin & Leung, 2012). In addition, a quantitative study of 113 executive managers found a direct positive relationship between knowledge integration and innovation (Lin & Chen, 2006). Thus, this research posits that knowledge integration will positively predict productivity and innovative behaviours at the individual level.

Hypothesis 11: Knowledge integration will positively predict individual productivity in the focal team.

Hypothesis 12: Knowledge integration will positively predict individual innovative behaviour in the focal team.

Alternatively, considering the effects of the negative coping response of hindrance stressors on the individual outcomes of productivity and innovation, this research hypothesise that burnout will negatively predict the individual and team outcomes of productivity. The negative consequences of burnout on employee outcome are well documented in literature (Jawahar, Stone & Kisamore, 2007). In a meta-analysis of 61

studies, Lee and Ashforth (1996) reported that burnout was strongly associated with turnover intentions and organisation commitment; emotional exhaustion had a positive relationship with turnover intentions and a negative relationship with organisational commitment (Lee & Ashforth, 1996; Alarcon, 2011). A more recent meta-analysis of 203 independent sample found that burnout was negatively related to contextual outcome of workplace safety (Nahrgang, Morgeson & Hofmann, 2010). In addition, a meta-analysis of 16 studies found a negative strong relationship between burnout and objective performance (Taris, 2006). Furthermore, a study of 146 participants by Bakker and colleagues discovered a negative significant relationship between burnout and in role performance (Bakker, Demerouti & Verbeke, 2004). Lee and Ashforth (1996) in their meta-analysis of the correlates of the three dimensions of burnout found emotional exhaustion, depersonalisation and personal accomplishment to negatively correlate with innovation. To complement the findings of Lee and Ashforth, a study of 94 mental health nurses in Oregon found a negative relationship between burnout and innovation (Savicki & Cooley, 1987). Thus, this research proposes that burnout will be negatively related to the outcomes of productivity and innovation at the individual level.

Hypothesis 13: Burnout will negatively predict individual productivity in the focal team.

Hypothesis 14: Burnout will negatively predict individual innovative behaviour in the focal team.

4.3. Serial Mediation

In line with the Challenge hindrance framework (LePine et al, 2004; Boswell, Olson-Buchanan, & LePine, 2004; LePine et al, 2005; Podsakoff et al, 2007) challenge stressors are expected to be appraised positively and this elicit positive behaviours as team members believe that greater effort will enable them to manage increased demand and achieve their goals (Lepine et al, 2005; Pearsall et al, 2009). Consequently, this behaviours should yield or translate to positive outcomes for the individual (Boswell et al, 2004). Thus, following previous hypothesis I propose that perceived MTM variety will positively predict time pressure and individuals would react

by engaging in efficient practices such as time management. In turn, one would expect that time management would positively lead to the outcomes of productivity and innovation for the individual. Thus, I propose that the relationship between perceived MTM variety and the outcomes productivity and innovation is mediated by time pressure and time management.

Similarly, as proposed above, perceived MTM variety will result in cognitive demand for individual team member as they shift their attention from one diverse team to another (O'Leary et al, 2011). Accordingly, I argue that this demand on cognitive resources will be appraised as a challenge stressor and thus elicit motivational responses from team members (LePine et al, 2005) as they seek to rise to the challenge of competing demands. In addition, I argue that the motivational response from cognitive demand experienced as a challenge because of perceived MTM variety is to increase the level of their effort and integrate the knowledge acquired from those varied memberships which will in turn result to the outcomes of productivity and innovation. Thus, I propose that the relationship between perceived MTM variety and the outcomes of productivity and innovation is mediated by cognitive demand and knowledge integration.

Hypothesis 15a: Time pressure and time management will mediate the relationship between perceived MTM variety and productivity.

Hypothesis 15b: Time pressure and time management will mediate the relationship between perceived MTM variety and innovation.

Hypothesis 16a: Cognitive demand and knowledge integration will mediate the relationship between perceived MTM variety and productivity.

Hypothesis 16b: Cognitive demand and knowledge integration will mediate the relationship between perceived MTM variety and innovation.

As argued in the preceding section, empirical evidence suggest that hindrance stressors will be appraised as potentially harmful to the goals of the individual and as such it will trigger negative emotions and a negative behavioural coping response

(LePine et al, 2005). Cooper and colleagues suggests that this coping response would result in strain and fatigue (Cooper, Dewe & Driscoll, 2001).

A study of 179 workers that examined the indirect effects of leader membership exchange on work family interactions found that self-reported hindrance stressors mediated the relationship between leader membership exchange and work family interactions (Culbertson, Huffman & Alden-Anderson, 2010). Thus, I argue that the varied role performed by individuals in the perceived MTM variety context will result in role conflict. Consequently, role conflict will result in burnout for the individual which will negatively impact the outcomes of productivity and innovation. In light of this argument, I propose that the relationship between perceived MTM variety and the outcomes of productivity and innovation will be mediated by role conflict and burnout.

In a similar vein, employees can feel uncertain about what they are doing because they perform several roles in different teams (O' Leary et al 2011) and as such role ambiguity is expected in the perceived MTM variety context. I argue that role ambiguity will result in a negative consequence of burnout for the individual (Maslach, Schaufeli & Leiter, 2001). Which consequently will result in diminished levels of productivity and innovation (Taris, 2006). Thus, I propose that the relationship between perceived MTM variety and the outcomes of productivity and innovation is mediated by role ambiguity and burnout

Hypothesis 17a: Role conflict and burnout will mediate the relationship between perceived MTM variety and productivity

Hypothesis 17b: Role conflict and burnout will mediate the relationship between perceived MTM variety and innovation.

Hypothesis 18a: Role ambiguity and burnout will mediate the relationship between perceived MTM variety and productivity.

Hypothesis 18b: Role ambiguity and burnout will mediate the relationship between perceived MTM variety and innovation.

4.4. Moderator

This research also aims to consider the condition under which perceived MTM variety affects the individual outcomes of productivity and innovation. Thus, I sought to examine the effects of perceived MTM variety on the first stage mediators at different levels of polychronicity.

In environments where task rotation is prevalent (such as the perceived MTM variety context), one individual difference that may be relevant is polychronicity (Conte & Jacobs 2003). At one end of the spectrum are individuals who are considered to have polychronic orientation because they prefer to engage in multiple tasks simultaneously and at the opposite end of the spectrum are individuals who are considered to have monochronic orientation and prefer to perform tasks serially (Madjar & Oldham, 2006; Persing, 1999). Consequently, individuals with polychronic orientation are more comfortable with multitasking and task switching activities thus preferring simultaneous engagement with two or more tasks (Bluedorn, Kalliath, Strube & Martin, 1999; Madjar & Oldham, 2006). Thus, individuals with polychronic orientation will be better suited to the perceived MTM variety environment. Research has linked polychronicity to important individual outcomes.

In addition, the person environment theory suggests that the congruence between an individual characteristic (traits abilities and values) and contextual characteristics is an important determinant of attitudes and behaviour (Kristof-Brown, Zimmerman & Johnson, 2005). In particular, person-job fit which is the degree of fit between a person and his or her job has been found to affect individual outcomes (van Vianen, De Pater & Van Dijk, 2007). Thus, individuals with a preference for polychronicity would be better suited to the perceived MTM variety environment than individuals with monochronic orientation. As a result, I argue that polychronicity is an important individual attribute in the perceived MTM variety context where team members must undertake multiple tasks simultaneously and switch their attention extensively between tasks (Bluedorn, Kalliath, Strube & Martin, 1999).

A field research of 224 undergraduate students in a laboratory setting showed that students who demonstrated polychronic orientation and favoured involvement in multiple tasks exhibited higher creativity (Madjar & Oldham, 2006). Furthermore, a study of 174 employees of a computer organisation investigating the relationship between polychronicity and sales performance found that polychronicity was significantly related to supervisor's ratings of customer service, sales performance, and overall performance (Madjar & Oldham, 2006). Examining the relationship between polychronicity and stress, a study of 194 participants examining the relationship between polychronicity and job performance found that as individuals' polychronicity increased, the subjective stress was of individuals decreased at medium and high levels of polychronicity (Cochrum-Nguyen, 2013). Fournier and colleagues also discovered that polychronicity has a positive impact on performance in their study of 166 account executives in a large broadcasting organisation (Fournier, Weeks, Blocker & Chonko, 2013). As a result, this research proposes that polychronicity will moderate the relationship between perceived MTM variety and the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity).

Hypothesis 19: Polychronicity will moderate the relationship between perceived MTM variety and time pressure such that the relationship is stronger at higher levels of polychronicity.

Hypothesis 20: Polychronicity will moderate the relationship between perceived MTM variety and cognitive demand such that the relationship is stronger at higher levels of polychronicity.

Hypothesis 21: Polychronicity will moderate the relationship between perceived MTM variety and role conflict such that the relationship is weaker at higher levels of polychronicity.

Hypothesis 22: Polychronicity will moderate the relationship between perceived MTM variety and role ambiguity such that the relationship is weaker at higher levels of

polychronicity.

4.5. Moderated Meditation

After the above arguments, this research further posits that the effects of perceived MTM variety on the individual level outcomes of productivity and innovation are moderated by polychronicity. That is the extent to which an individual prefers to undertake multiple tasks simultaneously (Hall, 1959; Slocombe & Bluedorn 1999) instead of completing task sequentially. Thus, polychronicity has important implications for individuals who work in contexts that are plagued with heavy time demands, especially in context where there is an emphasis on managing multiple tasks at a time (Bluedorn, 2002; Onken, 1999) Konig and Waller (2010) suggested that polychronicity facilitates job performance only if the environment demands multitasking. Thus, one can argue the case for polychronicity as an important individual difference in the perceived MTM variety context. I propose that the conditional indirect effects of perceived MTM variety on the outcomes of productivity and innovation through the first stage and second stage mediators depends on the extent that individual team members are polychronic.

Merging both the challenge hindrance framework and polychronicity construct together, I suggest that, under high polychronicity the relationship between perceived MTM variety and challenge stressors (Time pressure and knowledge integration) will be stronger which will lead to positive appraisals that will then elicit positive coping behaviour (LePine et al ,2005) such as time management and knowledge integration. Consequently, time management and integration will have positive relationship with the outcomes of productivity and innovation.

Alternatively, under high polychronicity, the relationship between perceived MTM variety and hindrance stressors (Role Conflict and Role ambiguity) will be weaker and thus offset the negative behavioural response and lead to lower levels of burnout, which in turn have a reduced impact on the outcomes of productivity and innovation. I

therefore hypothesize that:

Hypothesis 23a: The indirect effect of perceived MTM variety on productivity through time pressure and time management is stronger at higher levels of polychronicity.

Hypothesis 23b: The indirect effect of perceived MTM variety on innovation through time pressure and time management will be stronger at higher levels of polychronicity.

Hypothesis 24a: The indirect effect of perceived MTM variety on productivity through cognitive demand and knowledge integration will be stronger at higher levels of polychronicity.

Hypothesis 24b: The indirect effect of perceived MTM variety on innovation through cognitive demand and knowledge integration is stronger at higher levels of polychronicity.

Hypothesis 25a: The indirect effect of perceived MTM variety on productivity through role conflict and burnout is weaker at higher levels of polychronicity.

Hypothesis 25b: The indirect effect of perceived MTM variety on innovation through role conflict and burnout is weaker at higher levels of polychronicity.

Hypothesis 26a: The indirect effect of perceived MTM variety on productivity through role ambiguity and burnout is weaker at higher levels of polychronicity.

Hypothesis 26b: The indirect effect of perceived MTM variety on innovation through role ambiguity and burnout is weaker at higher levels of polychronicity.

Chapter 5: Effects of Perceived MTM variety on Team Productivity and Innovation: Model Development and hypotheses

5.1. Perceived MTM Variety as Team Level Construct

Perceived MTM variety at the team level is conceptualised as a form of diversity that captures the wider variety of other teams that the focal team is exposed to (O'Leary et al, 2011). This diversity is in form of knowledge, functional background, experience and external social ties from other memberships (Argote & Ingram, 2000; Austin, 2003). Increasing levels of perceived MTM variety at the team level suggests that team members of a focal team are experiencing work in a variety of different teams (O, Leary et al, 2011) and can bring a multiplicity of information sources to the focal team (Harrison & Klein, 2007). Thus, this research suggests that the mechanism which perceived MTM variety affects team outcomes is analogous to those at the individual level, but it is manifested in term of team members' collective consciousness (Waller et al, 2001). Although, individual team members may vary in terms of perceived MTM variety, however due to team interactions and shared mental models, teams can become aware of the amount of perceived MTM variety the team has (Kozlowski & Klein, 2000, Chan, 1998). To justify this assumption, the team result section of this thesis (Chapter 9), the substantial within-group agreement was achieved which justified the aggregation of perceived MTM variety to the team level of analysis and confirmed that it was indeed a shared team construct (Kozlowski & Klein, 2000). In addition, team time pressure, team role conflict, team role ambiguity, team information elaboration, team coordination loss all had substantial within group agreement to suggest they were a shared team construct and as such were aggregated. As a result, this research switches its attention to argue for the team level hypothesis

5.2 Model Development and Hypothesis

At the team level, the effects of perceived multiple team membership variety are driven by the challenges and benefits of misalignment in the focal team's temporal structure (Ballard & Seibold, 2003; Ballard & Seibold, 2004). Temporal misalignment suggests that team

members spend time apart from one another and this occurs in the context of perceived MTM variety when work schedules overlap in a way that makes it impossible to work synchronously (O'Leary et al, 2011b). Teams in this context may not be working towards the same outcome, but they are interdependent in terms of their shared members. (O'Leary et al, 2011).

At this point, this research extends the challenge hindrance framework (Cavanaugh et al 2000; Boswell et al, 2004) adopted at the individual level to the team level. And as such, this research posits that time pressure at the team level are challenge stressors and are positively related to perceived MTM variety at the team level. Previous studies in the area of stress suggests that stress appraisals are entrenched in a team's social context and focal team members will process environmental stimuli in a similar fashion (Drach- Zahavy & Freund, 2007; Hobfoll, 2001). As perceived MTM variety increases for the focal team, team members are unable to dedicate the entirety of their time to one team and there is a possibility that teammates will not have contiguous blocks of time (O'Leary et al, 2011). Even more so, when team members divide their time among other varied teams, there are fewer overlapping blocks of time in teammate's schedules and thus requiring work to be carried out asynchronously (Maznevski & Chudoba, 2000). Asynchronous work will compel teamwork to be coordinated to minimize time lags between when team member task completions and when other team members are ready to receive and begin work (Postrel, 2009).

However, temporal misalignment can enhance a team's productivity by stimulating the focal team to find more efficient methods to organize its work (O'Leary et al, 2011). O'Leary and colleagues suggest that teams that work in the perceived MTM variety contexts are likely to become more efficient in their work, knowing that they will have small portions of each other's time and knowing this will prompt the focal team to collectively develop ways to enhance team efficiency (O'Leary et al, 2011; Mortensen et al, 2007). And according to the challenge hindrance framework, when team members are faced with a challenge stressor, they will appraise the situation as an opportunity and respond with a problem-focused coping

strategy (Pearsall et al, 2009. LePine et al, 2005). Thus, the collective awareness of time pressure facing the focal team will prompt them to develop efficient team practices. Practices might include more structured and focused meetings where teams consciously spend majority of their time on the tasks at hand and limited time on social and non-task-oriented interactions (O' Leary et al, 2011). Teams working under time constraints usually tend to produce at a faster rate (Fuller & Dennis, 2004; Bluedorn, Turban & Love, 1999; Gevers, Rutte, & Van Eerde, 2006; Harrison, Mohammed, McGrath, Florey & Vanderstoep, 2003; Waller, Zellmer-Bruhn, & Giambatista, 2002) as the temporal misalignment makes them reassess existing structures and enact new structures. Without at least some form of mild stress on the team's temporal structure, team members tend to budget more generally than the task demands (MacManus & Grothe, 1989).

This research suggests that the team will view this as a challenge stressor and as such it considered a as an opportunity to access unique set of information that the team can learn from. Consequently, this research suggests that perceived MTM variety will be positively related to cognitive demand at the team level.

Hypothesis 27: Team Perceived MTM variety will positively predict team time pressure for the focal team

As perceived MTM variety increases for a focal team, it will struggle to manage and coordinate team member's schedule (O' Leary et al, 2011b; Mortensen et al, 2007), especially as a team's boundary spanning activity increases. According to O'Leary and colleagues, boundary spanning is the most relevant research to multiple team membership at the team level (O' Leary et al ,2011). This is due to the fact that team members are constantly crossing-boundary roles in multiple teams within the perceived MTM variety contexts (Wageman, Gardner & Mortensen, 2012).

Team Boundary Spanning is defined as the team's actions to establish linkages and manage interactions with parties' external to the environment (Marrone, 2010). Benefits of team boundary spanning activities includes outcomes such as team innovation, efficiency, and goal attainment (Faraj & Yan, 2009; Marrone, Tesluk & Carson, 2007). However,

boundary-spanning activities are taxing and can directly compete with a team's internal processes (Choi, 2002), as boundary spanners are required to span different conflicting subsystems (Katz & Kahn, 1978; Aldrich & Herker, 1977).

Boundary spanners experience significant role conflict and eventually role overload because of facing simultaneous and often competing pressures (Katz & Kahn, 1978). Teams that engage in external orientation may experience reduced team viability and role overload (Marrone et al, 2007). In their investigation of 31 consulting teams, Marrone and colleagues found a positive relationship between boundary spanning activities and role overload (Marrone et al, 2007). Friedman and Podolny (1992) found that role conflict was inherent among individuals who span boundaries in their investigation of a labour negotiation that took place over three months. Consequently, role overload, role conflict and role ambiguity have been seen as composite construct of role stress (Zika-Viktorsson et al, 2006; Savelsberg, Gevers & Poell, 2012).

Researchers of role stress have mainly focused on role stress as an individual level variable; however, scholars are increasingly supporting the existence of role stress at the team level of enquiry (Peiró & Rodriguez, 2008; Akgün, Byrne, Lynn, & Keskin, 2007; Leach, Wall, Rogelberg, & Jackson, 2005; Weaver, Bowers, & Salas, 2001). They suggested that shared task demands, and conditions may give rise to collective stress experiences, and the realization of this fact (Van Ginkel & Van Knippenberg, 2008) may affect collective belief and behaviour in a way that it affects team goals (Weaver et al., 2001). Consequently, this research posits that perceived MTM variety at the team level will be positively predicting team role conflict and team role ambiguity.

Hypothesis 28: Perceived MTM variety at the team level will positively predict team role conflict for the focal team

Hypothesis 29: Perceived MTM variety at the team level will positively predict team role ambiguity for the focal team.

Teams are attractive to organisations due to their ability to solve complex problem, as members possess a breadth of unique knowledge and expertise for the team to draw upon

(Milliken & Martins, 1996; Williams & O'Reilly, 1998; Jehn, Northcraft, & Neale, 1999) Teams, like individuals, perform cognitive tasks and similarly process collective relevant information on how to perform intellectual work (Hinz, Tindale & Vollrath, 1997). However, only through information elaboration processes can teams fully utilize the diverse pool of knowledge available to them (Van Knippenberg, De Dreu, & Homan, 2004).

Information elaboration is defined as a complex form of communication that involves “the exchange of information and perspectives, the process of feeding back the results of this individual-level processing into the group, and discussion and integration of its implications” (van Knippenberg, et al, 2004, p.1011). It goes beyond information sharing to capture the degree to which team members contribute detailed explanations of their ideas, and spend time constructively deliberating each other's perspectives, integrating information, and determining how to apply their knowledge resources to the problem at hand (Hoever, van Knippenberg, van Ginkel, & Barkema, 2012). Resick and colleagues suggest that knowledge integration is important for teams who operate in turbulent environments where coordination challenges exists as it helps the team to come up with a creative solution and perform at optimal levels (Resick, Murase, Randall & DeChurch, 2014; Sung & Choi, 2012). Consequently, demands in a team's environment can act as a catalyst for information elaboration as the team will need to discuss their perspectives in greater detail to meet the evolving demands of their environment (Resick et al, 2014; Van Ginkel & Van Knippenberg, 2009). An investigation of 272 undergraduate students from a large public university in the United States discovered that information elaboration had a stronger relationship with team performance when teams experienced communication and coordination challenges (temporal misalignment) than when they operated in a stable environment (Resick et al, 2014). Due to the turbulence in the team's context, the team developed and adopted routines that enhanced their decision-making process (Nadkarni & Narayanan, 2007). Thus, the challenge stressor in their environment led them to develop better working practices.

Consequently, the Challenge-Hindrance framework (Lazarus & Folkman, 1984; Cavanaugh et al 2000; Boswell et al, 2004; Lepine et al, 2005) adopted at the individual level, suggest that

challenge stressor such as time pressure are viewed by employees as rewarding work experiences that create opportunity for personal growth (Cavanaugh et al., 2000). Thus, this research posits that time pressure experienced at the team level will be appraised as a challenge stressor which will motivate teams to engage in information elaboration in order to achieve team goals. As information elaboration does not follow directly from functional heterogeneity but contingent on motivated effort to mobilise the team's diverse information, this research proposes that time pressure at the team level will serve as a source of motivational focus for teams in achievement settings (Pieterse, van Knippenberg & Dierendonck, 2013).

Hypothesis 30: Time pressure at the team level will positively predict information elaboration at the team level.

Despite the potential positive effects of information elaboration, there are also likely to be process losses inherent in teams that are comprised of members that belong to diverse multiple teams, particularly with regards to coordination. Coordination has been defined as the process of "managing dependencies between activities" (Malone & Crawston, 1994, p.91) or "integrating or linking together different parts of an organisation to accomplish a collective set of tasks (Van De Ven, Delbecq & Koenig, 1976, p.322). Consequently, teams may suffer coordination losses or difficulties. This might be due to the presence of role conflict, role ambiguity, and/or overload at the team level which undermines the team's collaborative capacity to act toward a common and valued goal in a coordinated manner (Morgan & Bowers, 1995; Salas, Dickinson, Converse, & Tannenbaum, 1992; Savelsberg, Gevers, van der Heijden & Poell, 2012). Employees involved in multiple collaborations such as in academia, R&D and consulting are constantly exerting specific effort to coordinate, manage and track those collaborations (Gonzalez & Mark, 2005). Work in the perceived MTM variety context must be coordinated to minimize time-lags between when team members are ready to hand-off their part of a task and when other team members are ready to receive and begin work on that task (Postrel, 2009). However, an increase in perceived MTM variety is likely to result in temporal misalignment among team members - when team

members allocate their time between two or more teams, they have less than 100 percent of their time to work on each team (O'Leary et al, 2011). Surely, it is even more challenging when individuals allocate time between varied memberships in different teams. For example, when individuals switch between teams where tasks performed are different, the time cost of recovering from one varied task or location is higher. In addition, due to the inability to work synchronously (such as in the case of geographically dispersed teams), temporal misalignment will lead to increased coordination costs (Cummings & Haas, 2012). Although there are small potential productivity gains from temporal misalignment, it can also cause coordination processes to be fragile (Arrow, McGrath, & Berdahl, 2000) and high temporal misalignment can quickly drive down productivity. Mortensen et al (2007) also suggest that the perceived MTM variety setting is usually characterised with coordination and integration issues.

Thus, this research posits that both the team role conflict and team role ambiguity will positively predict coordination loss. Thus, incorporating the challenge hindrance framework, when team members encounter team role conflict and team role ambiguity as a hindrance stressor their emotional coping response will be to focus on their own cognitions by mentally withdrawing from the created knowledge structures of the team (Pearsall et al, 2009). One could suggest that this will lead to coordination challenges as team members are unaware of what their fellow team members are doing. In addition, when team members withdraw from team processes to focus on their own cognition, the focal team will find it difficult to arrange meetings (O'Leary et al, 2011b). Pearsall and colleagues suggested that team members will attempt to cope with hindrance stressors by retreating from team responsibilities and abandon attempts to learn about the other team member's role and area of specialisation (Pearsall et al, 2009). Thus, the team's collective experience of role stress may impair members' motivation to invest in the team's goals. In addition, the team may suffer coordination losses because team role conflict and team role ambiguity in teams undermines the team's interactive capacity to organise towards a common and valued goal

in a coordinated manner (Morgan & Bowers, 1995).

Hypothesis 31: Team Role Conflict will positively predict team coordination loss at the team level.

Hypothesis 32: Team Role Ambiguity will positively predict team coordination loss at the team level.

The Categorisation-Elaboration model (CEM) suggests that teams benefit from diverse members when members differ in task-relevant perspective and knowledge and engage in information elaboration (Hoever et al, 2012). Information elaboration has been identified as a key mediating process in the relationship between diversity and performance (Homan et al, 2007; Kearney & Gebert, 2009; Pieterse, Van Knippenberg & Van Ginkel, 2011). Team members with diverse backgrounds are associated with diverse information knowledge and perspectives and this might bring together a larger pool of task-relevant information resources for the team to use in its daily activities (Pieterse, Van Knippenberg & Van Dierendonck, 2013). A study of 184 students distributed in 46 groups discovered that information elaboration was associated with better performance in teams that had heterogeneous information (Homan, Van Knippenberg, Van Kleef & De Dreu, 2007). Additionally, in a study of 272 undergraduates, Resick and colleagues found a positive significant relationship between information elaboration and team performance (Resick et al, 2012). Consequently, an experimental study of decision-making groups discovered that information elaboration mediated the relationship between knowledge about the distribution of information and decision-making performance (van Ginkel & van Knippenberg, 2009). Therefore, this research posits that team information elaboration is positively related to team outcomes of productivity and innovation.

Hypothesis 33: Information elaboration at the team level will positively predict team productivity.

Hypothesis 34: Information elaboration at the team level will positively predict team innovative behaviour.

This research also argues for the negative effects of coordination loss on the team outcomes

of productivity and innovation. As coordination losses increase, team productivity falters and crises will arise more frequently requiring team members to attend to the project at less predictable intervals (Chisholm, Collison, Nelson, & Cordell, 2000; Jett & George, 2003). Hon and Chan (2013) suggests that individuals may experience temporal misalignment and the focal teams' performance is subsequently affected by the accumulation of these misalignments. Kozlowski and Bell (2003) also suggest that coordination is fundamental to group effectiveness in circumstances where team performance is the result of numerous contributions of all group members. Stout, Salas, and Carson (1994) studied the effects of coordination on two-person team performance on a flight simulation task and found that coordination ratings positively predicted mission performance of the team when individual task proficiency was held constant. Rico and colleagues in their study of coordination processes also postulated that team coordination results in heightened team performance (Rico, Sanchez-Manzanares, Gil & Gibson, 2008). Furthermore, a study of teams of emergency wards of public hospitals found a relationship between implicit coordination and performance (Khan, Lodhi & Makki, 2010). Finally, a study of 38 virtual MBA teams indicated that over time task–knowledge coordination becomes an important determinant of team performance fully mediating the impact of expertise location and cognition–based trust (Kanawattanachai & Yoo, 2007).

In a similar vein, Gibson and Gibbs (2006) suggest that situations where coordination challenges are high will hinder innovation implying that a certain amount of focused attention and mental energy is needed to pursue innovation (Csikszentmihalyi, 1996). When members lack knowledge of what each team member can contribute, it is more challenging to allocate responsibilities and coordinate, especially around novel ideas (Obstfeld, 2005). Thus, this research argues that coordination loss will negatively predict team productivity and innovation.

Hypothesis 35: Coordination loss will negatively predict team productivity. Hypothesis 36:

Coordination loss will negatively predict team innovative behaviour.

5.2. Serial Mediation

Increasing perceived MTM variety for the focal team would suggest that the team as a collective would have limited time to dedicate to the focal teams' tasks, this then motivates the team as collective to adopt efficient work practices (O'Leary et al, 2011). Waller and colleagues also suggests that teams working under tighter time pressures tend to produce at a more a faster rate (Waller, Zellmer-Bruhn & Giambatista, 2002). The pressure on team members schedule due to membership in varied teams will trigger certain activities by teams to reassess their structures and enhance new ones (Fuller & Dennis, 2004). In addition, teams intensify their effort when they feel time pressure (Gersick, 1988; Ancona, 1990; Seers & Woodruff, 1997).

Thus, looking through the lens of the challenge hindrance framework, I suggest that team time pressure will motivate focal team members to engage in information elaboration activities as they cope with the challenge of collective time pressure (Lepine et al, 2005, Pearsall et al, 2009). In addition, the interdependent nature of teams will bring team members together to discuss the challenge facing them and come up with possible new solutions (Chen & Kanfer, 2006) as they seek to cope with the challenge of time pressure and achieve their team-level goals. Furthermore, Lepine and colleagues suggest that when team members appraise a challenge stressor as an opportunity for growth and mastery, they will collectively respond by taking a problem-solving approach thereby increasing their motivation to learn about each other's knowledge (Lepine et al, 2004). Consequently, I propose that information elaboration will lead to the team outcomes of productivity and innovation. For example, Resick and colleagues discovered that information elaboration was positively related to team performance for teams operating in turbulent environments in their study of 4 self-managed teams of 68 team members. Thus, I propose that the relationship between perceived team MTM variety and team outcomes of productivity and innovation is mediated by team time pressure and information elaboration.

Hypothesis 37a: Team time pressure and information elaboration will mediate the

relationship between perceived MTM variety and the team outcome of productivity.

Hypothesis 37b: Team time pressure and information elaboration will mediate the relationship between perceived MTM variety and the team outcome of innovation.

On the other hand, increasing perceived MTM variety for the focal team could lead to both team role conflict and team role ambiguity. Thus, focal team members who occupy multiple role may experience inter-role conflict when the requirement of one role becomes incompatible with the requirement of the other (Kahn et al, 1964) and thus leading to role conflict for the focal team members. As suggested earlier that shared tasks demand and conditions could give rise to collective stress experiences (Van Ginkel & Van Knippenberg, 2008; Pearsall et al, 2009) suggesting that the focal team might experience team role conflict as a collective experience. In addition, the demand on team process as perceived MTM variety increases for each team member would suggest that each team member would have lesser time to dedicate to focal team, which will make it difficult for the team to integrate information and develop shared understanding (O'Leary et al, 2011). I argue that this will lead to team role ambiguity, as focal team members will have lesser time to process and integrate their focal team requirements.

Consequently, as focal team members encounter these hindrance stressors (team role conflict, team role ambiguity) they will appraise the situation as negative and will respond with an emotional style of coping such as reduced commitment (Pearsall, et al, 2009). This avoidant coping behaviours will prompt individuals to disengage from team interactions and responsibilities as they focus their attention on their independent tasks (Hinsz, Tindale & Vollrath, 1997). I argue that this will result in coordination loss for the focal team as the coordination of the team efforts proves difficult. A team's ability to successfully coordinate roles and activities is necessary for team effectiveness (Reagans, Argote & Brooks, 2005) As a result, one would expect that this would have a negative consequence for the team outcomes of productivity and innovation. In a quantitative overview of 93 studies examining the relationship between team design features and team performance found that intra-team

coordination was related to higher team performance (Stewart, 2006).

Hypothesis 38a: Team role conflict and coordination loss will mediate the relationship between perceived MTM variety and team productivity.

Hypothesis 38b: Team role conflict and coordination loss will mediate the relationship between perceived MTM variety and team innovation.

Hypothesis 39a: Team role ambiguity and coordination loss will mediate the relationship between perceived MTM variety and team productivity.

Hypothesis 39b: Team role ambiguity and coordination loss will mediate the relationship between perceived MTM variety and team innovation

Through chapter 4 and 5, this research as argued the effects of perceived MTM variety at the individual and team level. At both levels of enquiry, this research predicted that perceived MTM variety will positively predict challenge stressors and hindrance stressors. In addition, I also theorise a set of coping responses that individuals and teams might engage in response to the stressors in their environment. In addition, different pathways that examine the effects of perceived MTM variety on individual and team outcomes of productivity and innovation were also examined. In the next chapter, I present the methods adopted to examine the effects of perceived MTM variety on the outcome of productivity and innovation at the individual and team level.

