TEAM GENDER DIVERSITY:

THE EFFECTS OF GENDER, TYPE OF TEAM AND ORGANISATIONAL CONTEXT

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Thesis submitted to the University of Sheffield in part fulfilment of the requirements of the degree of Doctor of Philosophy

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University of Sheffield
July 2000

SUMMARY

This thesis examines the effect of team gender diversity on team functioning. Whilst both theoretically and empirically there is considerable support for the proposition that gender diversity will affect team functioning, past research does not provide a coherent body of observed findings. Reviewing the literature does however suggest the possibility that the conflicting pattern of findings might be due to several contingency factors. This thesis therefore also explored the possibility of differential effects across gender, type of team and organisational context.

Cross-sectional questionnaire based studies were conducted in three very different organisational contexts: a male dominated manufacturing industry, a female dominated health service, and a gender balanced local government housing department. Taken in combination the results of the three studies provided strong support for the proposition that gender diversity is associated with perceptions of team functioning. However, the relationship was not found to be straightforward. Firstly, a differential effect of team gender diversity on men and women was found. Secondly, it was shown that the effects of team gender diversity were greater within management than non-management teams. Finally, although gender diversity was found to affect perceptions of team functioning within all three studies, the nature and magnitude of the effects was found to be dependant upon the organisational context. Within gender skewed contexts (i.e. male dominated or female dominated contexts) a token representation of the minority was found to be particularly detrimental to perceptions of team functioning. However, once the proportion of women in the team exceeded tokenism, greater gender diversity was found to be beneficial to the team. In contrast, in the gender balanced context diversity per se was not found to effect team functioning, rather the presence of women in particular created better team functioning.

This thesis is dedicated to my father:

Dr David Gerald Williams

(1945 to 1988)

You are forever with me

AKNOWELDGEMENTS

I began this PhD because I wanted to the know answer to a question: how does gender diversity effect teams? However, along the way I have learned more than the answer to a question. Not only have I become a better researcher but most importantly, the arduous journey that is a PhD, has taught me about myself. In undergoing this journey many people have helped me along the way, and to these people I would like to express my sincerest appreciation.

Firstly I would like to thank my supervisors. Mike West, without whom this PhD may never have begun, and Lindsey Meân Patterson who tirelessly listened to me talk about my ideas and most importantly looked after my emotional as well as my intellectual well being.

Secondly, I am grateful to my project manager, Sharon Parker, for her support and understanding whilst I have been balancing my job and my PhD.

Thirdly, I would like to thank my friends, not only for their friendship and support, but also for their willingness to help me drown my sorrows when a pint seemed as necessary as my next breath of fresh air. In particular I would like to thank Alyson Ashton, Katherine Birdsall, Kate Charles, Angie Carter, Olga Epitropaki, Iris Gordon, Nick Turner, and Kerrie Unsworth.

As always I am grateful to all those employees who took the time to fill in my questionnaires, as well as my contacts in the organisation for their help in making the survey administration go as smoothly as possible.

Finally, I want to thank the two women in my life. My Mum, who is my best friend as well as my mother, I thank for her unconditional love and support in whatever I do; and Kim I thank for her unwavering belief in my abilities, for her tolerance of my inadequacies, and most of all for her constant love.

CONTENTS

CHAPTER 1

OVERVIEW OF THESIS CONTENT AND STRUCTURE

This chapter outlines the content and structure of this thesis, so as to orient the reader to the text that follows. At a broad level, this thesis is an investigation of the effect that team gender diversity has on team functioning. The rationale for this focus on team gender diversity is given in *Chapter 2*. However, *Chapter 2* also provides a background to the thesis, outlining the concepts and issues that are particularly pertinent to the research.

Several theoretical perspectives suggest that team gender diversity will have an effect on team functioning. *Chapter 3* provides an overview of these theories and explores the theoretical propositions that can be made. Whilst each theory suggests that gender diversity will be an important factor in team working, they differ dramatically both in the effects they predict and in the mechanisms proposed to underlie the said effects. The theories therefore do not provide a clear picture of how team gender diversity is expected to influence team functioning. They do however highlight some important avenues for future research. In particular they suggest that there will be differential gender diversity effects across gender, type of team and organisational context.

Chapter 4 reviews past research that is relevant to the topic of team gender diversity. Although past research provides a conflicting pattern of effects, there is strong empirical support for the suggestion that team gender diversity will affect team functioning. In addition, it is argued that the conflicting pattern of findings observed may in part be accounted for by the three contingency factors identified in the theoretical overview: gender, type of team, and organisational context.

Within *Chapter 4* it is also noted that there are several important methodological inconsistencies that could contribute to the conflicting pattern of effects observed in past research. In particular the difference in the conceptualisation of gender diversity, the definitions of the team, the application of minimum response rates, and in the dependent variables adopted. It is argued that these issues need to be resolved before the research field can move forward. *Chapter 5* therefore discusses these issues and makes suggestions as to the most appropriate way for gender diversity research to develop. *Chapter 6* then draws together these previous chapters and introduces the studies that form the basis of the research presented in this thesis.

Essentially the research strategy involves a series of three cross-sectional survey based investigations of the effect of gender diversity on team functioning. The first study (described in *Chapter 7*) was conducted in the male dominated manufacturing industry. In contrast, the second study (described in *Chapter 8*) was conducted in the female dominated health service. Finally, the third study (described in *Chapter 9*) was conducted in a more gender-balanced context, namely a local government housing department. The three studies in this thesis therefore provide an investigation of team gender diversity across three very different organisational contexts. The final chapter, *Chapter 10*, integrates the findings from the three studies and in particular focuses on the issue of organisational context. The implications of the findings are discussed, and suggestions for future research are put forward.

CHAPTER 2

TEAM GENDER DIVERSITY: CONCEPTS AND ISSUES

The aim of this chapter is to set the scene and provide a background against which the rest of the thesis is based. In particular, this chapter outlines those concepts and issues that are particularly pertinent to research into team composition and provides a rationale for why the issue of team gender diversity is an important focus for research.

2.1 THE IMPORTANCE OF TEAM WORKING

The use of team based working within organisations is growing, making team working an increasingly topical issue. This section outlines some of the fundamental team working issues that need to be addressed prior to focusing on one aspect of team working namely team composition.

2.1.1 The Distinction between Groups and Teams

As McGrath (1984) noted, the term 'group' is a "fuzzy" concept, there is no clear-cut boundary between groups and non-groups. Instead, there are degrees of "groupness" (Guzzo & Shea, 1992); for example, some groups (such as work and sport teams) display many group characteristics whilst others (such as a crowds or audiences) show fewer group features. This variation in degrees of "groupness" means that it is necessary to determine and define what we consider to be the minimum criteria that are needed for a collection of individuals to be considered a group. One particularly influential definition, and the one that will be followed in this thesis, is that of Brown (1988) who states that: "a group exists when two or more people define themselves as members of it

and when its existence is recognized by at least one other member" (Brown, 1988, pp 2-3). It is particularly important within this thesis to be aware of this broad definition of groups, because when discussing gender issues in team working there are primarily two types of groups that need to be considered. Firstly, the team or work group being studied; and secondly, the gender groups of men and women to which team members belong. Therefore, although the majority of texts within the team working literature use the terms 'group' and 'team' interchangeably, this thesis will not. Instead, 'group' will be used to describe social groups or categories, whereas 'team' will be used to describe organisational work groups with a task to perform.

Thus for the purposes of this research the following definitions are adopted. A social group "is a group in which the members are all persons who are classified together on the basis of some social/psychological factor(s)" (Reber, 1985, pp 310). In contrast 'team' needs a more specific definition. There are several criteria of work teams that distinguish them from other types of groups. In a review of the team working literature West, Borrill & Unsworth (1998) concluded that the core criteria of work teams are that: they must have a defined organisational function and identity, they must possess shared objectives, and team members must have interdependent roles. In accordance with this view work teams are defined as "interdependent collections of individuals who share responsibility for specific outcomes for their organizations" (Sundstrom, DeMeuse & Futrell, 1990: pp 120).

2.1.2 The Increased Use of Team Working within Organisations

Within organisations there is a substantial trend towards team based working (Sundstrom et al, 1990; Mohrman, Cohen & Mohrman, 1995). Organisations are now

beginning to realise that the traditional hierarchical and functional approaches that organisations have adopted in the past are not appropriate for the work demands of the organisational environment of the present and the future (Mohrman et al, 1995). Essentially, organisations are changing their processes of working in order to better deal with the challenges and changes that have occurred within their competitive environments (Mohrman et al, 1995). Adopting team-based working is one of the ways in which organisations are changing their working practices in order to compete effectively within the current economic climate.

The principal reason for this reorganisation of working practices is that many tasks tackled by modern businesses are too complex to be achieved effectively by individuals working alone (West & Allen, 1997). Teams are therefore being used to combine the knowledge, skills and abilities of groups of employees and although team working is not always the most appropriate way of achieving organisational tasks (West et al, 1998), research evidence has shown that in a variety of different settings team working leads to better performance and productivity (e.g. Levine & D'Andrea-Tyson, 1990; Cotton, 1993; Applebaum & Batt, 1994; Weldon & Weingart, 1994). In addition, a meta-analysis of 131 field studies conducted by Macy & Izumi (1993) has shown that team development initiatives and the creation of autonomous work groups were the interventions that brought about the largest beneficial effects upon the financial performance of organisations.

2.1.3 Problems Encountered in Team Working

As noted above, the use of team working in organisations is based on the assumption that teams are more productive than the same number of individuals

working alone. However, despite the evidence suggesting that team based working is generally beneficial to organisations research has shown that the issue might not be a simple one. In a review of the relevant literature, Hill (1982) concluded that whilst the performance of groups did tend to exceed that of its average member, it was often inferior to the performance of its most competent individual. Nonetheless, conclusions based upon such research must be tentative since the majority of research comparing individual and group performance has involved laboratory-based experiments using simple tasks (Guzzo & Shea, 1992). Very little research has investigated complex tasks in organisational settings (Guzzo & Shea, 1992).

Further, in an influential model of team performance Steiner (1972) argued that teams do not actualise their full potential because of process losses (i.e. actual productivity equals potential productivity minus process losses); where process losses are considered to be "a result of less than optimal ways of combining members' resources into a group product" (Guzzo & Shea, 1992; pp 281). Steiner (1972) hypothesised that the two fundamental causes of process losses are poor co-ordination and low motivation, which include problems such as team members having competing objectives, poor communication, and social loafing (reductions in team members' contributions) (Latané, Williams & Harkins, 1979). Nevertheless, whilst there is ample laboratory based research evidence for process losses, few studies have investigated process losses within real organisational teams. Although, the studies that have used samples of real work teams do suggest that the findings from laboratory research are generalisable (e.g. George, 1992).

Therefore, although team working can be beneficial to organisations, it seems critical that further research is undertaken so that we can enhance understanding of how

teams' function and identify how process losses may be reduced. In doing so, research may enable teams of the future to utilise their team resources more effectively, and thereby actualise their full potential.

2.2 TEAM COMPOSITION

The very nature of teams as collections of individuals leads to the importance of team composition; that is, the combination of attributes that team member's bring to the team. Team composition is an aspect of team design that has received considerable attention from researchers (Guzzo & Dickson, 1996), with many models of team effectiveness and productivity identifying team composition as a determining factor of team effectiveness (e.g. Hackman, 1990). Such research conceptualises team composition as a cause of team processes and outcomes.

2.2.1 Different Approaches to the Investigation of Team Composition

Within the research literature several aspects of team composition have been investigated. One line of research concentrates on determining the ideal combination of individual attributes within a team; identifying the skills, personalities and team roles that are necessary for successful team work (e.g. Margerison & McCann, 1992; Stevens & Campion, 1994; Cannon-Bowers, Tannenbaum, Salas & Volpe, 1995). Another approach has examined how the average amount of an attribute within a team affects team processes and outputs (e.g. Wanous & Youtz, 1986; Wiersema & Bantel, 1992), and what effect the highest individual score (on an attribute) within a team has on team performance (e.g. Wanous & Youtz, 1986). However, a third approach has concentrated on the how the mix of individual attributes within a team affects team processes and

outputs (e.g. Wagner, Pfeffer & O'Reilly, 1984; Jackson, Brett, Sessa, Cooper, Julin & Peyronnin, 1991; Alexander, Nuchols, Bloom & Lee, 1995). This third approach to studying team composition has several advantages. Not only does it enable us to better understand the dynamics of team composition by examining how differences between individuals interact to effect team functioning, it also widens the approach beyond work related traits to more demographic variables (e.g. gender, race, religious beliefs, disability). If equal opportunities are to be upheld it is not appropriate to discuss the ideal mix of demographic variables within a team nor is it meaningful to use either the average or highest level of a demographic variable as an indicator of demographic composition. This third approach to team composition will therefore form the basis of this thesis, looking at the effect that the mix of individual attributes within a team has on team functioning.

2.2.2 Team Diversity

The majority of studies that have looked at the mix of attributes within teams have referred to team diversity. However, within the literature there seems to be little agreement as to what "diversity" actually refers (Jackson & Ruderman, 1995). In fact very few researchers have explicitly defined the concept. Jackson (1996: pp 55) refers to diversity as "the social composition of the team". Considering that diversity is only one of several ways of conceptualising team composition (see above discussion in section 2.2.1) this definition seems too imprecise to be helpful. Another definition, one that perhaps comes closer to the essence of what diversity is, states that "diversity (and its opposite, homogeneity) refers to the differences (or similarities) among members of some particular collectivity ..." (McGrath, Berdahl & Arrow, 1995: pp 22). Thus, a team

considered to be low in diversity (relatively homogeneous) would be composed of members that are relatively similar to one another (on the dimension under consideration). Whereas a team considered to be high in diversity (heterogeneous) would be composed of members that are relatively different from one another (on the dimension under consideration).

However, although the majority of studies into team composition take such a "diversity" approach, this is not the only way to conceptualise the mix of individual attributes within a team. In particular team composition can be thought about in terms of the proportion of people in the team that possess a given attribute (for a full discussion of the different ways to conceptualise the mix of attributes within a team see section 5.1). Whilst such a conceptualisation does not measure diversity per se the research objective underlying the approach remains the same as that of the diversity approach; that is, they both aim to understand how the mix of attributes within a team affects team functioning. For simplicity, and to distinguish research that looks at the mix of attributes within the team from the other team composition approaches, this thesis will therefore refer to diversity as a term that encompasses all approaches that focus on the mix of individual attributes within a team.

2.2.2.1 Types of Diversity

Since diversity can be operationalised upon any dimension that distinguishes between individuals, theoretically there are countless different types of diversity. In practice researchers reduce this number by restricting themselves to those dimensions that are measurable and, more importantly, those that are theoretically relevant to work processes and outcomes. Even within these restrictions the list of diversity types is

large, requiring a typology of diversity to distinguish between clusters of diversity attributes.

A common distinction is one between *task-related attributes* (e.g. occupation, organisational position, specialised knowledge, skills and abilities) and *relations-oriented attributes* (e.g. gender, age, race, ethnicity, sexual orientation, religious affiliation) (e.g. Jackson, 1991; Maznevski, 1994; Northcraft, Polzer, Neale & Kramer, 1995; Jackson, 1996). On the one hand diversity can be operationalised in terms of attributes that are relevant to the team's work, and on the other hand diversity can be construed as those aspects of the individual that are related to the social groups of which they are members.

Another common distinction that has been made is the degree to which attributes are observable (Cummings, Zhou & Oldham, 1993; Maznevski, 1994; McGrath et al, 1995; Jackson, 1996; Milliken & Martins, 1996; Harrison, Price & Bell, 1998). Some attributes of an individual can be observed quickly, easily and relatively accurately (e.g. gender, age, and ethnicity). This type of diversity has been labelled as *readily detectable* (Jackson, May & Whitney, 1994; Jackson, 1996; Milliken & Martins, 1996) or *surface-level* diversity (Harrison et al, 1998). Other attributes of an individual are less easy to observe (such as attitudes, values, skills, and personality), this type of diversity has been labelled as *underlying* (Jackson et al, 1994; Jackson, 1996; Milliken & Martins, 1996) *or deep-level* diversity (Harrison et al, 1998). These types of diversity are also distinguishable in terms of the ease with which they can be changed (McGrath et al, 1995; Jackson, 1996; Harrison et al, 1998). Readily detectable or surface-level attributes are typically permanent and unchangeable, whereas the underlying or deep-level attributes can be changed either temporarily or permanently. Readily-detectable or

surface-level types of diversity are also more difficult to disguise, whereas the underlying or deep-level types of diversity can often be masked or manipulated.

Based on these two principal distinctions Jackson and colleagues (Jackson et al, 1994; Jackson, 1996) produced a four cell taxonomy of diversity. That is, they argued that individual attributes can be task related and readily detectable (e.g. organisational tenure, educational level), task-related and underlying (e.g. knowledge and expertise, skills), relations oriented and readily detectable (e.g. sex, age, race) or relations-oriented and underlying (e.g. socio-economic status, attitudes, values). Despite the fact that this taxonomy is based on some interesting and fundamental distinctions it does have difficulties. Firstly, it is difficult to assign some dimensions of diversity into one or other of these categories. For example, Jackson (1996) categorises attitudes and values as relations-oriented diversity arguing that they are elements of an individual that are largely inherent in their being, and therefore can be construed as relations-oriented. However, values and attitudes can be work related, and there is some evidence that work values and attitudes affect performance (e.g. Khaleque, 1992). It can therefore also be argued that attitudes and values are task-related attributes. Secondly, the task vs. relations and readily detectable vs. underlying distinctions do not take into account the commonality of possible mechanisms underlying the effects of diversity. For instance, diversity in terms of socio-economic status will not necessarily effect team working in the same ways, or for the same reasons, as diversity of variables such as personality. Yet, both these examples are categorised as relations-oriented and underlying attributes. Thus, it would seem that a more sensitive typology of diversity is desirable.

The most comprehensive taxonomy within the literature is that developed by McGrath et al (1995) which distinguishes between five different types of diversity:

1. *Demographic attributes* (e.g. race, gender, religious affiliation, education, sexual orientation, and age)
2. *Task-related knowledge, skills and abilities*
3. *Values, beliefs and attitudes*
4. *Personality, cognitive and behavioural styles*
5. *Organisational attributes* (e.g. organisational rank, occupational speciality, departmental affiliation, and tenure)

However, whilst this typology is more comprehensive it is not without limitations. Even with the more detailed distinctions, the types of diversity are not entirely mutually exclusive (McGrath et al, 1995). For example, demographic attributes are often used to make inferences about an individual's values, abilities and behaviour (Newcombe, 1961; Milliken & Martins, 1996). In addition, the different types of diversity are often interrelated (Maznevski, 1994). Illustrative of this is the fact that women tend to be clustered within similar types of occupation and at similar occupational levels. For example, in 1999 women represented only 28% of the workforce within the manufacturing sector but 66% of the work force within the public administration and health sector (Labour Market Trends, September 1999). Further, some diversity attributes can still not be neatly categorised into just one diversity cluster. Team members' educational level is a good illustration of this. Whilst most researchers consider educational level to be a demographic variable, it could also be thought of in terms of knowledge, skills and abilities.

It would therefore appear that although typologies of diversity are useful in terms of conceptualising clusters of attributes that are likely to be similar in their effects, they must not be considered as distinct and exclusive categorisations of diversity.

2.2.2.2 Generic versus Specific Concept of Diversity

One important issue that must be raised before embarking on a study into team diversity is whether or not diversity can be considered as a generic concept. In some respects a generic concept of diversity is appealing since teams are composed of individuals who differ on many different dimensions, and thus it would be extremely unlikely that team members only differed on one attribute (Nkomo, 1995). In addition, the different types of diversity are likely to interact with one another (McGrath et al, 1995) in a way that leads to them simultaneously contributing to the diversity of the team (Jackson & Ruderman, 1995). For example, Alexander et al (1995) found that the diversity of the different types of demographic attributes interact with each other to affect the turnover of nursing staff. The boundaries between the different types of diversity are also not definitive (Cox, 1995). For instance a large body of research suggests that demographic categories, such as gender and race, also differentiate individuals along dimensions of status and culture (e.g. Belenky, Clinchy, Goldberger & Tarule, 1986; Hall, 1976; Ridgeway, 1991; Cox, 1995). This leads to a difficulty in isolating the effects of a single type of diversity (Jackson & Ruderman, 1995).

However, despite the advantages of using a generic concept of diversity, there are also several disadvantages. First, because a generic approach to diversity is based upon the assumption that one integrative theory can explain all types of diversity it implies that there is equity between different types of diversity (Nkomo, 1995). We cannot simply assume that all types of diversity affect the team in identical ways (Skevington & Baker, 1989; Tinsley, 1994). For instance, unlike attributes such as personality and cognitive style, power differences exist between men and women, and individuals of

differing ethnic backgrounds (Nkomo, 1995). Even within similar types of demographic diversity a generic concept could be argued to be unwise since different social groups have differing historical relations which cannot be ignored when considering diversity (McGrath et al, 1995). In fact, a considerable body of research illustrates the differential effects of various types of diversity. For example, Alexander et al (1995) found that whereas diversity in educational preparation and tenure were positively associated with levels of voluntary turnover, diversity in terms of employment status was negatively correlated with the same dependent variable. Similarly, in a study of dyadic relationships, Triandis, Hall & Ewen (1965) found that although diversity in terms of attitudes led to increased levels of creativity, diversity in terms of attributes led to reduced levels of creativity.

A generic concept of diversity also holds the danger that it would define everyone as different, thus making the concept of diversity redundant (Nkomo, 1995). A generic concept of diversity also makes the measurement of diversity less sensitive. For example, it is possible that one group may be low in diversity in terms of an attribute A, but high in diversity in terms of another attribute B; whereas another group may exhibit high diversity in terms of attribute A but low diversity in terms of attribute B. Thus, although two teams may have very different team compositions a generic diversity measure would treat them as having a similar degree of diversity. An index of generic diversity would also consider a team composed of a majority of well educated men and a minority of less educated women to be the same as a team which had a majority of less educated men and a minority of well educated women[1]. These examples demonstrate

[1] For a similar argument see Meyer, Tsui & Hinnings (1993).

situations in which a generic concept of diversity would mask the differing diversities of teams, and thus such a concept of diversity may lead to important findings being overlooked.

A generic concept of diversity does not therefore seem to be useful if we wish to gain a more thorough understanding of how diversity affects team functioning. However, care must also be taken when using specific definitions of diversity. Researchers must be aware of the multitude of different types of diversity within teams, or else they will fail to appreciate the complexity of the situation, and ignore the possibility of interactions between the different categories (Nkomo, 1995). Therefore it would seem wise for researchers to give due credit to the individuality of each dimension of diversity, whilst at the same time recognising the commonalties that occur across different types of diversity (Cox, 1995), and acknowledging the possible interaction effects between the multiple dimensions of diversity.

2.2.3 The Importance of Gender Diversity

Whilst there are numerous different types of diversity, arguably the most basic and theoretically important is gender. Firstly, gender is a fundamental distinction within the human species with the biological and anatomical differences between women and men being strikingly visible. Gender is also the most fundamental of social categories, and research has found that we categorise those around us in terms of gender both immediately and automatically (e.g. Bower & Karlin, 1974; Taylor, Fisk, Etcoff & Ruderman, 1978; Deaux & Major, 1987).

From an organisational perspective gender is also particularly important. In recent decades there have been two consistent trends noted within the demographic profile of

organisations. Firstly, the representation of women in the workforce is increasing, and it has been predicted that by the next century women will no longer be in the minority at work (Johnson & Packer, 1987). In fact, 45% of the overall workforce in Britain are now women (Labour Market Trends, February 2000). In addition to this overall increase in the proportions of women within the workforce, there is also a trend towards gender desegregation. Not only are women beginning to find employment within industries and occupations that were previously almost exclusively male domains (Tolbert, Andrews & Simons, 1995; Ruderman, Hughes-James & Jackson, 1996), there are also more women filling management positions (Blum, Fields & Goodman, 1994). Whereas in 1974 only 1.8% of managerial positions were occupied by women (UK National Management Survey, 1995), by 2000 this figure had increased to 33% (Labour Force Survey, February 2000). This trend towards greater gender diversity in the work place is inevitably having an impact on the gender composition of the teams within organisations. Employees are therefore increasingly more likely to be working in mixed-sex teams, and such workforce heterogeneity has not been considered in most managerial techniques (Maznevski, 1994). In addition, despite an abundance of research that has investigated and found gender differences in behaviour, few have studied how men and women interact within work settings and what effect this may have on men and women's experiences and performance at work.

The combination of both the primary importance of gender as a social category and the increasing proportions of women in the workforce therefore make gender a particularly pertinent form of team diversity.

2.4 CHAPTER SUMMARY

Despite the fact that organisations are increasingly relying on team based working, teams do not always fulfil their potential. One important aspect of team working relates to the composition of the team and of particular interest is how the mix of individual attributes within a team combine to affect team functioning. Although there are countless different types of diversity, a generic concept of diversity measuring all forms of diversity is not useful. Researchers therefore need to select which form(s) of diversity they want to investigate. Since gender is the most fundamental social category distinguishing individuals, and demographic trends show that there are increasing proportions of women in the workforce, diversity in terms of the gender of team members is a particularly critical issue within organisations. This thesis will therefore explore the effect that team gender diversity has on team functioning. The following chapter reviews the theoretical approaches relevant to the issue of team gender diversity.

CHAPTER 3

THEORETICAL BACKGROUND

Within the literature there are several theoretical approaches which suggest that team gender diversity will influence team functioning. Generally, these theories fall into three broad categories. Firstly, theories from a Demographic Differences Perspective (including the Trait and Expectations Approaches) focus on how differences between demographic groups affect team functioning. Secondly, theories from within an Affect Perspective (including Social Identity Theory and the Similarity Attraction Paradigm) specify the affective mechanisms underlying intergroup interaction. Finally, theories from the Numerical Proportions Perspective (which includes Social Contact and Social Competition Theories) concentrate on how the numerical proportions of social groups have an effect on intergroup relations. Therefore, whilst all the theories suggest that gender diversity will affect team functioning, they differ dramatically in their explanations of why the effects will occur, and exactly what these effects will be. Consequently, this chapter outlines the major elements of each approach and the models nested within them.

3.1 DEMOGRAPHIC DIFFERENCES PERSPECTIVE

The Demographic Differences Perspective asserts that team diversity is important because demographic characteristics are aligned with differences (either actual or expected) in psychological attributes and behaviours. However there are two fundamentally different approaches within this perspective. The Trait Approach posits that there are actually differences between demographic groups in terms of the psychological attributes that underlie behaviour. In contrast the Expectations Approach

suggests that regardless of any real differences between the attributes of demographic groups, differences are expected both by the individual themselves and others who observe them. Both of these perspectives are outlined below.

3.1.1 Trait Approach

3.1.1.1 Key Principles of the Trait Approach

This approach proposes that there are fundamental gender differences in the psychological attributes (such as values, attitudes, knowledge and cognitive processes) that underlie behaviour (McGrath et al, 1995)[1]. Supporters of this approach argue that these gender differences arise because individuals are socialised in terms of their gender (Eagly, 1987; Radhakrishman, Kuhn & Gelfand, 1994), and because members of demographic groups have common experiences (Rhodes, 1983; Useem & Karabel, 1986) and are subject to similar social conditions (Eagly, 1987; Radhakrishman et al, 1994). Therefore, a team diverse with respect to gender is assumed to be necessarily diverse with respect to team members' psychological attributes and behaviours. It is assumed that it is this diversity, not gender diversity per se, that leads to an effect on team processes and outcomes.

3.1.1.2 Supportive Evidence for the Trait Approach

Research that uses demographics to infer psychological attributes is abundant within the team diversity literature (e.g. Chagnanti & Sambharya, 1987; Fligstein, 1987; Bantel & Jackson, 1989; Murray, 1989; Michel & Hambrick, 1992; Wiersema & Bantel, 1992; Finklestein, 1992; Northcraft et al, 1995). However, despite the

[1]This approach is wide ranging and is proposed to be relevant for all types of demographic diversity, not just gender.

substantial interest in this approach as an explanation for diversity effects, there have been no direct tests of the approach.

Essentially there are two major propositions that must be satisfied if this approach is to be accepted. First, it must be established whether or not there are real differences in the psychological attributes of men and women. Second, it needs to be determined whether or not there is sufficient evidence to suggest that diversity in terms of these psychological attributes affects team functioning.

Research evidence regarding whether there are gender differences in psychological attributes is inconclusive. Whilst some studies have found gender differences in terms of work values (e.g. Elizur, 1994; AbuSaad & Isralowitz, 1997), work related attitudes (e.g. Martin & Kirkcaldy, 1998) and cognitive processes (e.g. Halpern & Wright, 1996), other studies have found little or no effects (e.g. Fagenson, 1993; Kaldenberg, Becker, & Zvonkovic, 1995; Rowe & Snizek, 1995; Hall, 1995; Abele, Schute & Andra, 1999).

Further, although many researchers assume that diversity of attributes is linked to team functioning very few studies have tested the assumption empirically (Milliken & Martins, 1996). However, there is some evidence that attribute diversity is associated with aspects of team functioning. For example, attribute similarity has been linked to higher team cohesiveness (Terborg, Castore & DeNimo, 1976) and similarity between supervisors and subordinates in terms of values has been found to be positively associated with satisfaction (Meglino, Ravlin & Adkins, 1989).

Therefore, although the propositions of the Trait Approach are widely adopted there is not substantive empirical support. However, there is a large body of laboratory based evidence that shows men and women to behave differently within groups. For example, in numerous types of interaction settings men have been found to display

more task-oriented behaviour than women, and women have been found to display more socio-emotional oriented behaviour than men (e.g. Strodtbeck & Mann, 1956; Aries, 1976; Piliavin & Martin, 1978; Maltz & Borker, 1982; Johnson, 1989; Kramarae, 1990)[2]. Consequently, a team that is diverse with respect to gender will also be diverse with respect to task and socio-emotional behaviour. Therefore, although the lack of conclusive evidence for sex differences in psychological attributes means it is difficult to conclude whether or not the theory is supported as it is stated above, the principles of the theory are still of importance.

3.1.1.3 Consequences of the Trait Approach for Team Gender Diversity

The primary principle of the Trait Approach is that gender diversity has an effect because men and women bring different things (in terms of attributes and behaviour) to the team. Therefore, in terms of the evidence of gender differences in behaviour within groups, we can say that it is likely that a team that is diverse with respect to gender will also be diverse with respect to team behaviours. In addition, diversity in behaviour is very likely to affect team functioning. The gender differences in task-related and socio-emotional behaviour suggest that female dominated teams will be more socio-emotional compared to male dominated teams which will be more task-oriented. A study by Piliavin & Martin (1978) indeed found this to be the case. In particular they found that in terms of socio-emotional behaviour all female teams exhibited more than mixed-sex teams, and that mixed-sex teams exhibited more such behaviour than all male teams. The findings for task oriented behaviour were the exact reverse, with all male teams

[2] A few studies have found no difference in task and socio-emotional behaviour. However, Wheelan & Verdi (1992) noted that of 28 studies 19, plus 2 meta-analyses, found that there were gender differences in these types of behaviour. It is therefore concluded that there are gender differences in these interactional behaviours.

exhibiting more than mixed-sex teams, which in turn exhibited more task oriented behaviour than all female teams.

However, since the literature has not firmly established what other gender differences in attitudes and behaviours exist, it is difficult to make any further predictions based on the Trait Approach. In addition, neither research nor theory have established the effect that diversity of behaviour will have on team functioning. Two contrasting expectations seem plausible. On the one hand, team functioning might deteriorate in mixed sex groups. Firstly, because the different behavioural styles of men and women may cause interaction difficulties in cross-sex interaction (Tannen, 1990). Secondly, because there might be conflict in the team due to each gender trying to get the rest of the team to focus on different team related issues (task and social). On the other hand, Bales (1970) argued that a balance of different types of behaviour may enhance team functioning because both task-related and socio-emotional behaviour are necessary in order for a team to function adequately.