Chapter 6: Methodology

6.1. Chapter Summary

This chapter outlines the methods adopted in this research and starts by considering the philosophical paradigm of choice before turning to the research design of the study. Consequently, details about the sample is provided, followed by the researcher's approach to gaining access to the organisation of study. Afterwards, this chapter discusses the procedure for data collection, followed by a detailed description of the measures used in this research. Finally, details of the adopted analytical strategy and ethical consideration was discussed

6.2. Philosophical Approach

Guba and Lincoln (1994) emphasised the importance of paradigms by suggesting the notion that no enquiry should be undertaken without the researcher been clear of the paradigm guiding the enquiry, to this end, this research defines a research paradigm. A paradigm is defined as a construct that specifies a general set of philosophical assumptions covering what is assumed to exist, the nature of valid knowledge and what is valued (Kuhn, 1970). Thus, a paradigm can be regarded as a basic belief system or worldview that guides the researcher, all paradigms share three fundamental elements: ontology, epistemology and methodological (Guba & Lincoln, 1994). Hence, a paradigm implies a pattern, structure, or system of scientific and academic ideas, values and assumptions (Olsen, Lodwick, & Dunlop, 1992). Ontology is the study of the nature of reality, epistemology is the study of what can be known about reality and this is dependent on what is believed to be reality (Lee & Lings, 2008) and methodology refers to the procedures that researchers use to examine what is can be known and what can be regarded as knowledge and the justification behind procedures (Sarantakos, 1998).

The primary discipline that dominates the study of work teams is organisational behaviour (Cohen & Bailey 1997; Mathieu, Tannenbaum, Donsbach & Alliger, 2014) and as a result, development in this discipline is being achieved through the positivist approach to research (Rousseau & McCarthy, 2007). However, due to the nature of the phenomena been studied

in this discipline, organisational behaviour has adopted various paradigms including positivism, interpretivism, functionalism and postmodernism, which is becoming popular in the study of organisations (Mingers, 2001). Positivism holds the view that enquiries of study are observable and can be reliably measured and studied with theoretical explanations (Lee & Lings, 2008). At the ontology level positivist researchers assume that reality is objectively derived, and it is measurable using tools that are independent of the researcher suggesting that knowledge is objective and identifiable (Henning, Van Rensburg & Smit, 2004). The epistemology of positivism is based on observable knowledge and seeks to offer explanations for that knowledge (Hughes & Sharrock, 1997; Grix, 2004). And as such its epistemology engages the use of the scientific approach (Neuman, 2011) that the perceptions of people are either right or wrong, true or false and knowledge is worthwhile to the extent at which it describes objective information that reflects the world (Kincheloe & Tobin 2009). However, positivism has been criticised based on its quest for the absolute knowledge and absolute reality (Scotland, 2012). The 20th century saw post-positivism emerge from positivism. It is a perspective that sits between both positivism and interpretivism (Grix, 2004). Post-positivist argues that the truth in a scientific paradigm is simply our belief in the truth of currently tested hypothesis and hypotheses are therefore never proven but rejected (Bryman, 2004). They suggest that scientific theories can never been proven true and only when attempts to refute them fail can they be tentatively accepted (Crotty, 1998). Post-Positivist do not only seek observables, but they seek to understand causal relationships. In addition, the participant's perspective is often sought (Crotty, 1998). Many researchers would now adopt critical realism, which differs from positivism, in that it argues that phenomena are not always observable and seeks causality with both observable and unobservable phenomena (Bhaskar, 1998). The critical realist is committed to ontological realism (that there is a reality, which is differentiated, structured, and layered, and independent of mind), epistemological relativism, which suggests that all beliefs are socially produced and hence potentially fallible (Patomaki & Wight, 2000). Interpretivism, on the other hand argues that knowledge is produced through a prolonged process of interaction and observation of the subject of enquiry (Taylor & Medina, 2013).

Interpretivism seeks subjectivism and argues that a distinction should be made between the natural world and the social world (Grix, 2004). Proponents of the interpretivism approach believe that the world is socially constructed, and methods used in natural sciences are not transferable to the social world (Lee & Lings, 2008; Crotty, 1998). In contrast to positivism, the interpretivism perspective seeks to understand social phenomena by looking to establish social causal explanations in the social world (Hughes & Sharrock, 1997). The ontological position of the interpretive paradigm is relativism suggesting that there are so many realities as individuals (Scotland, 2012). Thus, the epistemological position of this perspective is that of subjectivism, suggesting that the world does not exist independently of our knowledge of it (Crotty, 1998; Grix, 2004). This perspective seeks to understand the phenomenon from the individual's perspective through the interaction between the researcher and the participants (Guba & Lincoln, 1994). Traditions in interpretive perspective include phenomenology, ethnographic research etc. (Lee & Lings, 2008). Functionalism is characterised by the objectivist view, grounded in explaining and understanding the order and regularities of social affairs (Burrell & Morgan, 1979; Samnani, 2013). Thus, its overall approach is to give rational explanations for Morgan, 1979). The ontological position of functionalism is realism, that the social reality exists independently of the observer and is ordered to the extent that uniformities can be explained (Bhaskar, 1978; Burrell & Morgan, 1979). In addition, functionalism has a positivist epistemology (Grant & Perrin, 2002), this is reflected in its attempts to apply models and natural science methods to the study of human activities (Burrell & Morgan, 1979). Finally, postmodernist perspective suggests the absence of a single truth and rather proposes the existence of "multiple truths" due to the limitation of human reasoning (Cooper & Burrell, 1988; Bauman, 1992). It has provoked the investigation of aspects of organisational life that is deemed entirely inappropriate for scientific study (Cooper & Burrell 1988; Hancock & Tyler, 2001). It rejects rigid categories of social practices, ideologies and institutions, it however, emphasizes the situational, contingent and provisional nature of social reality, it accepts local realities instead of universal ones (Karatas-Ozkan & Murphy, 2010). Ontologically, postmodernism recognises different realities and suggest that scientific truths are a

construction or reconstruction of language in localised context (Ogbor, 2000). Thus, the researcher will produce multiple versions of the truth, and how each truth affects the phenomenon been studied (Denzin, 1997). The postmodernist epistemology suggests that it is only through a particular form of discourse, that is, through language created can we know the reality and language is continuously in flux and thus cannot be captured with one term (Lyotard 1984).

The aim of this research is to examine the relationship between perceived MTM variety and the mechanisms that explains the link between perceived MTM variety and the individual and team outcomes of productivity and innovation. Consequently, the paradigm of choice will be one whose epistemology seeks to explain relationships by trying to identify causal relationships between phenomena (Creswell & Clark, 2007). As a result, this thesis adopts the positivist epistemology that assumes that reality is objective, and that this reality can be studied in a scientific manner. In addition, the conclusion derived from the data collected can be generalised suggesting its applicability in other contexts. Consequently, cause and effects relationships between variables can be examined through this paradigm (Guba & Lincoln, 1994). The overarching goal of this research is to offer predictions and generalisations, as a result, the methods adopted are quantitative in nature (Scotland, 2012). Furthermore, Edmondson and McManus (2007) suggested that the state of prior knowledge is a key determinant of research methodology. They went further to suggest that theory in the study of management fall in the continuum of mature to nascent. A mature theory is regarded as a theory that has been well advanced by variety of scholars which has led to a theory that has consistent agreed notions. Nascent theory on the other hand proposes a non-conclusive response to novel enquiries by suggesting new relationships among phenomena. Finally, intermediate theory is positioned in the middle of the continuum, between mature theories and nascent theories, it explains phenomena by presenting provisional explanations of phenomena and proposing relationships between new and established constructs (Edmondson & McManus, 2007). O'Leary (2011) suggested that theory in MTM is intermediate

in nature suggesting it is positioned between mature and nascent theories. Edmondson & McManus (2007) suggested a mixed method approach for theories in this category. However, the nature of this research is to answer questions regarding variables (i.e. perceived MTM variety and the outcomes of productivity and innovation) and as such quantitative methods are best for answering such questions (Harrison & Reilly, 2011).

6.3. Research Design

Before discussing the design of this research, it is worth reviewing the methods adopted by previous empirical enquiry into MTM, since research in this area is still very much in its infancy and thus established methods have not yet taken form. These methods are reviewed in a chronological order below.

6.3.1. Previous Methodological Approaches to MTM

I present previous studies that have attempted to study MTM in the workplace, the work of Zika- Viktorsson and colleagues was the first study that categorically explored the effects of MTM in the workplace. Firstly, Zika-Viktorsson and colleagues investigated the psychosocial aspects of working in multi- project settings and how project managers and members at the operational level perceive their work situation (Zika-Viktorsson, Sundstrom & Engwall, 2006). A quantitative approach was taken as data was predominantly gathered through a web-based questionnaire and bivariate correlations and multiple hierarchical regressions were used for analyses (Zika-Viktorsson et al, 2006). MTM was measured in terms of the number of projects respondents were assigned to and there was no indication of the measurement of perceived MTM variety.

Secondly, Mortensen and colleagues examined the challenges and benefits that occur after organisations have adopted MTM as a way to design work. They chose a grounded exploratory approach, which was a mixture of both quantitative and qualitative methods as they measured MTM among MBA students at two universities (Mortensen, Woolley & O'Leary, 2007). Questionnaires were aimed at 401 respondents to generate a background demographic and descriptive data, this was followed by questions that measured MTM related processes and procedures. For example, they asked whether respondents belonged

to multiple project teams. Respondents were also asked about the roles performed in teams and the total amount of time dedicated to those teams. Afterwards 13 interviews were then conducted at a federally funded research and development center where MTM is prevalent (Mortensen et al, 2007). Perceived MTM variety appears to have been captured, but it was not clearly defined and operationalised as a psychometric scale.

In another MTM study, Maynard and colleagues administered an online survey to 60 global virtual supply chain teams (Maynard, Mathieu, Rapp & Gilson, 2012). Multiple membership was measured by asking team members the amount of time allocated to teams they belong to. For example, they asked respondents the percentage of time allocated to teams each work week. This suggests that Maynard and his colleagues only mentioned the time allocation element of MTM. However, there are other element of MTM such as the variety of team memberships (O'Leary et al, 2011) which were not addressed.

A study by Chan (2014) provided empirical evidence of the relationship between MTM and performance from engineering project teams. However, Chan only measured the number of MTM, which does not reflect the perceived variety of those memberships. For example, he asked respondents about the number of teams they belong while ignoring the diverse nature of those teams which suggests that perceived MTM variety was not measured in his survey. A study by Pluut Flestea and Curseu (2014) studied MTM through 151 respondents. MTM was measured by asking respondents to list the teams they are member off. They also measured time allocation by asking respondents how much time they allocated between these teams. There was no evidence of them measuring perceived MTM variety in their study.

Bertolotti, Mattarelli, Vignoli and Macri (2015) investigated the relationship between daily MTM and team performance among 40 teams. This research undertook a quantitative approach and MTM was operationalised by measuring the number of MTMs and the average MTMs for the focal teams. This was achieved by taking the average number of simultaneous memberships held by the focal teams' individual members during a period of 13 months (Bertolotti et al, 2015). They chose 13 months because that was the average

duration for projects. However, perceived MTM variety was not measured in this study.

A recent study by Mo and Wellman examined how multiple team membership and team characteristics affects individual level networks (Mo & Wellman, 2016). In doing this, they examined a network of 101 scholars in 34 project teams across 26 universities in Canada. They adopted a quantitative method using multiple membership multilevel modelling technique (MMMM) to consider how diversity of teams is related to individual behaviour and networks. MTM was measured by asking respondents to identify the people in the organisation that they had collaborated, exchanged help or advice. Questions were also asked about the communication channel used in those interactions. Furthermore, this research also fails to adequately measure perceived MTM variety.

Furukawa (2016) conducted a qualitative study that examined the dynamics of critical problem-solving teams and creativity in a multi-project environment. Using thematic analysis, a semi-structured interview was conducted with 104 employees in multiple team memberships across Germany and Japan. Perceived MTM variety was measured by asking if individuals felt diversity in their project teams and whether respondents could describe their different responsibilities and tasks in different project. This study measured some element of perceived MTM variety but did not exclusively measure it.

Finally, Van De Brake and colleagues explored whether MTM is a challenge or hindrance stressor (Van De Brake, Walter, Rink, Essens & Van Der Vegt, 2017) using a sample of 1211 employee in a large research organisation in the Netherlands. They sought to capture MTM by using employees' work hour registrations to know the number of teams' employee were actively involved with over a week period. In one word, they only measured the number of MTM and did not measure perceived MTM variety.

In summary, the above empirical studies have informed the research design of this study by affirming that MTM can be measured quantitatively. Thus, as seen in table 7.1, it seems that most of these studies have focused on the number of MTM which is the number of teams an individual is concurrently a member of (O'Leary et al, 2011). They have not captured perceived MTM variety which refers to the perceived diversity characterising the teams an

individual are members of (O'Leary et al, 2011). In addition, these studies have given insights into the type of sample needed for the study. Particularly, Bertolotti et al's, Chan and Mo et al's study provided a deeper insight as this were quantitative studies that used multi-level data. In addition, Chitose's qualitative study also shed light on how to measure perceived MTM variety. However, a uniform limitation of the above studies is that they only measure the number of MTM and not perceived MTM variety. Perceived MTM variety is an important characteristic of MTM, as it affects team learning and innovation (O'Leary et al, 2011). Thus, it is important to mention that there is no exiting measure that takes into the account of the perceived variety in multiple team membership.

Table 6. 1: Previous Methodological approach to MTM

Research Study	MTM dimension measured	Methodology
Zika-Viktorsson et al, 2006.	The number of MTM was measured by asking project members the number of teams they belong to.	Quantitative approach was adopted in this research.
Mortensen et al, 2007.	The number of MTM and perceived MTM variety was measured by asking respondents the whether they belonged to multiple projects and what their roles were in those teams	Mixed method approach was adopted in this study.
Maynard et al 2012.	MTM was operationalised measured by asking respondents about the time allocated to each team they belong to	A quantitative approach was adopted in this study.
Chan, 2014	Measured the number of MTM by asking respondents the number of teams they belong to	A quantitative approach was adopted in this study.
Pluut et al, 2014	The number of MTM was captured by asking respondents to list the number of teams they belonged to and time allocated to each team was measured	The study adopted a quantitative approach.
Bertolotti et al, 2015	Measured the number of MTM and the average number of MTM for the team.	Adopted a quantitative approach to the study of MTM.
Mo & Wellman, 2016	MTM was measured by asking respondents to identify the people they have collaborated with.	A quantitative methodology was used in this research.
Chitose 2016	Measured perceived MTM variety by asking respondents if they felt diversity in terms of tasks and responsibilities	A qualitative approach was used in this research.
Van De Brake et al, 2017	Measured the number of MTM by using employees work hour registrations	Adopted a quantitative approached in their study.

6.4. Current Research Design

This study is designed as a quantitative multi-level study, which engages the use of cross-sectional surveys to examine the pathways through which perceived MTM variety achieves either positive or negative consequences for individual and team outcomes. Over the past two decades, multi-level analysis has emerged as a common analytical strategy in social and behavioural sciences (Raudenbush & Bryk, 2002). This is because it allows researchers to simultaneously examine the effects of individual level as well as group-level predictors on the dependent variables of interest (Hoffman, Griffin & Gavin, 2000). This study involved team member and their leaders, and it was conducted in a cross-sectional fashion. Team members across the organisation in different geographical location were included in the research. In addition, corresponding team leaders were included in the research. Individual and team level data were collected through paper-based survey of 216 employees across the organisation in a single time point with team leaders' ratings of individual and team outcomes of productivity and innovation. My contacts at the organisation sent the completed questionnaires by post once they were complete. I received the completed questionnaires three batches. After 10 teams successfully completed the questionnaire, another 20 teams completed the questionnaire followed by the final batch of 20 teams that completed the questionnaire.

Respondents were provided established measures of the independent, mediating, and moderating variables (i.e. time pressure, role ambiguity, knowledge integration, coordination loss and polychronicity along with the newly developed perceived MTM variety which can be seen in chapter 7. To avoid common method variance (Podsakoff, Mackenzie, Lee & Podsakoff, 2003), team leaders responded to measures of the dependent variables, namely individual and team outcomes associated with productivity and innovation. Details of the proposed sample, procedures and research instruments will now be considered.

6.5. Sample

Based on simulation studies and typical sample sizes in group-level research to date, the

researcher planned to collect a sample size of 60 teams, (Scherbaum and Ferreter, 2009). However, the researcher could only obtain a sample of 50 teams that structurally operationalise multiple team membership as a form of work design from the organisation of study. The total number of respondents is 216 with 70.8% (153) of the respondents been male and 29.2% (63) of the population been female. In this sample, the minimum number of individuals per team was 3 and a maximum of 9 individuals per team. A total number of 12 teams had 3 members per team with only 1 team having 9 members. The average size of the teams was 4.32 with a standard deviation of 1.17. The participants in this study have worked in this organisation for an average of 15 years. In addition, 68% (148) of the participants in this study were ab had an undergraduate degree with just 1.9% (4) having college education.

The organisation in this study is a large federally funded organisation that builds dams and water related facilities across the south-western path of Nigeria. Prior to data collection, the researcher's contact in the organisation confirmed that the organisation operated in a matrix structure and that most teams were cross-functional in nature and this made this organisation appropriate for this research. The core profession of the individuals in these teams is civil engineering and they work across several units, as they are needed over the course of an existing project. Activities in focal teams may last between six months and five years and individuals are usually members of their focal team until project completion. In addition, a total of 50 team leaders were matched to the participating teams. These leaders responded to team and individual member measures on productivity and innovation.

Since top management supported the research in the organisation, all questionnaires were returned filled. Consequently, it was not deemed necessary to apply Dawson's (2003) selection rate equation to this data. This is as a result of the high-power distance context (Van der Vegt, Van de Vliert & Huang, 2005) in which the data was collected. Consequently, individuals in high power distance culture rely and prefer leaders to make decisions for them and are reluctant to question their leaders (Hofstede, 2001). Thus, the influence from top officials in the organisation enable the researcher to attain the high response rest. In

addition, the researcher undertook extra measures to ensure the questionnaire reached the respondents by switching to paper-based survey to meet the needs of the respondents.

6.6. Access and Ethical Considerations

Before approaching the participating organisation for data collection, the researcher obtained ethical approval from the Aston Business School Research Ethics Committee, according to the university's code of practice laid down by the University's Research Ethics Committee. The researcher gained access to the federally funded organisation referred to above through a private contact. Access was negotiated with the managing director and the head of the legal department. The negotiation process occurred between June and August 2016. During the negotiation process, I was introduced to the gatekeepers who were the secretary to the head of the legal department and the assistant human resource director. Through telephone conversations and emails, I further communicated what types of teams could participate in the research. They helped identified teams that were extensively engaged in MTM which was the criteria for participation in the research. Afterwards, they suggested that due to the nature of the tasks workload that it is preferable to use paper-based survey to obtain responses from the participants as the majority of the participants were engineers working out of the main location majority of the time. The researcher communicated to the gatekeepers that practical recommendations detailing how the organisation can improve MTM processes will be provided at the end of the research via a feedback report. The researcher suggested that he would provide a tailored diagnosis of how teams can manage and improve MTM processes. Data collection took approximately three months to complete. During this period, the researcher maintained constant communication with the two gatekeepers mentioned above in order to check on the progress made and answer any questions that the organisation or respondents might have.

In accordance to the university's and departmental ethical standards, informed consent was obtained from all study participants. The questionnaire's coversheet in the appendix clearly states that respondents are assured of their rights in terms of whether or not they decide to participate in the study. The cover sheet also contains information about the purpose of the

research, as well as a statement about confidentiality, data protection and anonymity and right to withdraw according to the Data Protection Act 1998. Implicit informed consent was obtained when the participants, having read the survey cover sheet, proceed to complete, and return the survey to the researcher

In terms of data management, measures were taken to anonymise the individuals' and teams' identity. This was done by assigning unique codes to teams and consequently, individuals were assigned unique codes that match them to their focal teams. All study data, including the survey electronic files, were safely password protected on the researcher's computer to avoid third party access.

6.7. Procedure

This research examined the mechanisms through which perceived MTM variety influences the individual and team productivity and innovation by collecting data through a paper-based survey which can be found in the appendix a and b. This method was adopted because majority of the respondents were working in the field (away from their desks and internet access) and a paper-based survey was more suitable to majority of the respondents.

Due to the location of the organisation, access to teams was negotiated with key organisation members of the organisation over the phone and through email. The nature of the research was negotiated and research documents which included both the team member and team leader surveys were sent through email to the gatekeeper in the legal department. This gatekeeper acted as liaison in the organisation and distributed the questionnaires to the identified teams in the organisation. Due to the time constraint, respondents were given a period of three weeks to complete the survey before reminder emails were sent to team leaders/ members who have not yet completed their questionnaire. However, this time period varied according to the speed and the number of responses received from each team. Team Leaders were asked to provide the initials of their team members on the team leader questionnaire (This can be seen in the appendix b) and rate the productivity and innovative behaviour of each team member. In addition, team leaders were asked to rate the productivity and innovation of their teams. Each team was assigned an identifier number

which corresponded with the team member survey given to the respondents. Finally, team members were then requested to affix their initials to the questionnaire and this was matched with the list of initials provided by the team leader of each team. Their responses to the survey were then sent to the gatekeeper who sent the completed questionnaire by post to the researcher.

6.8. Individual Level Measures

Due to the multi-level nature of this research, the measures that captured both the individual and team level questionnaires are presented below. In addition, the measure that captures perceived MTM variety is presented in the scale development chapter.

6.8.1. Time Pressure

Time pressure was measured using an adapted scale from two sources. Time pressure scale included item proposed by Maruping et al (2012) and Madjar and Oldham (2006). Items include: 'I have to work fast', 'I have to work extra hard to finish my task'. Responses were provided on a 5-point Likert scale (Never=1, to All of the time = 5). The Cronbach's alpha for this measure is .93, which is above the threshold of .70 (Nunally, 1978)

6.8.2. Role Ambiguity

Role ambiguity was measured using the scale proposed by Gonzalez-Roma & Lloret (1998). Items include: 'I have clear planned goals and objectives,' 'I know exactly what is expected of me'. Questions are reverse coded. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). This scale has a Cronbach's Alpha of .98 which is above the cut-off point of .70 (Nunally, 1978).

6.8.3. Role Conflict

Role conflict was measured using the scale proposed by Gonzalez-Roma and Lloret (1998). Items include: 'I have to do things that should be done differently, 'I receive incompatible request from two or more people'. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The Cronbach's alpha for this measure is .91, which is above the

threshold of .70 (Nunally, 1978)

6.8.4. Time Management

Time management was measured using items adopted from the empirical work of Barling et al (1996). Items include 'I make a list of things I have to do each day/week', 'I plan my day/week before I start it'. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). This scale has a Cronbach's Alpha of .89, which is above the cut-off point of .70 (Nunally, 1978).

6.8.5. Knowledge Integration

Knowledge integration was measured using items adopted from the empirical research by Connelly & Kelloway (2003). Items include: 'In the teams I work with, everybody shares their ideas openly', 'In the teams I work with, people are good at using the ideas/knowledge of its members. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The Cronbach's alpha for this measure is .96, which is above the threshold of .70 (Nunally, 1978)

6.8.6. Innovative Behaviour

Innovative behaviour was by measured using items from Zhou and George (2001) empirical work. Items include: 'To what extent did he/she search out new technologies, processes, techniques, and/or product ideas?' 'To what extent does he/she develop adequate plans and schedules for the implementation of new ideas?' etc. An external rater provided responses on a 5–point Likert scale (1= Not at all to 5 = Very Much). Initially, the scale was not above the threshold of .70. After running a factor analysis, the researcher discovered that item three had a lower loading The Cronbach's alpha for the adjusted measure is .79, which is above the threshold of .70 (Nunally, 1978).

6.8.7. Individual productivity

Individual productivity was measured from the items on Neubert et al (2008) empirical work. Items on the scale include: 'To what extent does the individual adequately complete assigned duties', 'To what extent does the individual perform the tasks that are expected of them?'

etc. An external rater provided responses on a 5-point Likert scale (1 = Not at all to 5 = Very Much). The Cronbach's alpha for this measure is .93, which is above the threshold of .70 (Nunally, 1978).

6.8.8. Polychronicity

Polychronicity was measured by adopting four-items from the empirical work of Bluedorn et al (1999). Items include: 'I like to juggle several activities at the same time', 'I believe people should try to do many things at once' etc. Responses will be provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The Cronbach's alpha for this measure is .77, which is above the threshold of .70 (Nunally, 1978).

6.9. Team Level Measures

6.9.1. Team Time Pressure

To measure team time pressure, the individual scale for time pressure was adapted to reflect time pressure at the team level (Chan, 1998). Items include: 'In this team we have to work fast', 'In this team we have too much work to do' Responses were provided on a 5-point Likert scale (1= Never to 5 = Always). The Cronbach's alpha for this measure is .93, which is above the threshold of .70 (Nunally, 1978).

6.9.2. Team Role Ambiguity

The individual measure of role ambiguity was adopted to reflect team role ambiguity (Chan, 1998). Items include: 'We have clear planned goals and objectives for this project', 'We knew exactly what was expected of us'. Questions are reverse coded. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The Cronbach's alpha for this measure is .98, which is above the threshold of .70 (Nunally, 1978).

6.9.3. Information Elaboration

6.9.4. Information elaboration was measured by using items developed by Homan et al (2007). Items include: 'My team members exchange a lot of information about the task', 'My team members often say things about the task that makes me think' etc. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The initial

6 item scale had a Cronbach's alpha that is lesser than the cut-off point of .70. Consequently, the researcher carried out a factor analysis and discovered that item 1 (Team members exchange a lot of information about work) did not load appropriately on the factor. The item was subsequently removed, and the analysis was repeated. The Cronbach's alpha for this measure is .98, which is above the threshold of .70 (Nunally, 1978).

6.9.5. Coordination Loss

Coordination loss was measured through four-item scale measuring flux in coordination (Summers, Humphrey & Ferris 2012). Items include: 'We often experience disruptions in the way the team carries out its tasks', 'We often have misunderstandings about what to do' etc. Responses were provided on a 5-point Likert scale (1= Strongly Disagree to 5 = Strongly Agree). The Cronbach's alpha for this measure is .92, which is above the threshold of .70 (Nunally, 1978).

6.9.6. Team Productivity

This research measures team productivity using six item scales developed by Kirkman & Rosen (1999), which was answered across a 5-point Likert scale ranging from Strongly Disagree to 'Strongly Agree'. Examples of items on the scale include: 'My team meets or exceeds its goals', 'My team completes its tasks on time' etc. The Cronbach's alpha for this measure is .97, which is above the threshold of .70 (Nunally, 1978).

6.9.7. Team Innovation

This research measured team innovation using a five-item scale proposed by Anderson & West (1998), which was answered across a 5-point Likert scale ranging from Strongly Disagree to 'Strongly Agree'. Examples of items on the scale include: 'Team members often implement new ideas to improve the quality of our products and services', 'Team members often produce new services, methods, or procedures' etc. The Cronbach's alpha for this measure is .98, which is above the threshold of .70 (Nunally, 1978). Values of above 0.5 have been suggested to be indicative of acceptable levels of reliability of the mean (Klein, Bliese, Kozlowski, 2000).

6.9.8. Control Variable

In this study, I controlled for the number of MTMs throughout this research. This was measured by asking respondents “In the past six months how many teams have you worked in?”. This was informed by the previous research studies in MTM that have measured the number of MTM such as the Zika- Viktorsson and colleagues and Pluut and colleagues (Zika-Viktorsson et al, 2006; Pluut et al, 2014). O’Leary and colleagues in their conceptual paper suggested to control for the effects of number of MTM while examining the effects of perceived MTM variety and control for the effects of perceived MTM variety when investigating the effects of the number of MTM, they suggested although this dimensions of MTM are distinct, they are also related (O’Leary et al, 2011), and as such it is important to control for the number of MTM in this research.

6.11. Main Analysis

The characteristics of the data in this study is multilevel and as such individuals at level one are nested in teams at level two. As a result, this research did not adopt traditional statistical techniques such as ordinary least square (OLS) method because of its inadequacy to account for various issues related to nested data (Goldstein, 2003) which will lead to inaccurate findings. In addition, nested data violates the core assumption of the OLS regression model, which is the independence of observation (Raudenbush and Bryk, 2002). This core assumption is not suitable to multilevel data as it leads to an over-representation of degrees of freedom, mis-estimation of standard error, and thus an increased risk of type 1 error (Niehaus, Campbell & Inkelas, 2014). In addition, traditional statistical analysis such as multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) are likely to ignore unit-level influences on individual level outcomes (Luke, 2004; Misangyi, LePine, Algina & Goeddeke Jr, 2006; Heck & Thomas, 2015). Therefore, this research tested the above hypotheses by using hierarchical linear modelling (HLM). HLM is a statistical method that allows researchers to study relationships across multiple levels of analysis, it considers non-independence inherent within nested data by simultaneously partitioning and modelling within-group and between-group variance (Raudenbush & Bryk, 2002). This is achieved by

enabling researchers to conduct group mean analyses that make adjustments for group size differences, accommodating variables at multiple levels, and accounting for dependence among individuals (Arnold, 1992; Gavin & Hofmann, 2002; Raudenbush & Bryk, 2002). In other words, HLM permits a better estimation of individual effects while taking into consideration group level differences (Raudenbush & Bryk, 2002).

Firstly, before testing the hypothesis, the distinctiveness of the study variables at both individual level and team level were tested using confirmatory factor analysis. In order to do this at the individual level, different alternative models were tested to and compared to the nine-factor model. As seen in the following chapter, the nine-factor model was a better fit than the alternative models. Similarly, at the team level, the six-factor model fit the model better than any other proposed model.

Hypothesis were performed using the Mplus computer software package version 8, which is popular for estimating multilevel model analysis using structural equation modelling technique (Muthen & Muthen, 1998-2016). The advantage of using Mplus to test the hypothesised model is that it allows for the simultaneous examination of mediation and moderation as it is possible to test all the related paths in the model simultaneously. Thus, structural equation modelling is a means of testing specified sets of relationships among observed and latent variables as a whole (Savalei & Bentler, 2010). In addition, through model specification it is possible to reflect the relationships among variables (Hoyle, 2011). Multiple predictors, mediators and outcomes can be modelled simultaneously. At the team level, analysis was conducted using aggregated group means rather than latent constructs in order to facilitate convergence of results.

Thus, in this chapter, I presented the methodology of this research. In doing so, the philosophical approach of this study was discussed followed by the research design and previous methodological approaches to MTM. In addition, the sample of the study was illustrated alongside with its features, then the access and ethical considerations were discussed with the procedures before finally presenting the main analysis of the study. The next chapter presents the scale development chapter.

Chapter 7: Scale Development

7.1. Introduction

As established in previous chapters, very few studies have examined the dynamics of multiple team membership and its effects on individual and team outcomes. More importantly, to the researcher's knowledge, there is no evidence of an adequate or appropriate scale to measure Perceived Multiple Team Membership Variety (Perceived MTM Variety). Both MTM variety and the number of MTM are distinct elements of multiple team membership (O'Leary et al, 2011) and as such it is imperative that a measure that distinctively captures perceived MTM variety is needed to accurately examine the effects it has on individual and team outcomes. Hinkin and associates suggested that when this happens (the lack of a measurement scale), it is necessary to create a new scale that measures the construct (Hinkin, Tracey & Enzi, 1997). Furthermore, perceived MTM variety is an important construct in terms of the aims of this research and a scale that psychometrically measures perceived MTM variety is needed. Based on the vast literature available on scale development (Churchill, 1979; DeVellis, 2003, Hinkin, 1998; Netemeyer, Bearden & Sharma, 2003), this research adopted the guideline to scale development proposed by Hinkin and colleagues due to the fact that it is more rigorous and widely accepted among scholars in the organisational behaviour field (Wright, Quick, Hannah & Blake Hargrove, 2017). Although Netemeyer and colleagues proposed a four-step guide to scale development similar to those proposed by Hinkin, Hinkin and colleagues' guideline to scale development was more comprehensive. Consequently, this research starts with the critical step of item generation (Hinkin et al, 1997).