3.1.2 Expectations Approach

3.1.2.1 Key Principles of the Expectations Approach

In contrast to the Trait Approach the Expectations Approach maintains that, irrespective of any real differences existing, team members make inferences about one another's psychological attributes based on demographic cues such as gender, age and race, and that these inferences are then used to create expectations about behaviours. Two major theories are nested within this approach: Gender-Role Theory and Expectations-States Theory. Whilst both propose that differential expectations are held

about men and women, they differ in their explanations about why these differential expectations are formed.

3.1.2.1.1 Key Principles of Gender-Role Theory

Advocates of Gender-Role Theory (e.g. Eagly, 1987; Eagly, Makhijani & Klonsky, 1992) assert that because men and women have typically been segregated into different social roles, such as homemaker and traditional employee (Williams & Best, 1982; Eagly & Steffen, 1984; Yount, 1986; Eagly, 1987), we all hold beliefs about the behaviours that are appropriate for men and women. It is argued that it is these differences in the behaviours that are considered appropriate for each sex that lead us to hold differential expectations about men and women's behaviour.

It is also proposed that gender-role spill-over occurs. Gender-role spill-over is mainly applied within the leadership literature and is defined as "a carry over into the workplace of gender-based expectations of behaviour" (Gutek & Morasch, 1982, pp 58). It is thought that gender-role spill-over will affect women more than men (Eagly, Mokhijani & Klonsky, 1992), since the gender-role expectations placed on men are more congruent with the traits that are deemed appropriate behaviour for successful managers (Schein, 1973; Heilman, Martell & Simon, 1989). Thus, whilst men have little conflict between those behaviours they are expected to have as men and those work behaviours that they aspire to as employees, women are more often faced with incompatible expectations about how they should act (Schein, 1973; O'Leary, 1974; Bayes & Newton, 1978; Bass, 1981; Kruse & Wintermantel, 1986; Heilman et al, 1989; Ragins & Sundstrom, 1989; Eagly, Mokhijani & Klonsky, 1992). Such incompatibility of expectations is argued to lead to women violating the expectations others hold about them, and can cause role conflict for the women themselves (Eagly, Mokhijani &

Klonsky, 1992). In addition, Correspondent Inference Theory (Jones & Davis, 1965; Jones & McGillis, 1976) maintains that "the less likely an act, given the actor's situation, the stronger are perceivers inferences that the actor's underlying disposition corresponds to the actor's behaviour" (Eagly, Mokhijani & Klonsky, 1992, pp 5). Women's behaviour is therefore likely to be perceived as more extreme than the equivalent behaviour exhibited by men (Eagly, Mokhijani & Klonsky, 1992). This suggests that women may be more affected by the expectations others have of them than men.

Gender-Role Theory also maintains that gender roles will only be salient when other roles (e.g. family and employment roles) are not salient. Therefore if occupational role is salient gender expectations, and their consequences, should be reduced.

3.1.2.1.2 Key Principles of the Expectations-States Theory

In contrast, Expectations-States Theory (e.g. Berger, Cohen & Zelditch, 1972; Berger, Fisek, Norman & Zelditch, 1977) posits that the differences in the expectations held about the psychological attributes and behaviour of men and women do not arise because the perceived individual is male or female, but rather because gender is a status cue. Specifically, it is argued that men are assumed to have higher status than women, and that this status acts as a basis for attributions about the relative competence of men and women (Meeker & Weitzell, 1977; Ridgeway, 1982). Further, it is suggested that because men are perceived as more competent than women they receive and act upon more opportunities to take part in task-oriented behaviour, and that women exhibit socio-emotional behaviour in order to try to raise their status and be accepted (Meeker & Weitzel-O'Neill, 1977; Ridgeway, 1978; Ridgeway, 1982).

3.1.2.2 Supportive Evidence for Expectations Approach

Research has consistently shown that differences in expectations about the psychological attributes and behaviours of men and women do exist (e.g. Broverman, Vogel, Broverman, Clarkson & Rosenkrantz, 1972; Deaux & Lewis, 1983; Eagly & Steffen, 1984; Ruble, 1983). For example, men are expected to be independent, assertive, masterful, competitive, aggressive, objective and task-oriented; whereas women are expected to be dependent, passive, non-competitive, non-aggressive, friendly, emotionally expressive, subjective and interpersonally oriented (Eagly, Makhijani & Klonsky, 1992). These differences in expectations can be summarised into two dimensions; men are thought to be agentic, whereas women are thought to be communal (Bakan, 1966; Broverman et al, 1972; Eagly & Steffen, 1984).

In addition, if men and women conform to expectations (either due to gender roles or status attributions) then men should exhibit more task-oriented behaviour, and women should exhibit more socio-emotionally oriented behaviour. Research has repeatedly shown this to be the case; and of particular relevance such gender differences have been found to occur in team interactions (see above discussion in section 3.1.1.2).

3.1.2.2.1 Evidence Specifically Supporting Gender Role Theory

If Gender-Role Theory were correct, we would expect societies that have different gender roles to have different expectations about the appropriate behaviour of men and women. Evidence supporting this is given by Filardo (1996) who found that mixed sex groups composed of African Americans displayed signs of greater gender equality than mixed sex groups composed of whites. Greater gender equality among African Americans has also been demonstrated in several other research areas; for example, studies investigating social interaction (e.g. see reviews of Stanback, 1985; Henley,

1995) and the sharing of household tasks (e.g. see reviews of McCray, 1980; Miller & Garrison, 1982; Brookins, 1985). Filardo (1996) argued that this greater gender equality within African American groups is due to the fact that African American women have traditionally taken on both family and work roles, whereas whites have traditionally segregated home and work roles along gender lines (Feagin, 1970; Nobles, 1976; Rodgers-Rose, 1980; Gump, 1980; Malson, 1983; White, 1985).

Further, in support of gender-role spill-over a meta-analysis conducted by Eagly, Mokhijani & Klonsky (1992) found that women are perceived more negatively when they behave in line with masculine leadership styles than when they exhibit other types of leadership style.

3.1.2.2.2 Evidence Specifically Supporting the Expectations-States Theory

There is a substantial body of evidence that shows that when no external status information is received men are consistently perceived as having higher status than women (e.g. Strodtbeck, James & Hawkins, 1957; Lockheed & Hall, 1976; Meeker & Weitzel-O'Neill, 1977; Kollock, Blumstein & Schwartz, 1985; Lockheed, 1985; Wagner, Ford & Ford, 1986; Ridgeway, 1987). Further, research has demonstrated that high status individuals are expected to display more agentic traits than low status individuals (e.g. Eagly & Steffen, 1984; Geis, Boston & Hoffman, 1985). In addition, research has shown that not only do people find it easier to identify with those who have a similar social status to themselves, they also interact more frequently with them (Berger et al, 1972; Berger et al, 1977; Meeker & Weitzel-O'Neill, 1977; Bradley, 1980).

Interestingly, a laboratory-based study by Wood & Karten (1986) found that when members of mixed sex groups were only informed of other group members' names and

gender, significant gender differences were found during group interaction. In particular, men displayed more task-oriented behaviour and less positive social behaviour than women, and men were perceived to be more competent than women. However, when group members' 'competency-based status' was experimentally manipulated no gender differences were found in either interaction style or perceived competence. Instead, high status individuals were found to display more task-oriented and less positive social behaviour than low status group members' and high status individuals were perceived to be more competent than low status individuals. This suggests that in situations where occupational status is clearly defined gender differences in behaviour will be reduced.

3.1.2.3 Consequences of the Expectations Approach for Team Gender Diversity

The Expectations Approach proposes that men and women are expected to behave differently, either because of differing gender roles within society (Gender Role Theory) or because of the differential status that is attributed to men and women (Expectations-States Approach). Such gender expectations may have several consequences for the functioning of gender diverse teams. Team members may behave in ways that are consistent with the expectations placed upon them. Stereotypical expectations are so prominent within our society children may be socialised into actually behaving in stereotypical ways (Baird, 1976). Similarly, even if men and women do not develop into such psychological types, research has shown that people tend to exhibit the patterns of behaviour that are expected of them (e.g. Darley & Fazio, 1980; Snyder, 1984). This may be because compliance to gender expectations is rewarded and non-compliance leads to disapproval and rejection (Martin & Shanahan, 1983). Thus, team members may end up interacting in the stereotypical ways and consequently (as argued in the

Trait Approach) gender diversity will lead to diversity of behaviour, which is then expected to affect team functioning. Therefore, if men and women do behave in the way that they are expected the Expectations Approach would make the same predictions about the effects of gender diversity as the Trait Approach. That is, female-dominated teams would be expected to be more socio-emotionally oriented and male dominated teams would be expected to be more task focused. In addition, teams that are reasonably heterogeneous in gender might have either detrimental or enhanced team functioning (see section 3.1.1.3 for a full explanation of these predictions).

On the other hand, if the stereotypical attributions that team members make are incongruent with an individual's true attributes, the team may assign members to tasks that are inappropriate and that do not take advantage of their true potential (McGrath et al, 1995). This would lead to a detrimental effect on the team's performance (McGrath et al, 1995) and, presumably, team processes. Another possible consequence of erroneous attributions is that team members may interact with each other in inappropriate ways, which would lead to conflict and co-operation problems within the team. In addition, research has shown that subsequent information processing is biased towards confirming existing attributions (e.g. Sutton & Woodman, 1989) and therefore erroneous attributions are unlikely to be countered by behaviour that contradicts expectations. Therefore, if men and women do not conform to behavioural expectations, the Expectations Approach would predict that increasing diversity would be detrimental to team functioning.

The Expectations Approach would also predict differential gender diversity effects in different types of teams. In particular, Gender-Role Theory states that where occupational role is salient, gender differences will be reduced. This suggests that the effect of gender diversity may be reduced in multi-disciplinary teams, since in these

teams the different occupational roles held by team members are likely to make role (rather than gender) salient. Similarly, research relating to Expectations-States Theory suggests that gender differences would be reduced in situations where occupational status is defined (Wood & Karten, 1986). This implies that teams with highly defined status hierarchies will be less affected by gender diversity than teams where all team members have a similar occupational status or where occupational status is not defined.

Gender-Role Theory also states that women who violate expectations will experience greater role conflict, and further, that their behaviour will be seen as more extreme than that of men (whose behaviour is less likely to be contrary to expectations). Consequently, this suggests that diversity may have a greater effect on women than on men. In addition, it suggests that increasing proportions of women may have a more detrimental impact than increasing proportions of men.

3.1.3 Summary of the Demographic Differences Perspective

The Demographic Differences Perspective proposes that gender differences in the psychological attributes and behaviour of men and women (either actual or expected) will affect team functioning. Although the exact nature of the effect is not specified, one possible prediction is that, if gender differences exist, male-dominated teams will be more task focused and female dominated teams will be more socio-emotionally focused. In addition, the Expectations Approach suggests that if gender expectations are violated gender diversity will have a detrimental effect on team functioning. The Expectations Approach also suggests that women may be more affected by gender diversity than men, that increasing proportions of women may be more detrimental to team processes than increasing proportions of men, and that there may be differential effects of gender diversity across different types of team.

3.2 AFFECT PERSPECTIVE

The approaches outlined above concentrate on how differences, or expected differences, in the psychological attributes and behaviour of men and women may affect team functioning. In contrast Social Identity Theory and the Similarity Attraction Paradigm propose that affective reactions drive individuals to interact more favourably with members of their own social groups.

3.2.1 Social Identity Theory

3.2.1.1 Key Principles of Social Identity Theory

Social Identity Theory (e.g. Tajfel, 1978; Tajfel, 1982; Tajfel & Turner, 1982; Ashforth & Mael, 1989) suggests that interactions between members of different social groups are motivated by an inherent need to maintain high self-esteem and a positive self-image. More recently Brewer (1991) has extended this by suggesting in her Optimal Distinctiveness Theory that both a need for inclusion and a need for differentiation drive social identity. It is proposed that, in order to achieve and maintain these basic human needs individuals engage in several perceptual biases. One such bias is that people seek to maximise the distinctiveness between the group to which they belong (in-group) and that to which they don't (out-group) (Kramer, 1991). This is said to be achieved by over-estimating the extent to which there are differences between the in-group and out-group, whilst under-estimating the differences within the groups (Tajfel & Wilkes, 1963). There is also proposed to be an out-group homogeneity effect, which refers to the perception that out-group members are more homogeneous (similar to one another) than in-group members (e.g. Tajfel & Wilkes, 1963; Quattrone & Jones,

1980). In addition, individuals are said to exhibit in-group favouritism in terms of their perceptions, attitudes and behaviours, and also make comparisons between the in-group and out-groups that will enhance the image of the social group to which they belong, and cause out-group members to be perceived negatively (Tajfel & Turner, 1979; Ashforth & Mael, 1989; Hinkle & Brown, 1990; Giles & Coupland, 1991).

However, these effects are only thought to occur under certain circumstances. First, Turner & Brown (1978: pp 207) stated that "subordinate groups will seek positive distinctiveness to the degree that their inferiority is not perceived as inherent, immutable or fully legitimate". However, when a social groups inferiority is perceived as inherent, immutable or legitimate individuals may try to maintain a positive identity by psychologically joining the high status out-group and distancing themselves from their own social group (Tajfel & Turner, 1979). This could be the explanation behind women sometimes being found to discriminate against other women; for example, women recruiters perceiving male applicants as more similar to themselves and more qualified than female applicants (Graves & Powell, 1996).

Second, if it is to form the basis for identification the social category needs to be salient (Graves & Powell, 1996). Wharton (1992) argued that gender might be more salient as a social category to women than it is to men, because gender more frequently negatively effects the experiences of women. Gender may also be particularly salient in contexts where one gender is under represented (Kanter, 1977a; Deaux & Major, 1987). In addition, it may be that under some circumstances (e.g. high group cohesion, high interdependence) the team membership is more salient than gender membership. Under such circumstance the in-group–out-group effects between men and women in the team are likely to be reduced.

Finally, it is suggested that intergroup discrimination can be reduced by contact between the in- and out-group (Brewer & Kramer, 1985; Fiske & Taylor, 1991). However, it has also been suggested that such contact will only reduce conflict if the in- and out-groups work together in order to achieve superordinate goals (Sherif, 1966).

3.2.1.2 Supportive Evidence for Social Identity Theory

There is considerable evidence supporting Social Identity Theory. Individuals have been shown to make attribution errors about out-group members (Heider, 1958; Kelley, 1967; Taylor et al, 1978; Turner, 1987), to show a preference towards interacting with in-group members' (Tajfel, 1982; Abrams & Hogg, 1990), and to perceive out-group members as less honest, trustworthy and co-operative than members of their own group (Brewer, 1979). In fact Tajfel (1982) reviewed 30 studies that used minimal groups and found that all showed evidence of in-group bias. In addition, a variety of factors have been found to influence the categorisation process that is necessary in order for intergroup comparisons to occur. For example, the salience of the out-group (Turner, 1981), the status of the social groups (Mullen, Brown & Smith, 1992) and the degree to which the characteristics that distinguish between groups are distinctive (Oakes & Turner, 1986) have all been found to be important.

Further, there is also experimental evidence that intergroup differentiation increases self-esteem (Oakes & Turner, 1980; Hogg, Turner, Nascimento-Schulze, & Spriggs, 1986) and clinical research has demonstrated that there are severe negative consequences of having low self-esteem (e.g. Martin, Abramson & Alloy, 1984).

In terms of conflict reduction there is substantial empirical support for the proposition that contact can reduce the consequences of in- and out-group distinctions (Brewer & Kramer, 1985; Brewer & Miller, 1984). However it has also been

demonstrated that there needs to be a set of common goals in order for increased contact to be effective in reducing discrimination (Sherif and Sherif, 1953; Sherif, White & Harvey, 1955; Sherif, et al, 1961; Amir, 1969). Since a fundamental element of team working is having a set of common goals (see section 2.1.1) this is likely to be of importance in the consideration of team gender diversity. For instance it may be that different types of teams will be affected to a greater or lesser extent depending upon the importance and salience of their common goals. Although, there is some evidence that such goals only reduce conflict if they the are achieved (Worchel, Andreoli & Folger, 1977).

Despite all this experimental evidence there is some concern as to whether such intergroup behaviour occurs naturally. For example, Hinkle & Brown (1990) concluded that the few studies that have investigated whether such comparisons occur spontaneously have found little supportive evidence. However, Social Identity Theory is so well established and supported so consistently within minimal groups, that it is likely that applied studies are just not investigating the effects appropriately. For example, it may be that in some situations effects are not detected because the social groups are not salient. There are certainly examples of real life settings where social identity processes appear to have occurred (e.g. Bristol Riots: Reicher, 1984; Reicher & Potter, 1985).

Finally, research supports the proposition that Social Identity processes can occur in terms of gender. In particular, gender has been found to be a basis for the spontaneous categorisation of individuals (e.g. Stagnor, Lynch, Duan & Glass, 1992) and a social categorisation that can form the basis of social identity (Brewer & Miller, 1984; Duchon, Green & Taber, 1986).

3.2.1.3 Consequences of Social Identity Theory for Team Gender Diversity

Social Identity Theory posits that in order to maintain high self-esteem and a positive self-image individuals will show favouritism towards members of their own social group, discriminate against other social groups, perceive out-group members as similar to each other, and perceive large differences between in-group and out-group members. These in-group – out-group distinctions and the perceptual biases that result are likely to have several consequences for the functioning of gender diverse teams.

Gender segregation is likely to develop within mixed-sex teams (Northcraft et al, 1995; Tolbert et al, 1995), with team members tending to interact more frequently and more favourably with those team members of the same gender as themselves. In addition, negative stereotypes, distrust, competition and rivalries between men and women will exist (Tajfel, 1970; Brewer, 1979; Scholpler & Insko, 1992; Armstrong & Cole, 1995; Brewer, 1995), and discomfort and anxiety will be experienced when interaction occurs across sexes (Stephan & Stephan, 1985; Kramer, 1989). Further, as was argued in the Expectations Approach, because subsequent information processing is biased towards confirming existing attributions (e.g. Sutton & Woodman, 1989) a vicious cycle of erroneous attributions is likely to occur. These effects are likely to be detrimental to team processes and outcomes (Tsui, Eagan & O'Reilly, 1992).

Social Identity Theory also suggests that the salience of gender in a given situation is important. This leads to several additional propositions. Firstly, because women more often experience negative effects of gender, gender may be more salient to women. Social Identity Theory therefore suggests (as did Gender-Role Theory) that men and women may be affected differently by the gender diversity of their teams. In particular, it is expected that women will be more affected by gender diversity than men. In addition, Social Identity Theory suggests that gender may be more salient in

contexts where gender proportions are skewed. Consequently, there may be differential effects of gender diversity across organisational contexts with different proportions of men and women in the context as a whole. It is also likely that in situations where team membership is more salient than gender membership the gender relations within the team will be less detrimental. Finally, research suggests that there may be less intergroup discrimination within teams with more pervasive sets of common goals. That is, the more defined and relevant the team goals the less gender segregation there will be within the team.

3.2.2 Similarity Attraction Paradigm

3.2.2.1 Key Principles of the Similarity Attraction Paradigm

Most of the research into diversity has been conducted within the conceptual foundation of the Similarity-Attraction Paradigm (e.g. Tsui & O'Reilly, 1989; Jackson et al, 1991; Allen, West & Nolan, 1996; Mayo, Meindl & Pastor, 1996). This approach also involves affect, but it is the cause rather than the reason for the differential treatment of men and women. Whereas Social Identity Theory posits that individuals will behave differentially towards men and women in order to achieve positive affect, the Similarity Attraction Paradigm suggests that attraction to similar others (i.e. affect) leads to differential treatment of those who are similar and different from oneself.

The Similarity Attraction Paradigm, developed by Byrne (1971), also proposes that this attraction leads to increased interaction with, and more positive evaluation of, people who we consider to be similar to ourselves (Tsui, Xin & Egan, 1995). In a similar vein, the Selection-Attraction-Attrition Model (Schneider, 1987) posits that within an organisation (and therefore presumably also a team) people who are dissimilar

are likely to feel discomfort and alienation, and are therefore more likely to leave than those who feel comfortable because of their similarity to others[3]. The Similarity-Attraction Paradigm suggests that the attraction to those similar to oneself in terms of demography is likely to occur because individuals infer that their attitudes, values and beliefs will be similar (Tsui, Egan & O'Reilly, 1992). However, it could also occur because people assume that individuals from the same demographic group as themselves will have similar experiences and challenges within the workplace.

3.2.2.2 Supportive Evidence for the Similarity Attraction Paradigm

A considerable body of evidence indicates that people are attracted to those who are similar to themselves in terms of attributes, demographic characteristics and activities (e.g. Byrne, Clore & Worchel, 1966; Byrne, 1971; Murray, 1982; Thomas, 1990; Ibarra, 1992). In addition, it has been well established that individuals show greater liking and are more comfortable in the company of people who they perceive to be similar to themselves (e.g. Berscheid, 1985; Sears, Freedman & Peplau, 1985). Of particular relevance is the fact that gender has been found to be an important basis for interpersonal attraction (e.g. Murray, 1982; Thomas, 1990; Ibarra, 1992).

Individuals have also been found to choose to interact with members of their own social group (e.g. Stephan, 1978), and race and gender similarity have been positively linked to number of friendship ties (Lincoln & Miller, 1979). Similarly, Zenger & Lawrence (1989) found that similarity in terms of age and tenure was positively related to frequency of technical communications. Plus, demographic similarity in teams has been found to be positively related to increased turnover (e.g. McCain, O'Reilly &

[3] The Section-Attraction-Attrition Model (Schneider, 1987) is far more expansive than explained here, encompassing the selection of individuals to organisations, their attraction to the organisation, and the reasons for exiting the organisation. However only the parts relevant to team diversity are mentioned here.

Pfeffer, 1983, Wagner, Pfeffer & O'Reilly, 1984; Pfeffer & O'Reilly, 1987; Jackson et al, 1991). However, although all this evidence is supportive (i.e. it provides correlations occurring in the hypothesised direction) there appears to be no evidence concerning whether or not it is attraction to similar others per se that is causing the effects, and other theories (in particular Social Identity Theory) could also explain the findings.

3.2.2.3 Consequences of the Similarity Attraction Paradigm for Team Gender Diversity

The Similarity Attraction Paradigm proposes that men and women are attracted to those who are of a similar gender to themselves. As a consequence it is suggested that an individual will interact with and show favouritism towards members of their own gender. Therefore, within the Similarity Attraction Paradigm the functioning of gender diverse teams would be expected to be affected by men and women preferring to interact with members of their own sex, and by team members evaluating members of the opposite sex more negatively than members of the same sex. This is likely to lead to gender segregation within the team (as was predicted by Social Identity Theory), and discomfort and isolation when team members have few (or no) team members of the same gender as themselves.

3.2.3 Summary of the Affect Perspective

Although Social Identity Theory and the Similarity Paradigm propose different underlying mechanisms by which diversity effects will occur they make very similar predictions about what the effect will be. That is, they both propose that affective reactions lead to individuals preferring to interact with their own gender and discriminating against the opposite gender. The theories within this perspective

therefore suggest that gender segregation will occur within mixed-gender teams and conflict between men and women will be observed. This is likely to disrupt the functioning of mixed-sex teams, and individuals who are in teams with few or no other members of their gender will feel discomfort and isolation. In addition, Social Identity Theory suggests that women will be more effected by gender diversity than men, and that there may be differential effects of gender diversity across different organisational settings, and between teams with differing degrees of team identification and/or team goals.

3.3 NUMERICAL PROPORTIONS PERSPECTIVE

All the above approaches consider how gender heterogeneity, as opposed to gender homogeneity, will affect the team. In contrast, the numerical proportions approach concentrates on the effects of relative proportions of men and women in mixed-sex settings. Theories within such a framework argue that the dynamics of gender diversity are fundamentally different in teams with varying proportions of the two sexes. However, the theories differ about exactly what these dynamics are, and the consequences they entail.

3.3.1 Social Contact Theories

3.3.1.1 Key Principles of Social Contact Theories

Social Contact Theories are based upon Blau's (1977) assumption that increases in the size of the minority will lead to the majority having increased social contact with the minority. It is proposed that this increased contact and familiarity with the minority group will cause a reduction in the stereotypical and prejudicial views that majority

group members hold about the minorities (e.g. Allport, 1954; Pettigrew, 1986). Consequently it is suggested that discrimination and negative attitudes towards the minority will be reduced (Tolbert et al, 1995)[4].

A similar proposition is that of Kanters (1977 a & b) theory on tokenism. Kanter argued that the dynamics and processes of organisational units are qualitatively different in units with different proportions of social groups. In particular, Kanter focused on organisational units where there is a large proportion of the majority and only a small proportion of the minority. Kanter referred to these units as skewed, and because of their small numbers the minority are called "tokens". Kanter (1977a: pp 971) argued that the "proportional rarity" of tokens leads to three perceptual processes; increased visibility, polarisation of the social groups, and assimilation (use of stereotypes). She proposed that not only do these perceptual processes create performance pressures for the tokens, they also cause discriminatory behaviour by the majority. Since increases in the size of the minority reduces their salience and increases the contact that the majority group members have with the minorities, the perceptual processes provoked by the presence of the minority group will be less extreme (i.e. the minority individuals will be less visible, less polarised, and subjected to less assimilation). This will in turn decrease the level of discriminatory behaviour exhibited by the majority (Kanter, 1977 a & b).

3.3.1.2 Supportive Evidence for Social Contact Theories

Ample evidence has been found that supports the Social Contact Theories within the gender literature. For instance, women in situations that contained only a small proportion of women were found to be more socially isolated (Segal, 1962; Kanter, 1977 a & b; Spangler, Gordon & Pipkin, 1978; Brass, 1985; Ibarra, 1992), feel more

[4] It is important to note that this has strong parallels with the research investigating the reduction of intergroup conflict which is associated with Social Identity Theory (see section 3.2.1.2).

restricted by the stereotype of 'women' (Ibarra, 1992), feel greater performance pressures (Segal, 1962; Wolman & Frank, 1975; Spangler, Gordon & Pipkin, 1978) and feel they had less influence (Ibarra, 1992) than women in situations where the gender representation was more balanced. In addition, in male dominated settings women have been found to receive more negative evaluations than men (Nieva & Gutek, 1980; Ruble, Cohen & Ruble, 1984; Swim, Borgida, Maruyama & Myers, 1989). However, although Taylor et al (1978) also found that there were negative effects of token status and an increase the salience of the token, only weak evidence was found for tokens being perceived in gender-stereotypic ways.

Interestingly, there is also considerable evidence suggesting that the tokenism effects are far stronger for women than men. For example, it was found that the gender of tokens was of greater salience for female than male tokens (Crocker & McGraw, 1984). In addition, although female tokens experience the negative treatment that is outlined above, male tokens do not seem to suffer in this way (Schreiber, 1979; O'Farrell & Harlan, 1982; Fairhurst & Snavely, 1983; Gutek, 1985; Floge & Merrill, 1986; Wharton & Baron, 1987; Konrad & Gutek, 1992).

3.3.1.3 Consequences of Social Contact Theories for Team Gender Diversity

Social Contact Theories suggest that increasing proportions of the minority will lead to greater contact between the majority and the minority, which in turn will create better relations between the social groups. Thus, from Social Contact Theory we would expect greater proportions of the minority gender to be associated with higher team functioning. However, research evidence also suggests there may be a moderating factor of gender, with women being more likely than men to be affected by being in the minority position. Interestingly, Gender-Role Theory (see section 3.1.2.3) and Social

restricted by the stereotype of 'women' (Ibarra, 1992), feel greater performance pressures (Segal, 1962; Wolman & Frank, 1975; Spangler, Gordon & Pipkin, 1978) and feel they had less influence (Ibarra, 1992) than women in situations where the gender representation was more balanced. In addition, in male dominated settings women have been found to receive more negative evaluations than men (Nieva & Gutek, 1980; Ruble, Cohen & Ruble, 1984; Swim, Borgida, Maruyama & Myers, 1989). However, although Taylor et al (1978) also found that there were negative effects of token status and an increase the salience of the token, only weak evidence was found for tokens being perceived in gender-stereotypic ways.

Interestingly, there is also considerable evidence suggesting that the tokenism effects are far stronger for women than men. For example, it was found that the gender of tokens was of greater salience for female than male tokens (Crocker & McGraw, 1984). In addition, although female tokens experience the negative treatment that is outlined above, male tokens do not seem to suffer in this way (Schreiber, 1979; O'Farrell & Harlan, 1982; Fairhurst & Snavely, 1983; Gutek, 1985; Floge & Merrill, 1986; Wharton & Baron, 1987; Konrad & Gutek, 1992).

3.3.1.3 Consequences of Social Contact Theories for Team Gender Diversity

Social Contact Theories suggest that increasing proportions of the minority will lead to greater contact between the majority and the minority, which in turn will create better relations between the social groups. Thus, from Social Contact Theory we would expect greater proportions of the minority gender to be associated with higher team functioning. However, research evidence also suggests there may be a moderating factor of gender, with women being more likely than men to be affected by being in the minority position. Interestingly, Gender-Role Theory (see section 3.1.2.3) and Social

Identity Theory (see section 3.2.1.3) also suggested such gender differences in the reaction to diversity.

3.3.2 Social Competition Theories

3.3.2.1 Key Principles of Social Competition Theories

Social Competition Theory also suggests that differing proportions of the minority group will influence the social experiences of the team. However the predictions that it makes are in direct contrast to those of Social Contact Theories. Arising from research on racial relations (South, Bonjean, Markham & Corder, 1982; Tolbert, Andrews & Simon, 1995) several theorists have argued that intergroup relations become strained because minorities are perceived as a threat to the security of the majority (e.g. Blalock, 1957; Blalock, 1967; Bonacich, 1972). It is argued that as the proportional representation of the minority increases, the majority are under more threat and therefore the members of the minority group are more likely to be rejected, discriminated against, and subjected to hostility. This is expected to continue to be the case until the proportion of the minority group reaches a level that enables them to have sufficient power to counter such discriminatory behaviour (Tolbert et al, 1995).

Although all Social Competition Theories agree with this, theorists have differed in the emphasis they place upon the resources that are at the basis of such social competition. For example, Blalock discusses how minorities threaten the power of the majority and consequently threaten the majority's share of scarce resources. Bonacich (1972) concentrates solely on the economic threat that minorities pose, whilst others suggest that men fear that women would disrupt cohesive and stable work relations among men (O'Farrell & Harlon, 1982). In addition, Blau's (1977) proposition that

increased heterogeneity leads to increased intergroup contact is also used within this perspective, since increased contact not only encourages positive relations between social groups, it can also increase the likelihood of conflict between social groups (Blau, 1977; Sampson, 1984). Further, Blau (1977) argued that minority group members would have greater contact with majority members when they were in a token status than when they were represented in greater proportions. Thus, tokens are predicted by Blau (1977) to be less isolated than non-tokens. This directly counters the ideas of Kanter (1977) (see section 3.3.1.1), and it must be noted that Blau's propositions feed into both the Social Contact and Social Competition Theories.

3.3.2.2 Supportive Evidence for Social Competition Theories

Substantial support for the Social Competition Theories exists within the race relations literature (e.g. Brown & Fuguitt, 1972; Reed, 1972; Frisbie & Neidert, 1977; Giles, 1977; Sampson, 1984; Tienda & Lii, 1987; Beck & Tolnay, 1990), but more importantly for the current discussion there is also some supportive evidence within the gender literature.

Research evidence shows that wages have declined in occupations that have experienced an increase in the representation of women (Pfeffer & Davis-Blake, 1987). Similarly, as the proportion of women in administration jobs has increased the wages for the positions filled by women have declined (Reskin & Roos, 1990). This devaluation suggests that there is less social value placed upon "women's work" than on "men's work" and it therefore seems as though there is some support for the hypothesis that women joining the workforce pose an economic threat to men.

In terms of the reaction of the majority to increased proportions of the minority Tolbert et al (1995) report research that supports the proposition that men try to resist

increasing proportions of women. In a longitudinal study of academic departments they found that departments that had greater proportions of women staff at time one were less likely to recruit more women by time two. There is also evidence which suggests that increasing proportions of the minority decrease the social contact between the majority and the minority. For example, South et al (1982) found that male co-workers were perceived to give significantly less support to women when the proportion of women in a department was large, and as the proportion of women increased the frequency of contact that women had with both men and women decreased. In addition, other research has found that men who work in settings that contain a relatively large proportion of women report lower levels of psychological attachment to the organisation than men who work in settings with fewer women (Tsui, Egan & O'Reilly, 1992; Allmendinger & Hackman, 1993).

Therefore, in terms of gender, we find only partial evidence in support of Social Competition Theory. This is likely to be due to the fact that few studies have tried to test the propositions of the Social Competition Theory in relation to gender and consequently many elements of the theory remain untested. For example, there is no evidence regarding whether or not men actually feel threatened by increasing proportions of the minority. Since Social Competition Theory is well supported within the race relations literature the partial support within gender literature is less concerning. However, it cannot be taken for granted that the dynamics of race relations can be generalised to gender relations.

3.3.2.3 Consequences of Social Competition Theories for Team Gender Diversity

Social Competition Theories suggest that as the numerical proportions of a minority increase the majority will feel threatened, resulting in a deterioration of

intergroup relations with increased hostility and discrimination towards the minority. Thus, from Social Competition Theory we would expect greater proportions of the minority gender to be associated with lower team functioning. In addition, it could be argued that because women have a 'minority status' in society generally, the negative effects of increasing proportions of the minority will be greater when women are in the minority than when men are in the minority (note that a similar argument was made within Gender-Role Theory, see section 3.1.2.3).

3.3.3 Summary of the Numerical Proportions Perspective

The two theories within the Numerical Proportions Perspective differ dramatically in the predictions they make. Social Contact Theory suggests that due to increased contact between the social groups intergroup relations will improve with increasing proportions of the minority. In contrast, Social Competition Theory suggests that increasing proportions of the minority will be a threat to the majority and thus intergroup relations will deteriorate. In addition, Social Contact Theory suggests that women will be more effected by gender diversity than men. Plus, Social Competition Theory suggests that increasing proportions of women will be more detrimental to team functioning than increasing proportions of men (see section 3.1.2.3 for a similar proposition based on Gender-Role Theory).

3.4 COMPARISON OF THE THEORIES

Theoretical developments within the field of team diversity are sparse. In fact only theories nested within the Numerical Proportions Perspective specifically address diversity related issues and even these are related to larger units than teams. The other theories outlined within this chapter are concerned more with gender relations within

society generally. However, their propositions can be used to infer what might occur within different gender compositional teams. This means that there is no diversity theory as such but rather a handful of theories that can be used to enlighten our thinking about team diversity.

Despite this, the theories outlined within this chapter do highlight some important issues. First, the Demographic Differences Perspectives posits that demographic characteristics are aligned with differences (either actual or expected) in psychological attributes and behaviour. Second, the Affect Perspective argues that affective reactions drive individuals to interact more favourably with members of their own social group. Third, the Numerical Proportions Perspective suggests that the dynamics of gender diversity are fundamentally different in teams with varying proportions of the two sexes.

Whilst all the theories nested within these perspectives suggest that team gender diversity will have an effect on team functioning, it is unclear as to whether diversity will have a positive or negative effect. Social Contact Theory suggests that gender relations, and therefore presumably the team functioning, will improve with more balanced gender proportions. In contrast, the Affective Approach (Social Identity Theory and Similarity Attraction Theories), Social Competition Theory and the Expectations Approach (if expectations are contradicted) suggest that gender relations, and presumably therefore team functioning, will deteriorate in gender balanced settings. It may of course be that gender diversity has both positive and negative effects, and this possibility is addressed specifically within the Demographic Differences Perspective. In addition, the Demographic Differences Perspective suggests that, if gender differences exist, female dominated and male dominated teams might be qualitatively different. In

particular, male dominated teams are expected to be task focused and female dominated teams are expected to be socio-emotionally focused.

In addition to suggesting how gender relations may improve or deteriorate with varying proportions of men and women the theories also highlight particular issues that may be important to consider within diversity research. Several theories (Gender-Role Theory, Social Identity Theory, Social Contact Theory) suggest that women will be more effected by gender diversity than men. Further, Gender-Role Theory, Expectations-States Theory, and Social Identity Theory all suggest that gender diversity effects may differ across type of team. However, the aspects of team working that are focused on within each theory differ. Gender-Role Theory suggests that multi-disciplinary teams may be less effected by gender diversity than teams that contain individuals with similar work roles. Whereas, Expectations-States Theory implies that the effect of gender diversity may be reduced in teams with highly defined status hierarchies. In contrast, Social Identity Theory suggests that gender diversity will have less of an effect in teams with a strong sense of team identity and in teams in which team members share a pervasive set of common goals.

Another issue that arises from a review of the theories is whether the effects of female and male minorities are equivalent. Both Gender-Role Theory and Social Competition Theory suggest that the effects of increasing proportions of women will be more detrimental to team functioning than increasing proportions of men. Similarly, research based on Social Contact Theories suggests that a token woman is more detrimental to gender relations than a token man.

A final issue is the effect of organisational context. Social Identity Theory suggests that gender is more salient when gender proportions in the wider context are

skewed. Therefore it may be that gender diversity has differential effects across occupational settings with differing gender proportions.

3.5 CHAPTER SUMMARY

Despite supporting the proposition that gender diversity is an important factor in team functioning, and suggesting possible explanations of why effects may occur, the theories do not clarify how differing proportions of men and women will affect team functioning. Whilst some theories propose that diversity will be beneficial to team functioning, others propose that diversity will have a detrimental impact on team functioning. In addition, although each theory has evidence that supports the hypotheses that are derived from its principles, there is little evidence for the mechanisms proposed to be operating. Further, none of the theories have been directly tested within a team diversity paradigm.

Therefore, until further research is conducted in a way that can discriminate between the hypotheses of each of the theories there are few conclusions that can be made. It is possible that each theory partially explains team diversity, or that different mechanisms occur within different contexts. Making specific hypotheses about what effects may occur would therefore seem unwise given the absence of a substantially supported theory of team diversity. However, in terms of the objective of this chapter it can be concluded that there is theoretical justification for expecting team gender diversity to affect team functioning. In addition, the theories highlight some important avenues for research. Of particular note is the possibility that there will be differential effects of diversity across gender, team type and organisational context.

CHAPTER 4

RESEARCH INTO TEAM GENDER DIVERSITY

This chapter provides a review of research into the effects of team gender diversity. Despite an expansive body of research investigating various types of team diversity and an abundance of laboratory based research investigating gender diversity in adhoc groups, relatively few studies have specifically investigated team gender diversity in applied settings. Further, those studies that are relevant bring the research field little closer to any definitive understanding of how gender diversity affects team functioning. This 'problem' is a result of studies having investigated very different aspects of team functioning and having taken very different approaches to the topic. A chronological account of this literature would therefore provide a sporadic account with few (if any) distinct themes emerging. Thus, in order to provide clarity and structure, this review is organised around issues; consequently it must be noted that the findings discussed in each of the sections are often from the same studies.

In addition, whilst there are large bodies of research that are indirectly related to the issue of team gender diversity their findings are too broad to cover within a specifically directed review. Reviewing the literature on team diversity is complex since it spans academic disciplines, focuses on numerous different types of diversity, and investigates a vast array of dependent variables (Milliken & Martins, 1996). In order to provide a coherent and comprehensive review of the literature it is therefore necessary to focus on those studies that are most relevant to the topic in question. Without such limitations a review either becomes unwieldy or it only touches the surface of the findings that exist. The following section therefore highlights the areas of research that are most relevant to our understanding of the effect of gender diversity on the

functioning of organisational teams, and sets the boundaries of which studies will be reviewed.

4.1 FOCUS OF THE LITERATURE REVIEW

Since the late 1980s the diversity research field has flourished and growing numbers of researchers have recognised the importance of team diversity, both for the team and for the individual themselves. Indeed research has found that most types of diversity have an effect, with a recent review of the literature noting diversity effects in: race/ethnic background, gender, age, personality characteristics and values, educational background, functional background, occupational background, industry experience, organisational membership, organisational tenure and team tenure (Milliken & Martins, 1996). Past research also reports that a large number of variables have been found to be affected by team diversity. For example the Milliken & Martins (1996) review notes that diversity was associated with numerous affective and performance related outcomes including: performance, innovation, tenure, absence, co-operativeness, agreement, and commitment.

However, there is considerable evidence that different types of diversity have differential effects on teams and their members (e.g. Triandis et al, 1965; Zenger & Lawrence, 1989; Smith, Smith, Olian, Sims, O'Bannon & Scully, 1994; Alexander et al, 1995; DiTomaso, Cordero & Farris, 1996). It is therefore not possible to make definitive conclusions about gender diversity from research into other types of diversity. Nonetheless, it is important to be aware that research into other types of diversity exists and that the findings may provide an indication of important issues for gender diversity research to consider. Thus, whilst this chapter will focus primarily on the team gender diversity literature, research findings from other types of diversity will be referred to

where they are considered to have particular implications or relevance to gender diversity (for reviews of all diversity research see Milliken & Martins, 1996; Williams & O'Reilly, 1998).

It is also important to be aware that historically gender diversity has been investigated to a greater extent than is reviewed in this chapter. In the 1960s and 70s an abundance of group diversity research was conducted within laboratory based settings. In such research gender diversity has been found to affect aspects of team working such as performance (e.g. Hoffman, Harburg & Maier, 1962; Kent & McGrath, 1969; Clement & Schiereck, 1973), interaction (e.g. Aries, 1976; Kimble, Yoshikawa & Zohr, 1981; Smith-Lovin & Brody 1989), conformity (e.g. Reitan & Shaw, 1964), cohesion (Mayo, Meindl & Pastor, 1996) and emotional climate (Mayo et al, 1996).

However, although such laboratory based research is interesting and provides substantial evidence of both gender and gender diversity effects within groups, the degree to which the findings are generalisable to real organisational teams remains debatable. Laboratory research has tended to use ad hoc groups that have no history and no future, and which are not placed within an organisational context. Consequently, it would be inappropriate to simply infer that research findings from the laboratory will be applicable to real teams. This was indeed found to be the case within studies into gender differences in leadership; in a meta-analysis Eagly & Johnson (1990) concluded that whilst gender differences in task and socio-emotionally oriented leadership style were consistently found within laboratory and assessment[1] studies no differences were found within organisational studies.

Other studies have found gender diversity effects in quasi-laboratory settings, such as teaching groups (e.g. Alagna, Reddy & Collins, 1982; Martins, Milliken,

[1] Defined as studies of individuals who had not been selected for leadership roles (Eagly & Johnson, 1990).

Wiseneld & Salgado, 1999) and adhoc groups of company employees (e.g. Cady & Valentine, 1999). These groups, whilst not teams in the sense of organisational teams, are at least real groups with a purpose. However, whilst teaching groups do have a history and some future (even if it is only for the length of a course) they use students whose behaviour may not be representative of organisational employees. In addition, whilst adhoc groups of employees may be 'true' subjects, in the sense that they all work in a specific company, their groups have no history or future. Therefore, although both teaching and adhoc organisational groups are more relevant than pure laboratory based groups, they still do not have all the fundamental elements that characterise organisational teams (see section 2.1.1). There is consequently still a concern that their results may not be generalisable to organisational teams in which members work together in an on-going way to fulfil an organisational function.

Finally, research has investigated the effects of gender diversity in organisational units other than teams. Such research adds support to the proposition that gender diversity is an important factor at work, although contrasting results do lead to some unclear findings. For example, Tsui & O'Reilly (1989) found that gender dissimilarity between supervisors and subordinates was associated with greater subordinate role ambiguity and conflict, unfavourable performance evaluations and less attraction felt by supervisors towards their subordinates. In contrast, other studies have found performance evaluations to be unaffected by supervisor-subordinate gender dissimilarity (e.g. Mobley, 1982; Pulakos, Oppler, White & Borman, 1989). A substantial body of research has also looked at the effect of the gender diversity of the organisation or occupation as a whole. This research again identifies gender diversity as having an important and wide-ranging effect (e.g. Spangler et al, 1978; Gutek, 1985; Kossek & Zonia, 1993). However, such research, whilst both interesting and supportive

of the proposition that gender diversity is an important issue, is not directly relevant to an understanding of gender diversity in teams. This is primarily because the dynamics of supervisor-subordinate relationships and relationships between employees at work in general are very distinct from team working, where a number of individuals interact and work interdependently in the pursuit of a set of common goals (see section 2.1.1). Therefore, as with the research into other types of diversity and the non-field research, this review will not provide comprehensive coverage of the literature investigating gender diversity of organisational units other than teams. Rather, studies will be referred to when and if they are pertinent to the issues raised within the team gender diversity literature.

This chapter therefore focuses primarily on research into gender diversity in organisational teams. However, where relevant, studies are drawn from both the wider diversity literature and from studies of gender diversity conducted in laboratory settings, quasi-laboratory settings, or organisational units other than teams.

4.2 THE IMPACT OF TEAM GENDER DIVERSITY

In an extensive review of the literature only 13 studies were found to have investigated team gender diversity within a field setting. Despite such a small body of research a clearer understanding of the effects of gender diversity is gained by dividing the discussion into findings relating to team outcomes (e.g. team performance), team processes (e.g. team cohesion) and outcomes not directly related to the team (e.g. job satisfaction).

4.2.1 Team Outcomes

Only five studies were identified that investigated the effect of gender diversity on the outcomes of organisational teams. At the group level of analyses it has been found that the greater the proportion of men the less teams were found to agree on company strategy (Knight, Pearce, Smith, Olian, Sims, Smith & Flood, 1997). In contrast, at the individual level, three studies found no gender diversity effects on team performance (DiTomaso et al, 1996; O'Reilly, Williams & Barsade, 1997; O'Reilly, Williams & Barsade, 1999). However Pelled (1997), in an individual level of analysis, did detect indirect negative effects of gender diversity on team members' perceptions of their team productivity via increased levels of emotional conflict. Thus, past research into the effect that gender diversity has on organisational team outcomes does not provide any definitive answers. It does however appear that gender diversity can, at least sometimes, have an effect on team outcomes. In addition, it seems that gender diversity may effect team outcomes via its influence on team processes.

Interestingly, research into other forms of diversity also highlights the importance of team processes in understanding the effect of diversity on team outcomes. In particular, Smith et al (1994) found that in Top Management Teams diversity of experience had a negative effect on performance both directly and indirectly through its detrimental effect on informal communication and social integration. Similarly, O'Reilly, Caldwell & Barnett (1989) found that, at the group level of analysis, homogeneity in terms of tenure was associated with lower turnover, and that social integration mediated this effect.

Finally, conflicting findings regarding the effect that gender diversity has on team outcomes is also evidenced in laboratory based research. For example, whilst some

studies found that mixed-sex groups outperformed same-sex groups (e.g. Hoffman & Maier, 1961 a; Hoffman & Maier, 1961 b; Hoffman et al, 1962; Hoffman, 1965), other studies report evidence that suggests that same-sex groups have supremacy (e.g. Clement & Schiereck, 1973; Hoffman et al, 1962; Kent & McGrath, 1969; Mabry, 1985). Although researchers have offered many different explanations for these contrasting results, none have been empirically tested. However, a meta-analysis undertaken by Wood (1987) suggests that the effect of gender diversity is dependent upon the task type, the setting and the type of interaction that the task requires. This conclusion reiterates the suggestion based upon several of the theories outlined in Chapter 2 that both the type of team and the organisational context will moderate the effect that team gender diversity has on team functioning. These issues are addressed further within section 4.3.

Thus, past research provides an inconsistent pattern of findings regarding the effect that gender diversity has on team outcomes. However, laboratory based research has indicated that the type of team and the organisational context might be critical moderators. In addition, Pelled (1997) suggests that the key to understanding the effect of gender diversity may be its effect on team processes, a conclusion reiterated by research into other forms of diversity.

4.2.2 Team Processes

A number of studies into team gender diversity have investigated its effect on team processes. In particular they have concentrated on affective reactions within teams such as cohesion, attraction to the team, social integration, and conflict.

Allen et al (1996) found that the more dissimilar individuals were in terms of gender from their team-mates, the more attracted they were to their team. Some what

contradictory to this is the finding of DiTomaso et al (1996) that individuals who were in groups in which their gender was in the minority perceived lower cohesion within their team and felt less a part of the team than other respondents. Therefore, whilst Allen et al found that being a minority in a team (i.e. being very dissimilar from their team-mates) led to a more positive reaction to the team, DiTomaso et al found (in line with the theoretical predictions of Social Identity Theory and the Similarity Attraction Paradigm) that those in the minority had a less positive affective reaction to their teams.

Contradictory results are also reported in a single study conducted by South et al (1992). They found that the greater the proportion of women in the work team the less frequent contact women had with male team members and that this led to women receiving a reduced amount of social support from their male colleagues. However, in terms of the relationship women had with their female colleagues a counterbalancing effect of gender diversity was found. On the one hand, increasing proportions of women in the team was associated with greater frequency of contact among women, which increased the social support they felt they received from women. Whereas, on the other hand, increasing proportions of women in the team was also found to be negatively associated with the encouragement for promotion that women felt that they received from female colleagues. There are two principal implications that can be derived from these results. Firstly, there appear to be several different dynamics underlying the impact of team gender diversity, and these dynamics can cause opposing effects in dependent variables. Secondly, supporting the premises of Social Identity Theory and the Similarity Attraction Paradigm, the results suggest that gender segregation is occurring within mixed-sex teams (see section 3.2).

Taking a more gender comparative approach, Wheelan (1996) found that members of all female or female dominated teams perceived their teams as expending

more energy attempting to deal with issues of dependency and inclusion than members of all male or male dominated teams. Interestingly, this finding is in accordance with the proposition of the demographic differences perspective that female dominated teams will be more socio-emotionally oriented than male dominated teams. This study therefore implies that the dynamics of teams may be linked not just to dissimilarity in gender but rather to proportions of a particular gender.

However, other studies found no relationship between gender diversity and team processes. In particular, research has found null relationships between team gender diversity and perceptions of team cohesiveness and team commitment (Riordan & Shore, 1997), team conflict (O'Reilly et al, 1997; Pelled, Eisenhardt & Xin, 1999) and general perceptions of team functioning (Alexander, Lichtenstein & D'Aunno, 1996; & O'Reilly et al, 1999).

A study that goes some way towards explaining such contradictory findings is that of Harrison et al (1998). It was found that whilst team gender diversity had a negative effect on cohesion in teams that had not been together long, there was no gender diversity effect in teams that had been together for a greater length of time. Interestingly, Pelled et al (1999) also found that team longevity moderated the impact of diversity (in terms of functional background, race and tenure). In particular they found that longevity had to reach a certain threshold (the highest being 1.14 years) before the positive effect that diversity had on conflict diminished. These studies suggest that although gender is the basis for interaction when teams first start working together gender becomes less important over time. This is in accordance with the contact hypothesis which proposes that when individuals first meet their interactions are based upon social category membership, but that as they have increasing contact stereotypes are replaced by knowledge of each other as individuals (e.g. Amir, 1976).

Thus, the pattern of results in the studies reviewed above do not lead us to any definitive understanding of the effect of gender diversity on the processes of organisational teams. In fact, the picture drawn is both confusing and conflicting, with some studies finding positive effects of gender diversity, other studies finding negative effects of gender diversity, and yet others finding no effect at all. Although the length of time that teams have been operating may explain why some studies found effects and others did not, it is unlikely to be the complete explanation. However, there are many differences between the studies (such as organisational context, methodology, and dependent variables) which could underlie the differential effects observed. There may therefore be other contingency factors that underlie the conflicting pattern of gender diversity effects found within the literature. This issue of contingency factors is dealt with in section 4.3.

4.2.3 Outcomes Not Directly Related to the Team

Some of the past research into team gender diversity has investigated its effect on variables not directly related to the team. Such studies have found that team gender diversity is associated with job satisfaction (Fields & Blum, 1997), supervisors encouragement for promotion (South et al, 1982), perceptions of job challenge (Kirchmeyer, 1995) and individuals perceptions of their likelihood for promotion (Kirchmeyer, 1995). However, not all the variables investigated have been found to be associated with team gender diversity. In particular, no relationships have been detected in terms of the degree of contact individuals have with their supervisors (South et al, 1992) nor in terms of team members perceptions of fairness (DiTomaso et al, 1996).

Past research therefore suggests that team gender diversity has a pervasive impact on team members. Not only can gender diversity affect the processes and

outcomes of the team, it can also affect wider aspects of team members' work experience such as their satisfaction with their job, their perceptions of the design of their job and their perceptions of their career opportunities.

4.2.4 Summary

The studies reviewed in this section, although not providing a coherent body of research, do suggest that team gender diversity is an important factor in some aspects of team working. However, due to the inconsistency of findings and the lack of definitive conclusions it seems necessary that future research further investigate the effect of team gender diversity on team functioning. In particular the pattern of findings suggests that the effect of gender diversity may be dependent on contingency factors. One such contingency, length of time that the team has been working together, has already been identified. Research however suggests that there are other important moderating factors. The next section therefore discusses these.

4.3 CONTINGENCY FACTORS

Whilst theory and research suggest that team gender diversity is an important factor in team functioning, they also suggest that several other issues need to be considered. In particular the notion of differential effects across gender, organisational context, and type of team.

4.3.1 Differential Effect for Men and Women

Several theoretical approaches (Gender-Role Theory, Social Identity Theory, and Social Contact Theories) suggest that women may be more affected by gender diversity than men (see sections 3.1.2, 3.2.1, and 3.3.1). Logically the possibility of

differential effects on men and women makes sense given the prevalence of sex role stereotypes and the differential social standing of women. For example, it seems feasible that to be a single man in a team of women holds a different set of implications than being a sole woman in a team of men. In addition, in a team of three men and one woman it would seem logical to suggest that the men may feel differently about their team than the woman. Indeed four of the six studies investigating this issue found this to be the case.

Allen et al (1996) found that, when the male and female samples were entered into analyses separately, the positive relationship found between gender dissimilarity and attraction to the team was only true for men. No association was found between gender dissimilarity and attraction to the team amongst women. DiTomaso et al (1996) also found an effect for one gender but not the other. However, in contrast to Allen et al, this study found that in terms of individual well-being gender diversity negatively affected women more than men. Another study that found men to be more affected by gender diversity was that of Kirchmeyer (1995): for men it was found that being dissimilar was associated with an increased likelihood of promotion, whereas no association was found for women.

O'Reilly et al (1999) found that there was no overall effect of gender diversity on team members' perceptions of their teams functioning, but that there were effects when the male and female samples were analysed separately. In particular, they found that the more dissimilar men were from their team-mates (in terms of gender) the more positively men perceived the functioning of their team. In contrast, for women an opposite effect was found, with greater gender dissimilarity being associated with worse team functioning.

These findings of differential gender diversity effects for men and women have

also been identified in organisational units other than the team. In particular, Tsui et al (1992) found that in work units (rather than teams) greater gender dissimilarity was associated with lower levels of psychological attachment, higher absence, and less intention to stay in the organisation within the male sample. In contrast, for women the greater their gender dissimilarity from the work unit the higher their levels of organisational attachment, and no effects were found for intention to stay and absence.

However, two studies found no differential effect of team gender diversity for men and women. Fields & Blum (1997), whilst finding an effect of gender composition on job satisfaction, found no differences between the effects found in the male and female samples. For both male and female samples, employees in gender balanced teams were more satisfied in their jobs than those working in teams where there were unequal proportions of men and women. Another study conducted by Riordan & Shore (1997) found no overall effect of gender diversity on team cohesion and commitment, and no effects for either men or women. Interestingly though they did find non-symmetrical effects in terms of race diversity.

Past research therefore suggests that there can be differential effects of gender diversity for men and women. Theoretically it was expected that women would be more affected than men (see sections 3.1.2.3, 3.2.1.3, 3.3.1.3 and 3.3.2.3). This however does not appear to be supported by the research literature. The findings instead provide a set of conflicting effects, with men and women sometimes being affected positively by gender diversity, sometimes negatively, and sometimes not affected at all. Notably there are many ways in which the studies differ (in terms of the dependent variables, methodologies, and types of team). However, the most substantive difference between the studies is the organisational context in which the studies were set. Organisational context may therefore influence which gender is affected by gender diversity and how

they are affected. This issue is addressed in the next section.

4.3.2 Organisational Context

The organisational context within which team gender diversity is studied may be of critical importance. In fact the possibility of context effects has frequently been identified by researchers (e.g. Milliken & Martins, 1996; Williams & O'Reilly, 1998). In addition, Social Identity Theory suggests that the salience of gender in a given situation is important in determining the extent to which in-group – out-group distinctions are formed (see section 3.2.1.1). Further, it is likely that gender will be more salient in contexts where gender proportions are skewed (e.g. Kanter, 1977; Deaux & Major, 1987). It is therefore expected that gender diversity effects will be greater in contexts where there are skewed gender proportions. A similar conclusion can also be derived from the contact hypothesis which suggests that in heterogeneous contexts men and women will have more contact with members of the opposite sex and therefore be less likely to use stereotypes as the basis for their interactions (Brewer & Kramer, 1985; Fiske & Taylor, 1991). Thus, as mentioned above, the possibility of organisational context as a contingency factory in the relationship between gender diversity and team functioning may, in part, account for the conflicting pattern of effects within the literature. Despite this no field research has directly investigated the impact of organisational context on team gender diversity effects. This section therefore reviews the studies looking at the differential effect of diversity on men and women in light of the organisational context in which they are set.

Allen et al (1996) found that in the female dominated health service there was a positive relationship between gender dissimilarity and attraction to the team for men, but that no association was found between gender dissimilarity and attraction to the

team amongst women. In contrast, DiTomaso et al (1996) found that in a male dominated industrial setting gender diversity negatively affected the well-being of women more than men. The difference in findings between these two studies may therefore suggest that team gender diversity had an impact on those whose gender is under represented within the work place. However, it could also be the case that men like being dissimilar in gender to their team-mates but that women prefer to be similar in gender.

This latter suggestion may be supported by the findings of O'Reilly et al (1999) who found that the more dissimilar men were from their team-mates in terms of gender the more positively they perceived the functioning of their team. Whereas for women, an opposite effect was found with greater dissimilarity being associated with worse team functioning. This study was conducted in a clothing manufacturer and retailer that was reasonably female dominated. The positive effect of dissimilarity for men was therefore a replication of the findings of the Allen et al (1996) study, since both studies were conducted in female dominated settings. In contrast, for women, although the negative effect of diversity mirrors that found by DiTomaso et al (1996), the context in which the two studies were set was very different. Since, whilst the O'Reilly et al study was conducted in a female dominated context, the DiTomaso et al study was conducted in a male dominated context. Therefore the findings suggest the possibility that women dislike being in teams in which their gender is a minority regardless of the gender composition of context in which the team operates. However, it is also possible that the differential effects arise from the different conceptualisations of gender diversity that are used within the studies. O'Reilly et al (1999) and Allen et al (1996) both used a proportional measure of how dissimilar an individual was from their team-mates in terms of gender. In contrast, DiTomaso et al (1996) used a categorical measure of

gender diversity (less than 10% women, 11-30% women, 31-50% women and greater than 50% women) and each analysis reported only compared one category against all the other categories. It may therefore be that the differential pattern of effects found is accounted for by the fact that gender diversity was conceptualised and analysed differently within each of these studies.

Interestingly the study by Fields & Blum (1997) did not focus on one work sector; instead they used a random sample of US employees. It is possible therefore that the lack of differential effects for men and women within this study was because differential effects across organisational context counteract one another and lead to an overall null effect. However, it is also possible that sometimes no differential effects exist since the study by Riordan & Shore (1997), which was conducted in a female dominated insurance company, found no overall effect of gender diversity on team cohesion and commitment and no effects for either men or women. They did however find non-symmetrical effects in terms of race diversity.

It is therefore unclear exactly what the comparison of the studies implies. On the one hand, it is possible that the minority gender in the context as a whole are more affected by the gender diversity of their team. On the other hand, it may be that men are positively affected by diversity but that women are negative affected by diversity. In addition, it must be noted that there were other substantive differences between the studies. Specifically, the way in which gender diversity was conceptualised (for a discussion of this issue see section 5.1), the organisational level of the teams studied (see section 4.3.3), the dependent variables under investigation, and the country in which the studies were conducted. It may be that one or all of these other differences account for the differential effects. A further possibility is the fact that the findings of some or all of the studies are problematic due to methodological flaws within each of

the studies (see chapter 5 for a discussion of methodological issues).

A study looking at student project groups in two US Business schools does however support the notion that the gender composition of the context is critical. Martins et al (1999) found that in a heterogeneous context (composed of 45% women) team gender diversity was not related to any of the team functioning measures studied. In contrast, in a less gender heterogeneous context (composed of 37% women) team gender diversity was positively associated with levels of trust in the team. Unfortunately, this study was not conducted in the field and therefore the results are not necessarily generalisable. In addition, the male and female samples were not analysed separately and so this study cannot shed any light on the conflicting pattern of effects reported above. However, the fact that the effects of team gender diversity were dependent upon the gender composition of the organisational context lends support to the conclusion that the conflicting results of field studies may be due to the organisational contexts in which the studies were set.

Further support for the suggestion that organisational context plays a critical role comes from a study by Tsui et al (1992) which found that the effect of work unit gender diversity was no longer significant after company effects were controlled for. Similarly, Wiersema & Bird (1993) found that age heterogeneity was only positively related to turnover when industry type was not used as a control. However, unfortunately neither of the studies investigated the effects of diversity within each of the companies/industries. Therefore, although these studies highlight the importance of context in the relationship between diversity and team functioning, specific conclusions cannot be made from their results.

Finally, Kirkman, Tesluk and Rosen (2000) found greater negative effects of race heterogeneity on team empowerment in the textile industry than in the insurance

and high technology industries. Kirkman and colleagues suggested that this differential effect might be due to either more negative race relations in the textile industry or the fact that the textile teams were less interdependent. However, another possible explanation for their findings (one that is was not considered by Kirkman et al) is that race proportions within the textile industry may have been different from that of the insurance and high technology industries. This study therefore clearly demonstrates that diversity can have markedly different effects in different contexts, and it is possible that the effects are due to the relative proportions of races across contexts.

Thus, the conflicting pattern of results within the literature may be attributable to organisational context issues. Indeed it appears that team gender diversity may be particularly critical to those whose gender is in the minority within the context as whole. However, due to other differences between the results the only substantive evidence of the importance of organisational context is from a quasi-laboratory setting. It is therefore important to rigorously investigate the effects of gender diversity across different organisational contexts within a field setting.

4.3.3 Type of Team

Another possible contingency factor is the type of team. Several theories suggested that different types of team would be more or less susceptible to diversity effects. In particular the review of theory suggested that the effect of diversity will be reduced in teams where occupational role is salient (Gender-Role Theory: see section 3.1.2.3), occupational status is highly defined (Expectations-States Theory: see section 3.1.2.3), team membership is particularly salient, and where there are strong set of common goals (Social Identity Theory: see section 3.2.1.3). Within the literature very few studies have investigated issues related to diversity effects across different types of

team. However, with the exception of one study (Jackson et al, 1991), research suggests that interesting differences exist.