7.1. Item Generation

Items can be generated inductively or deductively (Anderson & Gerbing, 1988; Bollen & Lennox, 1991; Hinkin et al, 1997). Generating the items inductively means that items will be created first and the scale will be derived from it, while generating the items deductively will suggest that the scale will be generated through theoretical definitions

(DeVellis, 2003). Since the purpose of a scale is to operationalise a construct, it therefore must be grounded in theory (Wright & Quick, 2011). Netemeyer and colleagues also suggest that the underlying theory and the review of literature is most important component of scale development. Due to availability of sufficient theoretical explanation of perceived MTM variety (O'Leary et al, 2011; O'Leary, Woolley & Mortensen, 2011b) this research adopts the deductive approach and as such a theoretical definition of perceived MTM variety will be used as a guide for the creation of items (Schwab, 1980). In addition, the researcher aims for the scale to be theoretically rigorous and generalizable, it will be inappropriate to adopt the inductive approach where the scale is more likely to be context specific.

Furthermore, a deductive approach will strengthen the content validity of the scale as it is grounded in theoretical definition. Cronbach and Meehl (1955) suggested that the deductive approach is ordinarily used to ascertain content validity. Thus, scale items were generated based on O'Leary et al's conceptualisation of multiple team membership variety, which is the diversity characterising the various teams that individuals are members of and that a given focal team overlaps with (O'Leary et al, 2011). In measuring MTM variety, O'Leary and colleagues suggested that the variables that could be used to measure variety of teams, include "members' roles, network ties, functional experience, and industry background and teams' tasks" (O'Leary et al, 2011; p.464). Thus, perceived MTM variety was measured using the variables named above. In addition, similar approach was adopted by Furukawa (2016) in a qualitative study, where interviewees were asked whether they felt diversity in terms of tasks and responsibilities. The researcher and his two supervisors who make up three subject experts pooled these items together to measure perceived MTM variety. This was done by individually developing ideas for the items and then meeting to discuss and develop the final set of items. In addition, it was the aim of the research team to keep the item pool short and succinct so that it can be easily adopted by other researchers as part of a larger questionnaire in the future.

After applying content analysis techniques to the above definition, six items were generated, these items captured perceived variety in team members, team tasks, roles, technologies, skills, and abilities. These aspects of variety were chosen because it corresponds to the suggested measurement of perceived MTM variety mentioned above. Respondents were required to provide answers on a 5-point Likert scale that ranged from, 1 = *Very Similar* to 5 = *Very Different*. Measures with 5 – 7-point scales have been shown to create variance that is necessary for examining relationships among scales that will generate adequate reliability estimates (Lissitz & Green, 1975). In addition, reverse - coded items were avoided in the generation of items as they often add systematic error to a scale and have low item loadings when compared to items that are worded positively (Jackson, Wall, Martin & Davids, 1993;). The six items generated are worded as follows:

- To what extent are the tasks that you undertake in each of these work teams different?
- To what extent are the roles you undertake in each of these work teams different?
- To what extent are the technologies that you use in these work teams different?
- To what extent are the knowledge, skills, and abilities that you need to work effectively in each of these work teams different?
- To what extent are the geographical locations of the teams you work in different?
- To what extent are the people that you work with in each of these work teams different?

To further achieve content validity, a pilot study was previously carried out as part of an affiliated master's dissertation project to collect initial data to assess the psychometric properties of the scale. This sample involved a sample of 69 individuals from 3 retail organisations in the Greece of which 45 of the 69 respondents reported working in multiple teams. This was done to assess the suitability and readability of the scale to further maximise content validity (Oppenheim, 1992; DeVellis, 2003). In order to establish content validity and test the developed scale, Cronbach alpha was used as a reliability estimate and

a measure of internal consistency (Cronbach, 1951, Feldt, 1969). A coefficient alpha score of .70 is an acceptable reliability coefficient. From the sample obtained for the pilot study the items in the scale generated a Cronbach alpha of .74 which exceed the required coefficient alpha score of .70.

7.2. Preliminary Factor Analysis

Consequently, these six items were treated with exploratory factor analysis (EFA) to assess the performance of the items and determine whether they adequately constitute the scale (DeVellis, 2003; DeVellis, 2016). Exploratory factor analysis has been an important instrument for social science researchers as they aim to refine measures and evaluate construct validity (Conway & Huffcutt, 2003). To achieve this purpose, the researcher decided to randomly select a sample from the data initially collected for this research which is the same sample used in the chapter above. Thus, the data collected for the purpose of this research was split into half and used to conduct the EFA. Consequently, this data consists of 111 respondents working within the public sector of a federal funded organisation that builds dams and water related facilities across the south-western path of Nigeria. The number of factors to be retained depends on both the underlying theory and empirical results (DeVellis, 2003; DeVellis, 2016). Guided by theory, principal axis factoring with orthogonal rotation (varimax) was used, as the aim of the exploratory factor analysis is to extract one factor, rather than oblique rotation that is suited for multiple correlated factors (DeVellis, 2003; Conway & Huffcutt, 2003). In addition, Gorsuch (1997) suggested that varimax rotation is best when a single general factor exists.

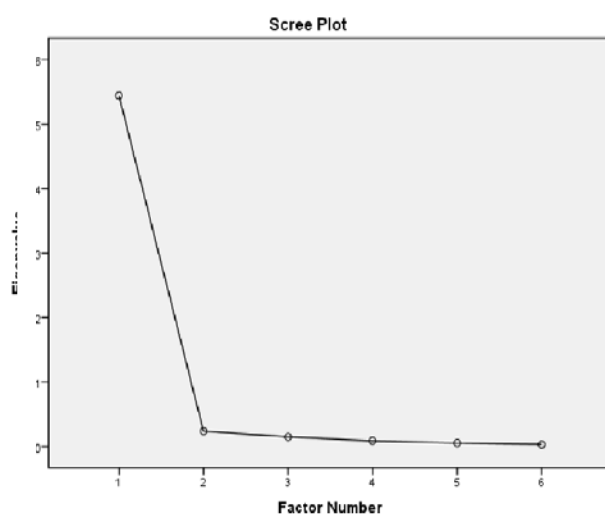
The result of the above analysis generated a Kaiser-Meyer-Olkin (KMO) value of .883 and chi-square of 1122.585 (df =15, $p < 0.001$). This suggests that the Bartlett's test of sphericity was significant and a KMO value of .883 indicates the suitability of the data for factor analysis as it exceeds the suggested range value of between 0.5 and 1 (Field, 2005). As suggested above it was anticipated that the items will load onto one factor which will support the case for O'Leary et al's conceptualisation of MTM variety. The items loaded onto one factor that accounted for 88.9% of the total variance and had an eigenvalue of 5.44. The

factor matrix displayed in table 7.1 and the scree plot below in figure 7.1 also supported the notion that one factor was underlying the data and as such it represents a single factor of perceived MTM variety. Hinkin and colleagues suggests that only items that load on a single factor with a loading greater than .40 is regarded as meaningful (Hinkin et al, 1997). They also suggested that items with communality statistics of .60 and above should be retained. The six items listed had communalities of .95, .87, .86, .94, .87, .93 respectively. As a result, all items were retained

Table 7. 1: Principle axis factor analysis; factor matrix, varimax rotation.

Items	Factor 1
1. To what extent are the tasks that you undertake in each of these work teams different.	.98
2. To what extent are the roles you undertake in each of these work teams different.	.93
3. To what extent are the technologies that you use in these work teams different.	.88
4. To what extent are the knowledge, skills, and abilities that you need to work effectively in each of these work teams different.	.97
5. To what extent are the geographical locations of the teams you work in different.	.94
6. To what extent are the people that you work with in each of these work teams different.	.95

Figure 7.1: Scree Plot representing one factor loading.



7.3. Confirmatory Factor Analysis

Floyd and Widaman (1995) suggests the use of confirmatory factor analysis in determining the construct validity of a scale. Thus, to further enhance the conceptualisation of the perceived MTM variety scale and quantify the goodness of fit of the resulting factor structure (Bollen, 1989; Spector, 1992; Cole, 1987), the researcher ran a confirmatory factor analysis using the AMOS SEM program on the individual level data of 216 respondents (Arbuckle, 1997). Confirmatory Factor analysis is a powerful statistical tool for examining the nature of the relationships among latent construct, in contrast to exploratory factor analysis it explicitly tests a priori hypothesis between observed variable and latent variable or factors (Jackson, Gillaspay & Purc-Stephenson, 2009). Furthermore, it is a tool of choice for developing and refining measuring instruments (Brown, 2006). Consequently, the hypothesised one factor model that assumed the presence of perceived MTM variety factor was tested. The test was carried out based on the covariance matrix of the items (Hinkin et al, 1997) and the values for the relevant indices are reported in the table below.

χ^2	Df	χ^2/df	NFI	CFI	TLI	PCFI	RMSEA
50.41	9	5.6	.98	.96	.97	.56	.15

Table 7. 2: Fit Indices for initial Confirmatory Factor Analysis

When reporting confirmatory factor analysis, it is normative to report χ^2 test and the χ^2 difference test, as this is the established measure for evaluating overall model fit (Hu & Bentler, 1999). The above table provides a χ^2 of 50.41 with 9 degrees of freedom ($p < 0.005$). The fit of the model is considered better the closer the chi-square value is to the degree of freedom (Thacker, Fields & Tetrick, 1989; DeVellis, 2003) and a good model fit will provide an insignificant result at the threshold of 0.05 (Barrett, 2007). In addition, researchers have suggested that a χ^2/df ratios below 2 is acceptable for an indication of good model fit (Buss & Perry, 1992; Byrne, 2001). Evidently, the χ^2 test and χ^2 difference test deviate from the acceptable standard and thus suggest that the data does not adequately fit the hypothesized

model. However, the chi-square test is sensitive to sample size (Kenny & McCoach, 2003) and as such a significant chi-square may not be problematic if additional fit indices are adequate (Mcdonald & Ho, 2002) because other fit indices cover different aspect of model fit.

Other fit indices reported includes the comparative fit index (CFI; Bentler, 1990), the Tucker Lewis index (TLI; Tucker & Lewis, 1973), the normed fit index, (NFI; Bentler & Bonner, 1980). For the above indices, the acceptable level of fit is above 0.9 (Floyd & Widaman, 1995; DeVellis, 2003) Looking at table 4.2, CFI value of .96, TLI value of .97 and NFI value of .98 was derived from the CFA test. Another commonly reported fit measure is the root mean square error of approximation (RMSEA; Steiger & Lind, 1990). RMSEA explains how well the model with unknown but optimally chosen parameter estimates would fit the samples covariance matrix (Steiger,1998). It is recommended that RMSEA of between 0.08 to 0.10 provides a mediocre fit and below 0.08 shows a good fit (MacCallum, Browne & Sugawara, 1996; Hu & Bentler, 1999). A RMSEA value of .15 was derived from the CFA test which falls in the range of a mediocre fit. Additionally, the parsimony-adjusted fit indices (PCFI) is reported as it is valuable for comparing models and it is derived from CFI and consequently superior to CFI. As PCFI contains corrections for both model complexity and sample size, some researchers have preferred it to other fit indices (Carlson & Mulaik, 1993; Williams & Holahan, 1994). Byrne (2001) suggests that PCFI is preferred to CFI as CFI does not adequately measure model simplicity Usually, PCFI values tend to be smaller and a PCFI value of above .50 suggests good fit (Byrne, 2001). A PCFI value of .56 was obtained, this is above the threshold value of .50 indicating a good fit. In summary, the CFI, TFI, NFI and PCFI demonstrated acceptable levels if fit to the data, however, the χ^2/df ratio is below and the RMSEA also indicates mediocre fit. Thus, the researcher aims to improve the model through model re-specification (Mueller & Hancock, 2008; Brown, 2014; Byrne, 2016).

Usually when there is an issue with model fit, modification indices should be considered as this provide information regarding cross loading (Hooper, Coughlan, Mullen, 2008). Item 3 (*To what extent are the technologies that you use in these work teams different*). and Item

6 (*To what extent are the people that you work with in each of these work teams different*) have large indices and were allowed to correlate before the repeating the analysis (Jöreskog and Long, 1993)

The result of this test provides χ^2 of 13.785 with 8 degrees of freedom ($p > .05$). As stated above, the chi-square is closer to the degrees of freedom (indicating good fit) and an insignificant result for the p value was obtained (Thacker et al, 1989; DeVellis, 2003; Barret et al, 2007). Consequently, the result demonstrated a χ^2 /df ratios that is below the threshold value of 2 (Byrne, 2001). A CFI value of .99, TLI value of .99, NFI value of .99, RMSEA value of .05 and PCFI value of .53 was obtained from the result of the model re-specification. Both the RMSEA and the χ^2 /df ratio have been significantly improved due to the result of the model re-specification which suggests that the model is a good fit and thus achieve external consistency. The result of the modification is further presented in the table below and the path diagram of the two models has can be seen in the appendix section.

χ^2	Df	χ^2 /df	NFI	CFI	TLI	PCFI	RMSEA
13.79	8	1.72	.99	.99	.99	.53	.05

Table 7. 3: Fit Indices for the Re-Specified Model (CFA)

7.4. Internal Consistency Assessment

To demonstrate internal consistency, this research will use Cronbach's alpha. This is the most commonly used measure in field study to establish internal consistency (Price & Mueller, 1986). A coefficient alpha of .70 provides an indication of a strong item covariance and suggests that the sample has been sufficiently captured (Nunnally, 1978; Swanson & Holton, 2009). The six items in this scale generated a Cronbach's alpha coefficient of .96 suggesting a good reliability for the scale (DeVellis, 2003). In terms of construct validity, Hinkin and colleagues suggest both internal consistency and content validity presented above are sufficient for construct validity.

7.6. Summary

In this chapter, we have developed a valid and reliable of scale of perceived MTM variety. Through, exploratory factor analysis, we established that all the six items loaded onto one factor which demonstrated that there was one single factor for perceived MTM variety the and through confirmatory factor analysis, we established external consistency and improving construct validity of the measure. Through the assessment of the scale's Cronbach alpha, internal consistency was achieved. It is important to note that the discriminant validity stage of the Hinkin scale development process was not carried out by this research. This would have involved collecting another set of data which was not feasible due to time constraints. In addition, given that the perceived MTM variety was a new scale there was no other scale to compare the scale too in order to achieve convergent validity.

Chapter 8. Individual Level Results

8.1. Introduction

This chapter presents the results of the hypotheses introduced in chapter 4. These hypotheses examined the relationship between perceived MTM variety and individual level outcomes of productivity and innovation. In addition, in light of the post-hoc analyses, the researcher incorporates the results of a simplified model to provide an alternative perspective on the effects of perceived MTM variety on the outcomes of productivity and innovation.

This chapter starts with the descriptive statistics of the individual level data. These includes means, standard deviations and correlation estimates between measures at the individual level. Afterwards, the results of the confirmatory factor analysis which was undertaken to test the distinctiveness of the variables are shown, followed by the testing of the proposed main effects, mediations, and moderated mediations. To conclude, the results of the post-hoc analysis, were presented.

8.2. Preliminary Analysis

A correlational analysis was completed to explore the bivariate relationships among the eleven core constructs, as shown in table 8.1 below. The table below also shows the standard deviation, zero-order correlations, and internal consistency reliability estimates of the individual level variables. Findings reveal a significant positive relationship between perceived MTM variety and time pressure ($r = .62$, $n = 216$, $p < .01$), cognitive demand ($r = .69$, $n = 216$, $p < .01$), role conflict ($r = .72$, $n = 216$, $p < .01$), role ambiguity ($r = .62$, $n = 216$, $p < .01$), burnout ($r = .58$, $n = 216$, $p < .01$), individual productivity ($r = -.39$, $n = 216$, $p < .01$) and individual innovation ($r = -.29$, $n = 216$, $p < .01$). These findings also indicate that perceived MTM variety has significant relationships with time management ($r = -.48$, $n = 216$, $p < .01$), knowledge integration ($r = -.37$, $n = 216$, $p < .01$) and polychronicity ($r = -.13$, $n = 216$, $p < .05$).

However, findings did not reveal a significant relationship between number of MTM and

perceived MTM variety ($r = .02$, $n = 216$, $p > .05$), time pressure ($r = .09$, $n = 216$, $p > .05$), cognitive demand ($r = .11$, $n = 216$, $p > .05$), role conflict ($r = .03$, $n = 216$, $p > .05$), role ambiguity ($r = -.05$, $n = 216$, $p > .05$). In short there were no significant relationship findings between number of MTM and other variables in this research.

Table 8. 1: Descriptive Statistics and Reliability Estimates at the Individual level of Analysis

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	1.28	.52														
2. Age	4.13	1.77	-.04													
3. Number of MTM	3.99	1.69	.05	.02												
4. Perceived MTM Variety	3.05	1.63	-.10	.05	.02	(.98)										
5. Time Pressure	3.37	.84	.02	.02	.01	.62**	(.93)									
6. Cognitive Demand	3.62	.93	-.01	-.01	.11	.69**	.71**	(.85)								
8. Role Ambiguity	2.48	1.23	-.18**	.10	-.04	.62**	.34**	.37**	(.98)							
9. Role Conflict	3.23	1.04	-.01	-.01	.03	.72**	.64**	.63**	.63	(.90)						
9. Time Management	3.52	1.19	.11	-.07	.09	-.48**	-.34**	-.35**	-.80**	-.51**	(.89)					
10. Burnout	2.43	1.29	-.01	-.08	.00	.58**	.51**	.52**	.45**	.58**	-.43**	(.83)				
11. Knowledge Integration	3.70	1.16	.10	-.04	.07	-.37**	-.34**	-.30**	-.59**	-.39	.68**	-.28	(.79)			
12. Polychronicity	2.97	1.10	.04	.15*	.03	-.13*	.03	-.15*	-.35**	-.38**	.18**	.30**	-.12	(.83)		
13. Individual Productivity	3.52	.92	.10	-.04	.03	-.39**	-.4**	-.32**	-.35**	-.41**	-.21**	.29**	-.23**	.19**	(.93)	
14. Individual Innovation	3.29	1.32	.00	.00	.00	-.29**	-.33**	-.26**	-.15*	-.28	.10	.11	-.19**	.14*	.66**	(.79)

Note: Cronbach's Alpha are provided in the brackets in the above table along the diagonal; M = mean; SD = standard deviation; N =216 in all cases; * $p < 0.05$

** $p < .01$

8.3 Confirmatory Factor Analysis

To empirically justify the distinctiveness of the variables measured at the individual level of analysis, a series of confirmatory factor analysis (CFA) were conducted (Anderson & Gerbing, 1988) in order to compare the fit of the hypothesised model solution with other plausible nested models. The fit indices reported for this CFA analysis includes Chi-square, Tucker-Lewis Index (TLI), Confirmatory Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA) and the Standardised Root Mean squared Residual (SRMR). The fit indices aim to provide information about the degree to which a model is correctly or incorrectly specified for the given data (Fan, Thompson & Wang, 1999). The appropriate model fit is reflected by TFI and CFI values that are higher than .90 and RMSEA and SRMR values that are lower than .08 (Steiger, 1989; Brown & Cudeck, 1993; Hu & Bentler, 1999). As a result, this research conducted a 9-factor model at the individual level that included perceived MTM variety, time pressure, cognitive demand, role conflict, role ambiguity, time management, knowledge integration, burnout and polychronicity. The hypothesized nine-factor model did not meet the recommended criteria indicative of a good fit ($\chi^2(1164) = 2683.55$, $p < .001$, $\chi^2/df = 2.51$, $TLI = .88$, $CFI = .89$; $RMSEA = .07$ and $SRMR = .07$). However, this model was a better fit than the other conceivable solutions: An eight-factor model that combined time pressure and cognitive demand ($\chi^2(1099) = 3395.61$, $p < .001$, $\chi^2/df = 3.08$, $\Delta\chi^2 = 712.06^{***}$, $TLI = .83$, $CFI = .84$; $RMSEA = .09$ and $SRMR = .08$, as seen figure 8.2 an eight-factor model combining both role conflict and role ambiguity ($\chi^2(1099) = 3815.46$, $p < .001$, $\chi^2/df = 3.47$, $\Delta\chi^2 = 419.85^{***}$, $TLI = .79$, $CFI = .80$; $RMSEA = .10$ and $SRMR = .13$), a seven-factor model combining both knowledge integration, time management and burnout ($\chi^2(1106) = 4834.56$, $p < .001$, $\chi^2/df = 4.37$, $\Delta\chi^2 = 1019.1^{***}$, $TLI = .72$, $CFI = .74$; $RMSEA = .13$ and $SRMR = .16$), as seen in figure 8.2 a six-factor model combining time pressure, cognitive demand, role conflict and role ambiguity ($\chi^2(1112) = 5530.21$, $p < .001$, $\chi^2/df = 4.97$, $\Delta\chi^2 = 695.65^{***}$, $TLI = .67$, $CFI = .68$; $RMSEA = .14$ and $SRMR = .18$), and a single-factor model that combined all the nine-factors into one factor ($\chi^2(1127) = 9684.23$, $p < .001$, $\chi^2/df = 8.59$, $\Delta\chi^2 = 4154.02^{***}$, $TLI = .37$, $CFI = .39$; $RMSEA = .19$ and $SRMR = .14$).

Although all the models tested above did not fit the data adequately, the hypothesised nine-factor model offered the best fit across the different indices, and the RMSEA index was commensurate with the acceptable range.

In recent times, RMSEA has become one of the most informative fit indices due to its sensitivity to the number of estimated parameters in the model (Diamantopoulous & Siguaw, 2000). Also, RMSEA is regarded as a model selection criterion as simulation results show that it outperforms other fit indices (Preacher, Zhang, Kim, & Mels, 2013). Brown and Cudeck (1993) suggested that RMSEA values of 0.1 are indicative of poor fitting models and values that range between 0.05 and 0.08 as fair fit and values below 0.05 as close fit. Therefore, the hypothesised 9 factor model which assumed that the variables were distinct from one another received the best empirical validation with its RMSEA below.08 indicating fair fit.

Table 8. 2: Results of Confirmatory Factor Analysis of the Distinctiveness of Individual-Level Variables

Model	χ^2	df	p	$\Delta\chi^2$	TLI	CFI	RMSEA	SRMR
Hypothesised Nine-Factor Model (i.e. Perceived MTM variety, time pressure, cognitive demand, role conflict, role ambiguity, time management, knowledge integration, burnout, polychronicity).	2683.55	1066	0.000		.88	.89	.07	.07
Eight-factor Model (i.e. Perceived MTM variety, role conflict, role ambiguity, time management, knowledge integration, burnout, polychronicity and a combination of time pressure and cognitive demand).	3395.61	1099	0.000	712.06	.83	.84	.09	.08
Eight-Factor Model (i.e. Perceived MTM variety, time pressure, cognitive demand, time management, knowledge integration, burnout, polychronicity and a combination of role conflict and role ambiguity)	3815.46	1099	0.000	419.85	.79	.80	.10	.13
Eight Factor Model (i.e. Perceived MTM variety, time pressure, cognitive demand, role conflict, role ambiguity, polychronicity and a combination of time management and knowledge integration and burnout).	4834.56	1106	0.000	1019.1	.72	.74	.13	.16
Six Factor Model (i.e. Perceived MTM variety, time management, knowledge integration, burnout, polychronicity and combination of time pressure, cognitive demand, role conflict and role ambiguity).	5530.21	1112	0.000	685.65	.67	.68	.14	.18
One-factor Model (i.e. all the nine combined to form a factor)	9684.23	1127	0.000	4154.02	.37	.39	.19	.14

8.4. Individual Level Results

8.4.1. Testing Main effects

As described in the previous chapter, all hypotheses were tested using Mplus (Muthen & Muthen, 1998 -2016), a software that permits the combination of both structural equation modelling and multilevel modelling (Bauer, 2003; Preacher, Zyphur & Zhang, 2010; Preacher, Zhang & Zyphur, 2016). This means that relationships embedded in complex models involving different mediation pathways and interactions can be tested simultaneously and considering the existence of variance at different levels of analysis (Mehta & Neale, 2005; Preacher, Zhang & Zyphur, 2011; Preacher et al, 2016; Hox & Maas, 2011). This ability was deemed particularly relevant given the characteristics of the research model - involving serial mediations, interaction effects and multiple outcomes – and the characteristics of the sample – individuals nested in teams.

Therefore, in order to test the main effects, each dependent variable was regressed on the predictor variable as established in the model in the ‘within’ section of the Mplus model commands. Through Mplus the researcher could simultaneously test for multiple mediators in the model. The four mediation paths were conducted in isolation and not at the same time due to convergence limitations. Following O’Leary and colleagues (2011) recommendation to control for the effects of number of MTMs when examining the effects of MTM variety on individual and team outcome variables, number of MTMs was included as a control variable in all the analysis performed (i.e. between predictors, mediators, moderators, and outcome variables). This is important because both perceived MTM variety and number of MTMs have different effects on individual and team outcomes but are related to each other.

This section now presents the test of the main effects of the model presented in chapter 3. Firstly, the relationships between the predictor (Perceived MTM variety) and first line mediators (time pressure, cognitive demand, role conflict and role ambiguity) were examined. Note that the first two mediators are classed as challenge stressors (time pressure and cognitive demand) and the last two mediators as hindrance stressors (role conflict and role ambiguity). Hypothesis 1

stipulated that perceived MTM variety will positively predict time pressure. The relationship between perceived MTM variety and time pressure was statistically significant ($\gamma = .30; p < .001$). Furthermore, hypothesis 2 proposed that perceived MTM variety will positively predict cognitive demand. As seen in table 8.3 below, the relationship between perceived MTM variety and cognitive demand was significant ($\gamma = .37; p < .001$). In hypothesis 3, I predicted that perceived MTM variety will positively predict role conflict. The result obtained from the analysis supported this prediction ($\gamma = .36; p < .001$). Hypothesis 4 postulated that perceived MTM variety will positively predict role ambiguity. This hypothesis was supported by the result, as the relationship between perceived MTM variety and role ambiguity was statistically significant ($\gamma = .41; p < .001$). Secondly, the relationships depicted between the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity) and second stage mediators (time management, knowledge integration and burnout) in figure 3.1 were tested. Thus, hypothesis 5 stipulated that time pressure will be positively related to time management behaviour. The result obtained did not support this hypothesis ($\gamma = -.05; p > .05$), as time pressure did not significantly predict time management. Furthermore, hypothesis 6 posited that cognitive demand will positively predict knowledge integration. The result obtained from the analysis did not support this prediction ($\gamma = -.05; p > .05$) as indicated in table 8.3 below. Hypothesis 7 predicted a positive relationship between role conflict and burnout. The results obtained supported this notion, as the relationship between role conflict and burnout was statistically significant ($\gamma = .19; p < .001$). In addition, hypothesis 8 suggested that role ambiguity will positively predict burnout. This hypothesis was not supported as the relationship between role ambiguity and burnout was marginally significant ($\gamma = .12; p = .05$).

Finally, I examined the relationships indicated in the third step of the model in chapter 3 that aligns the second stage mediators (time management, knowledge integration and burnout) to the outcomes (productivity and innovation) Thus, hypothesis 9 postulated that time management will positively predict individual productivity. The result from the analysis did not support the predicted hypothesis ($\gamma = .10; p > .05$) as indicated in table 8.3. Furthermore, hypothesis 10 suggested that time management will positively predict innovative behaviours.

Result obtained did not support this hypothesis as time management did not significantly predict individual innovation ($\gamma = .10; p > .05$). In hypothesis 11, I suggested that knowledge integration will positively predict individual productivity. Results supported this hypothesis, as knowledge integration significantly predicted individual productivity ($\gamma = .24; p < .01$). Hypothesis 12 predicted that knowledge integration will positively predict innovative behaviour. Support was not found for the proposed relationship as the relationship between knowledge integration and individual innovative behaviour was not significant ($\gamma = .17; p > .05$). Hypothesis 13 suggests that burnout will negatively predict individual productivity. Results did not support this prediction as burnout did not significantly predict individual productivity ($\gamma = -.03; p > .05$). Hypothesis 14 suggests that burnout will negatively predict individual innovation. The relationship between burnout and individual level innovative behaviour was not statistically significant ($\gamma = -.05; p > .05$), thus failing to support this hypothesis.

Table 8. 3: Individual level hypothesis testing results of the main effects of Hypothesis1 – 14.

Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Time Pressure (H1)	.30	.03	.000
Perceived MTM Variety → Cognitive Demand (H2)	.37	.03	.000
Perceived MTM Variety → Role Conflict (H3)	.36	.04	.000
Perceived MTM Variety → Role Ambiguity (H4)	.41	.05	.000
Time Pressure → Time Management (H5)	-.05	.04	.287
Cognitive Demand → Knowledge Integration (H6)	-.05	.04	.222
Role Conflict → Burnout (H7)	.19	.05	.000
Role Ambiguity → Burnout (H8)	.12	.03	.051
Time Management → Productivity (H9)	.10	.12	.103
Time Management → Innovation (H10)	.09	.08	.231
Knowledge Integration → Productivity (H11)	.24	.07	.002
Knowledge Integration → Innovation (H12)	.17	.09	.060
Burnout → Productivity (H13)	-.03	.05	.624
Burnout → Innovation (H14)	-.04	.06	.489

*Note. N = 216 Unstandardized regression coefficients; * $p < 0.05$ ** $p < 0.01$*

8.4.2. Mediation Results

Next, attention is turned to test the proposed mediating relationships linking perceived MTM variety to the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity), the second stage mediators (time management, knowledge integration and burnout) and the outcome variables of productivity and innovation.

At this point, I tested a serial mediator model that examined the relationship between perceived MTM variety and the outcomes of productivity and innovation using Mplus Version 8. The first stage mediators are time pressure, cognitive demand, role conflict, role ambiguity and the second stage mediators are time management, knowledge integration and burnout. The goal is to statically test the indirect effects of perceived MTM variety on productivity and innovation through the first stage and second stage mediators

In order to test for the indirect effect of perceived MTM variety on the outcomes of productivity and innovation, in the “within” section of the Mplus model commands, the dependent variables were regressed on the stage 2 mediators, stage 1 mediators and the predictor variables. Afterwards, the stage 1 and stage 2 mediators were regressed on the predictor variables and the stage 1 and stage 2 mediators were regressed on each other. Each mediating model was tested separately and the number of MTMs was controlled for in all the analysis.

In more detail, this research went forward and assessed whether the link between perceived MTM variety and the outcomes of productivity and innovation is mediated by time pressure and time management in hypothesis 15a and 15b. To assess this hypothesis, a model of the indirect influence of perceived MTM variety on the outcomes of productivity and innovation was tested through time pressure and time management. The outcome variables were regressed on time management, time pressure and perceived MTM variety; time management was then regressed on time pressure and perceived MTM variety; time pressure was then regressed on perceived MTM variety. The mediation effect was calculated by requesting the multiplication of each of the three pathway coefficients under model constraints in Mplus. The indirect effects of perceived MTM variety on individual productivity ($\gamma = -.001$, $p > .05$) and individual innovation ($\gamma = -.001$, $p > .05$) through time pressure and time management were not significant, thus failing to support this mediation

chain as seen in table 8.4 below.

Hypothesis 16a and 16b predicts that cognitive demand and knowledge integration will mediate the relationship between the between perceived MTM variety and productivity. To examine this hypothesis a model of the indirect effects of perceived MTM variety on the outcomes of productivity and innovation through cognitive demand and knowledge integration was verified. To do this, the outcome variables were regressed on knowledge integration, cognitive demand and perceived MTM variety; knowledge integration was then regressed on cognitive demand and perceived MTM variety; cognitive demand was then regressed on perceived MTM variety. The mediation effect was calculated by requesting the multiplication of each of the three pathway coefficients under model constraints. The indirect effects of perceived MTM variety on individual productivity ($\gamma = -.005$; $p > .05$) through cognitive demand and knowledge integration was not significant and thus not supporting the mediation chain as seen in table 8.4 below. In addition, the indirect effects of perceived MTM variety on individual innovation ($\gamma = -.003$; $p > .05$) through cognitive demand and knowledge integration was not significant, thus failing to support the mediation chain.

Shifting attention to mediators that were proposed as hindrance stressors, this research predicted that role conflict and burnout will mediate the relationship between perceived MTM variety and the outcomes of productivity and innovation in hypothesis 17a and 17b. Perceived MTM variety did not have a significant effect on individual productivity ($\gamma = -.002$; $p > .05$) and innovation ($\gamma = -.002$; $p > .05$) through role conflict and burnout as seen in table 8.4 below. Thus, this finding does not support the hypothesised mediational model.