Wheelan (1996) suggests that there may be differential effects in teams of differing status. As mentioned in section 4.2.2, Wheelan (1996) found that members of all female or female dominated teams perceived their teams as focusing more on issues of inclusion and dependency than did members of all male or male dominated teams. However, additional analyses showed that whilst this was the case for low status teams there was no gender diversity effect in high status teams. This research therefore suggests that the status of the team moderates the effect that team gender diversity has on team functioning.

Further support for the proposition that the status of the team will moderate the effect of gender diversity comes from research into other forms of diversity and research conducted within the laboratory. Pelled et al (1999) found that the positive association between functional diversity on task conflict was stronger when the teams' tasks were routine than when they were not routine. Whereas race and tenure diversity had a weaker positive effect on emotional conflict when the teams tasks were routine than when they were non-routine. In addition, a laboratory based study conducted by Mabry (1985) found that gender skewed teams put forward more suggestions than other compositional teams during a structured task but less suggestions than other compositional teams when the task was unstructured. Since the tasks of management teams tend to have less structure and be less routine than the tasks of non-management teams the results of these studies suggest that the effects of gender diversity might differ in management and non-management teams.

Jackson et al (1991) also predicted that the status of the teams under investigation might influence the diversity effects that are found. In particular they

suggested that the effects of team diversity would be greater in non-elite teams. Interestingly, no such moderating effect was found for the various forms of diversity (of which gender was not one) that they investigated within their data. However, it may be that the lack of distinction between the types of team was because the difference in status between the two types of team was not great. The elite teams were defined as the upper most echelon of the organisation and the non-elite teams were executives just below this level. It may be that there are more substantive differences between team status type when there is greater distinction between the organisational levels under investigation.

Past research therefore suggests that the status of the team will be an important moderating factor in the relationship between gender diversity and team functioning. This is a particularly interesting issue because the most salient distinction between organisational teams is between those that are management and those that are non-management. These two types of team are also of particular interest because diversity studies in the past have tended to study either Top-Management Teams (e.g. Allen et al, 1996; Knight et al., 1997) or non-management teams (e.g. DiTomaso et al, 1996). It is possible therefore that understanding the dynamics of diversity within these two very different types of team will help to untangle the conflicting results that are found with relation to team diversity.

4.4 CHAPTER SUMMARY

Whilst past research does not enable us to reach any definitive conclusions as to what effect gender diversity will have on team functioning it does indicate some potentially important directions for future research. There is strong support for the prediction that team gender diversity is an important team characteristic that not only

has an effect on team outcomes and processes but also affects wider job-related issues. Further, the conflicting patterns of results in the literature appear to be the result of a range of factors that moderate gender diversity effects. In particular, past research highlights three contingency factors that seem to be of paramount importance. Firstly, past research suggests that there are differential effects of team gender diversity on men and women. Secondly, the research literature would lead us to expect differential effects of gender diversity across different organisational contexts. Thirdly, it is possible that the dynamics of team gender diversity are different within management and non-management teams. Interestingly, these three factors were also identified as important in the theoretical review (see chapter 3).

However, as noted above (for example, see section 4.3.2) there are also numerous methodological inconsistencies between studies. These differences may also underlie the conflicting pattern of diversity effects found. It is therefore important that methodological issues related to diversity research are resolved before the research field can take a step forward. Of these a number are of particular importance: the conceptualisation of gender diversity, the definition of the team, the use of minimum response rates, and the dependent variables adopted. All of these issues are dealt with in the next chapter.

CHAPTER 5

METHODOLOGICAL ISSUES

As noted in chapter 4, past research provides an incomplete and inconsistent body of findings. Whilst the pattern of effects may be attributable to several important contingency factors (such as the differential impact of gender diversity across gender, organisational context, and team status), it must also be noted that there are methodological differences between these studies that may also underlie the inconsistency in gender diversity effects observed. Consequently this chapter identifies a number of methodological issues that need to be addressed before the research field can move forward. Arguably the most important issues are the inconsistencies in the conceptualisation of gender diversity, the definition of a team, the application of minimum response rates, and the dependent variables adopted. The purpose of this chapter is therefore to address these methodological issues and, where possible, draw conclusions as to how gender diversity research should proceed.

5.1 CONCEPTUALISATION OF GENDER DIVERSITY

There are a number of concerns regarding the way in which gender diversity has been conceptualised in the past. Firstly, inconsistencies in the way in which gender diversity has been conceptualised makes it difficult to compare the results of studies. Secondly, different measures may be more or less sensitive and accurate in detecting results. It is therefore necessary to determine which method of conceptualising gender diversity is most appropriate, and ideally future research needs to use a consistent conceptualisation.

The studies reviewed in chapter 4 used very different ways of conceptualising gender diversity; consequently, making comparisons between the findings of studies is difficult. Four fundamentally different approaches have been taken by researchers in order to investigate the issue of gender diversity. Firstly, some studies have used team level measures of the amount of variation in gender in the team (e.g. Harrison et al, 1998; Pelled et al, 1999), such a conceptualisation looks at how diversity in the team affects team processes or outcomes. Using this approach teams range from homogenous (either all female or all male) to heterogeneous (half men and half women). Secondly, other research measures the proportion of men or women in the team (e.g. South et al, 1982; Knight et al, 1997). That is, they look at how increases in the proportion of a particular gender affect team functioning. Thirdly, other research, influenced by the Similarity Attraction Paradigm, uses an index of the proportion of people in the team dissimilar (or similar) in terms of gender from a particular individual (e.g. Allen et al, 1996; O'Reilly et al, 1999). This approach essentially investigates how an individuals similarity or dissimilarity from their team-mates affects perceptions of team functioning. Finally, other studies have been influenced by the approach taken in laboratory studies which compare different categories of gender diversity type (e.g. DiTomaso et al, 1996; Wheelan, 1996; Fields & Blum, 1997; Riordan & Shore, 1997), although the specification of the categories differ vastly between each study.

This inconsistency in conceptualisation makes it very difficult to compare the results of the studies since each piece of research is investigating something slightly different. Therefore, it appears that there is a need for two things before the research field can move forward. First, it is necessary to determine which method of conceptualising gender diversity is most appropriate (this issue is covered in section 5.1.2 below) and, secondly, in order that findings can be compared and contrasted, a

consistent conceptualisation of gender diversity needs to be used. The next section provides a critique of these approaches and determines the most appropriate conceptualisation for this research.

5.1.1 Measures of Gender Diversity

5.1.1.1 Categorical vs. Continuous Conceptualisation

The first basic distinction between types of conceptualisation is that between categorical and continuous measures. Categorical measures split teams with varying proportions of a gender into categories. For example, Kanter's (1977) categorisation identifies seven categories (see section 3.3.1.1), whereas other researchers have used simpler categorisations in terms of male dominated, female dominated or balanced teams (e.g. Wheelan, 1996; Fields & Blum, 1997). Additionally, a substantial number of laboratory based studies compare single sex and mixed sex teams (e.g. Hoffman & Maier, 1961 a & b; Clement & Schiereck, 1973; Mabry, 1985).

However, the way that categorisations are defined is less important than whether or not a categorical measure is appropriate at all, since categorical measures may be less sensitive to detecting results. Although some studies (e.g. Fields & Blum, 1997; Riordan & Shore, 1997) have found effects using categorical measures, South et al (1992) found a categorical measure (token vs. non-token women) detected far fewer effects than a continuous measure of the proportion of women.

In support of this the theories outlined in chapter 3 (for the most part) suggest gender diversity effects that would be better detected with a continuous measure. For example, on the basis of the Trait Approach (see section 3.1.1.3) we would expect a team with one woman to be less socio-emotionally oriented than a team with two

women, and the team with two women to be less socio-emotionally oriented than a team with three women, and so on. In order for a categorical measure to detect such an effect there would have to be so many categories that the measure would essentially become a continuous measure.

Another limitation of categorical measures is that they either have such broad categories that important distinctions are over looked or they are too specific and thus analyses become unwieldy. If only a few categories are used (for example Fields & Blum, 1997 distinguished between male dominated, gender balanced and female dominated teams) then the potentially important distinction between token and minority status (highlighted by Kanter, 1997) is ignored. However, if a greater number of categories are specified analyses become very complicated. For example, if categories were based upon Kanter's distinctions, 7 categories (all female, token women, minority women, balanced, minority men, token men and all male) would be used in analyses. Given the possibility of differential effects for men and women (see section 4.3.1) a 2 by 7 analysis on the dependent variable would result. Not only would such a categorisation need a large sample size, since there would need to be a reasonable sample within each of the 14 categories, the comparisons between the categories would become confusing.

It would seem logical therefore for research to at least start with a continuous measure since this can be collapsed into categories if necessary.

5.1.1.2 Calculation of a Continuous Gender Diversity Index

Continuous measures of gender diversity have been calculated at both the team and individual level. These measures investigate different research questions. At the team level the research question addressed is how the gender diversity in the team

affects the whole team, whereas at the individual level of analysis the question addressed is about how the gender diversity in the team affects individual team members. The appropriate level of analysis therefore largely depends upon whether the focus of interest is individual or team outcomes (see section 5.1.2 for a discussion of the issues of levels of analysis). The different conceptualisations of gender diversity within the team and individual levels are therefore discussed separately.

5.1.1.2.1 Team Level Indexes

At the team level studies have tended to use two principal types of measure. Firstly, some researchers have measured the proportion of a women (or men) in the team (e.g. Knight et al, 1997). Secondly, the majority of researchers have used indexes to calculate the degree of distribution of the team members among the possible categories; that is, they assess how diverse the team is in terms of a particular attribute (in this case gender). Using such indexes a low score represents homogeneity whereas a high score represents heterogeneity. Two diversity indexes are reported within the literature.

(1) Teachman (1980) recommended one index that has been used by researchers such as Harrison et al (1998) and Pelled et al (1999):

$$H = - \Sigma P_i(\ln P_i)$$

Where i corresponds the number of categories within a variable and P_i is the proportion of team members in category i. Therefore if there are 2 women (category 1) and 8 men (category 2) in a team then P1 equals 0.2 and P2 equals 0.8, and H is -[0.2(ln0.2) + 0.8(ln0.8)] which equals 0.33. The only exception to this calculation is when one category is not represented in the team because the

natural logarithm of zero does not exist. In such circumstances (i.e. all male and all female teams) team heterogeneity is calculated using only the P_i value for the category represented.

(2) Blau (1977) recommended another heterogeneity index, which has been used by researchers such as Jackson et al (1991):

$$H = 1 - \Sigma P_i^2.$$

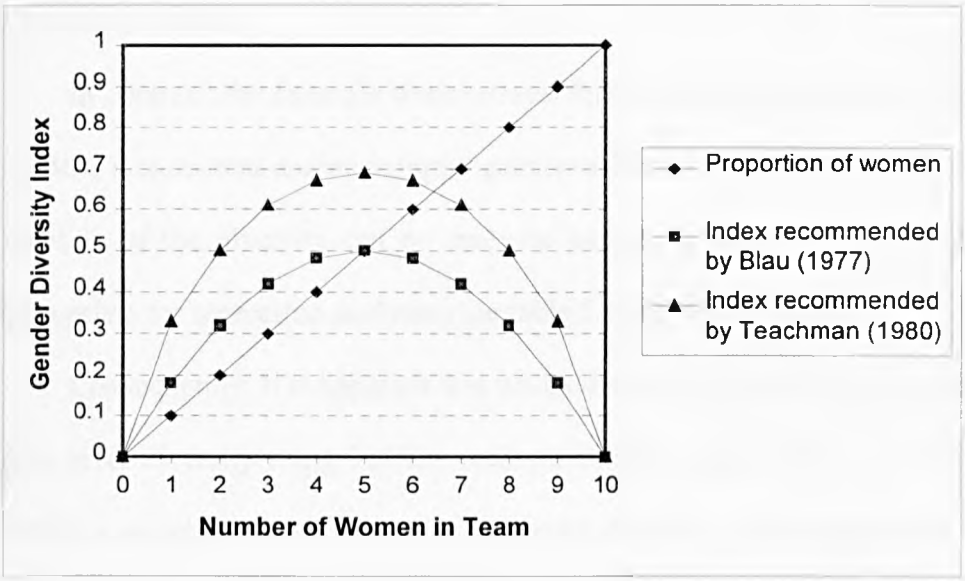
Again, P_i is the proportion of team members in category i. Therefore if a team is composed of 2 women (category 1) and 8 men (category 2) the heterogeneity index (H) is $1 - (0.2^2 + 0.8^2)$ which equals 0.32.

However, despite the wide spread use of these diversity indexes within the literature these measures have some severe limitations. To illustrate these limitations, and compare the diversity indexes to the simple proportion of women measure, consider 11 hypothetical teams each with 10 team members, but with differing distributions of men and women. Table 5.1 shows the team diversity indexes for each of these hypothetical teams. A graphical representation of these measures clearly demonstrates the difficulties associated with the diversity indexes (see figure 5.1).

Table 5.1: Comparison of Team Level Diversity Indexes

Number of women	Proportion of women	Blau's Index	Teachman's Index
0	0	0	0
1	0.1	0.18	0.33
2	0.2	0.32	0.50
3	0.3	0.42	0.61
4	0.4	0.48	0.67
5	0.5	0.50	0.69
6	0.6	0.48	0.67
7	0.7	0.42	0.61
8	0.8	0.32	0.50
9	0.9	0.18	0.33
10	1	0	0

Figure 5.1: Graphical Representation of the Comparison of Team Level Diversity Indexes



Firstly, they provide directionless measures of diversity. That is, a team with two women and eight men is attributed the same diversity index as a team with eight women and two men. Yet theoretically we expect such teams to have very different diversity dynamics. For example, the Trait Approach proposes that the dynamics of male dominated and female dominated teams will be very distinct with male dominated teams being more task focused and female dominated teams being more socio-emotionally focused (see section 3.1.1.2). In addition, both Gender-Role Theory and Social Competition Theory suggest that increasing proportions of women will have a more detrimental impact on team functioning than increasing proportions of men (see sections 3.1.2.3 and 3.3.2.3).

A second limitation is that the resulting indexes are not interval. Instead the diversity measures indicate weaker effects as the distance from complete homogeneity increases. For example, the difference in the indexes of a team with no women and a

team with one woman is greater than the difference in the indexes of a team with one woman and a team with two women. This is of particular concern because interval measures are a principal requirement of regression analyses, which are commonly used in diversity studies.

In contrast, the example demonstrates that the simple proportion of women index provides a consistent and meaningful conceptualisation of gender diversity in which the direction of the diversity can be analysed and the measure is interval and therefore appropriate for regression analyses (see table 5.1 and figure 5.1).

Consequently, it is apparent that whilst diversity research typically conceptualises team level diversity using indexes recommended by either Blau (1977) or Teachman (1980), a simpler conceptualisation of gender diversity as the proportion of women in the team is more appropriate at the team level.

5.1.1.2.2 Individual Level Indexes

A few researchers (e.g. South et al, 1992) have used the proportion of women (or men) in the team as a measure of gender diversity at the individual level. However, the majority of diversity research has used an Euclidean Distance index, based on the square root of the summed squared differences, which measures how dissimilar an individual is in terms of gender from the other members of their team. Using such an index a low score represents similarity and a high score represents dissimilarity. Past research has used two slightly different versions of this measure. Some researchers (e.g. Jackson et al, 1991) have used the square root of the summed squared differences with n as the denominator:

$$\text{Dissimilarity} = \sqrt{[1/n \, \Sigma(Si - Sj)^2]}$$

Whereas, other researchers (e.g. O'Reilly et al, 1989; Tsui et al, 1992; O'Reilly et al, 1999) have used the square root of the summed squared differences with n-1 as the denominator:

$$\text{Dissimilarity} = \sqrt{[1/(n-1)\ \Sigma(Si - Sj)^2]}$$

Within both these equations Si represents the demographic variable of the individual and Sj represents the demographic variable of the other team members (from team member 1 to team member j) and n denotes the number of individuals in the team. Therefore, for a woman in a team with 9 men $\Sigma(Si - Sj)^2$ equals 9 [$(1-2)^2 \times 9) = 9$] whereas for a woman in a team of two women and eight men $\Sigma(Si - Sj)^2$ equals 8 [$(1-2)^2 \times 8) = 8$]. The difference between the two Euclidean measures is simply whether this sum of differences is divided by n or by n-1 prior to taking the square root.

Of these two equations the second, with (n-1) as the denominator, appears to be inappropriate since it solely captures diversity effects. In contrast, the equation with (n) as the denominator captures both size and diversity effects (Tsui et al, 1992). That is, as Tsui et al point out, using the second equation a sole woman in a team of 9 men would be assigned the same index as a sole woman in a team of 99 men. Intuitively there must be a difference between these two situations and therefore the first equation (with n as a denominator) seems most appropriate. In addition, when indexes are worked out in the second equation (with n-1 as a denominator) individuals in a balanced team of 4 people (2 men and 2 women) receive a different dissimilarity index than individuals in a 14 person balanced team (7 men and 7 women). Again this seems inappropriate. Therefore if an Euclidean distance measure were used to conceptualise gender diversity it would seem that the first equation, with n as the denominator, is most appropriate.

In terms of gender, the Euclidean Distance measure is a simple transformation of a proportion. That is, for men the dissimilarity index is the square root of the proportion

of women in the team and for women the gender dissimilarity index is the square root of the proportion of men in the team. However, although both measures are based upon a proportion there are some severe limitations with the Euclidean Distance measures (Edwards, 1994). Firstly, as with the team level diversity indexes, the measures are directionless (Edwards, 1994) since they do not account for whether the individual is male or female. The Euclidean measures therefore assume that a woman who is dissimilar from her team-mates is equivalent to a man who is dissimilar from his team-mates. As was noted in section 4.3.1, both intuitively and theoretically, we would expect men and women to be affected differently by the gender diversity of their teams. A directionless measure of gender diversity is therefore inappropriate. Some researchers have addressed this issue by analysing the male and female samples separately (e.g. O'Reilly et al, 1999). However, whilst this may get around the lack of direction in the measure it cannot remedy the other limitations with this approach.

Another limitation of the Euclidean measures is that they confound the effects of the component measures (Edwards, 1994); that is, they do not enable the researcher to determine the relative contribution of the two components: gender and team gender diversity. In addition, the measures have numerous constraints of which most notable is that the coefficient for gender must not be significantly different from zero (Edwards, 1994). In other words, the Euclidean Distance measure is only viable if gender does not affect the dependent variable, an assumption which is unlikely to be valid (Edwards, 1994).

Returning to the example of the 11 hypothetical teams used earlier it is also apparent that, as with the team level diversity measure, the Euclidean Distance Measure

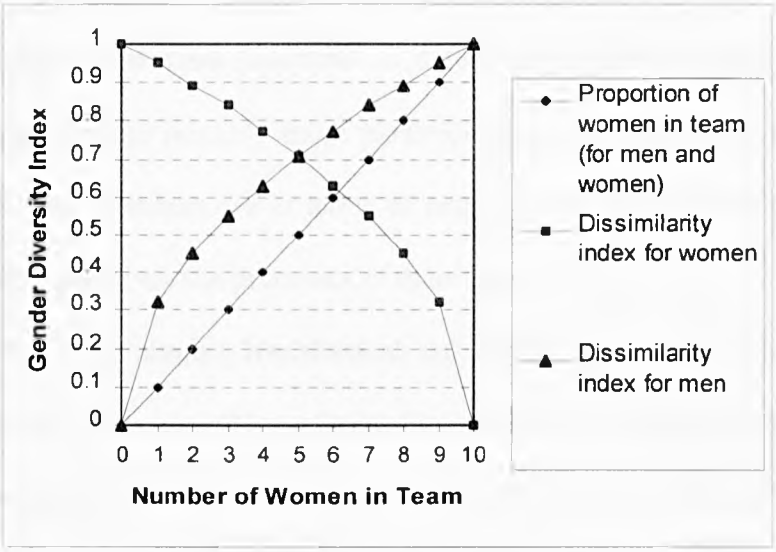
is not interval. As can be seen from table 5.2 and figure 5.2 there is not an equal distribution between the types of team. For example, the difference in the dissimilarity indexes of a team with two women and a team with four women is 0.12 for women and 0.18 for men. This is not the same as the difference in the dissimilarity indexes of a team with four women and a team with six women which is 0.14 for both men and women. In contrast, the proportion of women index is interval because the distance between a team with two women and a team with four women is 0.2 which is the same as the differences between a team with four women and a team with six women.

Therefore, due to the limitations of the Euclidean Distance measure, a simple proportion measure is the most appropriate conceptualisation of gender diversity at the individual level.

Table 5.2: Comparison of Individual Level Diversity Indexes

No. of women	Proportion of women	Dissimilarity index for women	Dissimilarity index for men
0	0	1	0
1	0.1	0.95	0.32
2	0.2	0.89	0.45
3	0.3	0.84	0.55
4	0.4	0.77	0.63
5	0.5	0.71	0.71
6	0.6	0.63	0.77
7	0.7	0.55	0.84
8	0.8	0.45	0.89
9	0.9	0.32	0.5
10	1	0	1

Figure 5.2: Graphical Representation of the Comparison of Individual level Diversity Indexes



5.1.1.3 Proportion of Dissimilar Others vs. Proportion of a Particular Gender

In terms of proportional measures there are again differences in approach. Whilst some researchers (e.g. South et al, 1982) use the proportion of women (or men), others (e.g. Kirchmeyer, 1995) calculate the proportion of people of similar or dissimilar gender. Essentially when analysing the male and female samples separately there is little distinction between the two measures. However, when analyses of the sample as a whole are made the distinction becomes critical.

5.1.1.3.1 Separate Analyses for Men and Women

When conducting analyses separately for men and women it essentially does not matter whether the proportion is based upon a particular gender or on dissimilar/similar others. Since each of the measures could be used to interpret the results in terms of either proportions of a particular gender or in terms of dissimilarity of gender. For example, take a hypothetical finding where there is a positive relationship between the

percentage of women in the team and a particular team process for women but a negative relationship for men. This could be interpreted as suggesting that women find team processes to be enhanced with increasing numbers of women in the team whereas men perceive the team processes to deteriorate with increasing numbers of women. Alternatively, and possibly more parsimoniously, it could be concluded that the more similar team members are in terms of gender to an individual the more positively that individual perceives the processes of their team.

Now take another hypothetical set of findings. Imagine that for both men and women there was a positive relationship between the proportion of women in the team and perceptions of a particular team process. In terms of a dissimilarity orientation, this result would be interpreted as men perceiving team processes to be enhanced with increased dissimilarity, whereas women perceiving team processes as deteriorating with increased dissimilarity. However, from a Trait Approach (see section 3.1.1) we would conclude that the greater the proportion of women in the team the more positively both men and women perceive the processes of their team.

Therefore both the proportion of a particular gender and the proportion of those dissimilar (or similar) would discover the same relationships since the findings can be interpreted either in terms of dissimilarity or in terms of a proportion of a particular gender. It seems, therefore, that whether the proportional measure is of a particular gender or of dissimilar others does not matter when analyses are conducted on male and female samples separately, since it is only the direction of effects not the effects themselves that change. What is essential is that all possible interpretations of the findings are considered. Past research has tended to neglect this and frame itself solely in terms of the effects of dissimilarity, thus neglecting to think about the results in other potentially meaningful ways. Therefore in terms of analysing men and women

separately, so long as the researcher addresses the implications of using the proportional measure they adopt and considers carefully the interpretation of results, either orientation is appropriate.

5.1.1.3.2 Analyses of the Whole Sample

However, which measure is used does become critical when the sample is analysed as a whole (i.e. combining male and female responses) since, as with the team diversity and individual dissimilarity indexes, the proportion of those dissimilar is a directionless measure. That is, if a proportional measure is based on dissimilarity it assumes that being a sole woman in a team of five men is similar to being a sole man in a team of five women. As argued in sections 5.1.2.2.1 and 5.1.2.2.2 above this is both theoretically and intuitively wrong. In contrast analyses on the whole sample using a proportion of a particular gender does lead to a meaningful set of analyses since both men and women are measured on the same criteria (the proportion of women or men). So, if analyses are conducted for the whole sample a proportional measure that looks at an objective criteria seems more appropriate than a proportional measure based on a criteria that means different things for different genders (i.e. the proportion of dissimilar others).

Consequently, for the purposes of this research team gender diversity was conceptualised as the proportion of women in the team. However, since this conceptualisation has been argued to be the most appropriate measure at both the team and individual levels of analyses it is also necessary to determine the most appropriate level at which to conduct these analyses.

5.1.2 Levels of Analysis

As noted in section 5.1.2.2 above, diversity can (and has been) conceptualised at either a team or individual level. In addition, past research has demonstrated that there are different patterns of diversity effects at the team and individual levels of analysis. For example, Wagner et al (1984) investigated the effects of age and tenure heterogeneity of Top Management Teams (TMTs) at both the team and individual levels of analysis. They found that, at the team level of analysis, heterogeneity of organisational tenure, but not age, was related to turnover, with TMTs diverse in tenure having higher turnover. However, at the individual level of analysis it was age diversity, not tenure diversity, which was found to affect probability of staying in the firm. Jackson et al (1991) also found differential patterns of effects at different levels of analysis. Whilst at the team level of analysis age diversity and diversity in terms of experience outside of the industry were found to be positively related to turnover, no effects were found for team level diversity in terms of tenure, education, college attended, curriculum or military experience. However, at the individual level being dissimilar in terms of educational level, college curriculum and experience outside the industry was related to increased likelihood of leaving the organisation, but dissimilarity in terms of age or tenure was not found to affect turnover at the individual level. The level of analysis at which analyses are conducted is therefore a critical issue and one that needs to be addressed when considering the effect of team gender diversity.

However, the issue is more complicated than merely determining which level is of particular interest in a given setting or study. The variables under investigation cross several organisational levels. Gender diversity, conceptualised as the proportion of women in a team, is not really an individual variable. Each team member is assigned the same gender diversity, and therefore perhaps the most appropriate level of analysis is

the team. However, perceptions of team processes are reported at the individual level, and they may or may not be team level variables depending upon whether there is enough within team agreement in perceptions. Gender on the other hand is definitely an individual level variable, and organisational context is definitely at an organisational level. Thus the variables of interest in this research reside in different organisational levels: the individual, the team, and the organisation. This hierarchical structure is typical of a lot of social science research, where nested structures and cross level effects occur (Bryk & Raundenbush, 1992). Past research has often neglected to account for these levels (Bryk & Raundenbush, 1992), and diversity research is not exempt from this criticism.

Typically levels of analysis issues are dealt with by either disaggregating data down to an individual level of analyses or by aggregating individual data to a high level of analysis. Both of these techniques take the risk of making statistical errors. Firstly, by disaggregating data (i.e. allocating each individual with the team score) the possibility of team variance is ignored (Bryk & Raundenbush, 1992; Lee & Bryk, 1989; Lee & Smith, 1990). That is, the data for individuals is assumed to be independent, when in fact due to team membership it may be related. Aggregating individual data to a higher level (for example to the team level) also leads to ignored variance, but this time at the individual level. That is, the data for individuals within a team is assumed to be the same and so interesting and meaningful variation between individuals is not taken into account (Hofmann, Griffin & Gavin, 1999).

Due to these statistical problems in analysing data that forms a hierarchical nested structure a new technique for analysis, called Hierarchical Linear Modelling (HLM), has been developed. This statistical method allows for each of the levels in a structure to be represented and for relationships to be explored both within and between

organisational levels (Bryk & Raundenbush, 1992). However, for team level research the applicability of HLM is questionable. Although several researchers have used the technique to look at teams (e.g. Alexander et al, 1996) simulation studies have indicated that, in order to have sufficient statistical power, it is necessary to have a minimum sample of 30 groups with at least 30 individuals within each group (see Hofmann et al, 1999). This is possible in education environments where the technique was developed since you can have classes with at least 30 pupils in a sample of more than 30 schools within numerous school districts. However, in teams where the typical size is between 3 and 10 members achieving such sample sizes is not possible. In terms of occupational research it therefore appears that the most appropriate use of HLM is in the examination of organisational departments, but for team research HLM is evidently not appropriate. This leads to the choice of either aggregating data to the team level or disaggregating data to the individual level. As noted above both these approaches lead to some potentially interesting variance being overlooked. However, since the review of both theory (see chapter 3) and research (see chapter 4) highlighted the importance of looking at differential effects for men and women, the individual level is essential within gender diversity research. This research therefore dissagregated the proportion of women in the team to the individual level. That is, each team member was assigned the gender diversity index of his or her team.

5.1.3 Linear or Curvilinear Effects

Another consideration is whether or not team diversity has a linear effect on the variables under investigation. In one study, Alexander et al (1995) found that diversity in education and tenure were positively related in a linear way to voluntary turnover, but that diversity of employment status was negatively related to turnover in a non-linear

way (a downward curvilinear slope). In addition, Riordan & Shore (1997) found that the effect of race diversity was non-linear. Past research into other forms of diversity therefore suggests that the effects of diversity are not always linear.

The possibility of non-linear effects is also important theoretically. Using a measure of the proportion of women in the team the Trait Approach would predict a linear effect. In other words, as the proportion of women in the team increases the team would be expected to become more and more socio-emotionally oriented but less and less task oriented, with all female teams exhibiting the greatest socio-emotional orientation and all male teams exhibiting the most task orientation. In contrast, the other theories would predict a curvilinear effect of the proportion of women in the team on team functioning. That is, the highest or the lowest team functioning would be predicted to occur in diverse teams, where the most diverse team is one with equal proportions of men and women. In particular, Social Contact Theory suggests that team functioning will increase with increased diversity, and therefore an inverse u-shaped curve would be predicted. Whereas Social Identity Theory, the Similarity Attraction Paradigm and Social Competition Theory would predict a u-shaped curve because they suggest that team functioning will deteriorate with greater diversity.

This issue of curvilinear effects has rarely been addressed by researchers and consequently past research may have failed to detect relationships that existed in their data. Analyses within the present research therefore investigated the possibility of both linear and curvilinear gender diversity effects.

5.2 DEFINITION OF THE TEAM

Another important methodological issue is the fact that researchers have used different definitions of the team. Some studies measured gender diversity based upon

the membership of particular teams as defined by organisational structure (e.g. Jackson et al, 1991; Allen et al, 1996). In contrast other studies (e.g. South et al, 1982; Kirchmeyer, 1995; Fields & Blum, 1997) calculated gender diversity based upon respondents self-reports of the number of women in their work team.

South et al (1992) argue that their self-reported measure is a strength of their study since it reflects both formal and informal group structure. In particular they argued that this subjective measure "probably leads to a more valid picture of interaction patterns than would imposing the formally defined group on respondents' perceptions of inter-group relations" (South et al, 1992; pp 593). However, whilst this may well be the case, self-reporting does not reliably inform us about the effect of gender diversity within structured organisational units. For example, consider a team where one team member tends to be marginalised, is this person still a part of the work group? From a research perspective the inclusion of this individual is important, however in a self-report measure the inclusion of such a team member is determined by the respondent and thus may be included by some respondents and not by others.

In addition, informal groups are not always based around organisational structures or tasks and are not linked to organisational outcomes. Therefore the conceptualisation of the work group will differ between respondents. Whilst some respondents may think of a work group as strictly who they work closely with, others may decide to include everyone they are in contact with on a regular basis. This method of measuring gender diversity therefore examines personal conceptualisations of the work group.

It is apparent therefore that how gender diversity is measured and what the construct is that is measured is critical because it leads to different phenomenon being studied; namely subjective and objective levels of gender diversity. The consequence of

this inconsistency between studies is that the organisational unit under investigation differs between (and possibly even within) studies, thus making conclusions difficult.