In hypothesis 18a and 18b, this research assessed whether the link between perceived MTM variety and the outcomes of productivity and innovation is mediated by role ambiguity and burnout. To assess this hypothesis, a model of the indirect influence of perceived MTM variety on the outcomes of productivity and innovation was examined through role ambiguity and burnout. As seen in table 8.4 below result indicates that perceived MTM variety did not have a statistically significant effect on productivity ($\gamma = -.002$; $p > .05$) and innovation ($\gamma = -.002$; $p > .05$) through role ambiguity and burnout. Thus, this finding does not support the hypothesised mediational model.

Table 8. 4: Hypothesised Indirect effect of Perceived MTM variety on the outcomes productivity and innovation through mediators in series.

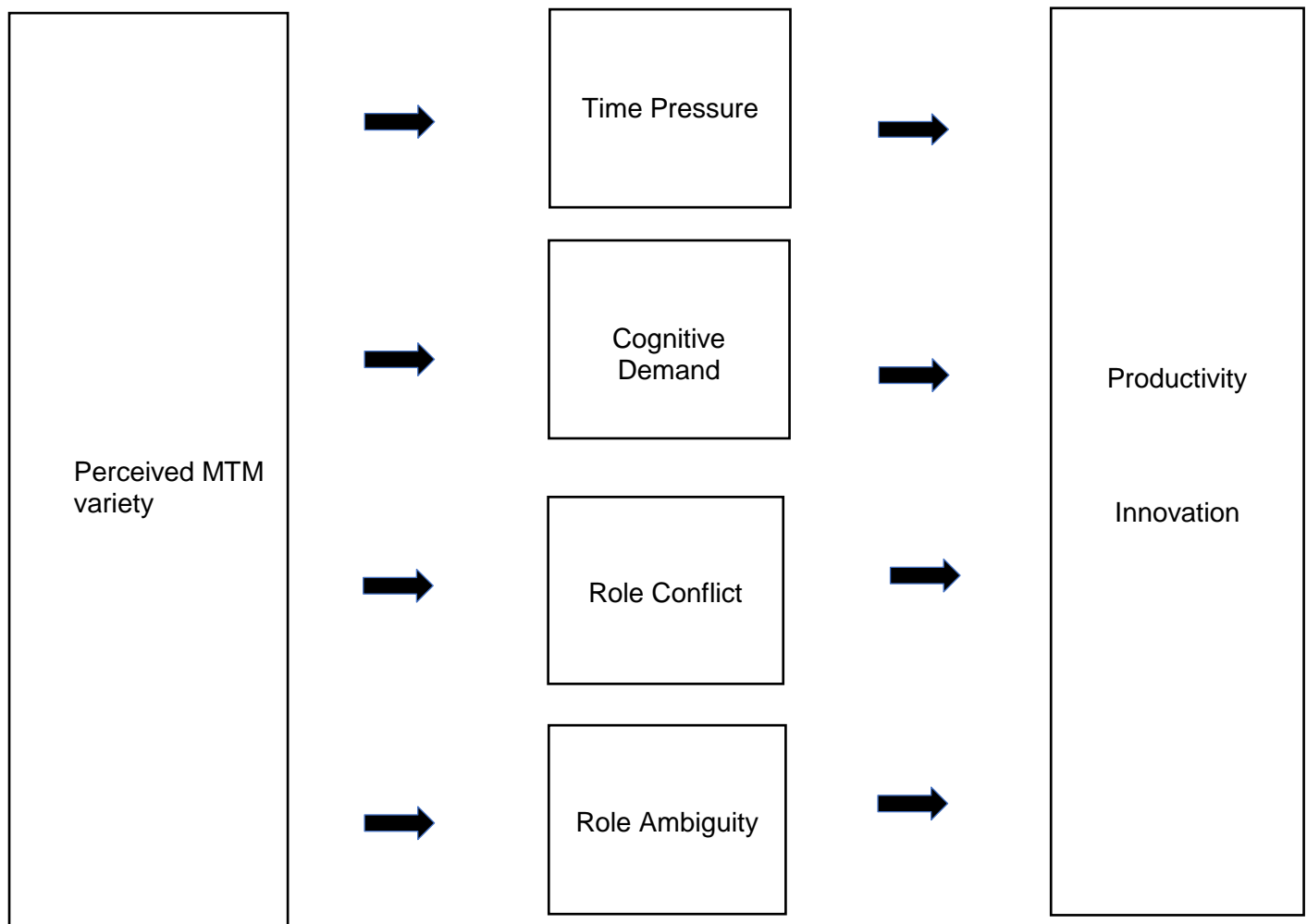
Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Time Pressure → Time Management→ Productivity (H15a)	-.001	.002	.272
Perceived MTM Variety → Time Pressure → Time Management→ Innovation (H15b)	-.001	.002	.236
Perceived MTM Variety → Cognitive Demand → Knowledge Integration→ Productivity (H16a)	-.005	.004	.243
Perceived MTM Variety → Cognitive Demand → Knowledge Integration→ Innovation (H16b)	-.003	.003	.294
Perceived MTM Variety → Role Conflict → Burnout → Productivity (H17a)	-.002	.004	.626
Perceived MTM Variety → Role Conflict → Burnout → Innovation (H17b)	-.002	.004	.634
Perceived MTM Variety → Role Ambiguity → Burnout → Productivity (H18a)	.002	.003	.508
Perceived MTM Variety → Role Ambiguity → Burnout → Innovation (H18b)	.002	.003	.509

*Note. N = 216 Unstandardized regression coefficients; * $p < 0.05$ ** $p < 0.01$*

8.4.3. Mediation Results for the Simplified Model

The results provided above did not support the case for serial mediation. This is likely due to the non-significant relationship between first stage and second stage mediators, and between the second stage mediators and the outcome variables. For example, non-significant relationships between time pressure and time management; cognitive demand and knowledge integration; and between burnout and the outcomes of productivity and innovation. In light of these results, it was deemed relevant to examine whether the effects of perceived MTM variety on productivity and innovation unfolded only through the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity). A diagrammatic representation of the post-hoc analysis carried out can be seen in figure 8.1 below.

Figure 8. 1: Simplified Mediation Model



Firstly, to further this line of thinking, this research examined the relationship between these mediators and the outcomes of productivity and innovation. As a result, productivity and innovation was regressed on time pressure. The result revealed that time pressure did not significantly predict productivity ($\gamma = -.11$ $p > .05$) however, time pressure significantly predicted innovation ($\gamma = -.25$; $p < .05$). This result is however at odds with the prediction of the challenge/hindrance framework, which would stipulate a positive relationship between the constructs.

Cognitive demand was also regressed on productivity and innovation to test whether a relationship exists between the mediator and the outcome variables. Results revealed that cognitive demand significantly predicted the outcomes of productivity ($\gamma = -.11$; $p > .05$) and innovation ($\gamma = -.21$; $p < .05$) respectively.

I also regressed the outcomes of productivity and innovation on role conflict to ascertain the existence of a relationship between the mediator and the outcome variables. The result showed that role conflict is negatively related to the outcomes of productivity ($\gamma = -.17$; $p > .05$) and innovation ($\gamma = -.18$; $p > .05$), as would be expected in light of the challenge/hindrance stressors framework (Lepine, Piccolo, Jackson, Mathieu & Saul, 2004).

Finally, the relationship between role ambiguity and the outcomes of productivity and innovation were examined. Findings showed that role ambiguity was negatively related to productivity ($\gamma = -.17$; $p < .01$), also in line with the challenge/hindrance stressors framework (LePine et al, 2004; LePine, Zhang, Crawford, & Rich, 2016) However, the relationship between role ambiguity and innovation was not significant ($\gamma = -.12$; $p > .05$).

Following the relationships reported above between the mediators and the outcome variables of productivity and innovation, I decided to test a mediation model for the mediators examined in the preceding paragraph.

To achieve this, a model of the indirect influence of perceived MTM variety on the outcomes of productivity and innovation through time pressure was tested. In the “within” section of the Mplus model commands, the dependent variables (productivity/innovation) were regressed on the stage 1 mediator (time pressure) and the predictor variable (Perceived MTM variety). Afterwards, time pressure was regressed on perceived MTM variety. This model was tested individually and the number of MTMs was controlled for in all the analysis. The result of the model indicates that the effect of perceived MTM variety on productivity through time pressure is not significant ($\gamma = -.12$; $p > .05$). However, the result of the indirect effect of perceived MTM variety on innovation through time pressure was significant ($\gamma = -.08$; $p < .05$). However, the effect was negative while a positive effect was expected. Thus, it seems that time pressure did not mediate the relationship

between perceived MTM variety and productivity, but it negatively mediated the relationship between perceived MTM variety and innovation.

Next, the indirect influence of perceived MTM variety on the outcomes of productivity and innovation through cognitive demands was tested. The result of this test suggests that perceived MTM variety has statistically significant effect on the outcomes of productivity ($\gamma = -.04$; $p > .05$) and innovation ($\gamma = -.08$; $p < .05$) through cognitive demand. Thus, cognitive demand significantly mediated the relationship between perceived MTM variety and the outcomes of productivity and innovation, albeit a negative one.

The indirect effect of perceived MTM variety on the outcomes of productivity and innovation via role conflict was examined. To achieve this, the outcomes of productivity and innovation were regressed on role conflict and role conflict was regressed on perceived MTM variety. The result indicates that perceived MTM variety does not have statistically significant effects on the outcomes of productivity ($\gamma = -.08$; $p > .05$) and innovation ($\gamma = -.08$; $p > .05$) through role conflict. This suggests that role conflict does not significantly mediate the relationship between perceived MTM variety and the outcomes of productivity and innovation. Finally, I tested the indirect influence of perceived MTM variety on the outcomes of productivity and innovation through role ambiguity. The result revealed that perceived MTM variety significantly influenced the productivity ($\gamma = -.06$; $p < .05$) through role ambiguity. However, results revealed that perceived MTM variety did not significantly influence innovation ($\gamma = -.06$; $p > .05$) through role ambiguity.

Table 8. 5: The Indirect effect of Perceived MTM variety on the outcomes productivity and innovation through mediators (Simplified Model).

Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Time Pressure → Productivity.	-.038	.033	.260
Perceived MTM Variety → Time Pressure → Innovation.	-.079	.040	.047
Perceived MTM Variety → Cognitive Demand → Productivity	-.042	.029	.151
Perceived MTM Variety → Cognitive Demand→ Innovation	-.080	.035	.024
Perceived MTM Variety → Role Conflict → Productivity	-.075	.041	.066
Perceived MTM Variety → Role Conflict → Innovation	-.080	.050	.105
Perceived MTM Variety → Role Ambiguity → Productivity	-.079	.038	.037
Perceived MTM Variety → Role Ambiguity → Innovation	-.055	.046	.232

Note. $N = 216$ Unstandardized regression coefficients; * $p < 0.05$ ** $p < 0.01$

In conclusion, there are three significant mediation chains, which can be seen in table 8.5. Firstly, time pressure mediated the relationship between perceived MTM variety and the outcomes of productivity and innovation. However, the effect expected was a positive mediating effect and not a negative effect. Similarly, cognitive demand mediated the relationship between perceived MTM variety and innovation, the effect was negative contrary to the hypothesised positive effects. Lastly, role ambiguity mediated the relationship between perceived MTM variety and productivity. The effect of perceived MTM variety on productivity via role conflict was marginally significant, and also negative. In the next section, the results of the interaction effects are presented.

8.4.4. Testing of interaction Effects

The researcher performed a moderated regression analysis to test hypothesis 19 - 22. This analysis is depicted in the model in figure 8.2 below. Hypothesis 19 posited that polychronicity will moderate the relationship between perceived MTM variety and pressure in such a way that this relationship would become stronger as polychronicity increased. In order to examine the moderating effect of

polychronicity on the relationship between perceived MTM variety and time pressure, time pressure was regressed on perceived MTM variety, polychronicity and the interaction term of perceived MTM variety and polychronicity. Indeed, the interaction between perceived MTM variety and polychronicity on time pressure was significant ($\gamma = .06$, $SE = .03$, $p < 0.05$). An examination of the simple slopes suggests that relationship between perceived MTM variety and time pressure became stronger as polychronicity increased. In addition, the simple slopes revealed that this was significant when polychronicity was one SD above the mean (time pressure, $\gamma = .37$; $SE = .05$, $p < .001$), and still significant but weaker when polychronicity was one SD below the mean (time pressure, $\gamma = .20$; $SE = .05$, $p < .001$). Hence, the pattern of result indicates that the relationship between perceived MTM variety and time pressure became stronger as polychronicity increased, as initially hypothesized.

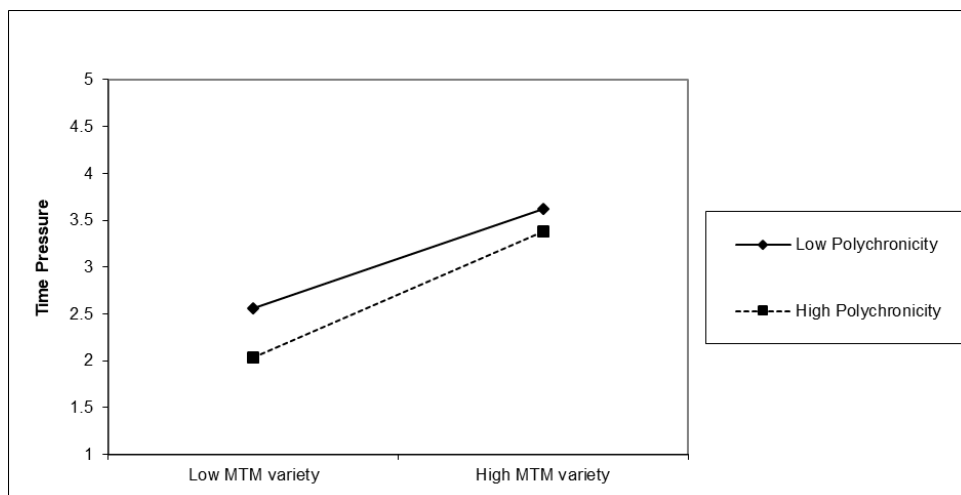


Figure 8. 2: Moderation effects of Perceived MTM variety x Polychronicity → Time pressure

In hypothesis 20, I suggested that polychronicity will moderate the relationship between perceived MTM variety and cognitive demand in such a way that this relationship would become stronger as polychronicity increased. To test the moderating effect of polychronicity on the relationship between perceived MTM variety and cognitive demand, cognitive demand was regressed on perceived MTM variety, polychronicity and the interaction term of perceived MTM variety and polychronicity. Contrary to my prediction, the interaction between perceived MTM variety and polychronicity on cognitive demand was not statistically significant ($\gamma = .05$, $SE = .03$, $p > 0.05$) as seen in table 8.6. Thus, this hypothesis did not receive empirical support.

In hypothesis 21, I was suggested that polychronicity will moderate the relationship between perceived MTM variety and role conflict in such a way that this relationship should become weaker as polychronicity increased. To test the moderating effect of polychronicity on the relationship between perceived MTM variety and role conflict, role conflict was regressed on perceived MTM variety, polychronicity and the interaction term of perceived MTM variety and polychronicity. The interaction between perceived MTM variety and polychronicity on role conflict was significant ($\gamma = .14$, $SE = .03$, $p < .001$). An examination of the simple slopes suggests that relationship between perceived MTM variety and role conflict became stronger as polychronicity increased. A closer look at the simple slopes suggests that the relationship between MTM variety and role conflict was significant when polychronicity was one SD below the mean ($\gamma = .22$, $SE = .05$, $p < 0.001$) and still significant but stronger when polychronicity was high at one SD above the mean ($\gamma = .53$, $SE = .05$, $p < 0.001$). This pattern is suggesting that polychronicity strengthens the relationship between perceived MTM variety and hindrance stressors which is the opposite of what was expected, and thus the hypothesis is rejected, as people with higher polychronicity perception of multiple team membership variety should report lower role conflict (hindrance stressor).

Finally, a moderated regression that suggests that polychronicity will moderate the relationship between perceived MTM variety and role ambiguity (hypothesis 22) was tested. To test the moderating effect of polychronicity on the relationship between perceived MTM variety and role ambiguity, role ambiguity was regressed on perceived MTM variety, polychronicity and the interaction term of perceived MTM variety and polychronicity. The interaction between perceived

MTM variety and polychronicity on role ambiguity was not significant ($\gamma = -.00$, $SE = .03$, $p > .05$) as seen in table 8.6 below.

Table 8. 6: Hypothesised Interaction Effects

Hypothesised Path	γ	SE	p
MTM Variety x Polychronicity → Time Pressure (H19)	.07	.03	.02
MTM Variety x Polychronicity → Cognitive Demand (H20)	.05	.03	.09
MTM Variety x Polychronicity → Role Conflict (H21)	.14	.03	.00
MTM Variety x Polychronicity → Role Ambiguity (H22)	.00	.03	.98

In summary, two out of the four proposed interactions were significant. Of great surprise was the moderating effect of polychronicity on the relationship between perceived MTM variety and role conflict. The moderating effect was the opposite of what was expected, as the relationship between perceived MTM variety and role conflict was stronger as polychronicity increased. This will be discussed later on.

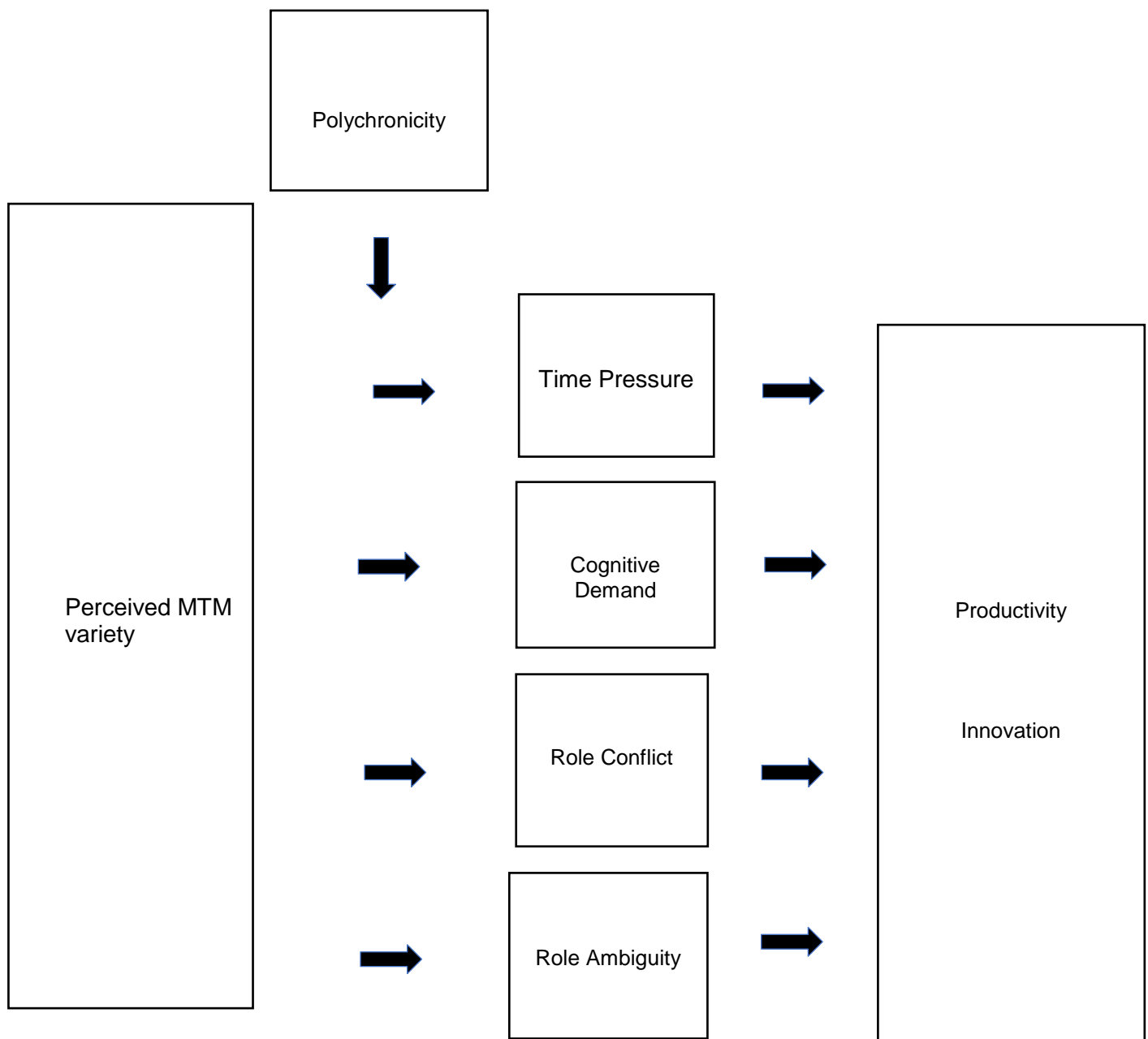
8.4.5. Moderated Mediation

Given the lack of support for the two-stage serial mediation, the tests of the initially proposed serial moderated mediations were deemed irrelevant, as regardless of the effect of the moderation on the first path of the mediation chain, the proposed relationships would not be significant given the lack of a significant relationship between the second-stage moderators and the outcomes.

Considering the post-hoc analyses presented above, I proceed to test a revised version of the moderated mediation models omitting the second stage mediators. This simplified model is presented in figure 8.3 below. To achieve this, the outcomes were regressed on perceived MTM variety, time pressure, and time pressure was regressed on perceived MTM variety, polychronicity and the interaction term of perceived MTM variety and polychronicity.

Both indirect and direct effects were modelled. Thus, the conditional indirect effects of perceived MTM variety on productivity and innovation through time pressure at different values of the moderator polychronicity were tested. The findings showed that perceived MTM variety was not indirectly related to productivity at low values of polychronicity ($\gamma = -.02$, $SE = .02$, $p = .42$) or at high values of polychronicity ($\gamma = -.03$, $SE = .04$, $p = .41$). Similar findings were obtained for innovation as perceived MTM variety was not indirectly related to innovation through time pressure at one SD below the mean of polychronicity ($\gamma = -.05$, $SE = .03$, $p = .08$) and at one SD above the mean of polychronicity ($\gamma = -.09$, $SE = .05$, $p = .06$).

Figure 8. 3: Simplified Moderated Mediation Model



Next, I examined the conditional indirect effects of perceived MTM variety on productivity and innovation through cognitive demand at different values of polychronicity. Result indicated that MTM variety was not indirectly related to productivity through cognitive demand at low values of polychronicity ($\gamma = -.004$, $SE = .024$, $p = .852$) and at high values of polychronicity ($\gamma = -.006$, $SE = .034$, $p = .852$). Analogous results were obtained when indirect effect of perceived MTM variety on innovation through cognitive demand at different values of polychronicity. As seen in table 8.7, findings showed that perceived MTM variety was not indirectly related to innovation through cognitive demand at low values of polychronicity ($\gamma = -.04$, $SE = .03$, $p = .18$) and at high values of polychronicity ($\gamma = -.06$, $SE = .02$, $p = .17$).

Afterwards, I tested the effects of perceived MTM variety on productivity and innovation through role conflict at different levels of polychronicity. Result indicated that perceived MTM variety was not indirectly related to productivity through role conflict at low values of polychronicity ($\gamma = -.02$, $SE = .03$, $p = .38$) or at high values of polychronicity ($\gamma = -.07$, $SE = .05$, $p = .12$). Similar findings were obtained for innovation as perceived MTM variety was not indirectly related to innovation through role conflict at one SD below the mean of polychronicity ($\gamma = -.02$, $SE = .03$, $p = .38$) and at one SD above the mean of polychronicity ($\gamma = -.06$, $SE = .06$, $p = .37$).

Finally, I tested the indirect effects of perceived MTM variety on productivity and innovation through role ambiguity at different levels of polychronicity. The findings from this test indicated the lack of an indirect effect between perceived MTM variety and productivity through the role ambiguity at low values of polychronicity ($\gamma = -.08$, $SE = .04$, $p = .05$) and at high values of polychronicity ($\gamma = -.06$, $SE = .30$, $p = .62$). The indirect effects of perceived MTM variety on innovation through role ambiguity at low values of polychronicity ($\gamma = -.01$, $SE = .05$, $p = .810$) and at high values of polychronicity ($\gamma = .01$, $SE = .04$, $p = .810$) as shown in table 8.7 below.

In summary, there was no evidence of any indirect effect of perceived MTM variety through the mediators at different levels of polychronicity as seen in table 8.7, thus not supporting the existence of a moderated mediation effect.

Table 8. 7: Moderated Mediation Effect¹

Perceived MTM Variety x Polychronicity → Time Pressure → Productivity	γ	SE	p
Low Polychronicity (1.87; -1SD)	-.017	.021	.417
High Polychronicity (4.07; +1SD)	.031	.038	.408
Moderated Mediation	-.024	.029	.408
Perceived MTM Variety x Polychronicity → Time Pressure → Innovation	γ	SE	P
Low Polychronicity (1.87; -1SD)	-.051	.029	.080
High Polychronicity (4.07; +1SD)	-.094	.049	.055
Moderated Mediation	-.072	.038	.054
Perceived MTM Variety x Polychronicity → Cognitive Demand → Productivity	γ	SE	p
Low Polychronicity (1.87; -1SD)	-.004	.024	.852
High Polychronicity (4.07; +1SD)	-.006	.034	.852
Moderated Mediation	-.005	.029	.852
Perceived MTM Variety x Polychronicity → Cognitive Demand → Innovation	γ	SE	P
Low Polychronicity (1.87; -1SD)	-.043	.032	.183
High Polychronicity (4.07; +1SD)	-.060	.045	.177
Moderated Mediation	-.052	.038	.176
Perceived MTM Variety x Polychronicity → Role conflict → Productivity	γ	SE	P
Low Polychronicity (1.87; -1SD)	-.027	.021	.209
High Polychronicity (4.07; +1SD)	-.065	.050	.191
Moderated Mediation	-.046	.035	.191
Perceived MTM Variety x Polychronicity → Role conflict → Innovation	γ	SE	p
Low Polychronicity (1.87; -1SD)	-.024	.027	.377
High Polychronicity (4.07; +1SD)	-.057	.063	.367
Moderated Mediation	-.040	.045	.368
Perceived MTM Variety x Polychronicity → Role Ambiguity → Productivity	γ	SE	P
Low Polychronicity (1.87; -1SD)	.020	.017	.239
High Polychronicity (4.07; +1SD)	.014	.012	.241
Moderated Mediation	.017	.015	.237
MTM Variety x Polychronicity → Role Ambiguity → Productivity	γ	SE	P
Low Polychronicity (1.87; -1SD)	-.013	.054	.810
High Polychronicity (4.07; +1SD)	-.009	.036	.810
Moderated Mediation	-.011	.045	.810

Overall summary of the individual level results

The results above demonstrated a positive significant relationship between perceived MTM variety and time pressure, cognitive demand (Challenge Stressors) and role conflict and role ambiguity (hindrance stressors). Although there was no support for serial mediation chain, mediation effects were found in the simplified model above. Results showed that role ambiguity mediated the relationship between perceived MTM variety and productivity. Although time pressure mediated the relationship between perceived MTM variety and innovation, the effects were negative and as such it is contrary to what was expected. Results above also showed polychronicity moderated the relationship between perceived MTM variety and time pressure and the relationship was stronger at higher levels of polychronicity. Polychronicity also moderated the relationship between perceived MTM variety and role conflict, but unexpectedly the relationship was stronger at higher levels of polychronicity. Lastly, a moderated mediation model was tested for in the simple model and there was no significant result attained.

Chapter 9: Team Level Results

9.1 Introduction

This section presents the results of the team level hypotheses proposed in chapter 5. These hypotheses examined the relationship between perceived MTM variety at the team level and the team level outcomes of productivity and innovation. In addition, in light of post-hoc analysis, I present an alternative model to provide another perspective of the effect of perceived MTM variety at team level on the outcomes of productivity and innovation.

Before presenting the results of the hypotheses, I provide the results that statistically justify the aggregation of individual level constructs (perceived MTM variety, team time pressure, team role conflict, team role ambiguity, information elaboration, coordination loss) to the team level. Thus, the results of the Interrater Agreement Index and Inter Class Correlation were provided. Afterwards, the descriptive data for the team level data which includes means, standard deviation, and correlations between measures were shown. Results of the confirmatory factor analysis were presented in order to confirm the distinctiveness of the variables. Finally, the proposed hypotheses are tested, starting with the main effects and moving to the mediation models. In light of these results, a series of post-hoc analysis was conducted to test a proposed alternative model.

9.2. Data Aggregation

The data for the team level analysis was obtained at individual level and as such it is imperative to statistically verify the reliability of aggregating the individual scores to the team level of analysis (Bliese, 2000). Furthermore, when aggregating individual data to the group level, researchers subtly or overtly implement a composition model (Rousseau, 1985; Klein, Conn, Smith & Sorra, 2001). A composition model explains how a construct that is operationalised at one level of analysis is related to another level of the same construct at a different level (James, 1982). A reference shift consensus model was used to measure the team constructs (team time pressure, team role conflict, team role ambiguity, information elaboration and coordination loss), which suggest that an adapted version of individual level constructs was used to measure the group

constructs (Chan, 1998; Mierlo, Vermunt & Rutte, 2008). However, in aggregating perceived MTM variety, I adopted the additive composition model, as the group means of individual level responses to the perceived MTM variety scale were used to operationalise perceived MTM variety at the team level (Chan, 1998). Perceived MTM variety, team time pressure, team role conflict, team role ambiguity, information elaboration and coordination loss are measured at the individual level but will be aggregated to the team level. Therefore, both Interrater Agreement Index $rwg(j)$ and Intraclass Correlation Coefficients (ICCs) were examined to give an indication as to whether there is within-team agreement and whether the items can be aggregated to team level constructs (James, Demaree & Wolf, 1984; Bliese, 2000). Within-group agreement is the most commonly tested through the use of within-group interrater reliability coefficient $rwg(j)$ (James, Demaree & Wolf, 1993; Biemann, Cole & Voelpel, 2011). Thus, interrater agreement is the absolute consensus in the scores that respondents provide (Cohen, Doveh & Nahum-Shanni, 2009) and the sole purpose of this statistic is to justify aggregation to higher level of analysis. James and his colleagues posited that a $rwg(j)$ with a cut-off value of .70 indicates an adequate score of within-level agreement to justify an aggregation from individual to team level variable (James, Demaree & Wolf, 1984). Table 9.1 below shows the $rwg(j)$ value for perceived MTM variety, team time pressure, team role conflict, team role ambiguity, information elaboration and coordination Loss. All the values were above the cut-off point of .70 which indicates an adequate score of within-level agreement.

Table 9. 1: Rwg values for Team level constructs

Variable	Rwg
Perceived MTM Variety	.91
Team Time Pressure	.98
Team Role Conflict	.92
Team Role Ambiguity	.98
Information Elaboration	.97
Coordination Loss	.96

ICCs are usually adopted when a researcher is interested in the relationship among variables of a common class suggesting variables that share the same metric and variance (McGraw & Wong, 1996; Castro, 2002). ICC (1) represents the amount of variance in any one individual response that can be explained by group membership (Bryk & Raudenbush, 2002; Bliese, Halverson & Schriesheim, 2002), Bliese also suggested that ICC (1) is a measure of non-independence (Bliese, 2000). However, it is important to note there are no established cut-off values for ICC (1). Although values above 0.05 is indicating some variance due to group membership and therefore indicating that aggregation is acceptable (Bliese & Halverson, 1996; Bliese, 2000). ICC (2) on the other hand represents the reliability of the group mean and varies as a function of the group size and the ICC (1) value and it is usually estimated using the means of squares from one-way random-effect analysis of variance (ANOVA) (James, 1982; Bliese, 2000; Glick, 1985). Values of above 0.5 have been suggested to be indicative of acceptable levels of reliability of the mean (Klein, Bliese, Kozlowski, Dansereau, 2000). Table 9.2 below shows ICC (1) for the variables are 0.87 (MTM variety), 0.78 (team time pressure), 0.85 (team role conflict), 0.85 (team role ambiguity), 0.87 (information elaboration), 0.83 (coordination loss). ICC (2) results for the same variables are 0.97 (MTM variety), 0.94 (team time pressure), 0.96 (team role conflict), 0.96 team role ambiguity, 0.97 (information elaboration) and 0.95 (coordination loss). Both values of ICC (1) and ICC (2) are well above the cut off values. Based on both the Rwg values and ICC values, these variables can be aggregated to the team level.

Table 9. 2: Inter Rater Agreement for the Team Level Constructs

Variable	ICC1	ICC2
Perceived MTM Variety	.87	.96
Team Time Pressure	.78	.94
Team Role Conflict	.85	.96
Team Role Ambiguity	.85	.96
Information Elaboration	.87	.97
Coordination Loss	.83	.95

9.3. Preliminary Analysis

A correlational analysis was completed to explore the bivariate relationships among the eight core constructs, as shown in table 9.3 below. The table below also shows the standard deviation, zero-order correlations, and internal consistency reliability estimates of the individual level variables. Findings reveal a significant positive relationship with team perceived MTM variety and team time pressure ($r = .69$, $n = 50$, $p < .01$), team role conflict ($r = .80$, $n = 50$, $p < .01$), team role ambiguity ($r = .41$, $n = 50$, $p < .01$), information elaboration ($r = -.37$, $n = 50$, $p < .01$), coordination loss ($r = .62$, $n = 50$, $p < .01$) team productivity ($r = -.47$, $n = 50$, $p < .01$) and team innovation ($r = -.43$, $n = 50$, $p < .01$). In contrast, the number of MTM at the team level did not have significant relationship with the other team level variable. Findings reveal a non-significant relationship with perceived MTM variety ($r = -.03$, $n = 50$, $p > .05$), team time pressure ($r = .07$, $n = 50$, $p > .05$), team role conflict ($r = .03$, $n = 50$, $p > .05$), team role ambiguity ($r = -.01$, $n = 50$, $p > .05$), information elaboration ($r = .07$, $n = 50$, $p > .05$), coordination loss ($r = -.14$, $n = 50$, $p > .05$), team productivity ($r = .65$, $n = 50$, $p > .05$), team innovation ($r = -.05$, $n = 50$, $p > .05$)

Table 9. 3: Descriptive Statistics and Reliability Estimates at the Team level of Analysis

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Team Size	4.32	1.17										
2. Number of Team MTM	4.03	1.20	-.11									
3. Perceived MTM Variety	3.19	1.56	-.39**	-.03	(.98)							
4. Team Time Pressure	3.54	.76	-.05	.07	.69**	(.93)						
5. Team Role Conflict	3.27	1.03	-.16	.03	.80**	.81**	(.91)					
6. Team Role Ambiguity	2.25	.96	-.12	-.01	.41**	.42**	.49**	(.98)				
7. Information Elaboration	3.82	1.07	.08	.07	-.37**	-.38**	-.47**	-.86**	(.98)			
8. Coordination Loss	2.79	1.10	-.17	-.14	.62**	.56**	.64**	.70**	-.64**	(.92)		
9. Team Productivity	3.9	1.06	.25	.07	-.47**	-.39**	-.47**	-.62**	.56**	-.58**	(.97)	
10. Team Innovation	3.93	1.01	.27	-.05	-.43**	-.37**	-.46**	-.59**	-.52**	-.52	.96**	(.98)

Note: Cronbach's Alpha are provided in the brackets in the above table along the diagonal; M = mean; SD = standard deviation; N =50 in all cases; ** $p < .01$

9.4. Confirmatory Factor Analysis

As was the case in the individual level analysis, I conducted a series of confirmatory factor analysis (CFA) to determine how well the assigned structures fit the model at the team level of analysis. I report the results of the four CFAs that were examined by providing the result of the Chi-square test and the other fit indices such as the Confirmatory Fit Index (CFI), Tucker Lewis Index (TLI), the Standardised Root Mean Squared Residual (SRMR) and the root mean square error of approximation (RMSEA). The appropriate model fit is reflected by TFI and CFI values that are higher than .90 and RMSEA and SRMR values that are lower than .08 (Steiger, 1989; Brown & Cudeck, 1993; Hu & Bentler, 1999). As a result, I conducted a 6-factor model at the team level that included perceived MTM variety at the team level, team time pressure, team role conflict, team role ambiguity, information elaboration, and coordination loss.

The hypothesised six-factor model did not meet the recommended criteria indicative of a good fit ($\chi^2(528) = 1654.07$, $p < .001$, $\chi^2/df = 3.13$, TLI = .89, CFI = .90; RMSEA = .1 and SRMR = .07). However, this model was a better fit than the other conceivable factor models: A four factor model that combined team role ambiguity, information elaboration and coordination loss ($\chi^2(554) = 3552.99$, $p < .001$, $\chi^2/df = 6.41$, $\Delta\chi^2 = 1898.92^{***}$, TLI = .71, CFI = .73; RMSEA = .16 and SRMR = .12), a two-factor model that combined team time pressure, team role conflict, team role ambiguity, information elaboration and coordination loss ($\chi^2(376) = 3674.53$, $p < .001$, $\chi^2/df = 9.77$, $\Delta\chi^2 = 121.54^{***}$, TLI = .55, CFI = .59; RMSEA = .20; and SRMR = .14) and a single factor model that combined all the six factors in to one factor ($\chi^2(560) = 6993.57$, $p < .001$, $\chi^2/df = 12.49$, $\Delta\chi^2 = 3319.04$). ^{***}, TLI = .55, CFI = .59; RMSEA = .20; and SRMR = .14. In the addition, the ratio of sample size to number of indicators could be responsible for the unstable structure. The sample-size- to parameter ratio (N: q = 4.8 is below the recommended value of 5 (Bentler & Chou, 1987).

As it can be seen from the indices reported in table 9.4, the hypothesised six-factor model which assumed all the variables were distinct from another, received the best empirical support with CFI values of .90. Although the other indices are below the cut-off criteria, Marsh and colleagues have argued that it almost impossible to get an acceptable fit with current strict cut- off points when

instrument is measuring at least 50 items overall (Marsh, Hau & Wen, 2004). In addition, Byrne (2001) similarly suggested that fit indices do not reflect the plausibility of a model and that the judgement rests on the researcher, therefore it was deemed acceptable to proceed with the analysis.

Table 9.4: Results of Confirmatory Factor Analysis of the Distinctiveness of Team-Level Variables

Model	χ^2	df	p	$\Delta\chi^2$	TLI	CFI	RMSEA	SRMR
Hypothesised six-factor Model (i.e. Perceived MTM variety, team time pressure, team role conflict, team role ambiguity, information elaboration and coordination loss).	1654.07	528	0.000		.89	.90	.1	.07
Four-factor Model (i.e. Perceived MTM variety, team time pressure, team role conflict and a combination of team role ambiguity, information elaboration and coordination loss).	3552.99	554	0.000	1898.92	.71	.73	.16	.12
Two-Factor Model (i.e. Perceived MTM variety ambiguity and a combination of team time pressure, team role conflict, team role ambiguity, information elaboration and coordination loss)	3674.53	376	0.000	121.54	.55	.59	.20	.14
One-factor Model (i.e. all the nine combined to form a factor)	6993.57	560	0.000	3319.04	.55	.59	.20	.14

9.5 Testing for Main Effects

To test the main effects, each dependent variable was regressed on the predictor variable as established in the between model section of the Mplus model commands. All the mediation paths were tested separately. The control variable – number of MTMs was included in all the analysis performed (i.e. between predictors, mediators, moderators, and outcome variables). Thus, at the team level, the number of MTMs is the average number of MTMs in the focal team. It was important to control for this variable because of its relationship with perceived MTM variety, as they are related but distinct elements of MTM (O' Leary et al, 2011), and as such its effects were

controlled for while examining the effects of perceived MTM variety at the team level

This section presents the main effects of the team model presented in chapter 3. Firstly, the relationships between perceived MTM variety and first stage mediators (team time pressure, team role conflict, team role ambiguity) were tested. In this model, team time pressure is classed as a challenge stressor and team role conflict and team role ambiguity were categorised as hindrance stressors.

Hypothesis 27 suggested that perceived MTM variety at the team level will positively predict time pressure. Results confirm this hypothesis as the relationship between perceived MTM variety and team time pressure was statistically significant ($\gamma = .34$; $p < .001$). Next, hypothesis 28 stipulated that perceived MTM variety will predict team role conflict. The result obtained supported this prediction as perceived MTM variety significantly predict team role conflict ($\gamma = .53$; $p < .001$). In hypothesis 29, I predicted that perceived MTM variety will positively predict team role ambiguity. Indeed, the relationship between perceived MTM variety and team role ambiguity was statistically significant ($\gamma = .25$; $p < .05$).

Attention is now turned to the relationship between the first stage mediators (team time pressure, team role conflict and team role conflict) and the second stage mediators (information elaboration and coordination loss) in figure 3.2 presented in chapter 3. Thus, hypothesis 30 posited that team time pressure will positively predict information elaboration. Results obtained did not support the prediction as the relationship between team time pressure and information elaboration was not statistically significant ($\gamma = -.35$; $p > .05$). Subsequently, hypothesis 31 posited that team role conflict will positively predict team coordination loss. Thus, the relationship between team role conflict and coordination loss was significantly positive ($\gamma = .44$; $p < .05$). Similarly, hypothesis 32 predicted a positive relationship between team role ambiguity and team coordination loss. The result obtained from the analysis supported this notion as team role ambiguity positively predicted coordination loss ($\gamma = .63$; $p < .001$).

Finally, I examined the relationships indicated in the third step of the model 3.2 in chapter 3. This step aligns the second stage mediators to the team outcomes of productivity and innovation.

Thus, hypothesis 33 suggested that information elaboration will positively predict team productivity. The relationship between information elaboration and team productivity was statistically significant ($\gamma = .43$; $p < .05$). Next hypothesis 34 suggested that information elaboration will positively predict team innovation. This hypothesis was supported, as the relationship between information elaboration and team innovation was statistically significant ($\gamma = .40$; $p < .05$). Next, in hypothesis 35, I predicted that coordination loss will negatively predict team productivity. Result obtained did not support this notion as the relationship between coordination loss and team productivity was not statistically significant ($\gamma = -.14$; $p > .05$). Similarly, in hypothesis 36, I posited that coordination loss will negatively predict team innovation. Result from the analysis did not support this notion as the relationship between coordination loss and team innovation was not statistically significant ($\gamma = -.09$, $p > .05$)

Table 9. 5: Individual level hypothesis testing results of the main effects of Hypothesis. 19 – 26b.

Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Team Time Pressure (H27)	.34	.06	.000
Perceived MTM Variety → Team Role Conflict (H28)	.53	.06	.000
Perceived MTM Variety → Team Role Ambiguity (H29)	.25	.09	.007
Team Time Pressure → Information Elaboration (H30)	-.35	.32	.273
Team Role Conflict → Coordination Loss (H31)	.44	.22	.047
Team Role Ambiguity → Coordination Loss (H32)	.63	.09	.000
Information Elaboration → Team Productivity (H33)	.43	.16	.008
Information Elaboration → Team Innovation (H34)	.40	.17	.017
Coordination Loss → Team Productivity (H35)	-.14	.21	.506
Coordination Loss → Team Innovation (H36)	-.09	.21	.648

9.6. Serial Mediation

In this section, I examined the proposed mediating relationships linking perceived MTM variety to the first stage mediators (team time pressure, team role conflict and team role ambiguity), the second stage mediators (information elaboration and coordination loss) and team outcomes of productivity and innovation. Subsequently, a serial mediator model that examined the indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through the first stage and second stage mediators was tested using Mplus Version 8. To test for the indirect effects of perceived MTM variety on the team outcomes of productivity and innovation, the dependent variables were regressed on the stage 2 mediators and the predictor variables. Afterwards, the stage 1 and stage 2 mediators were regressed on each other. The different mediating paths were tested separately while controlling for the number of MTMs. Thus, this research examined whether the link between perceived MTM variety and the team outcomes of productivity and innovation was mediated by team time pressure and information elaboration in hypothesis 37a and 37b. In doing this, team productivity and team innovation were regressed on information elaboration, team time management and perceived MTM variety; information elaboration was then regressed on team time pressure and perceived MTM variety. The mediation effect was calculated by requesting the multiplication of each of the three pathway coefficients under model constraints in Mplus. The indirect effects of perceived MTM variety on the team outcomes of productivity ($\gamma = -.05$, $p > .05$) and innovation ($\gamma = -.04$, $p > .05$) through team time pressure and information elaboration were not significant and as result failing to support the mediation chain as seen in table 9.6.

Diverting attention to the hindrance stressors, hypothesis 38a and 38b predicted the indirect effect of perceived MTM variety on the team outcomes of productivity and innovation will be mediated by role conflict and coordination loss. The indirect effects of perceived MTM variety on the team outcomes of productivity ($\gamma = -.10$; $p > .05$) and innovation ($\gamma = -.09$; $p > .05$) through team role conflict and coordination loss was not significant thus not supporting the proposed mediation chain as seen in table 9.6 below.

Finally, hypothesis 39a and 39b proposed an indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through team role ambiguity and coordination loss. As seen in table 9.6 below, the indirect effects of perceived MTM variety on the team outcomes of productivity ($\gamma = -.02$; $p > .05$) and innovation ($\gamma = -.02$; $p > .05$) were not significant. Thus, this finding does not support the hypothesised mediation chain.

Table 9. 6: Hypothesised Indirect effect of Perceived MTM variety on the outcomes productivity and innovation through mediators in series.

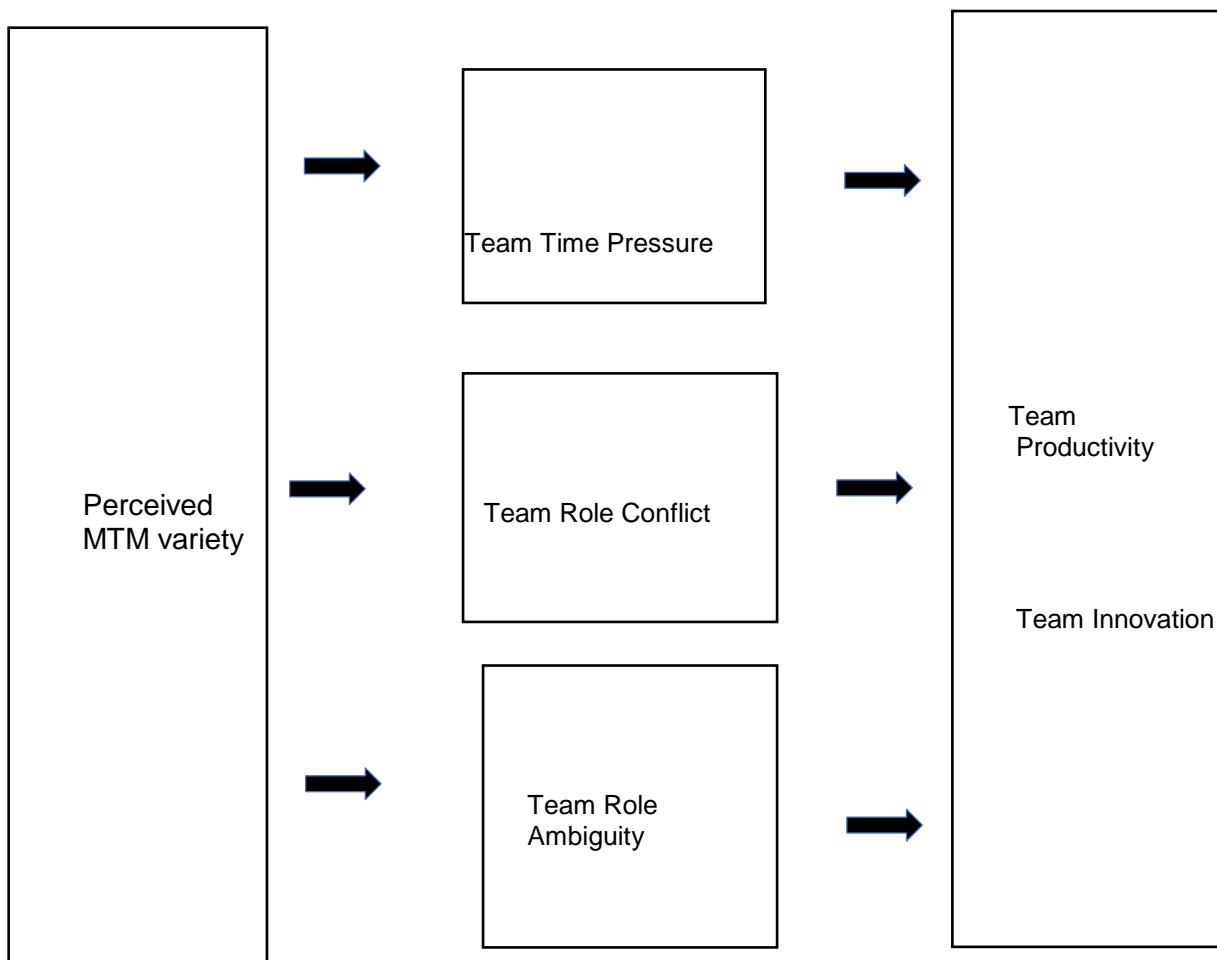
Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Team Time Pressure → Information Elaboration → Productivity (H37a)	-.05	.07	.359
Perceived MTM Variety → Team Time Pressure → Information Elaboration → Innovation (H37b)	-.05	.05	.366
Perceived MTM Variety → Team Role Conflict → Coordination Loss → Productivity (H38a)	-.10	.07	.155
Perceived MTM Variety → Team Role Conflict → Coordination Loss → Innovation (H38b)	-.09	.05	.092
Perceived MTM Variety → Team Role Ambiguity → Coordination Loss → Productivity (H39a)	-.02	.03	.511
Perceived MTM Variety → Team Role Ambiguity → Coordination Loss → Innovation (H39b)	-.02	.03	.614

9.7. Mediation Results for the Simplified Model

The results of the mediation chain provided above did not support the case for serial mediation. This could be as a result of the lack of significant relationships between first stage and second stage mediators and the outcome variables. For example, the non-

significant relationship between team time pressure and information elaboration; coordination loss on the outcomes of productivity and innovation. Due to these results, it was considered relevant to examine whether the indirect effects of perceived MTM variety on the team outcomes of productivity and innovation unfolded through the first stage mediators (team time pressure, team role conflict, team role ambiguity). This simplified model is depicted in figure 9.1 below.

Figure 9. 1: Simplified Mediation Model



Thus, before presenting the result of the mediation analysis, I examined the relationship between these mediators and the team outcome variables of productivity and innovation to validate carrying out the mediation analysis. Mainly to establish

whether there is a relationship between the mediator and the outcome variable. As a result, the team outcomes of productivity and innovation were regressed on team time pressure. In this analysis, I also controlled for the number of MTMs. The result revealed that team time pressure did not significantly predict the team outcome of productivity ($\gamma = -.19$; $p > .05$) and innovation ($\gamma = -.16$; $p > .05$). Subsequently, team role conflict was also regressed on the team outcomes of productivity and innovation. Results revealed that team role conflict is not significantly related to the team outcomes of productivity ($\gamma = -.27$; $p > .05$) and innovation ($\gamma = -.31$; $p > .05$).

Finally, the relationships between team role ambiguity and the team outcomes of productivity and innovation were examined. This was done by regressing the outcomes on team role ambiguity. Result from the analysis indicated that the relationship between team role ambiguity and the team outcomes of productivity ($\gamma = -.57$; $p < .001$) and innovation ($\gamma = -.52$; $p < .001$) was significant.

Following the result between the mediators and the team outcome variables of productivity and innovation, I decided to test for the indirect effects of perceived MTM variety on the team outcomes of productivity and innovation through role ambiguity. Based on the result reported above, the only significant relationship was between team role ambiguity and the team outcomes of productivity and innovation.

To achieve this, I tested for the indirect effects of perceived MTM variety on the team outcome variables of productivity and innovation in the Mplus model commands and requested for the two paths in the model constraints. Thus, the dependent variables (productivity and innovation) were regressed on stage 1 mediator (team role ambiguity) and the predictor variable (perceived MTM variety). Afterwards, team role ambiguity was regressed on perceived MTM variety. This model was tested simultaneously and the number of MTMs at the team level was controlled for.

Results indicated that the indirect effect of perceived MTM variety on the team outcome of productivity ($\gamma = -.14$; $p < .05$) through team role ambiguity was significant in table 9.7. However, the indirect effect of perceived MTM variety on the team outcome of innovation was only marginally significant ($\gamma = -.13$; $p = .05$).

Table 9. 7: The Indirect effect of Perceived MTM variety on the outcomes productivity and innovation through team role ambiguity (Simplified Model).

Hypothesised Relationship	γ	SE	p
Perceived MTM Variety → Team Role Ambiguity → Team Productivity	-.14	.07	.043
Perceived MTM Variety → Team Role Ambiguity → Team Innovation	-.13	.07	.055

9.8. Summary of Team Level Results

In this section, the justification for aggregating variables to the team level was provided. This was achieved by providing the Rwg, ICC1 and ICC2 results. Afterwards, I provided the result of the bivariate relationship between the variables alongside with the results of the CFA. Result showed that perceived MTM variety at the team level was significantly related to team time pressure (challenge stressor), team role conflict and team role ambiguity (hindrance stressors). There was no significant relationship between team role conflict and the outcomes of productivity and innovation. However, there was a positive relationship between team role ambiguity and the outcomes of productivity and innovation. Information elaboration positively predicted both team productivity and team innovation. There was no support for the relationship between coordination loss and the team outcomes of productivity. In addition, there was no significant result for the serial mediation pathways. Thus, this prompted the examination of the simplified model. Team role ambiguity mediated the relationship between perceived MTM variety and team productivity while team role ambiguity marginally mediated the relationship between perceived MTM variety and team innovation. These results are discussed in the next chapter.

Chapter 10: Discussion

10.1. Introduction

One of the most prevalent and underexplored aspects of teams' literature is that employees are often part of more than one team at a time (Wageman, Gardner & Mortensen, 2012; O'Leary et al, 2011; Mortensen et al, 2007). That is, they belong to multiple teams simultaneously. Despite the prevalence of MTM in the workplace, very little is known about the effects of perceived MTM variety on the outcomes of productivity and innovation for the individual and team alike. To my knowledge there are no established scales that measures perceived MTM variety either at the individual or at the team level. Due to the aforementioned prevalence of MTM in the workplace, it therefore important to understand how it affects both individual and team outcomes. More importantly, it is imperative for managers and stakeholders to understand how to manage and optimise these effects. Building on the conceptual work of O'Leary and his colleagues (O'Leary et al, 2011), this thesis went ahead and examined the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. Productivity is considered as one of the most vital criteria for work effectiveness and as such it is an important measure for work effectiveness (Hackman, 2002; Adler et al, 2009; Aral, Brynjolfsson & Van Alstyne, 2012). In addition, productivity indicates how a work system is effectively converting its resources and most activities in organisations are geared towards productivity (Adler & Clark, 1991). And as such it is imperative to examine the effects perceived MTM variety might have on both individual and team productivity (how perceived MTM variety aids or hinders productivity and how this can be managed). On the other hand, innovation is seen by organisations as key to increasing profits and market share (Baer & Frese, 2003). In addition, process innovations have multiple benefits for the teams and organisations, as it is crucial to maintaining competitive advantage for organisations (Baer & Frese, 2003; Utterback, 1994). Furthermore, organisations often

rely on teams for innovation (Ilgen, Hollenbeck, Johnson & Jundt, 2005), and as such it is important to understand the effects of perceived MTM variety on team innovation.

Thus, the goal of this study was to investigate the effects of perceived multiple team membership variety on the outcomes of productivity and innovation. While several studies (such as Pluut et al, 2014; Bertolotti et al, 2015; Mo & Wellman, 2016) have recently examined the effects of the number of MTM on both individual and team processes, this is the first study that specifically focused on perceived MTM variety as a key element of the MTM construct. This investigation prompted the development of a perceived MTM variety scale. Subsequently, this new scale was utilised to investigate a multilevel model of the mechanisms through which perceived MTM variety interacts with the outcomes of productivity and innovation.

The key theoretical frameworks that informed the model development of this research are the challenge hindrance framework (Lepine et al, 2004), the categorisation elaboration model (Van Knippenberg et al, 2004), role theory (Kahn et al, 1964) and polychronicity (Hall, 1959; Conte & Gintoft, 2005). At the individual level, the indirect effects of perceived MTM variety on the outcomes of productivity and innovation through time pressure, cognitive demand, role conflict, role ambiguity, time management, knowledge integration and burnout were examined. Furthermore, the moderating effect of polychronicity on the relationship between perceived MTM variety and the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity) was examined. As a result, a serial mediation model was also examined between perceived MTM variety and the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity) and second stage mediators (time management knowledge integration and burnout) and the outcome variables of productivity and innovation. At the group level, I examined the indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through team time pressure, team role conflict and team role ambiguity, information elaboration and coordination loss. As a result, a serial mediation model was examined between perceived MTM variety and the first stage mediators (team

time pressure, team role conflict and team role ambiguity) and second stage mediators (information elaboration and coordination loss) and the team outcome variables of productivity and innovation after controlling for the number of MTM. Finally, I will present the theoretical, practical, and methodological contributions of this study and limitations of this research and suggesting future research directions. Before presenting the above-mentioned, the summary of the key findings is presented below.

10.2. Summary of Key Findings

Drawing on the conceptual paper by O'Leary and colleagues (O'Leary et al 2011) a theoretically oriented and cohesive measure of perceived multiple team membership variety was developed, following established practices suggested by Hinkin and colleagues (Hinkin et al, 1997). Six items were generated, these items captured the features of perceived MTM variety which is the perceived variety in team members, tasks, roles, technologies, and abilities. These items were initially piloted among 69 individuals from 3 retail organisations that reported working in multiple teams. Afterwards, I validated the scale using EFA and CFA and subsequently through content validity. Findings indicated an evidence of good psychometric properties for the newly constructed perceived MTM variety scale. The six items measured loaded onto one factor and the result of the CFA analysis on a sample of 216 respondents showed a goodness of fit of the one factor structure. In all the analysis carried out at the individual and team level, the number or MTM was controlled for. At the team level it the average number of MTMs for each team member.

10.2.1 Individual level Findings

The findings obtained from the individual level analysis suggests that perceived MTM variety was positively related to time pressure which lends support to hypothesis 1. Thus, individuals that work across a variety teams tend to report greater time pressure in their daily work (Bakker & Demerouti, 2007). This is in tandem with the position of Perlow (1998) who suggest that individuals working in several interdependent teams are likely to experience time pressure. Furthermore, Zika-Viktorsson and colleagues suggested that

due to the work demand in the MTM context, individuals are likely to experience time pressure (Zika-Viktorsson et al, 2006). In addition, perceived MTM variety was positively related to cognitive demand lending support to hypothesis 2. That is individuals who work in the perceived MTM variety context are likely to experience higher levels of cognitive demand which supports the work of Mortensen and colleagues who posit that the challenges of task switching and multitasking inherent in the multi- teaming context will result to increasing demand for cognitive resources (Mortensen et al, 2007, Leroy, 2009; Zika-Viktorsson et al, 2006; Schmidt & Dolis, 2009). Overall, these two hypotheses incorporate perceived MTM variety and the challenge hindrance framework. This research has demonstrated the presence of challenge stressors such as time pressure and cognitive demand (Lepine, Podsakoff & Lepine, 2005) in the perceived MTM variety context.

Findings obtained from individual level analysis found support for hypothesis 3 as perceived MTM variety was positively related to role conflict. This suggests that individuals engaging in multiple roles in the perceived MTM variety context are likely to report high levels of role conflict. This support the tenets of role theory which suggest that individuals occupying multiple roles are likely to face challenges of competing needs of both roles (Kahn et al, 1977; Jackson & Schuler, 1985; Bolino & Turnley, 2005). Furthermore, perceived MTM variety was positively related to role ambiguity lending support to hypothesis 4. This suggests that individuals with perceived MTM variety are likely to experience role ambiguity. As perceived MTM variety increases for the individual it is plausible that they have challenges keeping track of the multiple diverse commitments they have in various teams (O' Leary et al, 2011) and thus leading to uncertainty about the role they fulfil. Thus, this research as provided empirical evidence of the relationship between perceived MTM variety and hindrance stressors (role conflict, role ambiguity). Lepine and colleagues have categorically grouped these stressors as hindrance stressors (Lepine, Podsakoff & Lepine, 2005; Rodell & Judge, 2009). This suggest that individuals engaging work in the MTM contexts are like to experience role stress in the form of role conflict and role ambiguity (Pluut, Flestea & Curseu, 2014).

The challenge hindrance framework posits that the appraisal of certain stressors as challenge will elicit positive behaviours and the appraisal of stressors as hindrance would prompt individuals to engage in negative behaviours (Lepine et al, 2005; Pearsall, Ellis & Stein, 2009). Thus, time pressure was not significantly related to time management and as such not lending support to hypothesis 5. This suggests that individuals did not engaging in time management behaviours as a form of coping mechanism which contradicts the proposition of the challenge hindrance framework (Lepine, Lepine & Jackson, 2004). The challenge hindrance framework suggests that positive behaviours will follow the appraisal of a stressor as a challenge (Lepine et al, 2005). Also, result obtained did not support hypothesis 6 as cognitive demand was not significantly related to knowledge integration. This shows that individuals in the perceived MTM variety context are not engaging in knowledge integration because of experienced of cognitive demand. This finding is contrary to the notion that functional heterogeneity and diversity in terms differences in knowledge and experiences of team members will lead to knowledge integration activities (Drach-Zahavy & Somech, 2001; Bunderson & Sutcliffe, 2002; Harrison & Klein, 2007). In hypothesis 7, findings revealed that role conflict significantly predicted burnout. This finding is in accordance to the challenge-hindrance stressors framework, which suggest that individuals will negatively appraise hindrance stressors which will then result to negative outcomes (Lepine et al, 2005) Thus, in this case the negative outcome resulting from conflict is burnout. This finding also corroborates the job-demand resource model that suggests that job demands will primarily lead to exhaustion (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). In addition, findings obtained suggests that the relationship between role ambiguity and burnout was marginally significant. Thus, not lending support to hypothesis 8. Thus, this research did not find support for the negative effects of role ambiguity. The individual level analysis did not find support for the positive relationship between time management and productivity thus not lending support to hypothesis 9. Also, in hypothesis 10, there was no support found for the positive relationship between time management and individual innovation. However, result revealed a positive relationship between knowledge

integration and productivity thus lending support to hypothesis 11 which supported the findings of Srivastava and colleagues who found a positive relationship between knowledge sharing and team performance (Srivastava, Bartol & Locke, 2006). Nevertheless, the relationship between knowledge integration and innovation was not significant thus not lending support to hypothesis 12. Burnout was not significantly related to either productivity or innovation and as such not rendering support to both hypothesis 13 and 14.

In examining the serial mediation chain perceived MTM variety was not indirectly related to productivity and innovation through time pressure and time management and as a result not providing support to hypothesis 15a and 15b. Furthermore, perceived MTM variety was not indirectly related to productivity and innovation through cognitive demand and knowledge integration and as such not lending support to hypothesis 16a and 16b. Thus, the positive appraisal of challenge stressors that leads to positive individual outcomes were not found in this mediation model. Next, in hypothesis 17a and 17b the indirect effects of MTM variety on the outcomes of productivity and innovation through role conflict and burnout was not supported by the result obtained and as such not lending support to the hypothesis. The indirect effect of MTM variety on the outcomes of productivity and innovation through role ambiguity and burnout was not significant and as such not rendering support to hypothesis 18a and 18b. As a result, the negative effects of hindrance stressors did not translate to negative individual outcomes as proposed by Lepine and colleagues (Lepine et al, 2005)

10.2.2. Simplified Mediation Model

As stated in chapter 8, due to the non-significance of the mediation results, it was deemed necessary to examine whether the indirect effect of perceived MTM variety on the outcomes of productivity and innovation will be obtained through the first stage mediators (time pressure, cognitive demand, role conflict and role ambiguity) in the simplified mediation model in figure 8.1.