Therefore, whilst both interpretations of the work group are interesting, it is important to ground research firmly within one orientation. Due to the difficulty in interpreting and comparing findings that use subjective definitions of a work group an objective definition of the work group was used in this research. In other words the studies reported investigate teams that have definitive boundaries as defined by the organisation. More specifically the teams fit the criteria outlined by West et al (1998); that is, they have a defined organisational function and identity, they possess shared objectives, and team members have interdependent roles (for a discussion of the distinction between groups and teams see section 2.1.1).

5.3 RESPONSE RATES

Another methodological issue is that gender diversity tends to be calculated from data on only some of the team members. Of the studies cited in this review only two studies (that of Allen et al, 1996, and O'Reilly et al, 1999) reported the number of responses used in calculating scores. However, whilst only two of the studies mentioned the issue, it is likely that the others also made the same error. In an extensive review of the literature on all types of diversity not one field study reported having diversity data on all team members. It is likely that anyone achieving the difficult task of collecting data on all team members would mention the advantage their study had. Therefore, whilst only two studies are talked about in terms of this issue, it is unlikely that the conclusions are relevant to these studies alone.

The O'Reilly et al (1999) study used data so long as at least three team members had responded to the survey. Since team size ranged from 3 to 14, with a mean team

size of 5.8, this study is likely to have calculated diversity based on very incomplete team data. In the Allen et al (1996) study the gender dissimilarity index was calculated for teams for which the researchers had attribute data for at least 70% of team members. This, as the researchers note, is a step forward from other research in the field (such as O'Reilly et al, 1999) which has calculated dissimilarity indexes with a greater proportion of missing data or has relied on respondents self reports of their similarity to team members. However, although this criterion of 70% is an improvement on the majority of past research, it is still making an assumption that the non respondents attributes will be randomly distributed. This, although a reflection of the difficulty of applied research into teams, is not a valid assumption. For instance, consider a team of 10 people composed of 8 female nurses and 2 male doctors, from whom we receive 8 questionnaires back from women. Instead of considering this in analyses as a team with minority men we would be considering it as a single sex team. Many researchers assume that the non-respondents would be randomly distributed. Under this assumption, given two non-respondents and eight female respondents we would expect the non-respondents to be either two women or one man and one woman. However, in reality it is plausible to consider that the doctors may be less likely to fill in a questionnaire; for example, because they have more status within the organisation they may feel less need to express their views through a survey. Indeed it is not unreasonable to expect the two non-respondents to be the male doctors, a possibility that is not accounted for if gender diversity is calculated without knowing the gender of each team member.

Therefore, in order to ensure that team gender diversity was accurately measured in this research, teams were only included in analyses if the gender diversity index could be calculated using the gender of all team members.

5.4 VARIATION IN THE DEPENDENT VARIABLES ADOPTED

There is also variation between past studies into team gender diversity in terms of the aspects of team functioning under investigation. This variation in focus poses two critical problems in drawing conclusions based on the body of past research. First, no findings have been replicated and thus it is difficult to ascertain the robustness of findings within the literature. Second, the conflicting findings in the literature could be due to the fact that different aspects of team functioning are being measured, and thus conclusions about the differential effects of organisational context, gender and type of team can only be speculative. An additional problem caused by the variation in the dependent variables of different studies is that it is difficult to determine which variables to investigate in future research.

Research has shown that team processes are likely to be the key to understanding diversity (e.g. O'Reilly et al, 1989; Smith et al, 1994; Pelled, 1997: see section 4.2.1). However, which team processes to concentrate on is less clear. One direction is to follow the task and socio-emotionally oriented differences highlighted within the Trait Approach (see sections 3.1.1.2 and 3.1.1.3). In this approach it was proposed that increasing proportions of men would lead to a greater task focus and increasing proportions of women would lead to a more socio-emotional focus. Examining the effect of gender diversity on task and socio-emotionally related team processes therefore appears to be an interesting direction to take. By doing this research does not however ignore the other theoretical perspectives since these suggest that team functioning would either enhance (Social Contact Theory) or deteriorate (Social Identity Theory, Similarity Attraction Paradigm. Social Competition Theory) with increasing proportions of a minority. Therefore on the basis of these other approaches we would

expect both task and socio-emotional processes to either enhance or deteriorate with varying proportions of women.

Consequently dependent variables that enable the distinction between task and socio-emotional processes were chosen for this research. One measure that incorporates both a task and a social focus is the Team Climate Inventory (TCI) developed by Anderson & West (1994). The TCI focuses on the degree to which the team has a climate for innovation, and provides a way of assessing the level of healthy functioning in a team at any given time. Four factors of team climate are outlined by Anderson and West (1994):

1. *Participative safety:* assesses the degree of participation within the team, and feelings of safety in making suggestions / ideas.
2. *Support for innovation:* measures the extent to which support is given by team members to implement new ideas and proposals.
3. *Vision:* assesses team members' perceptions of the clarity of team objectives and the teams commitment to these objectives.
4. *Task orientation:* examines the extent to which team members interact to promote excellence in the teams' work.

Of particular relevance is the fact that two of these factors are more socio-emotionally oriented (participative safety and support for innovation) and the other two factors assess more task oriented aspects of team working (task orientation and vision).

5.5 CHAPTER SUMMARY

This chapter has addressed several methodological issues that are of critical importance to research into team gender diversity. Firstly, there are number of concerns with the way in which gender diversity has been conceptualised in the past. Not only

does inconsistency between studies make it difficult to compare the results found several of the most popular conceptualisations have severe statistical and conceptual limitations. One measure that avoids these difficulties is the proportion of women in the team. Whilst this measure can be used at either a team or an individual level of analysis, the possibility of differential diversity effects for men and women makes the individual level of analysis the most appropriate level of analysis for this research. Another issue, one which been over looked by the majority of past research, is the possibility of curvilinear effects. The research reported here therefore explored the possibility of both linear and non-linear relationships between the proportion of women in the team and perceptions of team functioning.

A second methodological issue is that a substantial number of studies in the past have used respondents' self-reports of their work group. This approach provides a subjective measure where the unit under investigated differs both between and with studies. It is therefore more appropriate to gain objective measures of teams as defined by the organisation.

This is linked to the third methodological issue, which concerns the fact that past research has calculated gender diversity with incomplete demographic information about the team. Consequently past research has not accurately measured gender diversity. In order to achieve a more reliable gender diversity index the research presented here only used data if the gender of all the members of the team in question was known.

Finally, variation in the dependent variables used within past studies mean that it is difficult to make comparisons between the effects found. The research reported here therefore used the same dependent variables across all three studies. However, although past research indicates that team processes are of particular importance in understanding

team diversity there is little indication within past research as to which team processes are the best to investigate. This research therefore took direction from the Trait Approach and used the Team Climate Inventory (developed by Anderson & West, 1994) to assess how gender diversity affects task and socio-emotionally oriented team processes. Having addressed within this chapter the important methodological issues that arise from past research the next chapter introduces and outlines the three studies that form the basis of this research.

CHAPTER 6

INTRODUCTION TO THE STUDIES

The previous chapters have established strong theoretical, research and pragmatic reasons for expecting team gender diversity to be an important factor in team functioning. Within organisations there has been seen to be a substantial move towards team-based working (Francis et al, 1982; Sundstrom et al, 1990; Mohrman et al, 1995). In addition, there have been increasing proportions of women in the work force and greater gender desegregation of work settings (see section 2.2.2.3). The confluence of these trends means that team gender diversity is a particularly pertinent issue for modern organisations. Further, theories discussed within the both the diversity literature and the field of social psychology more generally suggest gender diversity will affect team functioning (see chapter 3).

The review of the literature showed that there is a great need for research in this area (see chapter 4), primarily because past research does not provide a coherent body of findings. Thus, the basic aim of this thesis was to investigate the affect of team gender diversity on team members' perceptions of the processes of their teams. However, reviewing both theory (see chapter 3) and past research (see chapter 4) also suggested that gender diversity might have differential effects on men and women (see section 4.3.1) and across management and non-management teams (see section 4.3.3). These conclusions lead to the questions addressed in this research:

Research Question 1: Does team gender diversity effect perceptions of team functioning?

Research Question 2: Is there a differential impact of team gender diversity on men and women?

Research Question 3: Does the effect of team gender diversity depend upon the organisational level at which the team operates?

The organisational context within which team gender diversity was studied was also considered to be important (see section 4.3.2). The reasons for this were twofold. Firstly, Social Identity Theory suggests that the effect of team gender diversity will be greater in contexts where gender is salient. Secondly, reviewing the past literature on team gender diversity suggested that the organisational context in which studies were conducted might explain the conflicting gender diversity effects observed. A final issue addressed by this thesis was therefore whether the effects of team gender diversity differ across different organisational contexts.

Research Question 4: Does the effect of team gender differ across organisational context?

To achieve this, cross-sectional questionnaire-based studies were conducted in three very different organisational contexts: the male dominated manufacturing industry, the female dominated health service and a gender balanced local government housing department. In order to ensure that these studies provided the most appropriate examination of team gender diversity effects, the methodological issues that were addressed in chapter 5 were all taken into account. Consequently, within all three studies team gender diversity was conceptualised as the proportion of women in the team and analyses were conducted so as to explore the possibility of both linear and curvilinear effects at the individual level of analysis. In addition, objective measures of teams as defined by the organisations were used and a gender diversity index was only calculated if the gender of all team members was known. Finally, in order that comparisons could be made across the studies, the same dependent variables were used

in all three studies. Since past research provided little indication as to which team processes should be investigated the research presented here took direction from the Trait Approach and used the socio-emotional and task related team processes measured in the Team Climate Inventory (developed by Anderson & West, 1994) (see section 5.4).

In summary, three questionnaire-based studies were conducted examining the effect of team gender diversity on team climate within a male dominated, a female dominated and a gender balanced context. The next three chapters report on the findings of these studies, each study comprising one chapter.

CHAPTER 7

STUDY 1: THE EFFECT OF TEAM GENDER DIVERSITY ON TEAM FUNCTIONING IN A MALE DOMINATED CONTEXT

This chapter reports on the findings of the first study, which explored the effect of team gender diversity in a male dominated organisational context. In particular, the first two questions were investigated. Firstly, whether there was an overall effect of team gender diversity on team functioning. Secondly, whether men and women were differentially affected by team gender diversity.

The male dominated context chosen as the focus for this study was the UK manufacturing industry. Recent statistics confirm the dominance of male employees in this work sector; for example, women were reported to only represent 28% of the UK manufacturing workforce in 1999 (Labour Market Trends, September 1999). Study 1 was therefore a cross-sectional questionnaire based investigation of teams from the manufacturing industry.

7.1 METHOD

7.1.1 Sample

7.1.1.1 Obtaining Access to Teams

In April 1996 202 manufacturing companies from 5 industrial sectors (engineering, electronics, plastic and rubber, food and drink, and a miscellaneous group) were approached and invited to participate in a study on team functioning. These

companies were chosen because of their previous involvement in research conducted by the Institute of Work Psychology, University of Sheffield. A letter explaining the proposed study and offering feedback on team functioning was sent to the Managing Director of each of the companies (see appendix A). A form was attached to the letter that requested, for each participating team: the team name, a list of all team member names and a named supervisor of the team (see appendix A). Gaining the names of each of the team members (including title e.g. Mrs, Miss, Ms or Mr), rather than just information on the team size enabled team gender diversity to be calculated prior to the administration of the questionnaires. It also facilitated questionnaire administration and ensured that the researcher could identify the team to which the individual belonged on the questionnaire itself (see section 7.1.2 for a more detailed discussion of this issue).

7.1.1.2 The Sample of Teams

Access was gained to a total of 26 teams, comprising 163 individuals. Eleven managing directors responded positively, giving access to a total of 29 teams. However, no questionnaires were returned from three of these teams, it was therefore assumed that these teams decided not to participate in the study. In retrospect, there are probably several reasons why so few teams agreed to participate in the study. Firstly, the companies had already been involved in several lengthy and time consuming projects carried out by researchers at the Institute of Work Psychology. Secondly, previous studies had involved the Top Management Teams. In contrast, the present study investigated teams other than elite teams and therefore companies may have been less interested in team development issues.

From the 26 teams participating in the study, 113 questionnaires were returned giving an overall response rate for the sample of 69%. However, 16 questionnaires were returned with their team identification removed. Thus, the final sample used in analyses was 97 individuals, representing a response rate of 60%, and comprising 18 teams. A chi-square analysis comparing the response rates of men and women showed no significant gender difference (χ^2 (1) = 1.078; $p > 0.1$, see table C1 in appendix C).

7.1.2 Questionnaire Administration

The questionnaires, which included sections on background characteristics and perceptions of team processes (see section 7.1.3.2), were sent to team supervisors in June 1996. Each team supervisor received a cover letter that introduced and explained the study, and requested that they distribute the enclosed questionnaires to each of the team members (see appendix A).

Team members were provided with a prepaid reply envelope and were asked to return their completed questionnaire directly to the researchers. All questionnaires were completed anonymously, and participants were assured of strict confidentiality. In an attempt to increase the likelihood of team members completing the questionnaire, identification numbers were not used within this survey. The front cover of the questionnaires did however specify the team to which the respondent was a member and a list of team members names. The reasons for this were twofold. Firstly, it enabled the researcher to identify the team about which the participant was responding, without the use of codes that may have put the participant off completing the questionnaire. Secondly it ensured that the respondent answered the questions in relation to an organisationally defined team rather than a self-defined work group (see section 5.2 for

a discussion of this issue). Often employees belong to more than one team so asking them to respond about 'their team' is too ambiguous, and can lead to confused and erroneous results. This was particularly critical in the present study because the questionnaire did not ask for information about the gender diversity of teams (this information was gained from companies prior to the study), therefore it was essential that the respondent was referring to the team about which the researcher already had diversity information. In addition, the researcher was also able to ensure that the information obtained about the diversity of the team was correct, since the team members should pick up any mistakes.

7.1.3 Measures

The measures used in this study are described below.

7.1.3.1 Gender Diversity

Team gender diversity was the independent variable under investigation in this study, and was conceptualised as the percentage of women in the team (see section 5.1 for the rationale for this conceptualisation of gender diversity). The gender of all team members was ascertained from lists of team members provided by the company prior to the study. Therefore, this gender diversity measure was an accurate measure of the proportion of women in the team as a whole. This is in contrast to most diversity studies, which measure gender diversity based only on the gender of respondents (see section 5.3). The teams in this sample ranged from 0% to 50% women.

7.1.3.2 Team Processes

Perceptions of team processes were measured using the Team Climate Inventory (TCI) developed by Anderson & West (1994). The TCI focuses specifically on the degree to which the team has a climate for innovation, and provides a way of assessing the level of healthy functioning in a team at any given time. Four broad climate factors were investigated within the 38 items of the TCI: participative safety, support for innovation, task orientation and vision (for a full listing of the items in each scale see appendix B). All four scales used a 5-point likert scale ranging from 1 'strongly disagree/very inaccurate' to 5 'strongly agree/very accurate'.

(a) Participative Safety

This 12-item scale measured the participation that occurred within the team, and the degree to which team members felt safe in making suggestions. The scale included items such as "We share information generally in the team rather than keeping it to ourselves", "People feel understood and accepted by each other" and "We interact frequently". The present study found a high internal consistency, the Cronbach alpha was 0.87, which is similar to that reported by Anderson & West (1994) (Cronbach alpha = 0.89).

(b) Support for Innovation

This scale, comprising 8-items, measured the extent to which support was given by team members to implement new ideas and proposals. Items included: "Assistance in developing new ideas is readily available" and "Members of the team provide and share resources to help in the application of new ideas". Cronbach alpha was 0.89, which is

consistent with the internal reliability reported by Anderson & West (1994) (Cronbach alpha = 0.92).

(c) Task Orientation

This 7-item scale measured the extent to which team members interact to promote excellence in the team's work. Items included: "Are team members prepared to question the basis of what the team is doing?"; "Do members of the team build on each other's ideas in order to achieve the best possible outcome?" and "Is there concern among team members that the team should achieve the highest standards of performance?". West & Anderson (1994) reported a Cronbach alpha of 0.92, the present study similarly found a sufficient internal reliability (Cronbach alpha = 0.85).

(d) Vision

This 11-item scale measured team members' perceptions of the clarity of team objectives and teams members' commitment to these objectives. Items included: "How clear are you about what your team objectives are?"; "To what extent do you think that your team's objectives can actually be achieved?"; "To what extent do you think other team members agree with these objectives?" and "How worthwhile do you think these objectives are?". Cronbach alpha was 0.93, which is similar to the internal consistency reported by Anderson & West (1994) (Cronbach alpha = 0.94).

7.1.3.3 Control Variables

The relationship between the proportion of women in the team and perceptions of team functioning could be confounded by several variables.

1. *Team size.* Team size has been found to have an important impact on team dynamics (e.g. Brewer & Kramer, 1986; Mullen & Cooper, 1994), and larger teams are more likely to be diverse (Jackson et al, 1991). Team size was therefore controlled for in analyses and this information was gained from the lists of team members obtained from the companies prior to administering the questionnaire.
2. *Team tenure.* Past research has found that the effect of demographic diversity on team functioning diminishes as the length of time that team has been operating increases (Harrison et al, 1998; Pelled et al, 1999). Therefore, team tenure (at the individual level) was also controlled for. Respondents were asked to indicate the length of time they had worked in the team in years and months. A continuous measure of team tenure in months was then used in analyses.
3. *Gender.* Gender effects need to be controlled for to ascertain that diversity has an effect above and beyond the effect of simple demographics (e.g. Tsui et al, 1992). A dummy coded gender variables (0 = female, 1 = male) was therefore used as the third and final control variable in analyses.

Due to the small female sample (n=13) it was only appropriate to use covariates when conducting analyses of the whole sample (n = 97). The absence of results controlling for team size and team tenure when looking at the differential impact of gender diversity on men and women means that caution is needed when considering those results. However, in the analyses of the whole sample, team size was only found to have a significant effect on vision, and team tenure was not found to have an effect on

any of the dependent variables (see table 7.1). It is likely, therefore, that the results reported are representative of the true patterns within the data.

7.1.4 Validation of the Team Climate Inventory

Due to the small size of the sample (n = 97) factor analyses were not conducted within this study. A participants-to-items ratio of 4:1 or 5:1 is required for exploratory factor analysis (Floyd & Widaman, 1995) and Streiner (1994) recommends that a 5:1 ratio is only satisfactory as long as there are more than 100 participants. If there are less than 100 participants in the sample Streiner suggests that a 10:1 ratio is needed. Since the sample in this study is less than 100, only 9 items could be included in the factor analysis. Such a small factor analysis would be meaningless and therefore it was decided that it was more appropriate to construct the scales on the basis of the four factors of the TCI without checking the factor structure of the data. This structure was, however, confirmed in study 2 (see section 7.1.4), although alterations to the original structure were made in study 3 (see section 8.1.4).

7.1.5 Data Analysis

The research questions were investigated using hierarchical multiple regression analyses. Following a procedure recommended by Aiken & West (1991) higher order terms were deliberately built into the regression equation so as to enable the investigation of both linear and curvilinear effects. The regression equation used was:

$$Y = b_0 + b_1X + b_2X^2$$

Where X and X^2 represent the linear and quadratic components of the effect of X on Y. Using this equation the linear trend in the relationship between X and Y is indicated by

the coefficient b_1, and the b_2 coefficient indicates the direction of the curvature. A linear relationship between X and Y is evidenced by a significant b_1 coefficient and a non-significant b_2 coefficient. In contrast a curvilinear relationship between X and Y is evidenced by a significant b_2 coefficient (and either a significant or non-significant b_1 coefficient).

Moderator effects are typically investigated using an interaction term (in this case gender multiplied by the proportion of women in the team or gender multiplied by the square of the proportion of women in the team) within hierarchical multiple regression analyses. However, due to the high association between gender and the proportion of women in the team such an interaction term is statistically inappropriate. Therefore in order to determine whether or not there were differential effects of the proportion of women in the team on the perceptions of women and men hierarchical multiple regression analyses were conducted separately for the male and female samples.

Due to the small sample sizes, especially when analyses were conducted separately within the male and female samples, strict significance levels were not adhered to as evidence of significance and non-significance. Instead a relationship was concluded to be significant if its effect size was equal or larger in magnitude to effects found to be significant at the 0.05 level within other analyses.

7.2 RESULTS

7.2.1 Descriptive Analyses

7.2.1.1 Team Characteristics

The mean team size was 7.01 ranging from 3 to 10, and the mean individual team tenure was 1 year 8 months ranging from 1 month to 15 years 5 months. The majority (33.0%) of respondents reported that their teams met less than once a month, and 27.8% of respondents reported that their teams met daily.

7.2.1.2 Characteristics of Sample

The mean age of respondents was 41.4 ranging from 20 years to 65 years. There were 82 male respondents (84.5%), and 14 of the respondents were female (14.4%), one respondent declined to reveal their gender. In terms of ethnic origin, 91.5% of respondents defined themselves as "White - UK". Respondents ranged in educational level from "no formal education" to "postgraduate or equivalent level". The majority of respondents (75.3%) were married. On average respondents had been working in their company for 12 years 5 months, ranging from 4 months to 49 years; and the mean industry tenure of respondents was 17 years 2 months, ranging from 6 months to 49 years.

7.2.1.3 Gender Differences in Team and Sample Characteristics

Due to the manufacturing industry being such a male dominated environment it is possible that the characteristics of the teams to which men and women belong differ. In addition, there may be gender differences in respondents' work and demographic backgrounds. To investigate this t-tests and chi-square analyses were performed. In terms of both team characteristics and respondents work characteristics, no significant gender differences were found (see table C2 and C3 in appendix C). In addition, the demographic profile of the men and women was remarkably similar; there were no significant gender differences in terms of the educational background, age, ethnicity, marital status nor in whether or not respondents had children (for table of results see tables C2 and C3 in appendix C).

7.2.1.4 Gender Differences in Perceptions of Team Functioning

It was found that on all the scales women rated their team more positively than did men (see table C4 in appendix C). In order to examine the differences between the responses of men and women after controlling for team size and team tenure, Analysis of Variance (ANOVAs) were performed separately on each of the team processes. The perceptions of men and women were only found to be significantly different in terms of support for innovation ($F(1,87) = 4.373$; $p = 0.040$) (see table C5 in appendix C).

7.2.1.5 Correlation Analyses

Zero-order correlation analyses, with pairwise deletion of missing values, were conducted in order to explore the relationships between each of the variables in this study (see table C6 in appendix C). The proportion of women in the team was found to

be positively associated with support for innovation [r(94) = 0.21; p = 0.042], team size [r(96) = 0.49; p < 0.001] and gender [r(96) = 0.41; p < 0.001]. In terms of the other variables it can be seen that team size was only related to vision [r(91) = 0.25; p = 0.017]. Interestingly gender and team tenure were not found to be related to any of the team processes. Finally, not surprisingly, all four team processes were inter-correlated. However, since the highest correlation was 0.76 (between participative safety and support for innovation) none of these relationships were so high that they could be considered to be measuring the same construct[1].

7.2.2 Research Question 1: Does Team Gender Diversity Affect Perceptions of Team Functioning?

Hierarchical multiple regression analyses were conducted to determine the relationship (either linear or curvilinear) between proportion of women in the team and perceptions of team processes, after controlling for team size, gender and team tenure (see table 7.1). The control variables were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic term of the proportion of women in the team [i.e. (the proportion of women)^2] was entered as step 3 (see section 7.1.5 for an explanation of this method of statistical analysis).

[1] Tabachnick and Fidell (1996) recommended that correlations below 0.90 should not be considered to be mutlicollinear.

Table 7.1: Summary of Results for Hierarchical Regression Analyses Testing for Linear and Curvilinear Predictors of Team Processes (Manufacturing Sample)

	Participative Safety (n = 88)			Support for Innovation (n = 87)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.007	0.032	-0.024	0.003	0.036	0.010
Gender	0.194	0.164	0.130	0.383	0.183	0.227**
Team tenure	0.001	0.002	0.033	0.000	0.003	0.009
	$R^2 = 0.018$	df = 3	p > 0.1	$R^2 = 0.019$	df = 3	p > 0.1
Step 2						
Team size	-0.040	0.037	-0.138	-0.034	0.041	-0.103
Gender	0.062	0.178	0.042	0.235	0.198	0.139
Team tenure	0.001	0.002	0.025	0.000	0.003	0.002
Proportion of women	0.008	0.005	0.248 *	0.009	0.005	0.245 *
	$\Delta R^2 = 0.037$	df = 4	p = 0.074	$\Delta R^2 = 0.036$	df = 4	p = 0.074
Step 3						
Team size	-0.043	0.035	-0.150	-0.038	0.038	-0.118
Gender	0.093	0.172	0.062	0.283	0.187	0.168
Team tenure	0.002	0.002	0.110	0.003	0.003	0.111
Proportion of women	-0.020	0.012	-0.593 *	-0.032	0.013	-0.828**
Quadratic proportion of women	0.001	0.000	0.869 **	0.001	0.000	1.107***
	$\Delta R^2 = 0.070$	df = 5	p = 0.012	$\Delta R^2 = 0.111$	df = 5	p = 0.001
	Task Orientation (n = 88)			**Vision (n = 85)**		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	0.030	0.041	0.081	0.093	0.038	0.265 **
Gender	0.242	0.208	0.127	0.275	0.201	0.147
Team tenure	-0.000	0.003	-0.008	-0.003	0.003	-0.122
	$R^2 = 0.026$	df = 3	p > 0.1	$R^2 = 0.105$	df = 3	p = 0.027
Step 2						
Team size	0.007	0.047	0.020	0.089	0.044	0.254 **
Gender	0.153	0.228	0.081	0.259	0.220	0.139
Team tenure	-0.000	0.003	-0.012	-0.003	0.003	-0.123
Proportion of women	0.006	0.006	0.131	0.001	0.006	0.024
	$\Delta R^2 = 0.010$	df = 4	p > 0.1	$\Delta R^2 = 0.000$	df = 4	p > 0.1
Step 3						
Team size	0.004	0.046	0.012	0.088	0.044	0.251 **
Gender	0.181	0.226	0.095	0.268	0.220	0.144
Team tenure	0.001	0.003	0.048	-0.002	0.003	-0.092
Proportion of women	-0.020	0.016	-0.459	-0.011	0.015	-0.267
Quadratic proportion of women	0.001	0.000	0.610*	0.000	0.000	0.301
	$\Delta R^2 = 0.034$	df = 5	p = 0.084	$\Delta R^2 = 0.008$	df = 5	p > 0.1

* p < 0.1 ** p< 0.05 *** p < 0.001

These analyses showed that there was a curvilinear relationship between the proportion of women in the team and participative safety [$\Delta R^2 = 0.070$; $p = 0.012$] and support for innovation [$\Delta R^2 = 0.111$; $p = 0.001$]. In addition, the curvilinear effect size between the proportion of women in the team and task orientation, although not significant at the $p < 0.05$ level, was reasonably large [$\Delta R^2 = 0.034$; $p = 0.084$][2]. It was therefore concluded that gender diversity also had an effect on perceptions of task orientation.

As can be seen in figures 7.1 to 7.3 the relationships formed predominantly positive concave upward curves. This indicates that, as women were beginning to be represented in teams, increasing proportions of women were associated with decreased team processes. However, after the proportion of women in the team reached 20% further increases in the proportion of women were associated with perceived participative safety (see figure 7.1), support for innovation (see figure 7.2) and task orientation (see figure 7.3). In addition this trend of increased team functioning exceeded the level of functioning found in all male teams. Interestingly, the proportion of women in the team was not found to have a significant effect on perceptions of vision [linear effect $\Delta R^2 = 0.000$; quadratic effect $\Delta R^2 = 0.008$: see table 7.1].

In summary, there was found to be an effect of team gender diversity on perceptions of team processes. In particular, in terms of participative safety, support for innovation and task orientation, it was found that the greater the proportion of women in the team the higher team members perceived the functioning of their teams. However, most critical to note is the fact that team functioning was perceived lowest in teams with

[2] Although not statistically significant this effect was considered meaningful because it was larger than effects found to be significant in studies 2 and 3 (see sections 8.2 and 9.2).

a token representation of women.

Figure 7.1: The relationship between the proportion of women in the team and perceptions of participative safety.

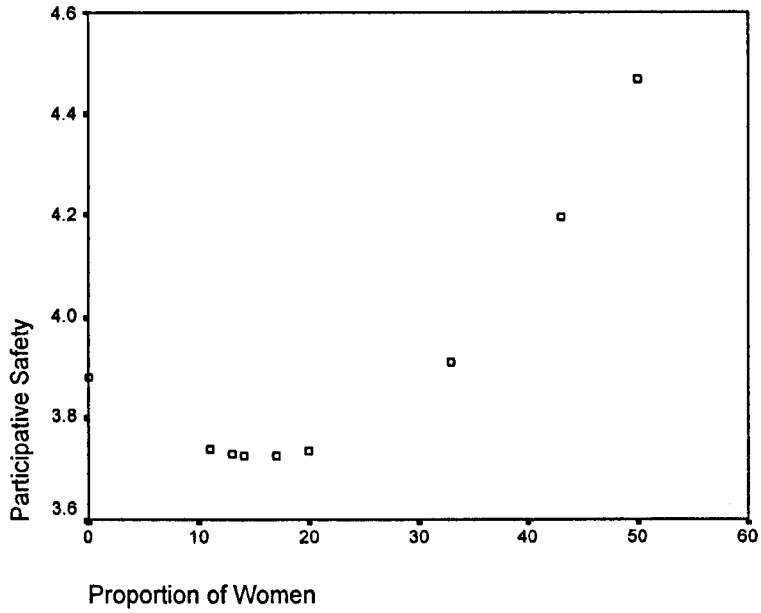


Figure 7.2: The relationship between the proportion of women in the team and perceptions of support for innovation.

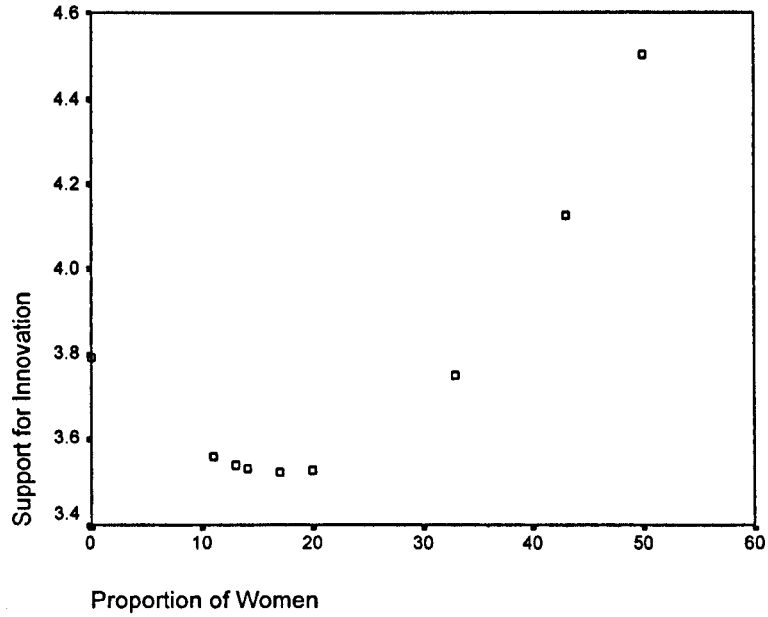
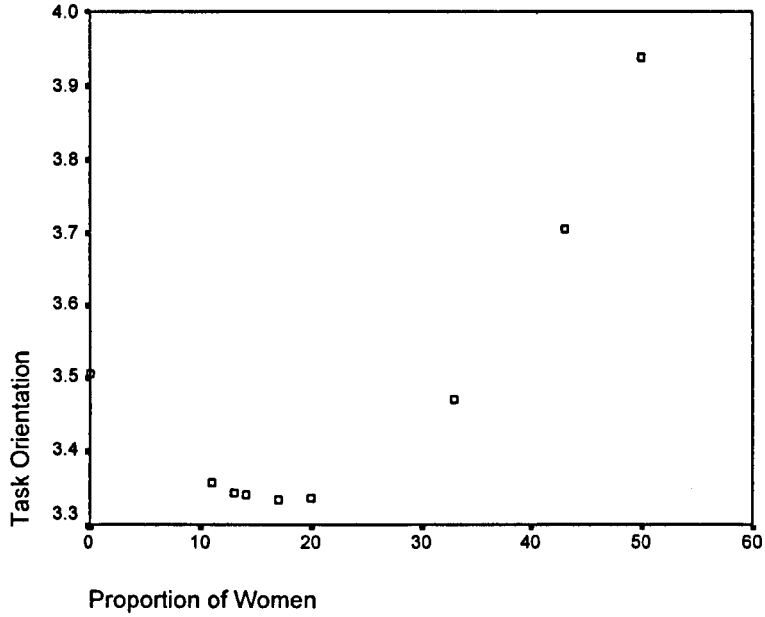


Figure 7.3: The relationship between the proportion of women in the team and perceptions of task orientation.