Thus, the indirect effect of perceived MTM variety on productivity through time pressure was not significant and as such not lending support to the mediation chain. However, the

indirect effect of perceived MTM variety on innovation through time pressure was significant and as such supporting the mediating chain. Next, the indirect effect of perceived MTM variety on the individual outcome of productivity through cognitive demand was not significant and as such not rendering support to the mediation chain. However, cognitive demand mediated the relationship between perceived MTM variety and innovation. Also, the indirect effect of perceived MTM variety on both productivity and innovation through role conflict was not significant and as such not supporting the mediation chain. Finally, the indirect effect of perceived MTM variety on productivity through role ambiguity was significant and thus rendering support for the mediation chain. However, similar result was not obtained as perceived MTM variety was not indirectly related to innovation through innovation and thus not supporting the mediation link

10.2.3. Moderating Effects of Polychronicity

In hypothesis 19, result indicated that the indirect effect of perceived MTM variety on time pressure will be stronger at high levels of polychronicity. Result obtained did support hypothesis 20 as polychronicity did not moderate the effect of perceived MTM variety on cognitive demand. The finding in hypothesis 21 was contrary to conventional wisdom as the indirect effects of perceived MTM variety on role conflict was not lower at higher levels of polychronicity, rather the effects of perceived MTM variety on role conflict was higher as polychronicity increased. Finally, result obtained did not support hypothesis 22 as polychronicity did not moderate the effect of perceived MTM variety on role ambiguity.

10.2.4. Moderated Mediation

A moderated mediation was tested for the simplified mediation model that omitted the second stage mediators. Thus, the indirect effect of perceived MTM variety on productivity and innovation through time pressure at different values of polychronicity was not significant. Next, the indirect effect of perceived MTM variety on productivity and innovation through cognitive demand at different values of polychronicity was not significant. Similarly, the indirect relationship of perceived MTM variety on productivity and innovation through role conflict was not significant. Finally, the indirect effect of perceived MTM variety on productivity and innovation through role ambiguity at different

values of polychronicity is not significant. Thus, there is no support the moderated mediation model.

10.3. Team Level Results

At the group level, hypothesis 27 hypothesized that perceived MTM variety is positively related to team time pressure. Result obtained is significant, as perceived MTM variety positively predicted team time pressure and thus lending supporting to hypothesis 27. This is consistent with the view that time pressure emerges as a shared property for the team (Maruping, Venkatesh, Thatcher & Patel, 2015). Team members work together in the same environment (perceived MTM variety context) to perform the tasks and this creates convergence in team members' perception of time pressure (Gardner, 2012). In relation to the challenge and hindrance stressors at the team level, this finding confirms the position of Pearsall and colleagues who confirmed the ability of teams to appraise stressors as either a challenge or hindrance, in an experimental study of 83 teams, Pearsall and colleagues found that teams are able to appraise stressors as either a challenge or a hindrance (Pearsall, Ellis & Stein, 2009). Perceived MTM variety was positively related to team role conflict in hypothesis 28. Results obtained from the analysis lend support to hypothesis 29 as perceived MTM variety was positively related to role ambiguity in hypothesis 29. Thus, teams in the perceived MTM variety context will experience higher than normal role stress in the form of team role conflict and team role ambiguity. This is consistent with the notion of the existence of team role stress suggesting that shared task demands may give rise to collective stress experiences (Akgun, Byrne, Lynn & Keskina, 2007; Weaver, Bowers, & Salas, 2001).

In the relationship between the first stage mediators (team time pressure, team role conflict and team role ambiguity) and the second stage mediators (information elaboration and time management). Hypothesis 30 predicted that team time pressure will positively predict information elaboration. Result obtained did not find support for the relationship between team time pressure and information elaboration. This could be due to the curvilinear effect of time pressure on team processes (Aiken & West, 1991;

Maruping et al 2015). Maruping and colleagues reported a curvilinear effect of team time pressure on team process. Thus, it suggests that teams in this research experience more than moderate level of time pressure. In addition, findings obtained showed that the relationship between team role conflict and coordination loss was significantly positive and thus lending support to hypothesis 31. In hypothesis 32, team role ambiguity positively predicted coordination loss thus lending support to hypothesis 32. Thus, this suggest that both team role conflict and team role ambiguity have been appraised as a hindrance stressor (Pearsall et al, 2009) and such as a negative impact on the coordination of teams. This corroborates literature findings that has suggested that teams may suffer coordination losses because of role conflict, ambiguity or overload which will in turn affect the interactive capacity of the team to achieve a common goal (Steiner, 1972; Morgan & Bowers, 1995; Salas, Dickson, Converse & Tannenbaum, 1992).

In the relationship between the second stage mediators and the team outcomes of productivity and innovation. The relationship between information elaboration and the outcome of productivity and innovation was significant in hypothesis 33 and 34. This in line with the categorisation elaboration model (Van Knippenberg, De Dreu & Homan, 2004) which suggests that functionally diverse teams are able to exchange task related information and in so doing, achieve teams' outcomes. Thus, in hypothesis 35 and 36, result obtained did not support the prediction as the relationship between coordination loss and the team outcomes of team productivity and innovation.

The indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through time pressure and elaboration was not significant and thus not supporting hypothesis 37a and 37b. Next in hypothesis 38a and 38b, the indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through team role conflict and coordination loss was not significant and thus not supporting serial mediation. The indirect effect of perceived MTM variety on the team outcomes of productivity and innovation through team role ambiguity on coordination loss was not significant and thus not lending support to hypothesis 39a and 39b. Although, through primary appraisal teams were able to appraise stressors as either challenge or hindrance

(Pearsall, et al ,2009; Webster, Beehr & Love, 2011), However, teams were unable to trigger the necessary corresponding coping behaviours that occurs during the secondary appraisal stage.

Similar to the individual level, the results from the serial mediation was not significant which led to the examination of a simplified model as seen in figure 9.1 above. In this model, I sought to examine whether the indirect effect of perceived MTM variety on the team outcomes of productivity and innovation will be viable through the first stage mediators. Result obtained revealed that the indirect effect of perceived MTM variety on the team outcome of productivity through team role ambiguity was significant and such supporting the mediation chain. This suggests that at the team level, the presence of team role ambiguity hinders the productivity of teams in the perceived MTM variety context (Drach-Zahavy & Freund, 2007). Thus, consistent with the findings of Savelsbergh and colleagues, the collective experience of role ambiguity would likely hinder the teams problem-solving processes and undermine the team members' motivation to devote resources to the objective of the focal team (Savelsbergh, Gevers, Van der Heijden & Poell, 2012). While the indirect effects of perceived MTM variety on the team outcome of innovation through team role ambiguity was only marginally significant. Other tests of mediation were not significant and such the findings were not discussed to avoid repetition.

10.4. Theoretical Contributions

This research makes several theoretical contributions to the MTM, challenge hindrance, role theory, CEM, stress and polychronicity literature. Firstly, this research has expanded on the limited knowledge about the complexities surrounding MTMs and its increasing adoption in the workplace. Specifically, the different mechanisms driving the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. This thesis contributes to both the MTM and the challenge-hindrance literature by been the first to simultaneously confirm and establish the existence of both challenge and hindrance stressors in the MTM context. Thus, this further confirms the existence of positive and negative implications of perceived MTM variety on individual

and team outcomes (O'Leary et al, 2011; Mortensen et al, 2007). For example, at both the individual and team level, this research revealed the direct positive relationship between perceived MTM variety on time pressure, cognitive demand, role conflict and role ambiguity. Where time pressure and cognitive demand are positive effects of perceived MTM variety and both role conflict and role ambiguity are negative effects of perceived MTM variety on both the individual and teams. However, in this research, the expected positive effect of challenge stressors on individual and team outcomes were not found, instead the effects of the challenge stressors were negative. The challenge hindrance framework draws heavily on the transactional theory of stress (Lazarus & Folkman, 1984) where person's evaluation/appraisal of the environment plays an important role in the stress process (Webster, Beehr & Love, 2011). Thus, there is a primary appraisal that a stressor of itself has meaning that it could either be potentially beneficial (challenging) or harmful (hindrance) and a secondary appraisal process that determines the appropriate coping response to the actual stressor (Pearsall, Ellis & Stein, 2009). Challenging stressors such as time pressure and work demand (cognitive demands) have been reported to be positively related to motivational coping response from individuals (Cavanaugh, Boswell, Roehling & Boudreau, 2000; Boswell, Olson-Buchanan & Lepine, 2004). In contrast, hindrance stressors such as role conflict and role ambiguity are reported to be trigger negative emotional response from individuals. Two meta-analysis have confirmed this distinction between challenge and hindrance stressors (Lepine et al, 2005; Crawford, Lepine & Rich, 2010). However, in this study, there was no support for the secondary appraisal of challenge stressors that triggers the positive emotional response which would lead to positive outcomes. Baker & Demerouti (2007) suggests that challenge stressors can also lead to increase in strain, this could be due to the fact that individuals would have to expend extra effort due to these challenge stressors and force themselves to draw on their self-regulatory resources (Prem, Kubicek, Diestel & Korunka, 2016). Boswell and colleagues suggest that both challenge and hindrance stressors would result in depletion of energy for the individual (Boswell et al, 2004). To support this notion, a meta-analysis study carried out by Crawford and colleagues found

a positive relationship between challenge stressors and burnout. Thus, it could be that both time pressure and cognitive demand been experienced in this context is having a depleting effect on employees and as such are not able to engage the appropriate coping response. Widmer and colleagues suggested that the challenge stressors have both positive and negative outcomes, positive outcomes of productivity and innovation and negative outcomes of strain (Widmer, Semmer, Wolfgang, Jacobshagen & Mier, 2011). I argue that, in this context the negative outcome of strain seems to be more prevalent among team members.

Furthermore, this research has significantly developed the conceptualisation of perceived MTM variety by specifying what perceived MTM variety means. In addition, this research also operationalised (through the development of a validated scale) the perceived MTM variety construct. Furthermore, this research has advanced its nomological network through the examination of related variables that helps to explain how and under what conditions, perceived MTM variety influences key outcomes at both the individual and team level. In addition, it has contributed to the perceived MTM variety literature by providing evidence of the indirect effects of perceived MTM variety on the individual and team level outcome of productivity through role ambiguity. Thus, as perceived MTM variety increases, a decrease in productivity is predicted through the effect of perceived MTM variety on role ambiguity. This is line with existing literature that has established the negative effects of role ambiguity on performance outcomes (Fisher, 2001; Burney & Widener, 2007). For example, Fisher (2001) found a negative effect of role ambiguity on auditor's performance outcomes. Thus, the negative effects of role ambiguity are more salient in the perceived MTM variety context and attention should be paid on how to minimise this negative effect. Cognitive demand also mediated the relationship between perceived MTM variety and individual innovation. Unexpectedly as perceived MTM variety increases, a decrease in innovation is predicted through the effect of perceived MTM variety on cognitive demand. Thus, it seems that cognitive demand has a negative effect instead of a positive effect as predicted. This research also provides evidence that time pressure mediates the relationship between perceived MTM variety

and the individual outcome of innovation. As perceived MTM variety increases, a decrease in innovation is predicted through the effect of perceived MTM variety on time pressure. This was contrary to positive mediating effects that was predicted. Thus, it seems, that both time pressure and cognitive demand had a negative mediating effect. Looking through the lens of the challenge hindrance framework, Webster and colleagues suggested a stressor can both be perceived as a challenge and hindrance at the same time and that both challenge and hindrance stressors are not necessarily mutually exclusive and as such an individual can appraise a stressor as both challenge and hindrance at the same time (Webster, Beehr, Love 2011; Lazarus & Folkman, 1984). Also, the assumption that people make the same appraisal under the same contexts and that this appraisal can only lead to two distinctions is not consistent with appraisal theories of stress (Webster, et al, 2011). Thus, individuals in this research might be appraising both time pressure and cognitive demand as both challenge and hindrance stressor at the same time hence, the negative mediating effects, or the environmental context (organisational context) could be such that it they appraised both time pressure and cognitive demand as hindrance stressors. In their study of 475 employees in a large university in the United States found workload demand to positively predict both challenge and hindrance appraisal (Webster, et al, 2011).

At the team level, this research confirms and established perceived MTM variety as a group construct which is in line with the theorising of O'Leary and colleagues who suggests that perceived MTM variety at the team level is manifested through the team's shared mental model (O'Leary et al, 2011). Furthermore, shared mental models are crucial when teams experience contextual pressure such as time pressure and high workload (Cannon-Bowers, Salas & Converse 1993), which are present in the MTM context. Subsequently, perceived MTM variety at the team level acts as a catalyst that prompts the team to engage its shared mental models. And through this shared mental model, the team is aware of the stressors (time pressure, cognitive demand, role conflict, and role ambiguity) in its environment, as demonstrated by the findings in this research (Mathieu, Heffner, Goodwin, Sala & Cannon-Bowers, 2000). Thus, this research contributes to the

team stress literature by confirming that stressors (whether challenge or hindrance) are shared property experienced by the team (Maruping et al, 2015; Chong, van Eerde, Chai & Rutte, 2011) and as such can have negative or positive effects on teams. Theoretically, this suggests that challenge stressors such as time pressure can have positive effects on team processes and outcomes and negative effects through hindrance stressors. Although findings in this research were not able to assert the positive links between challenge stressors and team outcomes Pearsall and colleagues in their study of 83 teams found the positive effect of challenge stressors on team outcomes and their negative effects on team outcomes. On the other hand, this research expands theoretical knowledge on the negative effects of hindrance stressors on team processes and outcomes. A more salient contribution of this research is that it confirms the negative effect of hindrance stressors on team processes. This research reveals that both team role conflict and role ambiguity (hindrance stressors) lead to process disruption in terms of team coordination loss. Cronin and Weingart (2007) suggests that perceived variety in team membership increases complexity that comes with the amount of information teams must manage, and as such teams in the perceived MTM variety context will experience increased coordination cost (O'Leary et al, 2011).

This research contributes to both the polychronicity and challenge hindrance literature (Lepine, Lepine & Jackson, 2004) by revealing that at higher levels of polychronicity, the effects of perceived MTM variety on time pressure (challenge Stressor) was higher for the individual team member. This means that highly polychronic individuals are likely to experience time pressure more than monochronic individuals and as such likely to appraise the stressor as a challenge stressor. Thus, confirming the expected relationship between perceived MTM variety and the challenge stressor. In addition, the moderating effects of polychronicity is an advancement in both the polychronicity and challenge-hindrance literature. Thus, suggesting that individuals who possess higher level of polychronicity are likely experience time pressure. An unexpected contribution was that at higher levels of polychronicity, the relationship between perceived MTM variety and role conflict was stronger. However, polychronicity did not act as boundary condition

between perceived MTM variety and role ambiguity. A reason for this could be that individuals are experiencing a high level of role conflict but are not interpreting it as a hindrance stressor, this could be the norm that they have adjusted to. This notion is supported by the non-significant result of the moderating effect polychronicity on role ambiguity. Cochrum- Nguyen (2013) found a similar result, when she reported a positive relationship between polychronicity and role overload as individuals with higher levels of polychronicity reported higher levels of role overload.

Furthermore, this research also extends the role stress literature by providing evidence that perceived MTM variety predicts role conflict and role ambiguity in the MTM context. Corroborating the work of Lee and Ashforth (1996), role conflict predicted burnout for the individual. At the team level, this research also provided theoretical contribution to the literature in teams by revealing a direct positive relationship between team role conflict and coordination loss and team role ambiguity and coordination loss and thus expanding on the work of Summers and colleagues and who suggested that disruption in team process will lead to coordination loss for the team (Summer et al, 2012; Arrow, McGrath & Berdahl, 2000). Teams in the perceived MTM variety context will find it increasingly difficult to work synchronously, also team members will have fewer portions of their time to dedicate to their focal team and as a result will find it difficult to coordinate the tasks of the team, as teams find it hard to have overlapping work schedules with each other. This research has proved that team role conflict and team role ambiguity positively predicted loss of coordination for the team.

This research also contributes to the Categorisation Elaboration Model (CEM: Van Knippenberg, De Dreu & Homan, 2004) as information elaboration directly predicted the team outcomes of productivity and innovation. CEM incorporates and extends perspectives on the benefits and cost effects of diversity through a more sophisticated understanding of the social categorization processes involved (Van Knippenberg, Dawson, West, & Homan, 2011). Thus, building on the work of Resick and his colleagues (Resick et al, 2012), this research has extended knowledge by providing evidence that directly links information elaboration to the team outcomes of productivity and innovation

in an MTM context. Individuals were able to harness the wealth of information from their varied membership to help their focal team achieve its objectives.

10.5. Methodological Contributions

Firstly, this research makes an important methodological contribution by creating a valid and reliable scale that empirically measures perceived MTM variety. Up until now, there are no valid scales that exclusively measured perceived MTM variety. Previous work in the MTM context (Maynard et al, 2012; Pluut et al, 2014; Bertolotti et al, 2015) have not measured perceived MTM variety as a single construct, they have usually just measured MTM in their research. The availability of this scale then allows other researchers to empirically examine the effects of perceived MTM variety on individual and team outcomes.

Secondly, to my knowledge this is the only multi-level study that has investigated the effects of perceived MTM variety on the outcome of productivity and innovation. By doing so, the mechanism operating within the perceived MTM context has been examined both at the individual and team level of analysis. Most of the limited research in MTM only examined the effects of perceived MTM variety on a single level (individual). This makes the contribution an important one as the nature of the relationship between perceived MTM variety and the outcomes of productivity and innovation can be understood at both the individual and team level. In addition, majority of the studies in MTM (such as Pluut et, 2014; Bertolotti et al, 2015; Mo & Wellman, 2016, Mortensen et al, 2007) have all been considered in a western context, thus by carrying out this research in a non-western setting this study has addressed generalisability issues in relation to the MTM construct.

10.6. Practical Implications for Practice.

This thesis has established that inherent in the perceived MTM variety context are potential practical benefits and costs for individuals and teams. Firstly, for the individuals and teams, findings in this thesis suggests that perceived MTM variety can lead to challenge stressors. It is well documented in the challenge hindrance literature that challenge stressors usually elicit positive behaviours from individuals (Boswell et al, 2004; Lepine et al, 2005; Wallace et al, 2009; Ohly & Fritz, 2010). However, one of the conditions that a stressor is appraised as a challenge is the opportunity for personal gain or growth (Lazarus & Folkman, 1984).

It is then imperative that managers create a climate that encourages such behaviours. Thus, if there is a clear incentive or benefit for coping with challenge stressors, individuals are more likely to engage in positive behaviours. Appraisal of a stressor as a challenge might not be enough to consistently elicit positive behaviours, if such behaviours are not valued. To increase the likelihood of coping behaviours following such appraisals, individuals must perceive them to be valued and see a potential for personal gain. Organisations can promote such performance related behaviours by rewarding it. For example, organisation can promote the importance of such behaviours by including it as a performance management metric and thus suggesting that the organisation value such behaviour among individuals and teams.

Secondly, this thesis has empirically established the relationship between perceived MTM variety and hindrance stressors. Consequently, there is a positive relationship between hindrance stressors and negative outcomes for individuals and teams. Such as the relationship between role conflict and burnout at the individual level and the relationship between team role ambiguity and coordination loss at the team level.

Thus, there is a need for organisations and managers to apply caution when engaging perceived MTM variety due to the potential for negative outcomes for individuals and teams. If perceived MTM variety is adequately managed, the potential negative outcomes can be mitigated. For example, organisations could monitor perceived MTM variety

through regular staff surveys and annual surveys how staff with perceived MTM variety are coping and where support might be needed. This will allow the organisation to monitor and discover the effects of perceived MTM variety on individual and team level outcomes and manage potential problems. In addition, it allows managers to identify what practices in the perceived MTM variety context are yielding benefits and which practices are to be amended or discarded. In addition, organisations with high use of MTM could hold specialist focus groups to examine what the effective practices are in the MTM context. Thus, through these focus groups examples of best practices can be discovered, critical incidents can be highlighted, and lessons can be learnt from situations where things have gone wrong. Furthermore, managers can be trained and findings of research such as this can be used to educate managers on how effectively manage the perceived MTM variety contexts

Thirdly, this thesis also demonstrates the moderating effect of polychronicity on time pressure. Thus, this thesis showed that individuals with high levels of polychronicity are likely to appraise time pressure as a challenge stressor. This has an implication for the recruitment practices in organisation that have adopted perceived MTM variety has a way of working. As suggested in this thesis, individuals with high polychronicity are like to appraise stressors has a challenge. Thus, the organisation should look to recruit individuals with high polychronicity into the organisation. As individuals with this orientation are more comfortable with simultaneous engagements with two or more tasks (Madjar & Oldham, 2006) and as such psychometric tests should be used when recruiting new employees into the organisation. In addition, psychometric test measuring polychronic preference can be used as a guide in allocating individuals to varied teams. Thus, individuals with medium and high scores in polychronic preference should engage in the perceived MTM variety contexts

10.7. Limitations and Directions for Future Research

This research has some limitations that should be taken into consideration when interpreting the findings reported in this research. Firstly, despite collecting external ratings for the outcome variables in this data, the other data used in this research were self-reported by respondents and are not collected at different point in time and thus making the examination of effects of perceived MTM variety on the outcomes of productivity and innovation prone to common method bias which is the systematic error variance caused by the measurement method and not by the constructs been measured (Podsakoff et al, 2003). Future research can adopt a longitudinal research design to combat this limitation. In addition, individual and team outcomes of productivity and innovation can be better measured by obtaining actual performance data from the participating organisation. Furthermore, respondents in the MTM context may overreport or underreport their perception of varied memberships on different projects (Meyer, Olsen & Torsvik, 1996). Especially when data is collected through self-reported questionnaires, it may be subjected to unintended overreporting or underreporting, recall errors and cognitive biases (Probst, 2015). Future research could use multiple methods such as surveys or time diaries of managers as well as organisation team membership tracking systems. A triangulation of data sources will provide a more overall view how team memberships span an organisation (O'Leary et al, 2011).

Secondly, the small sample size used in this research is likely to have influenced the fit of model measurement in the confirmatory factor analysis (Jackson, 2003) The ratio of the sample size to parameter was below the recommended value of $n:q = 5$ (Bentler & Chou, 1987). The sample size to parameter ratio in this research was 4.41 which is likely to explain the poor fit in the measurement model. However, the measurement model that was hypothesised fitted the data better than all the other alternative models, emphasising the uniqueness of the variables examined in this study. Thirdly, the data obtained from this study is obtained from a federally owned (public- sector) organisation that operates

in the southwestern parts of Nigeria. Thus, data gathered from this context is unique and could affect generalisability to other contexts. For example, there might be underlying motivational factors such as pay that affect the individual responses to some of measured variables and as such might limit its generalisability to other contexts such as the private sector. Furthermore, the effects of a high-power distance culture (Hofstede, 1984) is noted as a contextual limitation as respondents might feel obliged to complete the questionnaire due to top management's influence. However, the questionnaire cover stated that respondents could opt of the research at any point

Another limitation of this study is multicollinearity between the outcome variables. Team productivity and team innovation were highly correlated and has such could have increased the estimates of the parameter variance (Greene, 1993). Consequently, while this does not undermine the significant findings of this research the issue of multicollinearity could have limited the amount of statistically significant results in this research. However, it makes theoretical sense to test for both productivity and innovation at the team level as they are both theoretically different construct that gave different insights into how perceived MTM variety affects individual and team outcome.

Finally, due the feasibility of collecting additional data at the time this research was been carried out, the discriminant validity test was not carried out as this would have help further validate the perceived MTM variety scale and as such is another limitation of this study. In addition, given that the perceived MTM variety scale is a new scale, there was no other scale to use for comparison as such the researcher could not perform convergent validity, perhaps this is a limitation of Hinkin's scale development method. However, future research should consider the following.

Firstly, future research should examine the effect of perceived MTM variety on the outcomes of productivity and innovation in other contexts to check whether similar results will be obtained. Particularly, similar research should be carried out in a private sector organisation that engages perceived MTM variety as system of work design and cross-validate the findings of this setting with this study's findings. Private sector organisations are under intense pressure to maintain competitive advantage and as such work practices

and organisational climate might be provide a different employee experience of stressors than public sector organisations. This is because the participating organisation in this study is a federally controlled organisation whose practices and way of working will significantly differ to those of a private sector organisation and as such generalisation of the findings of this study should be done with caution. Since a theme has emerged that perceived MTM variety context possess both positive and negative consequences for individuals and teams future research should focus on the boundary conditions that facilitate the positive effects of perceived MTM variety and the boundary conditions that mitigate the negative effects of perceived MTM variety on team and individual outcomes. This will provide useful information on how to successfully manage perceived MTM variety in organisations. For example, team leadership styles, team climates and time management training could serve as a moderator of the negative effects of perceived MTM variety on individual and team outcomes alike.

In order to avoid the issue of multicollinearity, future research should avoid simultaneously examining the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. A suggestion might be that study one examines the effects of perceived MTM variety on the individual and team outcome of productivity while study two examines the effects of perceived MTM variety on the individual and team outcome of innovation.

10.8. Conclusion

One of the least explored areas in teams' literature has been further developed in this thesis. I have investigated the effects of perceived MTM variety on the individual and team outcomes of productivity and innovation. In order to achieve this aim, a validated and theory-oriented scale of perceived MTM variety was developed to measure the aforementioned effects of perceived MTM variety. Thus, this research hopes that this scale will stimulate further study of perceived MTM variety in different contexts. Literature in this field is at infancy and it will be interesting to examine the effects of perceived MTM variety on an individual's social identity. For example, the effects of perceived MTM variety on the individuals sense of identity could affect individual's productivity. In addition, this could also impact the team cohesion and eventually team performance.

Furthermore, this research has empirically demonstrated that perceived MTM variety can elicit the appraisal of stressors as either a challenge or hindrance at both the individual and team level. Consequently, this thesis is the first to empirically demonstrated the benefit and challenges involving perceived MTM variety at the individual and team level. The findings of this research suggests that the benefits of perceived MTM variety needs to be enhanced while the challenges managed if organisations are to efficiently utilise perceived MTM variety as a way of structuring work.

REFERENCES

- Adler, P. S., Benner, M., Brunner, D. J., MacDuffie, J. P., Osono, E., Staats, B. R., . . . Winter, S. G. (2009). Perspectives on the productivity dilemma. *Journal of Operations Management*, 27(2), 99-113.
- Adler, P. S., & Clark, K. B. (1991). Behind the learning curve: A sketch of the learning process. *Management Science*, 37(3), 267-281.
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*: Sage.
- Akgün, A. E., Byrne, J. C., Lynn, G. S., & Keskin, H. (2007). Team stressors, management support, and project and process outcomes in new product development projects. *Technovation*, 27(10), 628-639.
- Alarcon, G. M. (2011). A meta-analysis of burnout with job demands, resources, and attitudes. *Journal of Vocational Behavior*, 79(2), 549-562.
- Alavi, M., & Tiwana, A. (2002). Knowledge integration in virtual teams: The potential role of KMS. *Journal of the Association for Information Science and Technology*, 53(12), 1029-1037.
- Amabile, T. M., Hadley, C. N., & Kramer, S. J. (2002). Creativity under the gun. *Harv Bus Rev*, 80(8), 52-61, 147.
- Ambrose, S. C., Rutherford, B. N., Shepherd, C. D., & Tashchian, A. (2014). Boundary spanner multi-faceted role ambiguity and burnout: An exploratory study. *Industrial Marketing Management*, 43(6), 1070-1078.
- AMYX, D., SHARMA, D., & ALFORD, B. L. (2014). The Influence of Role Ambiguity and Goal Acceptance on Salesperson Performance and Commitment. *Marketing Management Journal*, 24(1), 52-65.
- Ancona, D. G. (1990). Outward bound: strategic for team survival in an organization. *Academy of Management Journal*, 33(2), 334-365.
- Ancona, D. G., & Caldwell, D. F. (1992). Bridging the boundary: External activity and performance in organizational teams. *Administrative science quarterly*, 634- 665.
- Anderson, N. R., & West, M. A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. *Journal of Organizational Behavior*, 235-258.
- Appelbaum, E., & Berg, P. (1997). *Balancing Work and Family*'. Paper presented at the Industrial Relations Research Association Meetings, New Orleans, January.
- Aral, S., Brynjolfsson, E., & Van Alstyne, M. (2012). Information, technology, and information worker productivity. *Information systems research*, 23(3-part-2), 849-867.
- Arbuckle, J. (1997). *Amos users' guide, version 3.6*: Marketing Division, SPSS Incorporated.
- Argote, L., & Ingram, P. (2000). Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes*, 82(1), 150-169.
- Argote, L., McEvily, B., & Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Science*, 49(4), 571-582.
- Argote, L., & Todorova, G. (2007). Organizational learning. *International review of industrial and organizational psychology*, 22, 193.
- Arnold, B. C., Balakrishnan, N., & Nagaraja, H. N. (2008). *A first course in order statistics*: SIAM.
- Arrow, H., McGrath, J. E., & Berdahl, J. L. (2000). *Small groups as complex systems: Formation, coordination, development, and adaptation*: Sage Publications.
- Austin, J. R. (2003). Transactive memory in organizational groups: the effects of

- content, consensus, specialization, and accuracy on group performance. *J Appl Psychol*, 88(5), 866-878. doi:10.1037/0021-9010.88.5.866
- Baer, M., & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior*, 24(1), 45-68.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309-328.
- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands- resources model to predict burnout and performance. *Human resource management*, 43(1), 83-104.
- Ballard, D. I., & Seibold, D. R. (2003). Communicating and organizing in time: A meso-level model of organizational temporality. *Management Communication Quarterly*, 16(3), 380-415.
- Ballard, D. I., & Seibold, D. R. (2004). Organizational members' communication and temporal experience: Scale development and validation. *Communication research*, 31(2), 135-172.
- Barling, J., Cheung, D., & Kelloway, E. K. (1996). Time management and achievement striving interact to predict car sales performance. *Journal of Applied Psychology*, 81(6), 821.
- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
- Barrick, M. R., Stewart, G. L., Neubert, M. J., & Mount, M. K. (1998). Relating member ability and personality to work-team processes and team effectiveness. *Journal of Applied Psychology*, 83(3), 377.
- Bauer, D. J. (2003). Estimating multilevel linear models as structural equation models. *Journal of Educational and Behavioral Statistics*, 28(2), 135-167.
- Bedwell, W. L., Ramsay, P. S., & Salas, E. (2012). Helping fluid teams work: A research agenda for effective team adaptation in healthcare. *Transl Behav Med*, 2(4), 504-509. doi:10.1007/s13142-012-0177-9
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2), 238.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588.
- Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, 16(1), 78-117.
- Bertolotti, F., Mattarelli, E., Vignoli, M., & Macri, D. M. (2015). Exploring the relationship between multiple team membership and team performance: The role of social networks and collaborative technology. *Research Policy*, 44(4), 911-924.
- Bhaskar, R. (1998). Philosophy and scientific realism. Biddle, B. (1979). Role theory New York: Academic Press.
- Biddle, S. (1996). Victory misunderstood: What the Gulf War tells us about the future of conflict. *International Security*, 21(2), 139-179.
- Biemann, T., Cole, M. S., & Voelpel, S. (2012). Within-group agreement: On the use (and misuse) of r_{WG} and $r_{WG}(J)$ in leadership research and some best practice guidelines. *The leadership quarterly*, 23(1), 66-80.
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis.
- Bliese, P. D., Halverson, R. R., & Schriesheim, C. A. (2002). Benchmarking multilevel methods in leadership: The articles, the model, and the data set. *The leadership quarterly*, 13(1), 3-14.
- Bluedorn, A. C. (2002). *The human organization of time: Temporal realities and experience*: Stanford University Press.
- Bluedorn, A. C., Kalliath, T. J., Strube, M. J., & Martin, G. D. (1999). Polychronicity and the Inventory of Polychronic Values (IPV) The development of an

instrument to measure a fundamental dimension of organizational culture.

Journal of Managerial Psychology, 14(3/4), 205-231.

Bluedorn, A. C., Turban, D. B., & Love, M. S. (1999). The effects of stand-up and sit-down meeting formats on meeting outcomes. *Journal of Applied Psychology*, 84(2), 277.

Boles, J. S., Dean, D. H., Ricks, J. M., Short, J. C., & Wang, G. (2000). The dimensionality of the Maslach Burnout Inventory across small business owners and educators. *Journal of Vocational Behavior*, 56(1), 12-34.