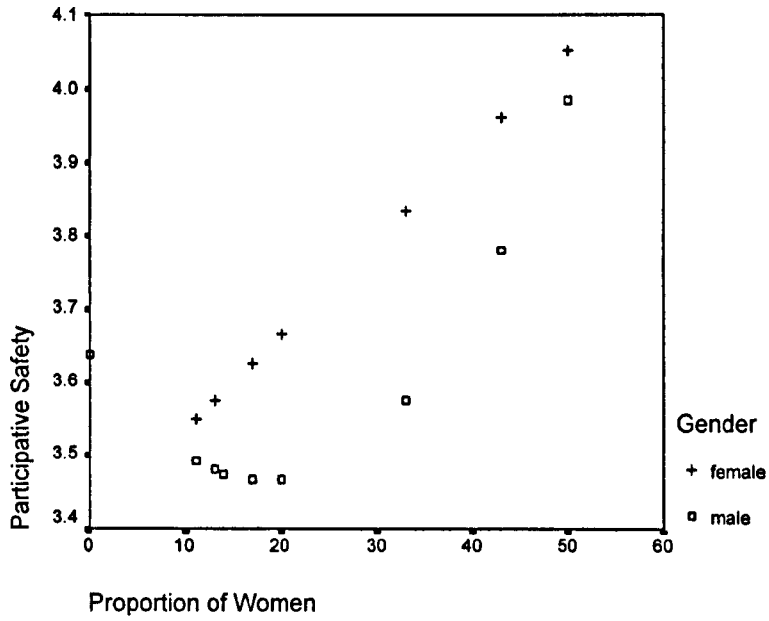
7.2.3 Research Question 2: Is there a Differential Impact of Team Gender Diversity on Men and Women?

Hierarchical multiple regression analyses were conducted separately within the male and female samples. For each sample, the proportion of women in the team was entered as step 1 and the quadratic proportion of women in the team term was entered as step 2. The results of these analyses are shown in tables 7.2 (a) and (b).

For men there was found to be a meaningfully large but non-significant curvilinear effect between the proportion of women in the team and perceptions of participative safety [$\Delta R^2 = 0.044$; $p = 0.062$] (see table 7.2b). As can be seen in figure 7.4 the pattern of this effect is similar to that for the sample as a whole with greater proportions of women in the team being associated with higher perceived participative

safety, and token teams having the lowest perceived participative safety. In contrast, in the female sample a large linear relationship was found between the proportion of women in the team and perceptions of participative safety [$\Delta R^2 = 0.120$; $p > 0.1$] (see table 7.3a). This means that the greater the proportion of women in the team the higher the perceived participative safety. Although this effect was not statistically significant, it demonstrated that the proportion of women in the team accounted for 12% of the variance in women's perceptions of support for innovation, and the effect was therefore sufficiently large to be deemed meaningful. The lack of statistical significance is due the very small sample of women (n=13).

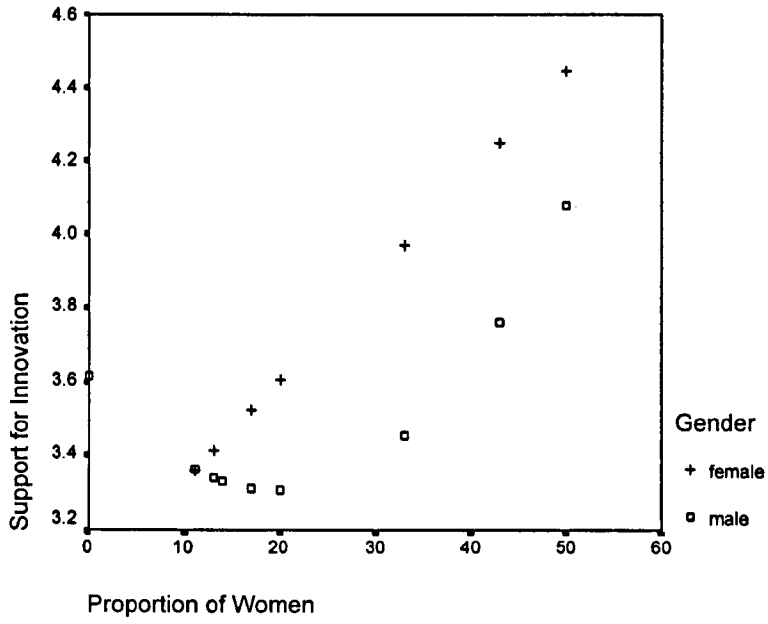
Figure 7.4: The relationship between the proportion of women in the team and perceptions of participative safety for men and women.



In terms of perceptions of support for innovation there was again found to be a significant curvilinear effect for the male sample [$\Delta R^2 = 0.098$; $p = 0.005$] (see table 7.2b) and a significant linear effect for the female sample [$\Delta R^2 = 0.345$; $p = 0.027$] (see

table 7.2a). As can be seen from figure 7.5 the pattern of these effects is the same as was found for participative safety. The greater the proportion of women the higher the perceived support for innovation, but for men these increases only began once the proportion of women had exceeded 20% women (i.e. token female representation). For men in teams with less than 20% women the presence of women in the team was associated with lower perceived support for innovation.

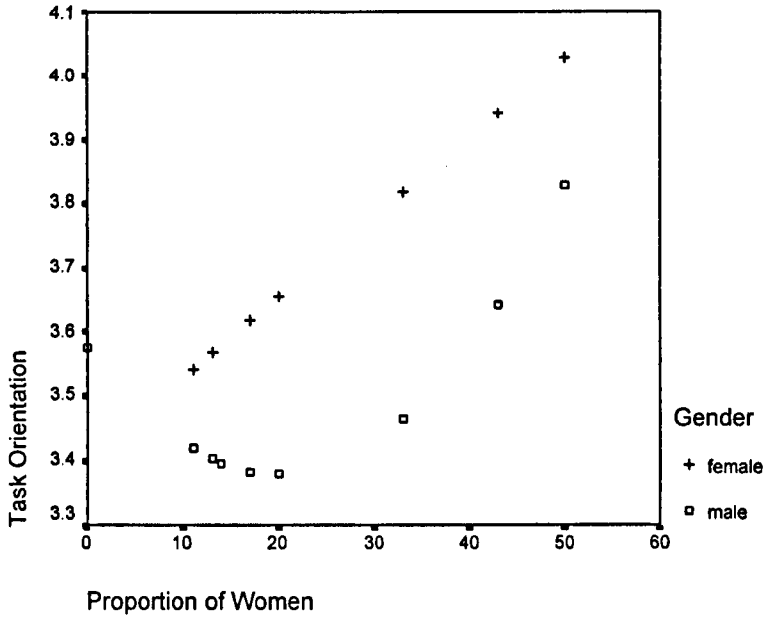
Figure 7.5: The relationship between the proportion of women in the team and perceptions of support for innovation for men and women



Although not statistically significant the size of the effects of the proportion of women in the team on perceptions of task orientation within both the male and female samples were sufficiently large to be deemed meaningful. Again, there was found to be a positive linear effect within the female sample [$\Delta R^2 = 0.049$; $p > 0.1$] (see table 7.2a)

and a curvilinear effect within the male sample [$\Delta R^2 = 0.025$; $p > 0.1$] (see table 7.2b)[3]. As can be seen from figure 7.6, the effect of the proportion of women in the team on men and women's perceptions of task orientation followed the same pattern as for participative safety and support for innovation.

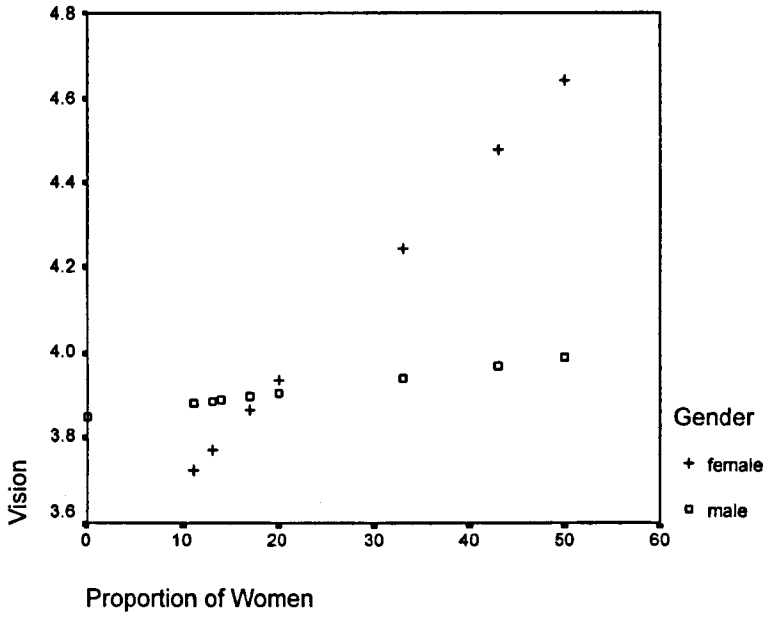
Figure 7.6: The relationship between the proportion of women in the team and perceptions of task orientation for men and women.



For women, the linear effect of the proportion of women in the team was found to account for 32.6% of the variance in perceptions of vision [$\Delta R^2 = 0.326$; $p = 0.042$] (see table 7.2a). Again it was found that the greater the proportions of women in the team, the higher the perceived team vision (see figure 7.7). No relationship between the proportion of women in the team and perceptions of vision was found within the male sample [linear $\Delta R^2 = 0.004$; quadratic $\Delta R^2 = 0.001$] (see table 7.2b).

[3] Although not statistically significant these effects were considered meaningful because they were larger than effects found to be significant in studies 2 and 3 (see section 8.2 and 9.2).

Figure 7.7: The relationship between the proportion of women in the team and perceptions of vision for men and women.



In summary, there were found to be differential effects of team gender diversity for men and women, both in terms of the magnitude and the nature of the effects. Firstly, women were found to be affected by team gender diversity to a greater extent than men. Secondly, whilst increasing proportions of women in the team were found to be beneficial for both men and women, for men this was only the case once the proportion of women in the team had exceeded 20%. When the proportion of women in the team was less than 20% increasing proportions of women were detrimental to men's perceptions of team functioning. Also of note is the fact for women gender diversity was found to affect perceptions of all four team processes whereas for men there was not found to be a relationship between the proportion of women in the team and perceptions of vision.

Table 7.2 (a): Summary of Results for Hierarchical Regression Analyses Testing for Linear and Curvilinear Predictors of Team Processes for Women (Manufacturing Sample)

	Participative Safety (n = 13)			Support for Innovation (n = 13)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Proportion of women	0.013	0.010	0.346	0.028	0.011	0.587 **
	$R^2 = 0.120$	df = 1	p > 0.1	$R^2 = 0.345$	df = 1	p = 0.027
Step 2						
Proportion of women	-0.015	0.057	-0.395	0.083	0.061	1.744
Quadratic proportion of women	0.000	0.001	0.753	-0.001	0.001	-1.176
	$\Delta R^2 = 0.019$	df = 2	p > 0.1	$\Delta R^2 = 0.046$	df = 2	p > 0.1
	Task Orientation (n = 13)			**Vision (n = 12)**		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Proportion of women	0.012	0.016	0.222	0.024	0.010	0.571 **
	$R^2 = 0.049$	df = 1	p > 0.1	$R^2 = 0.326$	df = 1	p = 0.042
Step 2						
Proportion of women	0.001	0.090	0.023	0.043	0.057	1.043
Quadratic proportion of women	0.000	0.001	0.203	-0.000	0.001	-0.481
	$\Delta R^2 = 0.001$	df = 2	p > 0.1	$\Delta R^2 = 0.008$	df = 2	p > 0.1

* p < 0.1 ** p< 0.05 *** p < 0.001

Table 7.2 (b): Summary of Results for Hierarchical Regression Analyses Testing for Linear and Curvilinear Predictors of Team Processes for Men (Manufacturing Sample)

	Participative Safety (n = 80)			Support for Innovation (n = 79)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Proportion of women	0.002	0.004	0.068	0.002	0.004	0.055
	$R^2 = 0.005$	df = 1	p > 0.1	$R^2 = 0.003$	df = 1	p > 0.1
Step 2						
Proportion of women	-0.019	0.012	-0.513	-0.032	0.013	-0.823 **
Quadratic proportion of women	0.001	0.000	0.617 *	0.001	0.000	0.932 ***
	$\Delta R^2 = 0.044$	df = 2	p = 0.062	$\Delta R^2 = 0.098$	df = 2	p = 0.005
	Task Orientation (n = 80)			**Vision (n = 78)**		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Proportion of women	0.001	0.005	0.017	0.003	0.005	0.062
	$R^2 = 0.000$	df = 1	p > 0.1	$R^2 = 0.004$	df = 1	p > 0.1
Step 2						
Proportion of women	-0.020	0.015	-0.427	-0.001	0.015	-0.027
Quadratic proportion of women	0.000	0.000	0.472	0.000	0.000	0.095
	$\Delta R^2 = 0.025$	df = 2	p > 0.1	$\Delta R^2 = 0.001$	df = 2	p > 0.1

* p < 0.1 ** p< 0.05 *** p < 0.001

7.3 DISCUSSION

This study addressed the first two research questions of this thesis within a male dominated organisational context, namely the manufacturing industry. First, it explored the overall relationship between the proportion of women in the team and perceptions of team processes. Second, it examined the differential effect of team gender on men and women. The results relating to each of these issues are discussed below.

7.3.1 General Gender Diversity Effects

The analyses of the sample as a whole showed that there were curvilinear relationships between the proportion of women in the team and team members perceptions of the participative safety, support for innovation and task orientation of their teams. Interestingly, the pattern of effects was the same for each of these relationships, with individuals from teams with a token representation of women reporting the lowest levels of team functioning. However, after the proportion of women in the team exceeded token status further increases in the proportion of women were associated with higher perceived participative safety, support for innovation and task orientation, and this trend increased beyond the level of functioning perceived by members of all-male teams. Therefore, although generally greater proportions of women were found to be associated with increased participative safety, support for innovation and task orientation, a token representation of women appeared particularly detrimental to these team processes, with members from such teams reporting the lowest levels of team functioning.

These results are consistent with the propositions of Social Contact Theories (in particular the work of Kanter, 1977) that token representation of a minority (in this case women) leads to particular difficulties. However the effects found once the proportion of women had exceeded tokenism are less easy to interpret.

This study found that, once tokenism had been exceeded, gender diversity was beneficial to team functioning. The findings are therefore in direct contrast to the proposition of several theories (Expectations-States Theory, Social Identity Theory, Similarity Attraction Paradigm and Social Competition Theory) that diversity will lead to a deterioration in team functioning. Interestingly Social Contact Theory suggested that increasing proportions of the minority would lead to better relations within teams. However, on the basis of Social Competition Theory single gender teams would be predicted to have better team functioning than any other type of team, because in single gender teams there would be no possibility of gender discrimination. Contrary to this, this study found that gender balanced teams had better team functioning than all-male teams. Therefore Social Contact dynamics do not appear to underlie the beneficial effects of diversity that were found in this study.

Two possible interpretations of the beneficial effects of diversity remain. Firstly, it is possible that diversity (i.e. increasing proportions of a minority) created better team functioning either because women as the minority brought different perspectives to the team or because a balance of male and female behavioural styles enhanced team functioning (as suggested by Bales, 1970). Secondly, it could be that women in particular acted in a way that increased team functioning. For example, it may be that women behaved in a more socio-emotional way and that it was this behaviour exhibited by women that enhanced team functioning. Since the range of gender diversity in this

sample was restricted to those teams with 50% women or less, it is impossible to determine from this study which of these alternative explanations is correct. The results from the next study do however shed light on the issue (see section 8.3.1).

It is also interesting to note that the social vs. task divide suggested by the Trait Approach was not confirmed in this study. On the basis of the Trait Approach it was suggested that participative safety and support for innovation would be found to increase with increasing proportions of women but that task orientation and vision would decrease (see section 5.4). This was not found to be the case since beneficial effects of increasing proportions of women were evidenced for all the team processes except for vision (for which no effect was found). It may therefore be that the task vs. socio-emotional distinction does not exist. Alternatively it could be that all aspects of team processes are socio-emotional. If this is the case the lack of distinction between the effect of gender diversity on the four dependent variables could be because only socio-emotional outcomes were measured in this study. Such a suggestion is consistent with the proposition that women (and therefore female dominated teams) are more team oriented than men (and therefore male dominated teams) (e.g. Gilligan, 1982; Rosener, 1995). Unfortunately, this issue of why a distinction was not found between the team processes used in this study cannot be resolved within this research. Future studies would therefore do well to further investigate the possibility of socio-emotional vs. task distinctions.

Finally, the fact that no association was found between the proportion of women in the team and perceptions of team vision provides an important methodological point. Had only the analyses of the whole sample been conducted it could have been suggested that this team process was unaffected because it is the one that concentrates least on

team interaction. Participative safety measures the degree of participation between team members and the psychological safety people feel in making suggestions. Support for innovation investigates the support team members receive from one another in implementing new ideas and proposals, and task orientation measures the extent to which team members interact to promote excellence in the teams work. In contrast team vision measures the clarity of team objectives and the commitment of team members' to these objectives. Thus, whilst participative safety, support for innovation and task orientation all measure forms of interaction, the team vision scale is far more goal oriented, examining the clarity of team objectives and the within team agreement on and commitment to these objectives. The results could therefore have been taken to suggest that team gender diversity had an impact upon the more interaction based aspects of team functioning whilst having little or no impact on the more goal related aspects of team working. This however is shown not to be the case by the results of the female sample where the proportion of women in the team was found to have a very substantial effect on perceptions of vision (see section 7.2.3). It therefore appears that the null effect of team gender diversity on perceptions of team vision within the sample as a whole is merely because the null effect within the male sample diluted the effect that occurred within the female sample (which was a far smaller than the male sample). This highlights the importance of investigating the differential impact of diversity for men and women since failing to do so would lead to erroneous conclusions being reached.

7.3.2 The Differential Effect of Team Gender Diversity on Men and Women

The second research question asked whether team gender diversity had a differential effect on men and women. The first thing to note is that whilst there were

effects within both the male and female samples the effects were much greater for women. In fact, the effect of the proportion of women in the team on women's perceptions were staggeringly large, accounting for 12%, 34%, 4.9% and 33% of the variation in women's perceptions of participative safety, support for innovation, task orientation and vision respectively. In contrast, the effect for men was more in line with the effects found for demographics in past research; with the proportion of women accounting for 4.4% of the variation in participative safety, 9.8% of the variation in support for innovation, and 2.5% of the variation in task orientation.

These findings therefore support the proposition of several of the theories (Gender-Role Theory, Social Identity Theory and Social Contact Theory) that women will be affected by team gender diversity to a greater extent than men. The findings are also similar to that of DiTomaso et al (1996) who found that, within a male dominated industrial setting, women were affected by team gender diversity whereas men were not. However within the present study, although women were affected to a greater extent than men, there were still found to be significant gender diversity effects on men.

Apart from the dramatically large effects within the female sample, there were also found to be differential patterns of effects within the male and female samples. For women it was found that the greater the proportion of women in the team the higher the perceived participative safety, support for innovation, task orientation and vision of the teams. In contrast for men, curvilinear relationships between the proportion of women in the team and perceptions of participative safety, support for innovation and task orientation were observed; with greater proportions of women being found to be associated with increased team functioning, but with a token representation of women being particularly detrimental. Interestingly, these effects within the male sample were

the same as those found within the sample as a whole; probably a result of the fact that the male sample was much larger than the female sample. Consequently, the results from the sample as a whole reflect the relationship within the male sample, rather than representing a general diversity effect. Once more, this highlights the importance of examining the differential effect of gender diversity on men and women.

However, despite the effects within the male and female samples being different in nature (i.e. linear vs. curvilinear), in reality the general pattern of effects were relatively similar. Since women can only be in teams where there is at least a token representation of women the curvilinear effect detected within the male sample is not possible. Thus the critical difference between the effects is that within the female sample any increase in the proportion of women increased perceptions of team processes, whereas in the male sample increases were only detected once the proportion of women exceeded about 20%. Although none of the theories examined this issue, intuitively this finding is unsurprising. For example, it is highly likely that being the only woman in a team of nine men is very different to being one of two women in a team with eight men. In contrast for men the difference of being one of eight or nine men with one or two women would have little impact.

These findings also appear to be in accordance with the effects reported in past research (see section 4.3.1 and 4.3.2). In particular, the finding that increasing proportions of women increased women's perceptions of team functioning is in accordance with DiTomaso et al's (1996) and O'Reilly et al's (1999) finding that dissimilarity was associated with decreased perceptions of team functioning within female samples. The similarity of the present study to the findings of DiTomaso et al (1996) is unsurprising since both the studies were set in male dominated contexts.

However, the O'Reilly et al (1999) study was set in a female dominated context and therefore the similarity of the findings to this study were less expected. In terms of the effect within the male sample, comparing the present findings with those of past research also highlights that the gender diversity effect observed was similar in direction despite the different context in which the studies were conducted. That is, this study found similar positive effects of dissimilarity for men to those reported by Allen et al (1996) and O'Reilly et al (1999). However, both these studies were set in female dominated contexts, which is in direct contrast to the male dominated context of the present study.

The comparison of the gender effects of the present study with those of past research could be interpreted in two ways. On the one hand, it may be that men gain some advantage from being dissimilar whereas women are disadvantaged by dissimilarity. On the other hand, it could be that increasing proportions of women are beneficial to both men and women. The results of this study in combination with the research literature therefore suggest that, regardless of organisational context, increases in the proportion of women (whether because they are women or because they are the minority) were beneficial to both men and women. However, it is important to note that a comparison of this study to the findings of studies 2 and 3 refutes the conclusion that organisational context has no influence (see section 10.1).

7.4 CHAPTER SUMMARY

This first study has shown that within a male dominated context increasing proportions of women in the team generally had a beneficial affect on team functioning. However, this effect was tempered by evidence that a token representation of women

was particularly detrimental to team functioning, with such teams having lower perceived team functioning than teams with no women. Team gender diversity was also found to have a differential effect on men and women. Although increasing proportions of women were associated with higher perceived team functioning within both the male and female samples, two important distinctions were observed. Firstly, the effect of team gender diversity was far greater for women than for men. Secondly, any increase in the proportion of women in the team was beneficial for women. In contrast, for men increasing proportions of women in the team were found to be detrimental to perceived team functioning until the proportion of women in the team exceeded 20%, after which beneficial effects of increasing proportions of women were observed.

CHAPTER 8

STUDY 2:THE EFFECT OF GROUP GENDER DIVERSITY ON TEAM FUNCTIONING IN A FEMALE DOMINATED CONTEXT

This chapter reports on the findings of the second study, which investigated the effect of team gender diversity within a female-dominated context. As in study 1, two research issues were addressed. Firstly, whether there was an overall effect of team gender diversity on team functioning. Secondly, whether men and women were differentially affected by team gender diversity.

The female dominated context chosen as the focus of this study was the health service. At the time of this study 80% of the workforce in the health sector were reported to be female (Labour Market Trends, July 1997). Consequently the health service was suitable for the present study since it provided a direct contrast to the male dominated context of study 1. Study 2 was therefore a cross-sectional questionnaire-based investigation of Health Service teams. The sample used was a part of a larger sample of health service teams[1] collected within the NHS Workforce Initiative[2] at the Institute of Work Psychology, University of Sheffield.

[1] Data collected by Dr. A. Carter, Institute of Work Psychology, University of Sheffield.
[2] The NHS Workforce Initiative was a longitudinal investigation of well-being in Secondary Health Care teams within 19 NHS Trusts. Data collection took place between 1994 and 1997, and the project was funded by the Department of Health.

8.1 METHOD

8.1.1 Sample

8.1.1.1 The Original Sample of Teams

In the original study, 11 trusts were selected from the 19 taking part in the NHS Workforce Initiative. These trusts were selected in order to represent the main types of NHS organisations. In particular the Trusts were selected in order to achieve variation in the size and type of trusts (Community, Teaching or District), and a mixture of Trusts placed within urban or rural communities. The Directors of Human Resources/Personnel were contacted and 10 out of the 11 Trusts agreed to take part in the research project. Four of these Trusts were Teaching Trusts, which provide acute and specialist hospital based care. Three were District Trusts, whose role is to combine the provision of acute and community care. Finally, there were three Community Trusts, which provide secondary health care within the community. Certain divisions were chosen within each of these Trusts in order to obtain a similarity in task across the sample of teams. Medical and surgical directorates were chosen from the Teaching and District Trusts, and mental health, care of the elderly and childrens' directorates were selected from the Community Trusts.

Within each of these directorates, managers selected teams to take part in the research project and for each team a contact person (usually the team leader) was nominated. Each team contact was telephoned and asked whether the team would be prepared to participate in the research study. Once access to the teams was gained the following definition of team working was discussed with the team contact: a team is *"a*

group of individuals who work together and have shared responsibilities and common goals. Ideally these teams would have 2 to 20 members but there can be flexibility to the upper limit if all these individuals form a work team". The team contact was then asked to provide the researcher with the name of the team, lists of team members' names and details about the work undertaken by the team. In order to check that the group of people named did in fact work as a team, the team contact was also questioned about the ways in which the team worked. In particular with large teams (those with more than 20 members) two prompts were used in order to check that the group of people described did in fact work as a team. Firstly, the team contact was asked "Do all these people work together for a common purpose?" and, secondly, "Are there any sub-divisions or other groupings within this team?". If the answers to these questions were "yes" and "no" respectively the team was included in the study despite its large size. In total 224 teams were contacted of which 201 agreed to participate. No questionnaires were returned from eight of the teams, therefore a total of 193 teams participated in the research. A total of 1,237 completed questionnaires were returned to the researcher, giving a survey response rate of 54% from these 193 teams.

8.1.1.2 The Sub-Sample used within this Study

For the purposes of the present study a sub-sample of the teams described above (see section 8.1.1.1) were selected for analysis. The criterion that formed the basis of the selection of this sub-sample was the availability of team gender diversity information. Teams were only chosen if the gender of all team members was known, since this information was essential for the accurate calculation of team gender diversity (see section 5.3). The gender diversity index was calculated from lists of team members

provided by the team contacts (usually team leaders) prior to questionnaire administration. Teams in which the gender of one or more team members was uncertain were not included in the study. However, where the team members in question had responded to the survey their gender was obtained from the questionnaire.

A total of 63 teams were selected for this study (comprising of 634 individuals), questionnaires were returned from 467 of the members from these teams, giving a sub-sample response rate of 74%. A chi-square analysis found a significant difference in the response rates of men and women (χ^2 (1) = 4.558; $p < 0.033$). With women being found to respond to the questionnaire more than men (see table E1 in appendix E for a table of this analysis).

8.1.2 Questionnaire Administration

Data collection took place between August 1994 and May 1996. As in study 1, questionnaires, which included sections on background characteristics and perceptions of team processes, were sent to the team contacts. The team contacts each received a covering letter, which explained the research project and requested that they distribute the enclosed envelopes to each of the team members (see appendix D). Each team member received a questionnaire, a pre-paid reply envelope, and a covering letter in a sealed envelope (see appendix D). The letter explained the research project and named the team about which the participant was being asked to respond. All participants were assured of confidentiality. Every questionnaire was marked with an individual identification number that enabled non-responders to be identified so that a second questionnaire could be sent as a prompt. The team name and list of team members was also included so as to ensure that team members were responding about the correct

team, and to check that the team composition data was accurate (see section 5.3 for a full description of this issue). Participants were requested to send their completed questionnaire directly to the researchers in the pre-paid reply envelope. To increase the response rate non-respondents were sent a second copy of the questionnaire after 8 weeks.

8.1.3 Measures

The measures that were used in this study are described below (for a full description, see section 7.1.3).

8.1.3.1 Gender Diversity

Team gender diversity was the independent variable, and was conceptualised as the percentage of women in the team (see section 5.1). The teams in this sample ranged from 60% to 100% women.

8.1.3.2 Team Processes

The Team Climate Inventory (TCI) developed by Anderson & West (1994) was used to measure team processes. For a full description of the TCI see section 7.1.3.2.

(a) *Participative Safety* - This scale was measured on a scale ranging from 1 = "strongly agree" to 5 = "strongly disagree". All the other scales (including the participative safety scales in studies 1 and 3) in this research were measured so that a high numbered response indicated a high level of the variable measured. Therefore the scores on this participative safety scale were re-coded so that the scores ranged from 1 = "strongly disagree" to 5 = "strongly agree". The Cronbach

alpha for this scale was 0.93, which is higher than that reported in both study 1 (Cronbach alpha = 0.87) and Anderson and West (Cronbach alpha = 0.89).

(b) *Support for Innovation* – This scale was measured on a 5-point scale ranging from 1 = "strongly disagree" to 5 "strongly agree". The present study reports a Cronbach alpha of 0.93 which is similar to that reported by Anderson & West (Cronbach alpha = 0.92) and higher than that reported in study 1 (Cronbach alpha = 0.89).

(c) *Task Orientation* – This scale was measured on a 7-point scale ranging from 1 "to a very little extent" to 7 "to a very great extent". The scale was the converted to a 5-point scale so as to be consistent with the other scales used in this research (see appendix F). The Cronbach alpha for this scale was 0.87 which is similar to that reported in study 1 (Cronbach alpha = 0.85) and lower than that reported by Anderson & West (Cronbach alpha = 0.92).

(d) *Vision* – This scale was measured on a 7-point scale, ranging from 1 "not at all" to 7 "completely". As with task orientation, in order to achieve consistency, this 7-point scale was converted to a 5-point scale (see appendix F). Cronbach alpha was 0.92 for this scale, which is similar to that reported in study 1 (Cronbach alpha = 0.93) and Anderson & West (Cronbach alpha = 0.94).

8.1.3.3 Control Variables

As in study 1, team size, team tenure and gender were used as control variables (see section 7.1.3.3). However, in this study an additional control variable, type of team, was also used in analyses. On the basis of past research and theory it was suggested that gender diversity might have differential effects in different types of team (see section 4.3.3). Many different types of team existed in the health service, however the most appropriate distinction between types of team was unclear. For example, even though secondary health care teams are mutli-disciplinary they operate in a very different way to multi-disciplinary surgical teams. It was therefore impossible to create categories of types of team that were similar enough to make it conceptually appropriate to investigate the effects of gender diversity within each type of team. Instead three broad categories of team were identified within the sample: nursing teams, multi-disciplinary teams and management teams. These were dummy coded to create two variables, nursing teams (nursing = 1, other = 0) and management teams (management = 1, other = 0), that were then used as controls within the analyses.