Bolino, M. C., & Turnley, W. H. (2005). The personal costs of citizenship behavior: the relationship between individual initiative and role overload, job stress, and work-family conflict. *Journal of Applied Psychology*, 90(4), 740.

Boswell, W. R., Olson-Buchanan, J. B., & LePine, M. A. (2004). Relations between stress and work outcomes: The role of felt challenge, job control, and psychological strain. *Journal of Vocational Behavior*, 64(1), 165-181.

Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of educational psychology*, 83(3), 405.

Browne, M., & Cudeck, R. (1993). Alternative ways of assessing model fit. In KA Bollen. & JS Long.

Bryman, A. (2004). Qualitative research on leadership: A critical but appreciative review. *The leadership quarterly*, 15(6), 729-769.

Bunderson, J. S., & Sutcliffe, K. M. (2002). Comparing alternative conceptualizations of functional diversity in management teams: Process and performance effects. *Academy of Management Journal*, 45(5), 875-893.

Burney, L., & Widener, S. K. (2007). Strategic performance measurement systems, job-relevant information, and managerial behavioral responses—role stress and performance. *Behavioral Research in Accounting*, 19(1), 43-69.

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology*, 63(3), 452.

Byrne, B. M. (2001). Structural equation modeling: Perspectives on the present and the future. *International Journal of Testing*, 1(3-4), 327-334.

Carlson, M., & Mulaik, S. A. (1993). Trait ratings from descriptions of behavior as mediated by components of meaning. *Multivariate Behavioral Research*, 28(1), 111-159.

Castka, P., Bamber, C., Sharp, J., & Belohoubek, P. (2001). Factors affecting successful implementation of high performance teams. *Team Performance Management: An International Journal*, 7(7/8), 123-134.

Castro, S. L. (2002). Data analytic methods for the analysis of multilevel questions: A comparison of intraclass correlation coefficients, rwg (j), hierarchical linear modeling, within-and between-analysis, and random group resampling. *The leadership quarterly*, 13(1), 69-93.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, 85(1), 65.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, 83(2), 234.

Chan, K.-Y. (2014). Multiple project team membership and performance: empirical evidence from engineering project teams. *South African Journal of Economic and Management Sciences*, 17(1), 76-90.

Chen, G., & Kanfer, R. (2006). Toward a systems theory of motivated behavior in work teams. *Research in organizational behavior*, 27, 223-267.

Chisholm, C. D., Collison, E. K., Nelson, D. R., & Cordell, W. H. (2000). Emergency Department Workplace Interruptions Are Emergency Physicians "Interrupt-driven" and "Multitasking"? *Academic Emergency Medicine*, 7(11), 1239-1243.

- Choi, J. N. (2002). External activities and team effectiveness: Review and theoretical development. *Small group research*, 33(2), 181-208.
- Claessens, B. J., Van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel review*, 36(2), 255-276.
- Cochrum-Nguyen, F. L. (2013). *Predicting job performance and job satisfaction: an examination of the five-factor model of personality, polychronicity and role overload*. San Diego State University.
- Cohen, A., Doveh, E., & Nahum-Shani, I. (2009). Testing agreement for multi-item scales with the indices rWG (J) and AD m (J). *Organizational research methods*, 12(1), 148-164.
- Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of management*, 23(3), 239-290.
- Colbert, A., Yee, N., & George, G. (2016). The digital workforce and the workplace of the future. *Academy of Management Journal*, 59(3), 731-739.
- Connelly, C. E., & Kevin Kelloway, E. (2003). Predictors of employees' perceptions of knowledge sharing cultures. *Leadership & Organization Development Journal*, 24(5), 294-301.
- Conte, J. M., & Gintoft, J. N. (2005). Polychronicity, big five personality dimensions, and sales performance. *Human performance*, 18(4), 427-444.
- Conte, J. M., Rizzuto, T. E., & Steiner, D. D. (1999). A construct-oriented analysis of individual-level polychronicity. *Journal of Managerial Psychology*, 14(3/4), 269-288.
- Conway, J. M., & Huffcutt, A. I. (2003). A review and evaluation of exploratory factor analysis practices in organizational research. *Organizational research methods*, 6(2), 147-168.
- Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications*: Sage.
- Costa, P. L., Passos, A. M., & Bakker, A. B. (2014). Team work engagement: A model of emergence. *Journal of Occupational and Organizational Psychology*, 87(2), 414-436.
- Cotte, J., & Ratneshwar, S. (1999). Juggling and hopping: what does it mean to work polychronically? *Journal of Managerial Psychology*, 14(3/4), 184-205.
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: a theoretical extension and meta-analytic test: American Psychological Association.
- Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research. Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*: Sage.
- Csikszentmihalyi, M. (1996). *Flow and the psychology of discovery and invention*: New York: Harper Collins.
- Cully, M., Woodland, S., O'Reilly, A., Dix, G., Millward, N., Bryson, A., & Forth, J. (1998). *The 1998 workplace employee relations survey: first findings*: Department of Trade and Industry.
- Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management Science*, 50(3), 352-364.
- Cummings, J. N., & Haas, M. R. (2012). So many teams, so little time: Time allocation matters in geographically dispersed teams. *Journal of Organizational Behavior*, 33(3), 316-341.
- Dahlin, K. B., Weingart, L. R., & Hinds, P. J. (2005). Team diversity and information use. *Academy of Management Journal*, 48(6), 1107-1123.

- Davison, R. B., Hollenbeck, J. R., Barnes, C. M., Slesman, D. J., & Ilgen, D. R. (2012). Coordinated action in multiteam systems. *Journal of Applied Psychology*, 97(4), 808.
- DAWSON, J. F. (2003). *DO WE HAVE ENOUGH? THE ACCURACY OF INCOMPLETE DATA FROM SMALL GROUPS*. Paper presented at the Academy of Management Proceedings.
- DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). The cognitive underpinnings of effective teamwork: a meta-analysis: American Psychological Association.
- Deci, E. L., & Ryan, R. M. (2010). *Self-determination*: Wiley Online Library.
- Delarue, A., Van Hootegem, G., Procter, S., & Burridge, M. (2008). Teamworking and organizational performance: a review of survey-based research. *International Journal of Management Reviews*, 10(2), 127-148.
- Delbridge, K. A. (2002). Individual differences in multi-tasking ability: Exploring a nomological network.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499.
- DeVellis, R. F. (2003). *Scale Development (Vol. 26)*. Paper presented at the Thousand Oaks: Sage.
- Dirksen, S., & Erickson, J. (2002). Well-being in Hispanic and Non-Hispanic white survivors of breast cancer. *Oncology Nursing Forum*.
- Devine, D. J., Clayton, L. D., Philips, J. L., Dunford, B. B., & Melner, S. B. (1999). Teams in organizations: Prevalence, characteristics, and effectiveness. *Small group research*, 30(6), 678-711.
- Di Maggio, M., & Van Alstyne, M. (2011). Information Sharing and Individual Performance: Evidence from a Japanese Bank.
- Diamantopoulos, A., Siguaw, J. A., & Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*: Sage.
- Dixon, K. R., & Panteli, N. (2010). From virtual teams to virtuality in teams. *Human Relations*, 63(8), 1177-1197.
- Drach-Zahavy, A., & Freund, A. (2007). Team effectiveness under stress: A structural contingency approach. *Journal of Organizational Behavior*, 28(4), 423-450.
- Drach-Zahavy, A., & Somech, A. (2001). Understanding team innovation: The role of team processes and structures. *Group Dynamics: Theory, Research, and Practice*, 5(2), 111.
- Duhachek, A., & Iacobucci, D. (2005). Consumer personality and coping: Testing rival theories of process. *Journal of Consumer Psychology*, 15(1), 52-63.
- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32(4), 1246-1264.
- Edwards, J. R., & Baglioni Jr, A. (1991). Relationship between type A behavior pattern and mental and physical symptoms: a comparison of global and component measures. *Journal of Applied Psychology*, 76(2), 276.
- Eisenhardt, K. M., & Tabrizi, B. N. (1995). Accelerating adaptive processes: Product innovation in the global computer industry. *Administrative science quarterly*, 84-110.
- Engwall, M., & Jerbrant, A. (2003). The resource allocation syndrome: the prime challenge of multi-project management? *International Journal of Project Management*, 21(6), 403-409.
- Espinosa, J. A., Cummings, J. N., Wilson, J. M., & Pearce, B. M. (2003). Team boundary issues across multiple global firms. *Journal of management information systems*, 19(4), 157-190.
- Faraj, S., & Yan, A. (2009). Boundary work in knowledge teams. *Journal of Applied Psychology*, 94(3), 604.
- Field, A. (2005). Factor analysis using SPSS. Retrieved March, 17, 2009.

- Fisher, R. T. (2001). Role stress, the type A behavior pattern, and external auditor job satisfaction and performance. *Behavioral Research in Accounting*, 13(1), 143-170.
- Fournier, C., Weeks, W. A., Blocker, C. P., & Chonko, L. B. (2013). Polychronicity and scheduling's role in reducing role stress and enhancing sales performance. *Journal of Personal Selling & Sales Management*, 33(2), 197- 209.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. *Handbook of industrial and organizational psychology*, 4, 271-340.
- Friedman, R. A., & Podolny, J. (1992). Differentiation of boundary spanning roles: Labor negotiations and implications for role conflict. *Administrative science quarterly*, 28-47.
- Fuller, R. M., & Dennis, A. R. (2004). *Does fit matter? The impact of fit on collaboration technology effectiveness over time*. Paper presented at the System Sciences, 2004. Proceedings of the 37th Annual Hawaii International Conference on.
- Furukawa, C. (2016). Dynamics of a critical problem-solving project team and creativity in a multiple-project environment. *Team Performance Management*, 22(1/2), 92-110.
- Gardner, J. N., & Gardner, J. (2012). *Assessment and learning*: Sage.
- Gavin, M. B., & Hofmann, D. A. (2002). Using hierarchical linear modeling to investigate the moderating influence of leadership climate. *The leadership quarterly*, 13(1), 15-33.
- Gersick, C. J. (1989). Marking time: Predictable transitions in task groups. *Academy of Management Journal*, 32(2), 274-309.
- Gevers, J. M., Rutte, C. G., & Van Eerde, W. (2006). Meeting deadlines in work groups: Implicit and explicit mechanisms. *Applied psychology*, 55(1), 52-72.
- Ghorpade, J., Lackritz, J., & Singh, G. (2011). Personality as a moderator of the relationship between role conflict, role ambiguity, and burnout. *Journal of Applied Social Psychology*, 41(6), 1275-1298.
- Gibson, C. B., & Cohen, S. G. (2003). *Virtual teams that work: Creating conditions for virtual team effectiveness*: John Wiley & Sons.
- Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation. *Administrative science quarterly*, 51(3), 451-495.
- Glick, W. H. (1985). Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management Review*, 10(3), 601-616.
- Goldstein, H. (2003). Multilevel statistical models Arnold. *London, UK*.
- Golembiewski, R. T., Boudreau, R. A., Sun, B.-C., & Luo, H. (1998). Estimates of burnout in public agencies: worldwide, how many employees have which degrees of burnout, and with what consequences? *Public Administration Review*, 59-65.
- González-Romá, V., & Lloret, S. (1998). Construct Validity of Rizzo et al.'s (1970) Role Conflict and Ambiguity Scales: A Multisample Study. *Applied psychology*, 47(4), 535-545.
- Goode, W. J. (1960). A theory of role strain. *American sociological review*, 483-496.
- Gorsuch, R. L. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of personality assessment*, 68(3), 532-560.
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic management journal*, 17(S2), 109-122.
- Grix, J. (2010). *The foundations of research*: Palgrave Macmillan.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), 105.

- Guilford, J. P. (1967). Creativity: Yesterday, today and tomorrow. *The Journal of Creative Behavior*, 1(1), 3-14.
- Guzzo, R. A., & Dickson, M. W. (1996). Teams in organizations: Recent research on performance and effectiveness. *Annual review of psychology*, 47(1), 307-338.
- Hackman. (1987). *The Design of Work Teams*. Englewood Cliffs, NJ: Prentice -Hall.
- Hackman, J. R. (2002). *Leading teams: Setting the stage for great performances*: Harvard Business Press.
- Hackman, J. R. (2002). Why teams don't work *Theory and research on small groups* (pp. 245-267): Springer.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational behavior and human performance*, 16(2), 250-279.
- Hackman, J. R., & Oldham, G. R. (1980). Work redesign.
- Hall, E. T. (1959). *The silent language* (Vol. 3): Doubleday New York.
- Hancock, P., & Tyler, M. (2001). *Work, postmodernism and organization: A critical introduction*: Sage.
- Hargadon, A. B. (1998). Firms as knowledge brokers: Lessons in pursuing continuous innovation. *California management review*, 40(3), 209-227.
- Harrison, B. J. (1999). Are you destined to burn out? *Fund raising management*, 30(3), 25-27.
- Harrison, D. A., & Klein, K. J. (2007). What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 32(4), 1199-1228.
- Harrison, D. A., Mohammed, S., McGrath, J. E., Florey, A. T., & Vanderstoep, S. W. (2003). Time matters in team performance: Effects of member familiarity, entrainment, and task discontinuity on speed and quality. *Personnel Psychology*, 56(3), 633-669.
- Harrison, R. L., & Reilly, T. M. (2011). Mixed methods designs in marketing research. *Qualitative Market Research: An International Journal*, 14(1), 7-26.
- Heck, R. H., & Thomas, S. L. (2015). *An introduction to multilevel modeling techniques: MLM and SEM approaches using Mplus*: Routledge.
- Henning, E., Van Rensburg, W., & Smit, B. (2004). *Finding your way in qualitative research*: Van Schaik Pretoria.
- Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of management*, 21(5), 967-988.
- Hinkin, T. R., Tracey, J. B., &ENZ, C. A. (1997). Scale construction: Developing reliable and valid measurement instruments. *Journal of Hospitality & Tourism Research*, 21(1), 100-120.
- Hintz, V., Tindale, R., & Vollrath, D. (1997). The emerging conceptualization of groups as information processors. *Psychological Bulletin*, 121(1), 43-64.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: advancing conservation of resources theory. *Applied psychology*, 50(3), 337-421.
- Hoch, J. E., & Kozlowski, S. W. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, 99(3), 390.
- Hoever, I. J., Van Knippenberg, D., Van Ginkel, W. P., & Barkema, H. G. (2012). Fostering team creativity: perspective taking as key to unlocking diversity's potential. *Journal of Applied Psychology*, 97(5), 982.
- Hofmann, D. A., Griffin, M. A., & Gavin, M. B. (2000). The application of hierarchical linear modeling to organizational research.
- Homan, A. C., Hollenbeck, J. R., Humphrey, S. E., Van Knippenberg, D., Ilgen, D. R., & Van Kleef, G. A. (2008). Facing differences with an open mind: Openness to experience, salience of intragroup differences, and performance of diverse work groups. *Academy of Management Journal*, 51(6), 1204-1222.
- Homan, A. C., Van Knippenberg, D., Van Kleef, G. A., & De Dreu, C. K. (2007).

- Bridging faultlines by valuing diversity: diversity beliefs, information elaboration, and performance in diverse work groups. *Journal of Applied Psychology*, 92(5), 1189.
- Hon, A. H., & Chan, W. W. (2013). Team creative performance: The roles of empowering leadership, creative-related motivation, and task interdependence. *Cornell Hospitality Quarterly*, 54(2), 199-210.
- Hu, L., & Randel, A. E. (2014). Knowledge sharing in teams: Social capital, extrinsic incentives, and team innovation. *Group & Organization Management*, 39(2), 213-243.
- Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1-55.
- Hughes, J. A., & Sharrock, W. W. (1997). The philosophy of social research.
- Ilggen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From input-process-output models to IMOI models. *Annu. Rev. Psychol.*, 56, 517-543.
- Ilggen, D. R., & Pulakos, E. D. (1999). *The Changing Nature of Performance: Implications for Staffing, Motivation, and Development*. *Frontiers of Industrial and Organizational Psychology*. ERIC.
- Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis. *Structural Equation Modeling*, 10(1), 128-141.
- Jackson, D. L., Gillaspay Jr, J. A., & Purc-Stephenson, R. (2009). Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychological methods*, 14(1), 6.
- Jackson, P. R., Wall, T. D., Martin, R., & Davids, K. (1993). New measures of job control, cognitive demand, and production responsibility. *Journal of Applied Psychology*, 78(5), 753.
- Jackson, S. E. (1996). The consequences of diversity in multidisciplinary work teams. *Handbook of work group psychology*, 53-75.
- Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes*, 36(1), 16-78.
- James, L. R. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied Psychology*, 67(2), 219.
- James, L. R., Demaree, R. G., & Wolf, G. (1993). r wg: An assessment of within- group interrater agreement. *Journal of Applied Psychology*, 78(2), 306.
- Jawahar, I., Kisamore, J. L., Stone, T. H., & Rahn, D. L. (2012). Differential effect of inter-role conflict on proactive individual's experience of burnout. *Journal of Business and Psychology*, 27(2), 243-254.
- Jawahar, I., Stone, T. H., & Kisamore, J. L. (2007). Role conflict and burnout: The direct and moderating effects of political skill and perceived organizational support on burnout dimensions. *International Journal of Stress Management*, 14(2), 142.
- Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict and performance in workgroups. *Administrative science quarterly*, 44(4), 741-763.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*.
- Kanawattanachai, P., & Yoo, Y. (2007). The impact of knowledge coordination on virtual team performance over time. *Mis Quarterly*, 783-808.
- Kane, A. A., Argote, L., & Levine, J. M. (2005). Knowledge transfer between groups via personnel rotation: Effects of social identity and knowledge quality. *Organizational Behavior and Human Decision Processes*, 96(1), 56-71.
- Kantrowitz, T. M., Grelle, D. M., Beaty, J. C., & Wolf, M. B. (2012). Time is money:

Polychronicity as a predictor of performance across job levels. *Human performance*, 25(2), 114-137.

Karasek Jr, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative science quarterly*, 285-308.

Karataş-Özkan, M., & Murphy, W. D. (2010). Critical theorist, postmodernist and social constructionist paradigms in organizational analysis: A paradigmatic review of organizational learning literature. *International Journal of Management Reviews*, 12(4), 453-465.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (Vol. 2): Wiley New York.

Kaufman, C. F., Lane, P. M., & Lindquist, J. D. (1991). Exploring more than 24 hours a day: A preliminary investigation of polychronic time use. *Journal of consumer research*, 18(3), 392-401.

Kc, D. S., & Terwiesch, C. (2009). Impact of workload on service time and patient safety: An econometric analysis of hospital operations. *Management Science*, 55(9), 1486-1498.

Kearney, E., Gebert, D., & Voelpel, S. C. (2009). When and how diversity benefits teams: The importance of team members' need for cognition. *Academy of Management Journal*, 52(3), 581-598.

Kearns, H., & Gardiner, M. (2007). Is it time well spent? The relationship between time management behaviours, perceived effectiveness and work-related morale and distress in a university context. *High Education Research & Development*, 26(2), 235-247.

Kelly, J. R., & McGrath, J. E. (1985). Effects of time limits and task types on task performance and interaction of four-person groups. *Journal of Personality and Social Psychology*, 49(2), 395.

Khan, M. M., Lodhi, S. A., & Makki, M. A. M. (2010). Moderating role of team working environment between team implicit coordination and performance. *African Journal of Business Management*, 4(13), 2743.

Kilduff, M., Angelmar, R., & Mehra, A. (2000). Top management-team diversity and firm performance: Examining the role of cognitions. *Organization science*, 11(1), 21-34.

Kincheloe, J. L., & Tobin, K. (2009). The much exaggerated death of positivism. *Cultural Studies of Science Education*, 4(3), 513-528.

King, A. C., Winett, R. A., & Lovett, S. B. (1986). Enhancing coping behaviors in at-risk populations: The effects of time-management instruction and social support in women from dual-earner families. *Behavior Therapy*, 17(1), 57-66.

Kirkman, B. L., & Mathieu, J. E. (2005). The dimensions and antecedents of team virtuality. *Journal of management*, 31(5), 700-718.

Klein, K. J., Bliese, P. D., Kozlowski, S. W., Dansereau, F., Gavin, M. B., Griffin, M. A., . . . Bligh, M. C. (2000). Multilevel analytical techniques: Commonalities, differences, and continuing questions.

Klein, K. J., & Kozlowski, S. W. (2000). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*: Jossey-Bass.

König, C. J., Buhner, M., & Murling, G. (2005). Working memory, fluid intelligence, and attention are predictors of multitasking performance, but polychronicity and extraversion are not. *Human performance*, 18(3), 243-266.

König, C. J., Oberacher, L., & Kleinmann, M. (2010). Personal and situational determinants of multitasking at work. *Journal of Personnel Psychology*.

König, C. J., & Waller, M. J. (2010). Time for reflection: A critical examination of polychronicity. *Human performance*, 23(2), 173-190.

Korendijk, E. J., Hox, J. J., Moerbeek, M., & Maas, C. J. (2011). Robustness of parameter and standard error estimates against ignoring a contextual effect of a subject-level covariate in cluster-randomized trials. *Behavior research methods*, 43(4), 1003-1013.

- Kozlowski, S. W., & Bell, B. S. (2003). Work groups and teams in organizations. *Handbook of psychology*.
- Kuhn, T. S. (1970). BOOK AND FILM REVIEWS: Revolutionary View of the History of Science: The Structure of Scientific Revolutions. *The Physics Teacher*, 8(2), 96-98.
- Lakein, A. (1973). *How to get control of your time and your life*: PH Wyden New York.
- Langfred, C. W. (2007). The Downside of Self-Management: A Longitudinal Study of the Effects of Conflict on Trust, Autonomy, and Task Interdependence in Self- Managing Teams. *Academy of Management Journal*, 50(4), 885-900.
- Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management, and academic behavior. *Journal of social Behavior and personality*, 8(4), 647.
- Lazarus, R. S. (1966). Psychological stress and the coping process.
- Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. *The handbook of behavioral medicine*, 282-325.
- Leach, D. J., Wall, T. D., Rogelberg, S. G., & Jackson, P. R. (2005). Team autonomy, performance, and member job strain: Uncovering the teamwork KSA link. *Applied psychology*, 54(1), 1-24.
- Lee, N., & Lings, I. (2008). *Doing business research: a guide to theory and practice*: Sage.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout: American Psychological Association.
- LePine, J. A., LePine, M. A., & Jackson, C. L. (2004). Challenge and hindrance stress: relationships with exhaustion, motivation to learn, and learning performance. *Journal of Applied Psychology*, 89(5), 883.
- LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology*, 61(2), 273-307.
- LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, 48(5), 764-775.
- LePine, M. A., Zhang, Y., Crawford, E. R., & Rich, B. L. (2016). Turning their pain to gain: Charismatic leader influence on follower stress appraisal and job performance. *Academy of Management Journal*, 59(3), 1036-1059.
- Leroy, S. (2009). Why is it so hard to do my work? The challenge of attention residue when switching between work tasks. *Organizational Behavior and Human Decision Processes*, 109(2), 168-181.
- Lewin, J. E., & Sager, J. K. (2007). A process model of burnout among salespeople: Some new thoughts. *Journal of Business Research*, 60(12), 1216-1224.
- Lewin, J. E., & Sager, J. K. (2009). An investigation of the influence of coping resources in salespersons' emotional exhaustion. *Industrial Marketing Management*, 38(7), 798-805.
- Lin, L.-Y., & Chen, C.-S. (2006). The influence of the country-of-origin image, product knowledge and product involvement on consumer purchase decisions: an empirical study of insurance and catering services in Taiwan. *Journal of consumer Marketing*, 23(5), 248-265.
- Lissitz, R. W., & Green, S. B. (1975). Effect of the number of scale points on reliability: A Monte Carlo approach. *Journal of Applied Psychology*, 60(1), 10.
- Lu, C.-Q., Du, D.-Y., & Xu, X.-M. (2016). What Differentiates Employees' Job Performance Under Stressful Situations: The Role of General Self-Efficacy. *The Journal of psychology*, 150(7), 837-848.
- Lu, L., Lin, X., & Leung, K. (2012). Goal orientation and innovative performance: The mediating roles of knowledge sharing and perceived autonomy. *Journal of Applied Social Psychology*, 42(S1).

- Lu, M., Wynn, E., Chudoba, K., & Watson-Manheim, M. (2003). Understanding virtuality in a global organization: toward a virtuality index. *ICIS 2003 Proceedings*, 78.
- Luke, D. A. (2004). *Multilevel modeling* (Vol. 143): Sage.
- Lynne Persing, D. (1999). Managing in polychronic times: Exploring individual creativity and performance in intellectually intensive venues. *Journal of Managerial Psychology*, 14(5), 358-373.
- Lyotard, J.-F. (1984). *The postmodern condition: A report on knowledge* (Vol. 10): U of Minnesota Press.
- Macan, T. H. (1994). Time management: Test of a process model. *Journal of Applied Psychology*, 79(3), 381.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, 1(2), 130.
- MacManus, S. A., & Grothe, B. P. (1989). Fiscal stress as a stimulant to better revenue forecasting and productivity. *Public Productivity Review*, 387-400.
- Majchrzak, A., Rice, R. E., Malhotra, A., King, N., & Ba, S. (2000). Technology adaptation: The case of a computer-supported inter-organizational virtual team.
- Malone, T. W., & Crowston, K. (1994). The interdisciplinary study of coordination. *ACM Computing Surveys (CSUR)*, 26(1), 87-119.
- Marginson, D. (2006). Information processing and management control: a note exploring the role played by information media in reducing role ambiguity. *Management Accounting Research*, 17(2), 187-197.
- Mark, G., Gonzalez, V. M., & Harris, J. (2005). *No task left behind?: examining the nature of fragmented work*. Paper presented at the Proceedings of the SIGCHI conference on Human factors in computing systems.
- Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, 26(3), 356-376.
- Marrone, J. A. (2010). Team boundary spanning: A multilevel review of past research and proposals for the future. *Journal of management*, 36(4), 911-940.
- Marrone, J. A., Tesluk, P. E., & Carson, J. B. (2007). A multilevel investigation of antecedents and consequences of team member boundary-spanning behavior. *Academy of Management Journal*, 50(6), 1423-1439.
- Martin, A., & Bal, V. (2006). The state of teams. *Greensboro, NC: Center for Creative Leadership*.
- Maruping, L. M., Venkatesh, V., Thatcher, S. M., & Patel, P. C. (2015). Folding under pressure or rising to the occasion? Perceived time pressure and the moderating role of team temporal leadership. *Academy of Management Journal*, 58(5), 1313-1333.
- Maslach, C. (1982). *Burnout: The cost of caring*. ISHK.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual review of psychology*, 52(1), 397-422.
- Massey, A. P., Montoya-Weiss, M. M., & Hung, Y.-T. (2003). Because time matters: Temporal coordination in global virtual project teams. *Journal of management information systems*, 19(4), 129-155.
- Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997- 2007: A review of recent advancements and a glimpse into the future. *Journal of management*, 34(3), 410-476.
- Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology*, 85(2), 273.
- Mathieu, J. E., Hollenbeck, J. R., van Knippenberg, D., & Ilgen, D. R. (2017). A century of work teams in the Journal of Applied Psychology. *Journal of*

Applied Psychology, 102(3), 452.

- Mathieu, J. E., Tannenbaum, S. I., Donsbach, J. S., & Alliger, G. M. (2014). A review and integration of team composition models: Moving toward a dynamic and temporal framework. *Journal of management*, 40(1), 130-160.
- Maynard, M. T., Mathieu, J. E., Rapp, T. L., & Gilson, L. L. (2012). Something (s) old and something (s) new: Modeling drivers of global virtual team effectiveness. *Journal of Organizational Behavior*, 33(3), 342-365.
- Maznevski, M. L., & Chudoba, K. M. (2000). Bridging space over time: Global virtual team dynamics and effectiveness. *Organization science*, 11(5), 473-492.
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological methods*, 1(1), 30.
- Mehta, P. D., & Neale, M. C. (2005). People are variables too: multilevel structural equations modeling. *Psychological methods*, 10(3), 259.
- Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*, 21(2), 402-433.
- Mingers, J. (2001). Combining IS research methods: towards a pluralist methodology. *Information systems research*, 12(3), 240-259.
- Miron-Spektor, E., Erez, M., & Naveh, E. (2011). The effect of conformist and attentive-to-detail members on team innovation: Reconciling the innovation paradox. *Academy of Management Journal*, 54(4), 740-760.
- Misangyi, V. F., LePine, J. A., Algina, J., & Goeddeke Jr, F. (2006). The adequacy of repeated-measures regression for multilevel research: Comparisons with repeated-measures ANOVA, multivariate repeated-measures ANOVA, and multilevel modeling across various multilevel research designs. *Organizational research methods*, 9(1), 5-28.
- Mo, G. Y., & Wellman, B. (2016). The effects of multiple team membership on networking online and offline: using multilevel multiple membership modeling. *Information, Communication & Society*, 19(9), 1250-1266.
- Mohammed, S., & Nadkarni, S. (2014). Are we all on the same temporal page? The moderating effects of temporal team cognition on the polychronicity diversity– team performance relationship. *Journal of Applied Psychology*, 99(3), 404.
- Mohr, A. T., & Puck, J. F. (2007). Role conflict, general manager job satisfaction and stress and the performance of IJVs. *European Management Journal*, 25(1), 25-35.
- Monk, C. A., Trafton, J. G., & Boehm-Davis, D. A. (2008). The effect of interruption duration and demand on resuming suspended goals. *Journal of Experimental Psychology: Applied*, 14(4), 299.
- Monsell, S. (2003). Task switching. *Trends in cognitive sciences*, 7(3), 134-140.
- Moreland, R. L. (1996). Lewin's legacy for small-groups research. *Systemic Practice and Action Research*, 9(1), 7-26.
- Morgan, B., & Bowers, C. A. (1995). Teamwork stress: Implications for team decision making. *Team effectiveness and decision making in organizations*, 22, 262.
- Morgeson, F. P., & Humphrey, S. E. (2008). Job and team design: Toward a more integrative conceptualization of work design *Research in personnel and human resources management* (pp. 39-91): Emerald Group Publishing Limited.
- Morris, M. G., & Venkatesh, V. (2010). Job characteristics and job satisfaction: understanding the role of enterprise resource planning system implementation. *Mis Quarterly*, 143-161.
- Mortensen, M., Woolley, A., & O'Leary, M. (2007). Conditions enabling effective multiple team membership. *Virtuality and virtualization*, 215-228.
- Muthén, L., & Muthén, B. (2016). Mplus User's Guide. Los Angeles, CA: Muthen & Muthen; 1998-2016.
- Nadkarni, S., & Narayanan, V. K. (2007). Strategic schemas, strategic flexibility, and

- firm performance: the moderating role of industry clockspeed. *Strategic management journal*, 28(3), 243-270.
- Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: a meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes: American Psychological Association.
- Neubert, M. J., Kacmar, K. M., Carlson, D. S., Chonko, L. B., & Roberts, J. A. (2008). Regulatory focus as a mediator of the influence of initiating structure and servant leadership on employee behavior. *Journal of Applied Psychology*, 93(6), 1220.
- Niehaus, E., Campbell, C. M., & Inkelas, K. K. (2014). HLM behind the curtain: Unveiling decisions behind the use and interpretation of HLM in higher education research. *Research in Higher Education*, 55(1), 101-122.
- Norman, D. A., & Shallice, T. (1986). Attention to action *Consciousness and self-regulation* (pp. 1-18): Springer.
- Nunnally, J. (1978). Psychometric methods: New York: McGraw-Hill.
- O'Leary, M. B., Woolley, A. W., & Mortensen, M. (2011). Multiteam membership in relation to multiteam systems. *Multiteam systems: An organization form for dynamic and complex environments*, 141-172.
- O'Connell, B., & Frohlich, D. (1995). *Timespace in the workplace: Dealing with interruptions*. Paper presented at the Conference companion on Human factors in computing systems.
- Ogbor, J. O. (2000). Mythicizing and reification in entrepreneurial discourse: Ideology-critique of entrepreneurial studies. *Journal of management studies*, 37(5), 605-635.
- O'Leary, M. B., & Cummings, J. N. (2007). The spatial, temporal, and configurational characteristics of geographic dispersion in teams.
- O'leary, M. B., Mortensen, M., & Woolley, A. W. (2011). Multiple team membership: A theoretical model of its effects on productivity and learning for individuals and teams. *Academy of Management Review*, 36(3), 461-478.
- Olsen, M. E., Lodwick, D. G., & Dunlap, R. E. (1992). *Viewing the world ecologically*: Westview Pr.
- Onken, M. H. (1999). Temporal elements of organizational culture and impact on firm performance. *Journal of Managerial Psychology*, 14(3/4), 231-244.
- Oppenheim, A. N. (1992). Questionnaire design and attitude management: Heinemann: London.
- O'Reilly III, C. A., Williams, K. Y., & Barsade, S. (1998). Group demography and innovation: Does diversity help?
- Orlikowski, W. J. (2002). Knowing in practice: Enacting a collective capability in distributed organizing. *Organization science*, 13(3), 249-273.
- Osburn, H. K., & Mumford, M. D. (2006). Creativity and planning: Training interventions to develop creative problem-solving skills. *Creativity Research Journal*, 18(2), 173-190.
- Parker, S. K. (2014). Beyond motivation: Job and work design for development, health, ambidexterity, and more. *Annual review of psychology*, 65, 661-691.
- Patomäki, H., & Wight, C. (2000). After postpositivism? The promises of critical realism. *International Studies Quarterly*, 44(2), 213-237.
- Pearsall, M. J., Ellis, A. P., & Stein, J. H. (2009). Coping with challenge and hindrance stressors in teams: Behavioral, cognitive, and affective outcomes. *Organizational Behavior and Human Decision Processes*, 109(1), 18-28.
- Peeters, M. C., Montgomery, A. J., Bakker, A. B., & Schaufeli, W. B. (2005). Balancing work and home: How job and home demands are related to burnout. *International Journal of Stress Management*, 12(1), 43.
- Peiró, J. M., & Rodríguez, I. (2008). Work stress, leadership and organizational health. *Papeles del Psicólogo*, 29(1), 68-82.

- Perlow, L. A. (1999). The time famine: Toward a sociology of work time. *Administrative science quarterly*, 44(1), 57-81.
- Pieterse, A. N., Van Knippenberg, D., & Van Dierendonck, D. (2013). Cultural diversity and team performance: The role of team member goal orientation. *Academy of Management Journal*, 56(3), 782-804.
- Pieterse, A. N., Van Knippenberg, D., & van Ginkel, W. P. (2011). Diversity in goal orientation, team reflexivity, and team performance. *Organizational Behavior and Human Decision Processes*, 114(2), 153-164.
- Pluut, H., Flestea, A. M., & Curşeu, P. L. (2014). Multiple team membership: A demand or resource for employees? *Group Dynamics: Theory, Research, and Practice*, 18(4), 333.
- Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis. *Journal of Applied Psychology*, 92(2), 438.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879.
- Poposki, E. M., & Oswald, F. L. (2010). The multitasking preference inventory: Toward an improved measure of individual differences in polychronicity. *Human performance*, 23(3), 247-264.
- Postrel, S. (2009). Multitasking teams with variable complementarity: Challenges for capability management. *Academy of Management Review*, 34(2), 273-296.
- Preacher, K. J., Zhang, G., Kim, C., & Mels, G. (2013). Choosing the optimal number of factors in exploratory factor analysis: A model selection perspective. *Multivariate Behavioral Research*, 48(1), 28-56.
- Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2011). Alternative methods for assessing mediation in multilevel data: The advantages of multilevel SEM. *Structural Equation Modeling*, 18(2), 161-182.
- Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2016). Multilevel structural equation models for assessing moderation within and across levels of analysis. *Psychological methods*, 21(2), 189.
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological methods*, 15(3), 209.
- Prem, R., Kubicek, B., Diestel, S., & Korunka, C. (2016). Regulatory job stressors and their within-person relationships with ego depletion: The roles of state anxiety, self-control effort, and job autonomy. *Journal of Vocational Behavior*, 92, 22-32.
- Price, J. L., & Mueller, C. W. (1986). *Absenteeism and turnover of hospital employees*: JAI press.
- Probst, T. M. (2015). Organizational safety climate and supervisor safety enforcement: Multilevel explorations of the causes of accident underreporting. *Journal of Applied Psychology*, 100(6), 1899.
- Quigley, N. R., Tesluk, P. E., Locke, E. A., & Bartol, K. M. (2007). A multilevel investigation of the motivational mechanisms underlying knowledge sharing and performance. *Organization science*, 18(1), 71-88.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (Vol. 1): Sage.
- Reagans, R., Argote, L., & Brooks, D. (2005). Individual experience and experience working together: Predicting learning rates from knowing who knows what and knowing how to work together. *Management Science*, 51(6), 869-881.
- Ren, Y., Kiesler, S., & Fussell, S. R. (2008). Multiple group coordination in complex and dynamic task environments: Interruptions, coping mechanisms, and technology recommendations. *Journal of management information systems*,

25(1), 105-130.

- Resick, C. J., Murase, T., Randall, K. R., & DeChurch, L. A. (2014). Information elaboration and team performance: Examining the psychological origins and environmental contingencies. *Organizational Behavior and Human Decision Processes*, 124(2), 165-176.
- Rico, R., Sánchez-Manzanares, M., Gil, F., & Gibson, C. (2008). Team implicit coordination processes: A team knowledge-based approach. *Academy of Management Review*, 33(1), 163-184.
- Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative science quarterly*, 150-163.
- Rodell, J. B., & Judge, T. A. (2009). Can “good” stressors spark “bad” behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors. *Journal of Applied Psychology*, 94(6), 1438.
- Rousseau, D. M., & McCarthy, S. (2007). Educating managers from an evidence- based perspective. *Academy of Management Learning & Education*, 6(1), 84- 101.
- Ruff, F. (2006). Corporate foresight: integrating the future business environment into innovation and strategy. *International Journal of Technology Management*, 34(3-4), 278-295.
- Rutherford, B. N., Hamwi, G. A., Friend, S. B., & Hartmann, N. N. (2011). Measuring salesperson burnout: A reduced Maslach burnout inventory for sales researchers. *Journal of Personal Selling & Sales Management*, 31(4), 429- 440.
- Salas, E., Dickinson, T. L., Converse, S. A., & Tannenbaum, S. I. (1992). *Toward an understanding of team performance and training*: Ablex Publishing.
- Sarantakos, S. (1998). Varieties of social research *Social Research* (pp. 31-71): Springer.
- Savalei, V., & Bentler, P. M. (2010). Structural equation modeling. *Corsini encyclopedia of psychology*.
- Savelsbergh, C., Gevers, J. M., van der Heijden, B. I., & Poell, R. F. (2012). Team role stress: Relationships with team learning and performance in project teams. *Group & Organization Management*, 37(1), 67-100.
- Savicki, V., & Cooley, E. (1987). The relationship of work environment and client contact to burnout in mental health professionals. *Journal of Counseling & Development*, 65(5), 249-252.
- Schaufeli, W. B., Bakker, A. B., Van der Heijden, F. M., & Prins, J. T. (2009). Workaholism, burnout and well-being among junior doctors: The mediating role of role conflict. *Work & Stress*, 23(2), 155-172.
- Schell, K. L., & Conte, J. M. (2008). Associations among polychronicity, goal orientation, and error orientation. *Personality and Individual Differences*, 44(1), 288-298.
- Scherbaum, C. A., & Ferreter, J. M. (2009). Estimating statistical power and required sample sizes for organizational research using multilevel modeling. *Organizational research methods*, 12(2), 347-367.
- Schmidt, A. M., & Dolis, C. M. (2009). Something's got to give: The effects of dual- goal difficulty, goal progress, and expectancies on resource allocation. *Journal of Applied Psychology*, 94(3), 678.
- Schuler, R. S., Aldag, R. J., & Brief, A. P. (1977). Role conflict and ambiguity: A scale analysis. *Organizational behavior and human performance*, 20(1), 111-128.
- Schulz, J. (2013). The impact of role conflict, role ambiguity and organizational climate on the job satisfaction of academic staff in research-intensive universities in the UK. *Higher Education Research & Development*, 32(3), 464-478.
- Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in*

organizational behavior, 2(1), 3-43.

- Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, 5(9), 9.
- Seers, A., & Woodruff, S. (1997). Temporal pacing in task forces: Group development or deadline pressure? *Journal of management*, 23(2), 169-187.
- Slocombe, T. E., & Bluedorn, A. C. (1999). Organizational behavior implications of the congruence between preferred polychronicity and experienced work-unit polychronicity. *Journal of Organizational Behavior*, 75-99.
- Slomp, J., & Molleman, E. (2002). Cross-training policies and team performance. *International Journal of Production Research*, 40(5), 1193-1219.
- Spector, P. E., Chen, P. Y., & O'Connell, B. J. (2000). A longitudinal study of relations between job stressors and job strains while controlling for prior negative affectivity and strains. *Journal of Applied Psychology*, 85(2), 211.
- Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49(6), 1239-1251.
- Stachowski, A. A., Kaplan, S. A., & Waller, M. J. (2009). The benefits of flexible team interaction during crises. *Journal of Applied Psychology*, 94(6), 1536.
- Stout, R. J., Cannon-Bowers, J. A., Salas, E., & Milanovich, D. M. (1999). Planning, shared mental models, and coordinated performance: An empirical link is established. *Human Factors*, 41(1), 61-71.
- Stout, R. J., Salas, E., & Carson, R. (1994). Individual task proficiency and team process behavior: What's important for team functioning? *Military Psychology*, 6(3), 177.
- Sun, H., Teh, P.-L., Ho, K., & Lin, B. (2017). Team Diversity, Learning, and Innovation: A Mediation Model. *Journal of Computer Information Systems*, 57(1), 22-30.
- Sung, S. Y., & Choi, J. N. (2012). Effects of team knowledge management on the creativity and financial performance of organizational teams. *Organizational Behavior and Human Decision Processes*, 118(1), 4-13.
- Swanson, R. A., & Holton III, E. (2009). Theory of human resource development. *Foundations of human resource development*, 2, 97-111.
- Tadić, M., Bakker, A. B., & Oerlemans, W. G. (2015). Challenge versus hindrance job demands and well-being: A diary study on the moderating role of job resources. *Journal of Occupational and Organizational Psychology*, 88(4), 702-725.
- Tajfel, H. (1978). *Differentiation between social groups*: London: Academic Press.
- Tajfel, H., & Turner, J. C. (2004). *The Social Identity Theory of Intergroup Behavior*.
- Tannenbaum, S. I., Mathieu, J. E., Salas, E., & Cohen, D. (2012). Teams are changing: Are research and practice evolving fast enough? *Industrial and Organizational Psychology*, 5(1), 2-24.
- Taris, T. W. (2006). Is there a relationship between burnout and objective performance? A critical review of 16 studies. *Work & Stress*, 20(4), 316-334.
- Taylor, P. C., & Medina, M. N. D. (2013). Educational research paradigms: From positivism to multiparadigmatic. *The Journal of Meaning-Centered Education*, 1(2), 1-13.
- Thacker, J. W., Fields, M. W., & Tetrick, L. E. (1989). The factor structure of union commitment: An application of confirmatory factor analysis. *Journal of Applied Psychology*, 74(2), 228.
- Thatcher, J. B., Stepina, L. P., & Boyle, R. J. (2002). Turnover of information technology workers: Examining empirically the influence of attitudes, job characteristics, and external markets. *Journal of management information systems*, 19(3), 231-261.

- Tobis, M., & Tobis, I. (2002). *Managing multiple projects*: McGraw-Hill Professional.
- Tropoli, A. M. (1998). Planning and allocating: Strategies for managing priorities in complex jobs. *European Journal of Work and Organizational Psychology*, 7(4), 455-476.
- Tubre, T. C., & Collins, J. M. (2000). Jackson and Schuler (1985) revisited: A meta-analysis of the relationships between role ambiguity, role conflict, and job performance. *Journal of management*, 26(1), 155-169.
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38(1), 1-10.
- Utterback, J. (1994). Mastering the dynamics of innovation: how companies can seize opportunities in the face of technological change.
- Utterback, J. M. (1971). The process of technological innovation within the firm. *Academy of Management Journal*, 14(1), 75-88.
- Van De Brake, H. J., Walter, F. H., Rink, F., Essens, P., & Van Der Vegt, G. S. (2017). *Is Multiple Team Membership a Challenge or a Hindrance for Individual Employees?* Paper presented at the Academy of Management Proceedings.
- Van de Ven, A. H., Delbecq, A. L., & Koenig Jr, R. (1976). Determinants of coordination modes within organizations. *American sociological review*, 322- 338.
- Van Den Bosch, F. A., Volberda, H. W., & De Boer, M. (1999). Coevolution of firm absorptive capacity and knowledge environment: Organizational forms and combinative capabilities. *Organization science*, 10(5), 551-568.
- Van Dick, R., Van Knippenberg, D., Hägele, S., Guillaume, Y. R., & Brodbeck, F. C. (2008). Group diversity and group identification: The moderating role of diversity beliefs. *Human Relations*, 61(10), 1463-1492.
- van Ginkel, W. P., & van Knippenberg, D. (2008). Group information elaboration and group decision making: The role of shared task representations. *Organizational Behavior and Human Decision Processes*, 105(1), 82-97.
- van Ginkel, W. P., & van Knippenberg, D. (2009). Knowledge about the distribution of information and group decision making: when and why does it work? *Organizational Behavior and Human Decision Processes*, 108(2), 218-229.
- Van Knippenberg, D., Dawson, J. F., West, M. A., & Homan, A. C. (2011). Diversity faultlines, shared objectives, and top management team performance. *Human Relations*, 64(3), 307-336.
- Van Knippenberg, D., De Dreu, C. K., & Homan, A. C. (2004). Work group diversity and group performance: an integrative model and research agenda. *Journal of Applied Psychology*, 89(6), 1008.
- Van Sell, M., Brief, A. P., & Schuler, R. S. (1981). Role conflict and role ambiguity: Integration of the literature and directions for future research. *Human Relations*, 34(1), 43-71.
- Verbeke, G. (1997). Linear mixed models for longitudinal data *Linear mixed models in practice* (pp. 63-153): Springer.
- Wageman, R., Gardner, H., & Mortensen, M. (2012). The changing ecology of teams: New directions for teams research. *Journal of Organizational Behavior*, 33(3), 301-315.
- Wallace, J. C., Edwards, B. D., Arnold, T., Frazier, M. L., & Finch, D. M. (2009). Work stressors, role-based performance, and the moderating influence of organizational support. *Journal of Applied Psychology*, 94(1), 254.
- Waller, M. J., Conte, J. M., Gibson, C. B., & Carpenter, M. A. (2001). The effect of individual perceptions of deadlines on team performance. *Academy of Management Review*, 26(4), 586-600.
- Waller, M. J., Zellmer-Bruhn, M. E., & Giambatista, R. C. (2002). Watching the clock: Group pacing behavior under dynamic deadlines. *Academy of Management Journal*, 45(5), 1046-1055.

- Weaver, J. L., Bowers, C. A., & Salas, E. (2001). Stress and teams: Performance effects and interventions. *Stress, workload, and fatigue*.
- Webster, J. R., Beehr, T. A., & Love, K. (2011). Extending the challenge-hindrance model of occupational stress: The role of appraisal. *Journal of Vocational Behavior*, 79(2), 505-516.
- West, M., & Lyubovnikova, J. (2013). Why teamwork matters: Enabling health care team effectiveness for the delivery of high quality patient care.
- West, M. A., & Anderson, N. R. (1996). Innovation in top management teams. *Journal of Applied Psychology*, 81(6), 680.
- Widmer, P. S., Semmer, N. K., Kälin, W., Jacobshagen, N., & Meier, L. L. (2012). The ambivalence of challenge stressors: Time pressure associated with both negative and positive well-being. *Journal of Vocational Behavior*, 80(2), 422- 433.
- Williams, L. J., & Holahan, P. J. (1994). Parsimony-based fit indices for multiple- indicator models: Do they work? *Structural equation modeling: a multidisciplinary journal*, 1(2), 161-189.
- Wong, C. S., Hui, C., & Law, K. S. (1998). A longitudinal study of the job perception– job satisfaction relationship: A test of the three alternative specifications. *Journal of Occupational and Organizational Psychology*, 71(2), 127-146.
- Worley, J. A., Vassar, M., Wheeler, D. L., & Barnes, L. L. (2008). Factor structure of scores from the Maslach Burnout Inventory: A review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies. *Educational and Psychological Measurement*, 68(5), 797-823.
- Zaheer, A., & Soda, G. (2009). Network evolution: The origins of structural holes. *Administrative science quarterly*, 54(1), 1-31.
- Zampetakis, L. A., Bouranta, N., & Moustakis, V. S. (2010). On the relationship between individual creativity and time management. *Thinking skills and creativity*, 5(1), 23-32.
- Zhang, Y., Goonetilleke, R. S., Plocher, T., & Liang, S.-F. M. (2005). Time-related behaviour in multitasking situations. *International journal of human-computer studies*, 62(4), 425-455.
- Zhang, Y., LePine, J. A., Buckman, B. R., & Wei, F. (2014). It's not fair... or is it? The role of justice and leadership in explaining work stressor–job performance relationships. *Academy of Management Journal*, 57(3), 675-697.
- Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44(4), 682-696.
- Zika-Viktorsson, A., Sundström, P., & Engwall, M. (2006). Project overload: An exploratory study of work and management in multi-project settings. *International Journal of Project Management*, 24(5), 385-394.

APPENDIX

Appendix: A: Team Member Questionnaire

Team Working Across Multiple Teams

Team Member Survey

What is this survey?

This is a survey about effective team working across teams. If you are a member of more than one work team within this organisation, this survey is interested on how being a member of multiple teams affect team effectiveness. Multiple Team Membership (MTM) is used to describe the situation in which individuals are concurrently members of two or more teams within a given a time.

This survey is not a test and there are no right or wrong answers. The aim of the questions is to ascertain your personal opinion on the question raised in the survey. There are two sections in this survey. Section A asks questions about your all your work in general across teams, while Section B asks question specifically about your focal team in the organisation. **Consider the primary team you belong to in the organisation as your focal team.** In addition, there some questions requesting background information.

Participation in this project is entirely voluntary and you have the right to withdraw at any time.

How long will it take?

The questionnaire will take about 20 minutes to complete.

How do I fill in this survey?

Please read each question carefully and give your immediate response by circling the response which best matches your personal view.

Who will see my answers?

The information you provide is completely confidential. No one, other than the researcher, Oluwatobiloba Soyemi, and Dr Joanne Lyubovnikova, who is supervising this project, will see your answers. Your answers will provide data for my PhD thesis, and aggregated results may be published in academic journals. However, individuals, teams and organisations will remain anonymous.

At the end of the research, you can request a team report. The report will contain details of key themes within your team, relating to various team processes. Suggestions for improving team interactions will be provided. However, neither individual or team responses will be identifiable. The report will simply summarise key trends in the data, thus protecting your anonymity and confidentiality. These reports will not be distributed elsewhere.

What to do next?

If you agree to participate in this study, simply complete the survey that follows.

Section A – This section asks questions about your focal team and your general work within teams in the organisation. Please refer to the cover sheet for the definition of a focal team.

Thinking about your focal team and your general work in teams within the past six months, please answer the following questions.

How many work teams do you currently belong to in your organisation?
In average working day, how many different teams do you work in?
In an average working week how many different teams do you work in?
In an average month, how many different teams do you work in?
What percentage of your working time do you spend with your focal team?

Thinking about your general work within teams in the past six months, please answer the following questions.

With your activities in these teams in mind	Very Similar	Somewhat Similar	Neutral	Somewhat Different	Very Different
To what extent are the tasks that you undertake in each of these work teams different?	1	2	3	4	5
To what extent are the roles that you undertake in each of these work teams different?	1	2	3	4	5
To what extent are the technologies that you use in each of these work teams different?	1	2	3	4	5
To what extent is the knowledge, skills and abilities that you need to work effectively in each of these work teams different?	1	2	3	4	5
To what extent are the geographical locations of the teams you work in different?	1	2	3	4	5
To what extent are the people that you work with in each of these work teams different?	1	2	3	4	5

Thinking in general about the teams you belong to over the past six months, please answer the following questions

On an average working day how often do you switch between teams?	1	2	3	4	5
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With your activities in these teams in mind	Strongly disagree	Rarely disagree	Occasionally Neutral	Often agree	Very Often Agree
I prefer to work with others in a group rather than working alone.	1	2	3	4	5
Given the choice, I would prefer to do a job where I have to work with others in a group of a typical month how often do you switch between teams?	1	2	3	4	5
Given the choice, I would prefer to do a job where I have to work with others in a group of a typical month how often do you switch between teams?	1	2	3	4	5

Working with a group is better than working alone.	1	2	3	4	5
I have to do things that should be done differently.	1	2	3	4	5
I receive an assignment without the manpower to complete it.	1	2	3	4	5
I work with two or more groups who operate quite differently.	1	2	3	4	5
I receive incompatible requests from two or more people.	1	2	3	4	5
I do things that are apt to be accepted by one person and not accepted by others	1	2	3	4	5
I receive an assignment without adequate resources and materials to execute it.	1	2	3	4	5
I work on unnecessary things.	1	2	3	4	5
I make a list of the things I have to do each day.	1	2	3	4	5
I plan my day before I start it.	1	2	3	4	5
I make a schedule of the activities I have to do on workdays.	1	2	3	4	5
I write a set of goals for myself for each day.	1	2	3	4	5
I have clear planned goals and objectives.	1	2	3	4	5
I know exactly what is expected of me.	1	2	3	4	5
I know what my responsibilities are.	1	2	3	4	5
I feel certain about how much authority I have.	1	2	3	4	5
My responsibilities are clearly defined.	1	2	3	4	5

Thinking about your general work within teams in the past six months, please answer the following questions.

With your activities in these teams in mind	Very Similar	Somewhat Similar	Neutral	Somewhat Different	Very Different
To what extent are the tasks that you undertake in each of these work teams different?	1	2	3	4	5
To what extent are the roles that you undertake in each of these work teams different?	1	2	3	4	5
To what extent are the technologies that you use in each of these work teams different?	1	2	3	4	5

Thinking in general about the teams you belong to over the past six months, please answer the following questions

With your teams in mind	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
In the teams I work with, people keep their best ideas to themselves	1	2	3	4	5
In the teams I work with, people are willing to share knowledge/ideas with others	1	2	3	4	5
In the teams I work with, people share their ideas openly	1	2	3	4	5
In the teams I work with, people with expert knowledge are willing to help others.	1	2	3	4	5
In the teams I work with, people are good at using the knowledge/ideas of its members	1	2	3	4	5
I like to juggle several activities at the same time	1	2	3	4	5
When I work by myself, I usually work on one project at a time	1	2	3	4	5

I believe people should try to do many things at once	1	23	4	5
I usually finish completely one of the things I have to do before starting work on the next	1	23	4	5

Thinking in general about the teams you belong to over the past six months, please answer the following questions

With your activities in these teams in mind	Never	Rarely	Sometimes	Very Often	Always
I have to do a lot of mentally taxing work.	1	2	3	4	5
I need to display high levels of concentration and precision at work.	1	2	3	4	5
I have to remember many things simultaneously.	1	2	3	4	5
I have to make complex decisions at work.	1	2	3	4	5
I have to solve work-related problems with a limited time frame.	1	2	3	4	5

Thinking in general about the teams you belong to over the past six months, please answer the following questions

With your activities in these teams in mind	Not All Very True	Slightly True	Moderately True	Very True	Completely True
No matter what the odds, if I believe in something, I will make it happen.	1	2	3	4	5
I love being a champion for my ideas, even against others' opposition.	1	2	3	4	5
I am excellent at identifying opportunities.	1	2	3	4	5
If I believe in an idea, no obstacle will prevent me from making it happen.	1	2	3	4	5

Thinking in general about the teams you belong to over the past six months, please answer the following questions

With your activities in these teams in mind	Several times a year	Monthly	Two times a month	Every week	Two times a week	Every day
I feel emotionally drained from my work	1	2	3	4	5	6
I feel used up at the end of the workday.	1	2	3	4	5	6
I feel fatigued when I get up in the morning and have to face another day on the job.	1	2	3	4	5	6
Working with people all day is really a strain on me	1	2	3	4	5	6
I feel burned out from my work	1	2	3	4	5	6
I feel am working too hard on my job	1	2	3	4	5	6

With your teams in mind	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I will be able to achieve most of the goals that I set myself.	1	2	3	4	5
When facing difficult tasks, I am certain that I will accomplish them.	1	2	3	4	5
In general, I think that I can obtain outcomes that are important to me.	1	2	3	4	5
I believe I can succeed at almost any endeavor to which I set my mind.	1	2	3	4	5
I will be able to successfully overcome many challenges.	1	2	3	4	5
I am confident that I can perform effectively on many different tasks	1	2	3	4	5
Compared to other people, I can do most tasks very well.	1	2	3	4	5
Even when things are tough, I can perform quite well.	1	2	3	4	5

Section B - This section of the survey focuses on questions about your focal team in the organisation. *Consider the primary team you belong to as your focal teams.*

Please think about your focal team while answering the following questions.

With your focal team in mind	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Our team members have specialized knowledge of some aspects of our task.	1	2	3	4	5
Our team members are comfortable accepting procedural suggestions from other team members.	1	2	3	4	5
Our team members trust that other members' knowledge about the project is credible	1	2	3	4	5
Our team members are confident of relying on the information that other team members bring to the	1	2	3	4	5
Our team members know each other and have the ability to work together in a well-coordinated fashion	1	2	3	4	5

Our team members have the capability to respond to the task- related problems smoothly and	1	2	3	4	5
If you make a mistake on this team, it is often held against you.	1	2	3	4	5
Members of this team are able to bring up problems and tough issues	1	2	3	4	5
People on this team sometimes reject others for being different.	1	2	3	4	5
It is safe to take a risk on this team.	1	2	3	4	5
It is difficult to ask other members of this team for help.	1	2	3	4	5
No one on this team would deliberately act in a way that undermines my efforts.	1	2	3	4	5
Working with members of this team, my unique skills and talents are valued and utilized.	1	2	3	4	5
We had clear planned goals and objectives for this project.	1	2	3	4	5
We knew exactly what was expected of us.	1	2	3	4	5
We knew what our responsibilities were.	1	2	3	4	5
We felt certain about how much authority we had.	1	2	3	4	5
Our responsibilities were clearly defined.	1	2	3	4	5

With your focal team in mind, to what extent to do you agree or disagree with the following statements

With your focal team in mind	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My team members exchange a lot of information about the task.	1	2	3	4	5
My team members often say things about the task that makes me think	1	2	3	4	5
In my team, we discuss the content of our work a lot.	1	2	3	4	5
In my team, we often talk about our ideas about the task.	1	2	3	4	5
My team members often say things that lead me to learn something new about the job.	1	2	3	4	5
My team members often say things that lead me to new ideas.	1	2	3	4	5

We often experience disruptions in the way the team carries out its tasks.	1	2	3	4	5
We often have misunderstanding about what to do.	1	2	3	4	5
We often experience instability in the way the team interacts.	1	2	3	4	5
Accomplishing tasks is sometimes difficult.	1	2	3	4	5

With your focal team in mind, please answer the following questions

With your focal team in mind	Never	Rarely	Sometimes	Very Often	Always
In this team, we have to work fast.	1	2	3	4	5
In this team we have too much work to	1	2	3	4	5
In this team, we have to work extra hard to finish a task.	1	2	3	4	5
In this team, we have to work under time pressure.	1	2	3	4	5
In this team, we have to deal with backlog at work.	1	2	3	4	5
In this team, unforeseen circumstances often interfere with	1	2	3	4	5
In this team, we have to do a lot of mentally taxing work.	1	2	3	4	5
In this team, we need to display high levels of concentration and precision at work.	1	2	3	4	5
In this team, we have to remember many things simultaneously.	1	2	3	4	5
In this team, we have to make complex decisions at work.	1	2	3	4	5
In this team, we have to solve work-related problem within a limited time frame	1	2	3	4	5
Are the tasks performed by your team the same from day-to-day?	1	2	3	4	5
To what extent is your teamwork routine?	1	2	3	4	5

Demographics

Please specify your gender (Please tick a box)	Please specify your age	How long have you worked for this organisation	How long have you worked in your focal team
Male <input type="checkbox"/> Female <input type="checkbox"/>	_____ Yrs	_____ Yrs _____ Months	_____ Yrs _____ Months
What is your Ethnic Background? _____			

END OF QUESTIONNAIRE Thank you for your time and effort in completing this questionnaire

Appendix B: Team Leader Questionnaire

Team Working Across Multiple Teams

Team Leader Survey

What is this survey?

This is a survey about effective team working across teams. If you are a leader of a work team within this organisation, this survey is interested on how being a member of multiple teams affect team effectiveness.

This survey is not a test and there are no right or wrong answers. The aim of the questions is to ascertain your personal opinion on the question raised in the survey. This survey has two sections. Section A asks questions about the effectiveness and performance of the team you lead, while Section B asks questions about the productivity and innovative behaviour of the team members in this team. The questions want you to reflect over period of six months.

Participation in this project is entirely voluntary and you have the right to withdraw at any time.

How long will it take?

The questionnaire will take about 15 minutes to complete.

How do I fill in this survey?

Please read each question carefully and give your immediate response by circling the response which best matches your personal view.

Who will see my answers?

The information you provide is completely confidential. No one, other than the researcher, Oluwatobiloba Soyemi, and Dr Joanne Lyubovnikova, who is supervising this project, will see your answers. Your answers will provide data for my PhD thesis, and aggregated results may be published in academic journals. However, individuals, teams and organisations will remain anonymous.

At the end of the research, you can request a team report. The report will contain details of key themes within your team, relating to various team processes. Suggestions for improving team interactions will be provided. However, neither individual nor team responses will be identifiable. The report will simply summarise key trends in the data, thus protecting your anonymity and confidentiality. These reports will not be distributed elsewhere.

What to do next?

If you agree to participate in this study, simply complete the survey that follows.

Section A

As a leader of this team within this organisation this survey asks some questions about the effectiveness and performance of your team.

Thinking about the activities in your team within the last six months, please answer the following questions.

With this team in mind	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This team meets or exceeds its goals	1	2	3	4	5
This team completes its tasks on time.	1	2	3	4	5
This team makes sure that products and services meet or exceed quality standards.	1	2	3	4	5
This team responds quickly when problems come up.	1	2	3	4	5
This team is a productive team.	1	2	3	4	5
This team successfully solves problems that slow down our work.	1	2	3	4	5
These team members often implement new ideas to improve the quality of our products and	1	2	3	4	5
This team gives a lot of consideration to new and alternative methods and	1	2	3	4	5
These team members often produce new services, methods, or procedures.	1	2	3	4	5
This is an innovative team.	1	2	3	4	5

Section B

As a leader of this team within this organisation, this section asks questions about the productivity and innovative behaviour of the team members in this team.

Please consider all the individuals in your team while you answer the following questions. The questions below are measured on a scale ranging from 1 – 5 (1 = Not at all; 2 = Somewhat; 3 = Moderately; 4 = Quite a bit; 5 = Very Much).

Thinking about the behaviour and activities of your team members within the last six months, please answer the following questions

With these individuals in mind please answer the following questions.	X1	X2	X3	X4	X5
To what extent did he/ she search out new technologies, processes, techniques, and/or product ideas?					
To what extent does he/she generate new ideas?					
To what extent does he/she promote and champions ideas to others?					
To what extent is he/she innovative?					
To what extent does he/she adequately complete assigned duties?					
To what extent does he/she fulfill the responsibilities specified in his/her job description?					
To what extent does he/she perform the tasks that are expected of them					
To what extent does he/she meet formal performance requirement for their job?					

Demographics

Please specify your gender (Please tick a box)	Please specify your age	How long have you worked for this organisation	How long have you worked in your focal team
Male <input type="checkbox"/> Female <input type="checkbox"/>	_____ Yrs	_____ Yrs _____ Months	_____ Yrs _____ Months
What is your Ethnic Background?		_____	
How long have you been the leader of this team?		_____	
How many teams do you lead within this organisation?		_____	

END OF QUESTIONNAIRE

Thank you for your time and effort in completing this questionnaire.