8.1.4 Validation of the Team Climate Inventory

Principal Components Analysis with oblimin rotation was performed on the four TCI scales. The four factors extracted were identical to the four TCI scales of participative safety (factor 1), support for innovation (factor 3), task orientation (factor 4), and vision (factor 2). All factor loadings were greater than 0.54, each of the four factors had an Eigenvalue greater than 1.9, and taken together the four factors explained 59.1% of the variance (see table E2 in appendix E).

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8.1.5 Data Analysis

As in study one, the research questions were investigated using linear and quadratic terms within hierarchical multiple regression analyses (see section 7.1.5). In addition strict significance levels were not adhered to (see section 7.15). Instead, a relationship was considered to be meaningful if its effect size was equal or larger in magnitude to effects found to be significant within other analyses.

8.2 RESULTS

8.2.1 Descriptive Analyses

8.2.1.1 Characteristics of Sample

Respondents ranged in age from 17 to 64 years old. The average size of team that respondents belonged to was 14.4, ranging from 4 to 44[3]. In terms of respondents tenure, the average team tenure of respondents was 4 years 4 months ranging from 1 month to 30 years 1 month. Only 18.4% of respondents had worked in their job for less than a year, with 43.5% having worked in their job between 1 and 5 years, 25.1% having worked in their job for between 6 and 11 years, and the remaining 12.5% having worked in their job for more than 11 years. The majority of respondents were nurses (61.3%): other types of jobs that respondents held were doctors (5.6%), administrative roles (7.5%), managers (6.0%), professionals allied to medicine (PAMS) (e.g.

[3] Although a team size of 44 was exceptionally large checks were made to ensure that the group of people named really did work together as a team (see section 8.1.1.1).

physiotherapists, occupational therapists) (16.9%), professional/technical (1.3%) and ancillary workers (1.3%). Correspondingly, the majority of respondents (55.7%) belonged to nursing teams, 26.8% of respondents were part of multi-disciplinary teams, whilst 16.1% of respondents were from management teams. There were 421 female respondents (90.1%) and 40 of the respondents were male (8.6%), 6 respondents declined to reveal their gender.

8.2.1.2 Gender Differences in Team and Sample Characteristics

To check for differences in the background characteristics of men and women t-tests and chi-square analyses were conducted (see tables E3 and E4 in appendix E). Gender differences were found in terms of team size [$t(459) = -5.26$; $p < 0.001$], and in terms of the job titles that respondents held ($\chi^2(4) = 64.23$; $p < 0.001$). Women were found to belong to larger teams and whilst women were most often nurses and administrators, men were more often doctors and managers. This is likely to be important in terms of the job status of men and women. Unfortunately, no meaningful job status data was available on the individuals and therefore the analyses in this study need to be considered in light of the fact that the only way of controlling for status was the type of team (management, nursing and multi-disciplinary) to which the respondent belonged.

8.2.1.3 Gender Differences in Perceptions of Team Functioning

There was found to be little distinction between men's and women's perceptions of team functioning (see table E5 in appendix E). However, ANOVAs were conducted

to check whether there were any significant differences after controlling for team size, type of team and team tenure (see table E6 in appendix E). No significant gender differences were found.

8.2.1.4 Correlation Analyses

Zero-order correlation analyses, with pairwise deletion of missing values, were conducted to explore the relationships between each of the variables in this study (see table E7 in appendix E). The proportion of women in the team was related to team participative safety [$r(464) = 0.11$; $p = 0.016$], team size [$r(467) = 0.28$; $p < 0.001$], team tenure ($r(445) = 0.14$; $p = 0.003$], both type of team variables [nursing $r(460) = 0.21$; $p < 0.001$: management $r(460) = -0.26$; $p < 0.001$] and gender [$r(461) = 0.39$ $p < 0.001$]. In terms of the other variables, team tenure was significantly related to team size [$r(455) = 0.26$; $p < 0.001$], support for innovation [$r(452) = 0.10$; $p = 0.030$], and task orientation [$r(453) = 0.11$; $p = 0.022$]. Team size was related to both type of team variables [nursing $r(460) = 0.21$; $p = p < 0.001$: management $r(460) = -0.24$; $p < 0.001$] and to task orientation [$r(464) = 0.11$; $p = 0.014$]. In addition, both type of team variables were related to task orientation [nursing $r(457) = 0.11$; $p = 0.015$: management $r(457) = -0.13$; $p = 0.005$]. As expected all four team processes were inter-correlated, although the highest correlation was 0.61 and therefore none of the correlations were high enough for the scales to be considered to be measuring the same construct (Tabachnick & Fidell, 1996).

8.2.2 Research Question 1: Does Team Gender Diversity Affect Perceptions of Team Functioning?

Hierarchical multiple regression analyses were conducted to determine the relationship (linear or curvilinear) between the proportion of women in the team and perceptions of team processes, after statistically controlling for team size, team tenure, type of team, and gender. The control variables were entered as step 1, the proportion of women was entered as step 2, and the quadratic proportion of women term was entered as step 3. Table 8.1 shows the results of these analyses.

It can be seen that in terms of participative safety both linear [$\Delta R^2 = 0.012$, $p = 0.021$] and curvilinear effects [$\Delta R^2 = 0.028$, $p < 0.001$] were detected (see table 8.1), therefore the proportion of women in the team was curvilinearly related to participative safety. Table 8.1 also shows that the proportion of women in the team was curvilinearly related to support for innovation [$\Delta R^2 = 0.009$; $p = 0.041$], task orientation [$\Delta R^2 = 0.018$; $p = 0.005$], and vision [$\Delta R^2 = 0.019$; $p = 0.004$].

Figures 8.1 to 8.4 show the pattern of these effects graphically. It can be seen that all the relationships formed predominately negative concave upward curves. This indicates that perceptions of each of the team processes become lower as the proportion of women in the team increased beyond 60% (which was the lowest proportion of women in the teams), with individuals from token male teams (between 80 and 85% women) reporting the lowest perceptions of team processes. Further increases in the proportion of women were then associated with increased perceptions of team processes, although all-female teams had lower perceived team functioning than the teams which were relatively gender balanced.

Figure 8.1: The relationship between the proportion of women in the team and perceptions of participative safety.

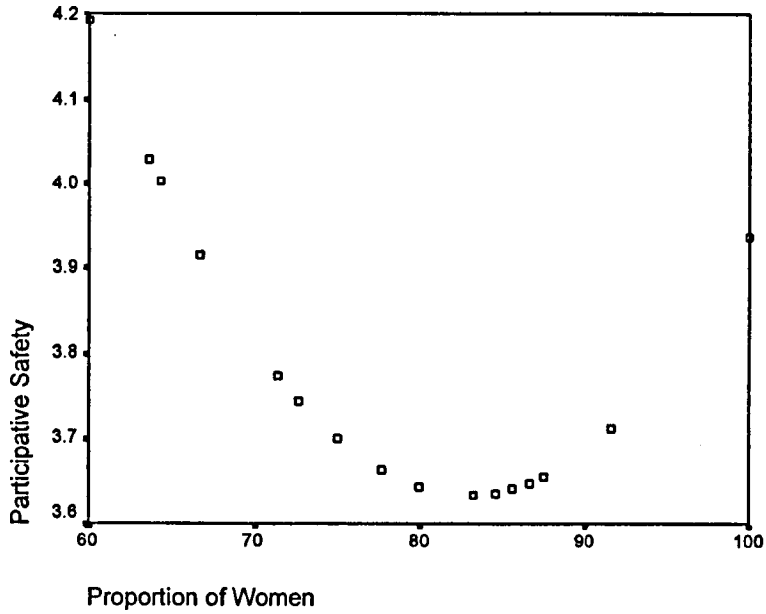


Figure 8.2: The relationship between the proportion of women in the team and perceptions of support for innovation.

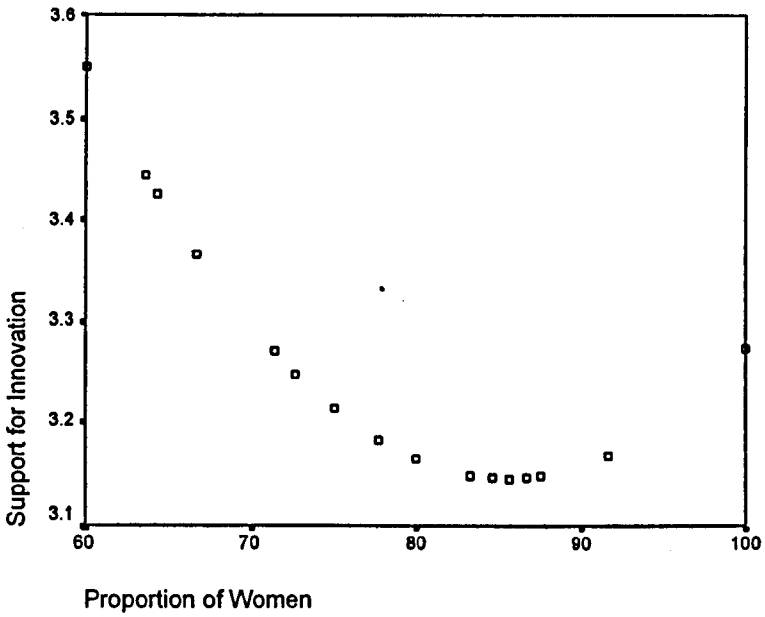


Figure 8.3: The relationship between the proportion of women in the team and perceptions of task orientation.

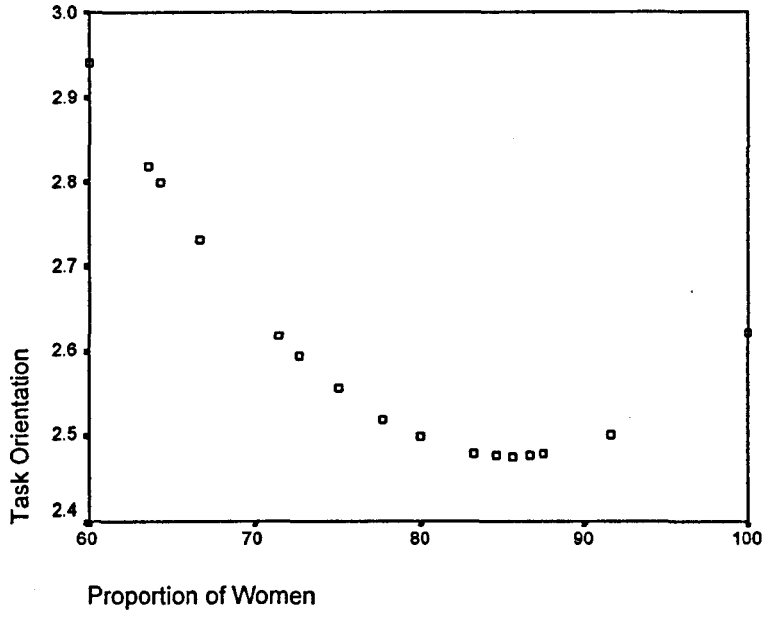


Figure 8.4: The relationship between the proportion of women in the team and perceptions of vision.

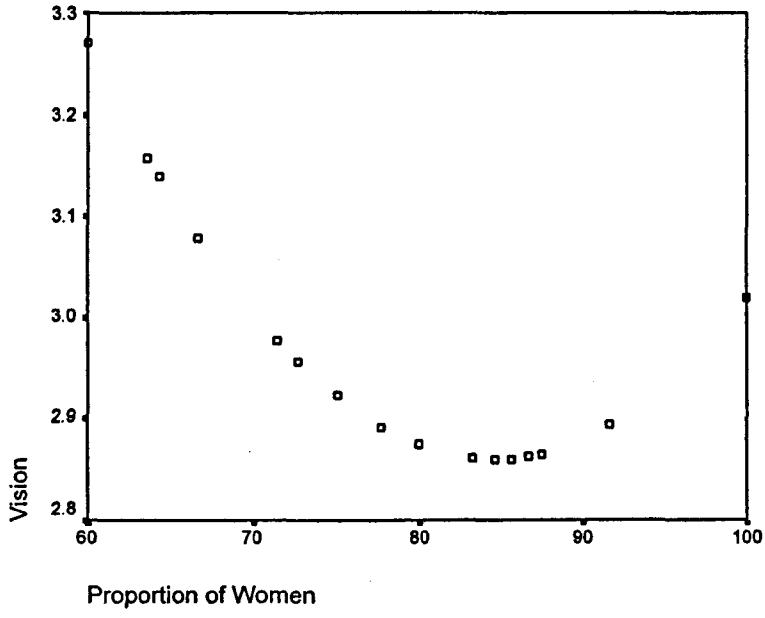


Table 8.1: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes (Health Service Sample)

	Participative Safety (n = 439)			Support for Innovation (n = 438)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.007	0.003	-0.109 **	-0.000	0.003	-0.006
Team tenure	0.002	0.001	0.122 **	0.002	0.001	0.121 **
Nursing teams	0.075	0.075	0.055	0.114	0.076	0.083
Management teams	-0.033	0.103	-0.018	0.128	0.105	0.069
Gender	-0.016	0.112	-0.007	0.139	0.114	0.058
	$R^2 = 0.021$	df = 5	p = 0.097	$R^2 = 0.022$	df = 5	p = 0.086
Step 2						
Team size	-0.008	0.003	-0.132 **	-0.001	0.003	-0.10
Team tenure	0.001	0.001	0.118 **	0.002	0.001	0.120 **
Nursing teams	0.064	0.075	0.047	0.112	0.077	0.081
Management teams	-0.002	0.103	-0.001	0.134	0.105	0.072
Gender	-0.127	0.122	-0.054	0.119	0.124	0.050
Proportion of women	0.008	0.004	0.127 **	0.001	0.004	0.023
	$\Delta R^2 = 0.012$	df = 6	p = 0.021	$\Delta R^2 = 0.000$	df = 6	p > 0.1
Step 3						
Team size	-0.009	0.003	-0.139 ***	-0.001	0.003	-0.014
Team tenure	0.001	0.001	0.096 *	0.001	0.001	0.107 **
Nursing teams	0.059	0.074	0.043	0.109	0.076	0.079
Management teams	0.034	0.102	0.018	0.155	0.106	0.083
Gender	-0.074	0.121	-0.032	0.150	0.125	0.063
Proportion of women	-0.175	0.051	-2.71 ***	-0.106	0.052	-1.620 **
Quadratic proportion of women	0.001	0.000	2.843 ***	0.001	0.000	1.646 **
	$\Delta R^2 = 0.028$	df = 7	p < 0.001	$\Delta R^2 = 0.009$	df = 7	p = 0.041

	Task Orientation (n = 439)			Vision (n = 435)		
Variable	B	SE B	B	SE B	SE B	β
Step 1						
Team size	0.003	0.003	0.063	-0.004	0.003	-0.078
Team tenure	0.001	0.001	0.080	0.001	0.000	0.092 *
Nursing teams	0.061	0.063	0.053	-0.011	0.059	-0.010
Management teams	-0.089	0.086	-0.057	-0.058	0.081	-0.041
Gender	-0.028	0.094	-0.014	0.008	0.088	0.004
	$R^2 = 0.027$	df = 5	p = 0.038	$R^2 = 0.012$	df = 5	p > 0.1
Step 2						
Team size	0.003	0.003	0.059	-0.004	0.003	-0.087 *
Team tenure	0.001	0.001	0.080	0.001	0.000	0.090 *
Nursing teams	0.059	0.063	0.051	-0.014	0.059	-0.013
Management teams	-0.084	0.087	-0.054	-0.049	0.082	-0.034
Gender	-0.046	0.103	-0.023	-0.025	0.096	-0.014
Proportion of women	0.001	0.003	0.025	0.002	0.003	0.049
	$\Delta R^2 = 0.000$	df = 6	p > 0.1	$\Delta R^2 = 0.002$	df = 6	p > 0.1
Step 3						
Team size	0.003	0.003	0.053	-0.005	0.003	-0.094 *
Team tenure	0.001	0.001	0.062	0.001	0.000	0.071
Nursing teams	0.054	0.063	0.047	-0.018	0.059	-0.017
Management teams	-0.060	0.087	-0.039	-0.026	0.081	-0.018
Gender	-0.011	0.103	-0.005	0.008	0.096	0.004
Proportion of women	-0.121	0.043	-2.231 ***	-0.115	0.040	-2.299 ***
Quadratic proportion of women	0.001	0.000	2.261 ***	0.001	0.000	2.354 ***
	$\Delta R^2 = 0.018$	df = 7	p = 0.005	$\Delta R^2 = 0.019$	df = 7	p = 0.004

* p < 0.1 ** p < 0.05 *** p < 0.01

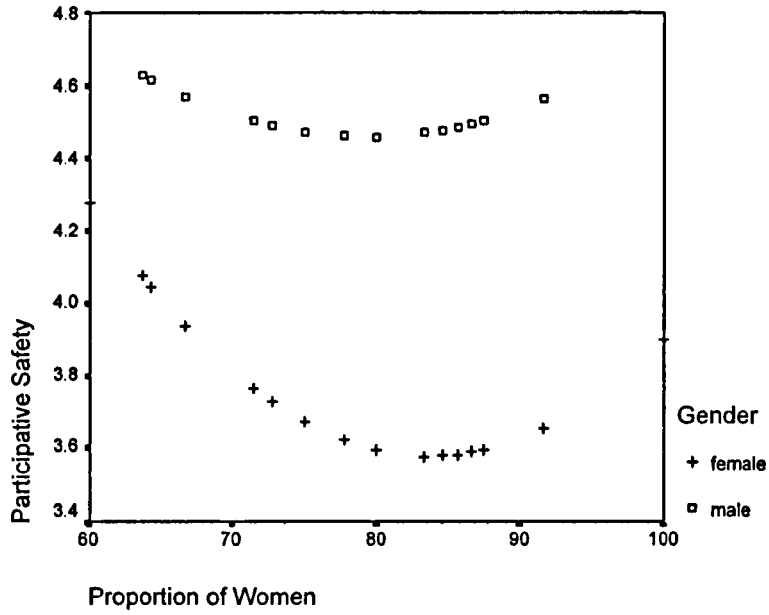
8.2.3 Research Question 2: Is there a Differential Impact of Team Gender Diversity on Men and Women?

As in study 1, hierarchical multiple regression analyses were conducted separately for the male and female samples. The control variables (team size, team tenure and type of team) were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women terms was entered as step 3. The results of these analyses are shown in tables 8.2 (a) and (b)[4].

For women, there was found to be a curvilinear relationship between the proportion of women in the team and perceptions of participative safety ($\Delta R^2 = 0.028$; $p = 0.001$) (see table 8.2a). As can be seen from Figure 8.5, the relationship was the same as that observed in the sample as a whole. That is, generally the greater the proportion of women in the team the lower the perceived participative safety. However, women in teams with a token representation of men perceived the lowest levels of participative safety, but as the numerical dominance of women increased above about 80% increases in the proportion of women were then associated with increased perceptions of participative safety. No relationship between the proportion of women in the team and perceptions of participative safety was found in the male sample (linear $\Delta R^2 = 0.003$, $p > 0.1$; quadratic $\Delta R^2 = 0.005$, $p > 0.1$) (see table 8.2b).

[4] The reason for not investigating interaction effects was explained previously in study 1 (see section 7.1.5)

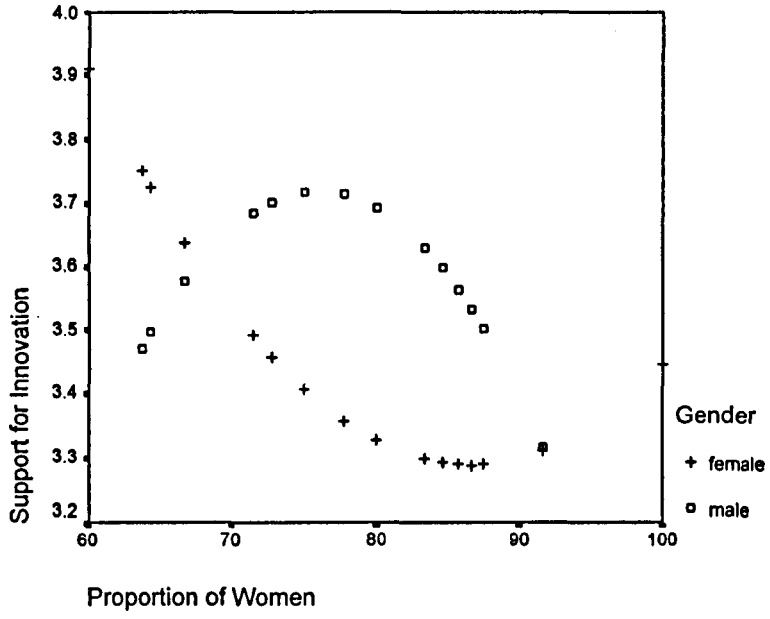
Figure 8.5: The relationship between the proportion of women in the team and perceptions of participative safety for men and women .



For women (see figure 7.6) a curvilinear effect between the proportion of women in team and perceptions of support for innovation was found ($\Delta R^2 = 0.015$; $p = 0.015$) which was similar to that for participative safety (see table 8.2a). However for men, although no significant effect was found, the curvilinear effect size was greater than that found for women ($\Delta R^2 = 0.016$, $p > 0.1$) (see table 8.3b). It was therefore concluded that gender diversity did affect men's perceptions of support for innovation. Interestingly, the nature of this curvilinear effect was dramatically different from that found within the female sample (see figure 8.6). For men, a uniform inverted u-shaped curve was found. That is, increases in the proportion of women (beyond 60%) were associated with increased perceived support for innovation. However, men in teams with approximately 75% women reported the highest support for innovation, and further increases in the

proportion of women were associated with decreased perceived support for innovation (see figure 8.6).

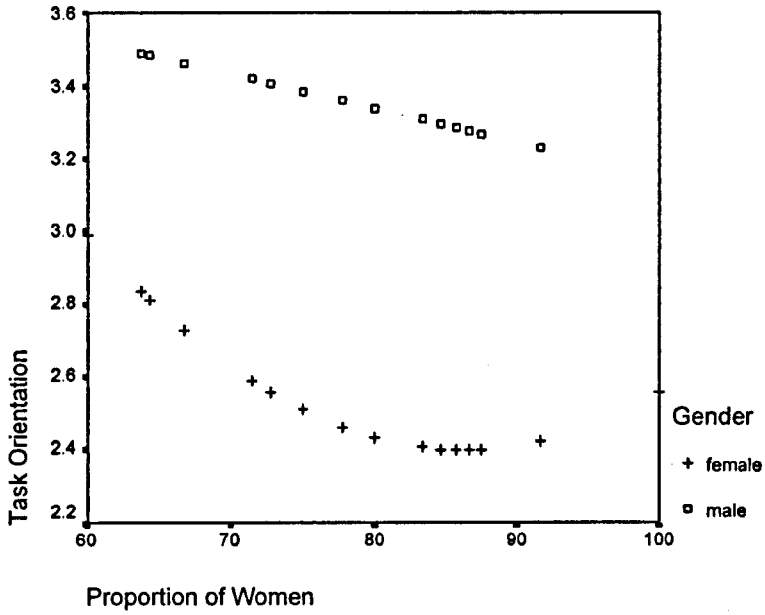
Figure 8.6: The relationship between the proportion of women in the team and perceptions of support for innovation for men and women .



Another curvilinear relationship was found between the proportion of women in the team and perceptions of task orientation ($\Delta R^2 = 0.019$; $p = 0.005$) within the female sample (see table 8.2a). As can be seen from figure 8.7 the nature of this curve is the same as for participative safety and support for innovation. However, for men, a reasonably large linear effect was found ($\Delta R^2 = 0.020$; $p > 0.1$) (see table 8.2b), with increasing proportions of women in the team being associated with decreased task orientation[5].

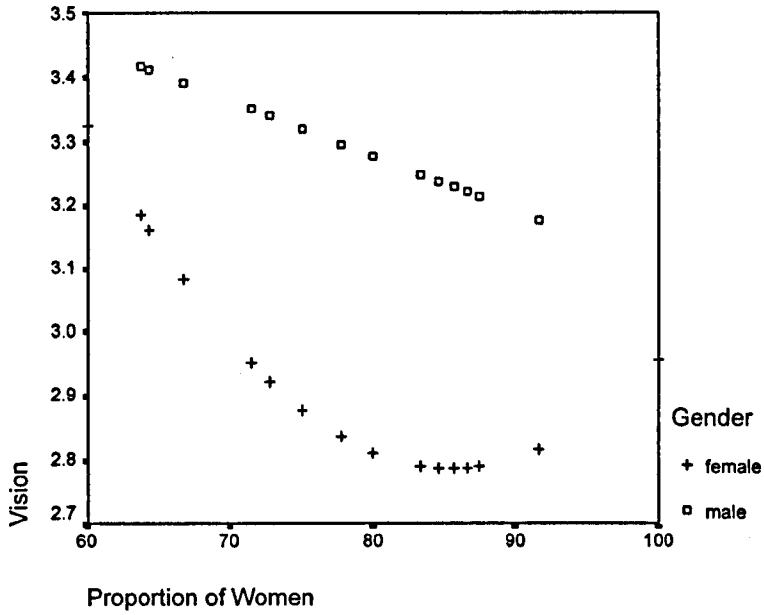
[5] Although not statistically significant this effect size was deemed large enough to be considered meaningful because it was larger than effects found to be significant in the analyses of the whole sample (see section 8.2.2).

Figure 8.7: The relationship between the proportion of women in the team and perceptions of task orientation for men and women.



In terms of perceptions of team vision there was found to be a reasonably large (but not statistically significant) linear effect for men (ΔR^2 =0.022, $p > 0.1$) (see table 8.2b), and a curvilinear effect for women ($\Delta R^2 = 0.021$; $p = 0.004$) (see table 8.2a). As can be seen from figure 8.8 these formed a very similar pattern to that found for perceptions of task orientation.

Figure 8.8: The relationship between the proportion of women in the team and perceptions of vision for men and women .



In summary, there was found to be a differential effect of team gender diversity on men and women. For women, increasing proportions of women were found to be associated with decreased perceptions of all four team processes up until there were 80% women, after which further increases in the proportion of women in the team were associated with increased perceived team functioning. In contrast, for men all increases in the proportion of women in the team were associated with decreased perceptions of task orientation and vision. Further, for support for innovation, men in teams in which their gender was either tokenly or equally represented perceived lower support for innovation than men in teams in which they were in the minority (but not tokens). Interestingly, there was no marked difference in the magnitude of gender diversity effects observed within the male and female samples.

Table 8.2 a: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Women (Health Service Sample)

	Participative Safety (n = 399)			Support for Innovation (n = 398)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.007	0.003	-0.107 **	0.001	0.003	0.009
Team tenure	0.002	0.001	0.123 **	0.001	0.001	0.117 **
Nursing teams	0.099	0.080	0.072	0.080	0.80	0.058
Management teams	-0.021	0.112	-0.011	0.112	0.111	0.059
	$R^2 = 0.022$	df = 4	p = 0.068	$R^2 = 0.016$	df = 4	p > 0.1
Step 2						
Team size	-0.008	0.003	-0.133 **	0.000	0.003	0.004
Team tenure	0.001	0.001	0.115 **	0.001	0.001	0.116 **
Nursing teams	0.086	0.080	0.062	0.077	0.080	0.056
Management teams	0.026	0.112	0.014	0.122	0.113	0.064
Proportion of women	0.009	0.004	0.132 **	0.002	0.004	0.029
	$\Delta R^2 = 0.015$	df = 5	p = 0.013	$\Delta R^2 = 0.001$	df = 5	p > 0.1
Step 3						
Team size	-0.009	0.003	-0.138 **	0.000	0.003	0.000
Team tenure	0.001	0.001	0.100 *	0.001	0.001	0.105 **
Nursing teams	0.080	0.079	0.058	0.072	0.079	0.053
Management teams	0.05	0.111	0.024	0.137	0.112	0.072
Proportion of women	-0.206	0.062	-2.895 ***	-0.152	0.063	-2.154 **
Quadratic proportion of women	0.001	0.000	3.039 ***	0.001	0.000	2.192
	$\Delta R^2 = 0.028$	df = 6	p = 0.001	$\Delta R^2 = 0.015$	df = 6	p = 0.015

	Task Orientation (n = 399)			Vision (n = 395)		
Variable	**B**	**SE B**	**B**	**SE B**	**SE B**	**β**
Step 1						
Team size	0.004	0.003	0.076	-0.004	0.003	-0.074
Team tenure	0.001	0.001	0.084	0.001	0.001	0.098 *
Nursing teams	0.069	0.067	0.059	-0.006	0.063	-0.006
Management teams	-0.059	0.093	-0.037	-0.023	0.087	-0.015
	$R^2 = 0.027$	df = 4	p = 0.026	$R^2 = 0.011$	df = 4	p > 0.1
Step 2						
Team size	0.004	0.003	0.068	-0.004	0.003	-0.087
Team tenure	0.001	0.001	0.081	0.001	0.001	0.094 *
Nursing teams	0.065	0.067	0.056	-0.011	0.063	-0.011
Management teams	-0.047	0.094	-0.029	-0.005	0.089	-0.003
Proportion of women	0.003	0.003	0.042	0.004	0.003	0.066
	$\Delta R^2 = 0.002$	df = 5	p > 0.1	$\Delta R^2 = 0.004$	df = 5	p > 0.1
Step 3						
Team size	0.003	0.003	0.064	-0.004	0.003	-0.092 *
Team tenure	0.001	0.001	0.069	0.008	0.001	0.081
Nursing teams	0.059	0.066	0.051	-0.016	0.062	-0.015
Management teams	-0.033	0.094	-0.021	0.009	0.088	0.006
Proportion of women	-0.146	0.053	-2.447 ***	-0.141	0.050	-2.545 ***
Quadratic proportion of women	0.001	0.000	2.500 ***	0.001	0.000	2.622 ***
	$\Delta R^2 = 0.019$	df = 6	p = 0.005	$\Delta R^2 = 0.021$	df = 6	p = 0.004

* p < 0.1 ** p < 0.05 *** p < 0.01

Table 8.2 a: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Men (Health Service Sample)

	Participative Safety (n = 39)			Support for Innovation (n = 39)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.053	0.026	-0.348 **	-0.056	0.033	-0.280
Team tenure	0.001	0.002	0.098	0.002	0.003	0.105
Nursing teams	-0.292	0.214	-0.265	0.331	0.279	0.229
Management teams	-0.335	0.261	-0.264	0.122	0.339	0.073
	$R^2 = 0.136$	df = 4	p > 0.1	$R^2 = 0.145$	df = 4	p > 0.1
Step 2						
Team size	-0.051	0.026	-0.340 *	-0.055	0.034	-0.277
Team tenure	0.001	0.003	0.076	0.002	0.003	0.097
Nursing teams	-0.284	0.218	-0.258	0.334	0.285	0.232
Management teams	-0.320	0.268	-0.252	0.129	0.349	0.078
Proportion of women	-0.004	0.011	-0.060	-0.002	0.015	-0.022
	$\Delta R^2 = 0.003$	df = 5	p > 0.1	$\Delta R^2 = 0.00$	df = 5	p > 0.1
Step 3						
Team size	-0.055	0.028	-0.365 *	-0.046	0.036	-0.231
Team tenure	0.001	0.003	0.057	0.002	0.003	0.130
Nursing teams	-0.285	0.221	-0.259	0.0338	0.286	0.234
Management teams	-0.319	0.271	-0.251	0.125	0.351	0.075
Proportion of women	-0.109	0.244	-1.716	0.248	0.316	2.982
Quadratic proportion of women	0.001	0.002	1.652	-0.002	0.002	-2.997
	$\Delta R^2 = 0.005$	df = 6	p > 0.1	$\Delta R^2 = 0.016$	df = 6	p > 0.1

	Task Orientation (n = 39)			Vision (n = 39)		
Variable	B	SE B	B	SE B	SE B	β
Step 1						
Team size	-0.051	0.024	-0.355 **	-0.026	0.022	-0.210
Team tenure	-0.000	0.002	-0.017	-0.000	0.002	-0.035
Nursing teams	-0.151	0.198	-0.145	-0.104	0.179	-0.115
Management teams	-0.507	0.242	-0.423 **	-0.389	0.218	-0.373 *
	$R^2 = 0.166$	df = 4	p > 0.1	$R^2 = 0.100$	df = 4	p > 0.1
Step 2						
Team size	-0.048	0.024	-0.332 *	-0.023	0.022	-0.186
Team tenure	-0.001	0.00	-0.076	-0.001	0.002	-0.097
Nursing teams	-0.132	0.200	-0.127	-0.087	0.181	-0.096
Management teams	-0.470	0.245	-0.392 *	-0.356	0.222	-0.341
Proportion of women	-0.009	0.010	-0.156	-0.009	0.009	-0.164
	$\Delta R^2 = 0.020$	df = 5	p > 0.1	$\Delta R^2 = 0.022$	df = 5	p > 0.1
Step 3						
Team size	-0.044	0.026	-0.311 *	-0.019	0.023	-0.150
Team tenure	-0.001	0.002	-0.060	-0.001	0.002	-0.071
Nursing teams	-0.131	0.203	-0.126	-0.085	0.182	-0.094
Management teams	-0.471	0.249	-0.393 *	-0.357	0.224	-0.343
Proportion of women	0.075	0.224	1.251	0.114	0.201	2.199
Quadratic proportion of women	-0.001	0.001	-1.404	-0.001	0.001	-2.358
	$\Delta R^2 = 0.003$	df = 6	p > 0.1	$\Delta R^2 = 0.010$	df = 6	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.01

8.3 DISCUSSION

This second study addressed the first two research questions of this thesis within a female dominated organisational context, namely the British National Health Service. It first investigated the overall relationship between team gender diversity and perceptions of team functioning, and then explored the possibility of a differential effect of team gender diversity on men and women. The results relating to each of these issues are discussed within this section.

8.3.1 General Gender Diversity Effects

The relationship between the proportion of women in the team and team members perceptions of the participative safety, support for innovation, task orientation and vision of their teams was found to be curvilinear. The pattern of effects found was the same for each of the relationships. It was found that individuals from teams with a token representation of men reported the lowest levels of team functioning. However, once the proportion of men in the team exceeded token status, increases in the proportion of men (i.e. decreases in the proportion of women) were associated with higher perceived team functioning. It is also important to note that this trend for increased team functioning went beyond the level found in all-female teams. It is therefore concluded that, generally, greater proportions of women were associated with decreased participative safety, support for innovation, task orientation and vision, but that a token representation of men was particularly detrimental to these team processes.

Therefore, as was the case in the manufacturing sample, the findings from this study are consistent with the proposition of Social Contact Theory that a token

representation of a minority (in this case token men) is detrimental to team functioning. Interestingly, this tokenism effect was not the only similarity between the findings of this and the previous study. Of most interest is that the pattern of effects within this study was the same, but in a reversed direction, to the effects found in the manufacturing sample. That is, once a token representation of the minority was exceeded, within the manufacturing industry increasing proportions women were associated with higher perceived team functioning whereas in the present study increasing proportions of women were associated with decreased team functioning.

The results of the present study therefore also refute the proposition of several theories (Expectations-States Theory, Social Identity Theory, Similarity Attraction Paradigm and Social Competition Theory) that team functioning will deteriorate with increased diversity, since increasing proportions of men (i.e. increasing diversity) were associated with higher team functioning. In addition, within this study (as within the manufacturing study) gender balanced teams had the highest team functioning. These findings therefore support the conclusion made in study 1 that social contact dynamics do not underlie the beneficial effect that diversity had on team functioning (see section 7.3.1).

In the manufacturing study it was concluded that one of two possible explanations must underlie beneficial diversity effects that were found (see section 7.3.1). Firstly, it was suggested that diversity might have created better team functioning. Secondly, it was argued that it might have been that women in particular were bringing something unique to the team that created better team functioning. However, since increasing proportions of women were found to be associated with decreased team functioning within this present study the latter explanation is no longer tenable. Drawing on the

results of both the manufacturing and the health service studies therefore suggests that team gender diversity had a beneficial effect on team functioning regardless of which gender was in the minority. This issue is discussed in more detail in the discussion chapter (see section 10.1).

Interestingly, this study also fails to confirm the social vs. task divide suggested by the Trait Approach. In study 1 (see section 7.3.1) it was argued that the lack of distinction in the effects of gender diversity on the four team processes could be interpreted in two ways. Either the task vs. social distinction is inappropriate, or all team processes are socio-emotionally oriented. However, since in the present study increasing proportions of men (rather than women) were found to increase team functioning it appears that the task vs. socio-emotional distinction is inappropriate in the way it was stated within the Trait Approach. That is, the findings of this second study suggest that increasing proportions of men increase the amount of socio-emotional behaviour. A finding that is in direct contrast to the propositions of the Trait Approach. Therefore, either the minority (regardless of whether they are men or women) act in a more socio-emotional way than the majority, or the increases in team functioning that occur with increased diversity are unrelated to socio-emotional behaviour.

8.3.2 The Differential Effect of Team Gender Diversity on Men and Women

The second issue addressed in this study concerned the possibility of differential gender diversity effects on men and women. The first thing of note is that the magnitudes of effects within the male and female samples were remarkably similar. The proportion of women in the team was found to account for 2.8%, 1.5%, 1.9% and 2.1% of the variation in womens perceptions of participative safety, support for innovation,

task orientation and vision respectively. For men, the percentage were similar with the proportion of women in the team being found to account for 1.6% of the variation in support for innovation, 2.0% of the variation in task orientation and 2.2% of the variation in vision. This is somewhat surprising since several of the theories (Gender-Role Theory, Social Identity Theory and Social Contact Theories) suggest that gender diversity is most likely to affect those who are in the minority (see section 3.1.2.3, 3.2.1.3 and 3.3.1.3). In addition, a comparison of the Allen et al (1996) and DiTomaso et al (1996) studies (see section 4.3.2) led to the possibility that gender diversity would have a greater impact on those in the minority. Whilst this was evidenced within the manufacturing study (see section 7.3.2), it was not supported within the present study. However, as noted previously, research has suggested that tokenism effects are stronger for women than men (see section 3.3.1.2). It may be that the lack of differentiation in the magnitude of effects observed within the male and female health service samples represents a similar finding. In fact aspects of the organisational context may explain why men are not more affected by gender diversity than women are, even though they are in the minority. In the health service, although men were in the minority overall, they tended to be in more senior positions even at the lower organisational levels, and the higher organisational levels were actually male-dominated. It is possible that having male dominance higher up in the organisation led men to need the solidarity of other men in the team less than women needed female solidarity in the manufacturing industry.

Despite the fact that there was no distinction in the magnitude of effects within the male and female samples, there were noticeable differences in the nature of the effects. It was found that the effect of the team gender diversity on women's perceptions of

team functioning was similar to that found within the sample as a whole. That is, generally, the greater the proportion of women in the team the lower the perceived participative safety, support for innovation, task orientation and vision, but with a token representation of men being particularly detrimental to team functioning. In contrast for men there was no evidence of a tokenism effect, with all increases in the proportion of women being associated with decreased perceived task orientation and vision.

Therefore, in terms of perceptions of task orientation and vision, the only real gender difference was that for men any increase in the proportion of men (i.e. decrease in the proportion of women) increased their perceptions of these team processes, whereas in the female sample increases in team functioning were only detected when once the proportion of men exceeded 20%. This was similar to the findings of the manufacturing sample (see section 7.3.2) except, as with analyses for the sample as a whole, the situation was reversed. In other words, in the manufacturing sample men (who were in the majority) were affected by tokenism whereas in the health service women (who were in the majority) were affected by tokenism. It can be concluded therefore that tokenism detrimentally effects those in the majority more than those in the minority, but that for both the majority and the minority, once tokenism was exceeded, increasing proportions of the minority was beneficial to team functioning.

This finding is in direct contrast to past research (Allen et al, 1996; DiTomaso et al, 1996; O'Reilly et al, 1999). The combination of these past studies suggested that regardless of the organisational context men preferred being dissimilar (i.e. preferred having greater proportions of women in the team) whereas women preferred being similar (i.e. preferred having greater proportions of women) (see section 4.3.2). Although the pattern of effects in the manufacturing sample supported this (see section

7.3.2), the findings of this study did not. Instead this study found that increasing proportions of women were detrimental to both men and women. In the present study it appears that women preferred being dissimilar (i.e. preferred having increased proportions of men) and men preferred being similar (i.e. preferred having increased proportions of men). Why this study is different from that of past research is unclear since two of the studies (Allen et al, 196; O'Reilly et al, 1999) were conducted in female dominated organisational contexts similar to this study. It is possible that the conflict of findings arises from differences in the way in which gender diversity was conceptualised (see section 5.1) and differences in the dependent variables under investigation (see section 5.4). The most appropriate comparison to make is therefore between this study and study 1, since the same conceptualisation of gender diversity and the same dependent variables were used within these two studies. Based upon these two studies, it is therefore concluded that increasing proportions of a minority are beneficial to both the majority and the minority irrespective of gender.

In terms of the participative safety and support for innovation the picture is more complicated. Firstly, it was found that the proportion of women in the team affected women's, but not men's, perceptions of participative safety. Why this should occur is unclear, especially since the proportion of women in the team was found to effect both men's and women's perceptions of participative safety within the manufacturing sample (see section 7.2.3). The effect for support for innovation is equally inexplicable. Whilst for women the same effect was evidenced as for the other team processes, for men an inverted u-shaped curve was found (see section 8.2.3). That is, men in token male and gender balanced teams were found to perceive lower support for innovation than men in minority male (but not token) teams. It is unclear why men in this sample were affected

in such a way, since there are no theoretical or practical explanations that seem to fit the pattern within the data. Especially since no such effect was found for any of the other team processes nor was such an effect evidenced within the manufacturing sample.

Finally, the fact that the effect within the whole sample was the same as that found in the female sample is likely to be due to the size of the female sample being much larger than the size of the male sample. This suggests that there was no overall gender diversity effect, but rather the relationship detected in the analyses of the whole sample was merely a reflection of the effect occurring in the female sample. Therefore, as was the case in study 1, the results demonstrate the importance of considering the differential effect of gender diversity on men and women.

8.4 CHAPTER SUMMARY

This second study has shown that, within a female dominated context, increasing proportions of women in the team generally had a detrimental effect on team functioning. However, a token representation of men was found to be particularly detrimental to team functioning, with such teams having lower perceived team functioning than teams with no men. There was also found to be a differential effect of team gender diversity on men and women. Increasing proportions of women were associated with lower perceived team functioning within both the male and female samples. However, whilst for men any decrease in the proportion of women was beneficial to team functioning, for women the beneficial effect of decreasing proportions of women only occurred once the proportion of women was less than 80%. Interestingly, the magnitude of the effect of gender diversity was similar in the male and female samples. Finally, comparing the results of this study to the previous study

showed that the pattern of effects in this study were almost the exact reverse of those found within the manufacturing industry.

CHAPTER 9

STUDY 3: THE EFFECT OF TEAM GENDER DIVERSITY ON TEAM FUNCTIONING IN A GENDER BALANCED CONTEXT

This chapter reports on the findings of the third study, which investigated the effect of team gender diversity in a gender balanced context. As in the previous two studies, this study investigated the overall effect of gender diversity on team functioning and explored the possibility of differential effects for men and women. This study however also addressed the third research question: whether management and non-management teams are effected differently by team gender diversity.

The gender balanced context chosen as the focus of this study was a local government housing department. Although traditionally a male dominated working environment, in the 1980s the demographic profile of the housing department changed with more and more women being recruited. At the time of this survey in 1997, women represented 64% of the workforce. Therefore, although the gender proportions in this workforce were not exactly the same, the local government housing department provided a context that was relatively gender balanced, especially in contrast to the gender skewed contexts investigated in the first two studies. Study 3 was therefore a cross-sectional questionnaire based investigation of local government housing department teams.

9.1 METHOD

9.1.1 Sample

Eighty-six teams, comprising of 666 individuals, from a local government housing department agreed to participate in this study. A total of 378 individuals returned their questionnaires, giving an overall response rate of 57%. A chi-square analysis comparing the responses rates of men and women showed no significant gender difference (χ^2 (1) = 2.836; p = 0.092) (see table H1 in appendix H).

9.1.2 Questionnaire Administration

Strong collaborative links were developed with the housing managers for each of the areas within the department and a meeting was held in which the researcher explained the details of the study. Prior to the questionnaire being administered each housing manager briefed the teams in their area about the nature of the study. In addition, each housing manager provided lists, which detailed the names, title (e.g. Mr, Miss, Ms or Mrs) and job title of all members of each of the teams in their area. The primary purpose of this was to enable the accurate calculation of the gender diversity of each team (see section 5.3 for an explanation of this issue). Questionnaires were then sent to team supervisors in September 1997. Each team supervisor received a cover letter, which explained the study and requested that they distribute the enclosed envelopes (which were addressed to individual team members) (see appendix G). The housing areas had a one-hour training session each week, and one of these sessions was set aside for the completion of the questionnaire.

Incorporated into the cover of the questionnaire was an explanation of the study and team members were provided with a pre-paid reply envelope in which to return the questionnaire directly to the researcher. Each questionnaire included an identification number as well as the name of the team and a list of team members (see section 7.1.2 for an explanation of the inclusion of team details in the cover of the questionnaire). Unlike study 1, identification numbers were used in this study. This was primarily so that the gender of respondents could be worked out even if the respondents did not fill in the sections that asked for personal details. In study 1, the identification numbers had not been used because of a concern that it may lead to fewer people being prepared to complete the questionnaire. However, due to the fact that such strong collaborative links were developed with the housing department, it was decided that individuals would believe in the assurances of confidentiality that were given to them.

9.1.3 Measures

The measures used in this study are described below (for a full report of these measures, see section 7.1.3).

9.1.3.1 Gender Diversity

As in the previous two studies team gender diversity was conceptualised as the proportion of women in the team. The teams in this sample ranged from 0% to 100% women.

9.1.3.2 Team Processes

The Team Climate Inventory, developed by Anderson & West (1994), was used to measure the degree to which the team has a climate for innovation, and provided a way of assessing the level of healthy functioning in the teams (for a full description of the TCI see section 7.1.3.2). For each of the four scales respondents rated items on a 5-point likert scale ranging from 1 = "strongly disagree / very inaccurate" to 5 = "strongly agree / very accurate". The factor structure of the TCI was supported within study 2 (see section 8.1.4). In the present study, however, the items were found to factor in a slightly different way to the original TCI structure (see section 9.1.4). Minor alterations were therefore made to the structure of these scales for the purposes of this study. However, the four broad climate factors that are investigated within the TCI still remained (see appendix B for a listing of the items within each scale).

(a) *Participative Safety* - In accordance with the results of factor analysis (see section 9.1.4) this scale was altered. One item was deleted (item 2), and two items (items 4 and 5) were transferred to the support for innovation scale. The Cronbach alpha coefficient for the new scale was 0.88. The original 12-item scale had a Cronbach alpha coefficient of 0.90

(b) *Support for Innovation* - Originally this scale included 8 items and the Cronbach alpha coefficient before altering the scale was 0.90. However, in line with the results from a factor analysis (see section 9.1.4), one item (item 5) was deleted, and the two participative safety items were added (items 4 and 5). The alpha

coefficient of the revised scale was the same as before alterations had been conducted (Cronbach alpha = 0.90).

(c) *Task Orientation* - This 7-item scale, before alterations, had a Cronbach alpha coefficient of 0.85. On the basis of the results of the factor analysis (see section 9.1.4) one item was deleted (item 1). The Cronbach alpha of the scale with this item deleted was 0.83.

(d) *Vision* - No alterations to this 11-item scale were made, and the Cronbach alpha coefficient was 0.92.

9.1.3.3 Control Variables

As in the previous two studies team size, team tenure, and gender were used as control variables in this study (see section 7.1.3.3 for the rationale for using these control variables). The additional control used in the second study, type of team, was also controlled for here (see section 8.1.3.3). In the housing department the most logical distinction between types of team was management and non-management teams. Past research and theory also highlighted the importance of this distinction (see section 4.3.3). A dummy coded variable (management = 0 non-management = 1) was therefore used in analyses. Finally, job status was found to be a fundamental distinction between men and women in this sample (see section 9.2.1.3 below) and both Expectations-States Theory and Social Identity Theory suggest that status may confound gender relations (see sections 3.1.2.3 and 3.2.1.3). Individual job status was therefore entered as the final

control within analyses. A continuous measure of self-reported pay grade was used ranging from 1 (high status) to 14 (low status).

9.1.4 Validation of the Team Climate Inventory

Principal components analysis with oblimin rotation was conducted on the 38 TCI items. Four factors were extracted. Loadings of variables on factors, communalities, and percents of variance are shown in table H2 (see appendix H). The items did not load onto factors in the way anticipated by the TCI scale. Therefore, some alterations to the scales were made (reported previously in section 9.1.3.2). Participative safety item 2, and task orientation item 1, did not load onto any of the factors, and support for innovation item 5 displayed a split loading between factors 1 and 4 (see table H2 in appendix H). These three items were therefore deleted. Further, participative safety items 4 and 5 loaded alongside the support for innovation items (factor 1). These items were therefore transferred from the participative safety scale into the support for innovation scale. Principal components analyses with oblimin rotation were rerun with these alterations. Four factors were extracted and the loadings of items onto factors was as expected.

9.1.5 Data Analysis

As in the previous two studies, the research questions were investigated using linear and quadratic terms within hierarchical multiple regression analyses (see section 7.1.5). In addition, strict significance levels were not adhered to. Instead a relationship was considered to be meaningful if its effect size was equal or larger in magnitude to effects found to be significant in other analyses (see section 7.1.5).

9.2 RESULTS

9.2.1 Descriptive Analyses

9.2.1.1 Team Characteristics

The 86 teams in this sample ranged in size from 3 to 19. The mean team size for the sample was 8.78. A total of 74 respondents were from management teams (19.6%). The mean team tenure for respondents was 11 years and 3 months, with a range from just starting in the team to 39 years. The majority of team members reported that they had daily contact with the other members of their team (69.6%), and the same proportion indicated that they shared the same office as the members of their team. Only 1.6% of respondents reported that they had team meetings more than once a week, 24.9% reported that their teams met weekly, 28.6% had meetings two to three times a month, while 28.6% had meetings monthly. A total of 31% reported that their team had meetings less frequently than once a month.

9.2.1.2 Characteristics of Sample

The sample was remarkably gender balanced, with 161 male (42.6%) and 217 (57.4%) female respondents. This was representative of the housing department as a whole in which 64% of the workforce was female. There was little diversification of respondents in terms of race, 99.2% described themselves as 'white – UK'. The majority of respondents were living with a partner (71.7%), and 63% had children. Respondents ranged in age from 19 to 59, the mean age of the sample being 38 years old.

Respondents ranged from having no educational qualifications to postgraduate level, with over half of the respondents being educated to higher than A'level or equivalent. The mean status of individuals was 6.89, and respondents in the sample encompassed the entire 14-point scale ranging from 1 'high status' to 14 'low status'. Respondents had been working in the housing department for an average of 10 years, ranging from 2 months to 34 years, and the job tenure of individuals in the sample ranged from 1 month to 31 years 6 months, with a mean job tenure of 4 years 11 months. Although the job title of each respondent was obtained there were too many categories to use the variable meaningfully, and there was no logical method of reducing the number of categories. Only 46 (12.2%) of respondents worked part-time. The most frequent professional background of employees was housing management within the local government.

9.2.1.3 Gender Differences in Team and Sample Characteristics

Even though the housing department was proportionally a fairly gender balanced working environment it is still possible that there are gender differences in the background characteristics of respondents. Therefore, t-test and chi-square analyses were conducted to see if any significant differences existed (see tables H3 and H4 in appendix H). It was found that men had significantly longer tenure than women, in terms of the length of time working in the team [$t(365) = 2.42$; $p = 0.016$], their jobs [$t(368) = 4.08$; $p < 0.001$], and the department [$t(371) = 6.88$; $p < 0.001$]. The men in this sample were also significantly older than the women [$t(354) = 5.18$; $p < 0.001$]. These findings appear to reflect the changing nature of the housing department from a male dominated to a gender balanced working environment (see description in the

introduction to this chapter). However, there were no gender differences found in terms of the marital status of respondents, nor in whether or not respondents had children.

Women were found to belong to larger teams than men [$t(376) = 3.34$; $p = 0.001$], and belonged to a smaller number of teams [$t(334) = 2.40$; $p = 0.017$]. Significantly more women than men were working in teams where team members shared the same office [$\chi^2(1) = 12.59$ $p < 0.001$]. In addition, a greater proportion of women were in teams which had weekly meetings, whereas a greater proportion of men were in teams that met less frequently than once a week [$\chi^2(5) = 16.82$; $p = 0.005$].

There was a significant gender difference in terms of being a member of a management or non-management team [$\chi^2(1) = 21.00$; $p < 0.001$], with more men being in management teams. Women also had lower job status than men [$t(374) = 8.07$; $p < 0.001$], and although only a small proportion of the sample worked part-time (12.2%) all but one of these employees were female, therefore there was a significant gender difference in terms of part-time employment [$\chi^2(1) = 35.14$; $p < 0.001$]. There were also gender differences found in terms of the professional background of employees [$\chi^2(9) = 52.41$; $p < 0.001$], with men coming from property/technical or management backgrounds, and women coming from administrative / clerical backgrounds. Despite this the majority of both men and women came from housing management backgrounds. In addition men were found to have higher educational attainment than women [$\chi^2(7) = 29.86$; $p < 0.001$].

The gender differences in terms of the tenure of individuals, the educational differences and the amount and type of team contact are likely to be a result of the fact that men have higher job status than women, and that men are more likely to be members of management teams. Therefore, rather than controlling for all the

background variables on which gender differences were found (which would lead to a dramatic reduction in the degrees of freedom used within analyses), only individual job status and the type of team variables (management vs. non-management) were used as additional control variables in the analyses of this study (see section 9.1.3.3).

9.2.1.4 Gender Differences in Perceptions of Team Functioning

The mean score for the male sample was greater than the mean for the female sample on all the team processes (see table H5 in appendix H). However, ANOVAs conducted after controlling for team size, individual status and type of team found no significant gender differences in perceptions of team processes (see table H6 in appendix H).

9.2.1.5 Correlation Analyses

Zero-order correlation analyses, with pairwise deletion of missing values, were conducted to explore the relationships between each of the variables in this study (see table H7 in appendix H). It was found that the proportion of women in the team was related to support for innovation [$r(378) = -0.126$; $p = 0.014$], the status of individuals [$r(376) = -0.55$; $p < 0.001$], type of team [$r(378) = 0.53$; $p < 0.001$] and gender [$r(378) = 0.51$; $p < 0.001$]. Individuals occupational status was also found to be related to support for innovation [$r(376) = 0.22$; $p < 0.001$], task orientation [$r(0.373) = 0.16$; $p = 0.002$], vision [$r(371) = 0.18$; $p = 0.001$], and type of team [$r(376) = -0.70$; $p < 0.001$]. Another important variable was team size since which was found to be related to status [$r(376) = -0.21$; $p < 0.00$], type of team [$r(378) = 0.27$; $p < 0.001$], gender [$r(378) = 0.17$; $p < 0.001$], participative safety [$r(378) = -0.12$; $p = 0.015$], support for innovation [$r(378) =$

-0.26; $p < 0.001$], and task orientation [$r(375) = -0.18$; $p < 0.001$]. Type of team was also found to be related to support for innovation [$r(378) = -0.21$; $p < 0.001$], task orientation [$r(378) = -0.11$; $p = 0.027$] and vision [$r(373) = -0.14$; $p = 0.007$]. In addition, gender was found to be associated with task orientation [$r(375) = -0.11$; $p = 0.027$] and vision [$r(373) = -0.13$; $p = 0.011$]. Interestingly, team tenure was not found to be related to any of the team processes. Finally, all 4 team processes were found to be related to each other, although since the highest correlation (between participative safety and support for innovation) was 0.73 it is clear that each of the variables were measuring a distinct construct (Tabachnick & Fidell, 1996).

9.2.2 Research Question 1: Does Team Gender Diversity Affect Perceptions of Team Functioning?

Hierarchical multiple regression analyses were conducted to test the relationship (either linear or curvilinear) between the proportion of women in the team and perceptions of team functioning, after controlling for team size, individual job status, type of team, team tenure and gender. The control variables were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women term was entered as step 3. Table 9.1 shows the results of these analyses.

In terms of participative safety there were found to be both linear ($\Delta R^2 = 0.011$; $p = 0.039$) and curvilinear ($\Delta R^2 = 0.018$; $p = 0.009$) effects (see table 9.1). The proportion of women in the team was therefore related in a curvilinear way to perceptions of participative safety. As can be seen from figure 9.1, the relationship between the proportion of women and perceptions of participative safety formed a predominantly positive concave downward curve. This indicates that the greater the proportion of

women in the team the higher the perceived participative safety. However, perceptions of participative safety were at their greatest when there were 60% women in the team, after which further increases in the proportion of women in the team were associated with a slight decline in perceptions of participative safety. No relationships were found (either linear or curvilinear) between the proportion of women in the team and perceptions of support for innovation (linear $\Delta R^2 = 0.001$, $p > 0.1$; quadratic $\Delta R^2 = 0.009$, $p > 0.1$), task orientation (linear $\Delta R^2 = 0.009$, $p > 0.1$; quadratic $\Delta R^2 = 0.001$, $p > 0.1$), and vision (linear $\Delta R^2 = 0.004$, $p > 0.1$; quadratic $\Delta R^2 = 0.000$, $p > 0.1$).

Figure 9.1: The relationship between the proportion of women in the team and perceptions of participative safety.

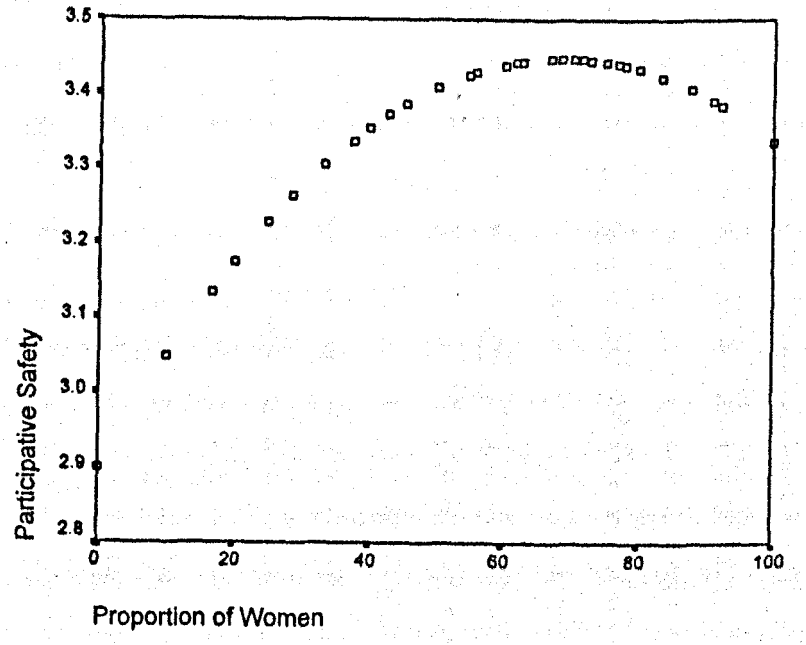


Table 9.1: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes (Local Government Housing Department Sample)

	Participative Safety (n = 364)			Support for Innovation (n = 364)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.026	0.010	-0.135 **	-0.043	0.010	-0.223 ***
Type of team	0.341	0.123	0.206 ***	-0.061	0.122	-0.036
Status	0.041	0.017	0.186 **	0.036	0.017	0.159 **
Team tenure	-0.001	0.001	-0.046	-0.000	0.001	-0.011
Gender	0.048	0.078	0.036	0.056	0.077	0.041
	$R^2 = 0.038$	df = 5	p = 0.017	$R^2 = 0.096$	df = 5	p < 0.001
Step 2						
Team size	-0.029	0.010	-0.152 ***	-0.045	0.010	-0.229***
Type of team	0.274	0.127	0.165 **	-0.085	0.126	-0.050
Status	0.000	0.018	0.218 ***	0.039	0.017	0.170 **
team tenure	-0.001	0.001	-0.053	-0.000	0.001	-0.013
Gender	-0.018	0.084	-0.013	0.032	0.083	0.023
Proportion of women	0.004	0.002	0.148 **	0.001	0.002	0.052
	$\Delta R^2 = 0.011$	df = 6	p = 0.039	$\Delta R^2 = 0.001$	df = 6	p > 0.1
Step 3						
Team size	-0.034	0.011	-0.181 ***	-0.049	0.011	-0.249 ***
Type of team	0.272	0.125	0.164 **	-0.087	0.126	-0.051
Status	0.042	0.018	0.191 **	0.034	0.018	0.151 *
Team tenure	-0.001	0.001	-0.055	-0.000	0.001	-0.015
Gender	-0.023	0.083	-0.017	0.028	0.083	0.021
Proportion of women	0.016	0.005	0.633***	0.010	0.005	0.399 **
Quadratic proportion of women	-0.000	0.000	-0.509***	-0.000	0.000	-0.364 *
	$\Delta R^2 = 0.018$	df = 7	p = 0.009	$\Delta R^2 = 0.009$	df = 7	p = 0.056
	Task Orientation (n = 361)			**Vision (n= 359)**		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.032	0.012	-0.147 ***	-0.010	0.010	-0.051
Type of team	0.022	0.139	0.012	-0.089	0.123	-0.054
Status	0.025	0.019	0.100	0.013	0.017	0.058
Team tenure	-0.000	0.001	-0.021	-0.001	0.001	-0.046
Gender	-0.082	0.088	-0.054	-0.143	0.078	-0.107*
	$R^2 = 0.045$	df = 5	p = 0.050	$R^2 = 0.039$	df = 5	p = 0.016
Step 2						
Team size	-0.035	0.012	-0.162 ***	-0.012	0.010	-0.061
Type of team	-0.044	0.143	-0.023	-0.129	0.127	-0.078
Status	0.032	0.020	0.128	0.017	0.018	0.077
Team tenure	-0.000	0.001	-0.026	-0.001	0.001	-0.050
Gender	-0.147	0.095	-0.097	-0.182	0.084	-0.137**
Proportion of women	0.004	0.002	0.129 *	0.002	0.002	0.089
	$\Delta R^2 = 0.009$	df = 6	p = 0.072	$\Delta R^2 = 0.004$	df = 6	p > 0.1
Step 3						
Team size	-0.036	0.012	-0.167 ***	-0.012	0.011	-0.064
Type of team	-0.044	0.143	-0.024	-0.129	0.127	-0.079
Status	0.031	0.020	0.123	0.016	0.018	0.074
Team tenure	-0.000	0.001	-0.026	-0.001	0.001	-0.050
Gender	-0.148	0.095	-0.098	-0.183	0.084	-0.137**
Proportion of women	0.006	0.006	0.219	0.003	0.005	0.135
Quadratic proportion of women	-0.000	0.000	-0.095	-0.000	0.000	-0.049
	$\Delta R^2 = 0.001$	df = 7	p > 0.1	$\Delta R^2 = 0.000$	df = 7	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

9.2.3 Research Question 2: Is there a Differential Impact of Team Gender Diversity on Men and Women?

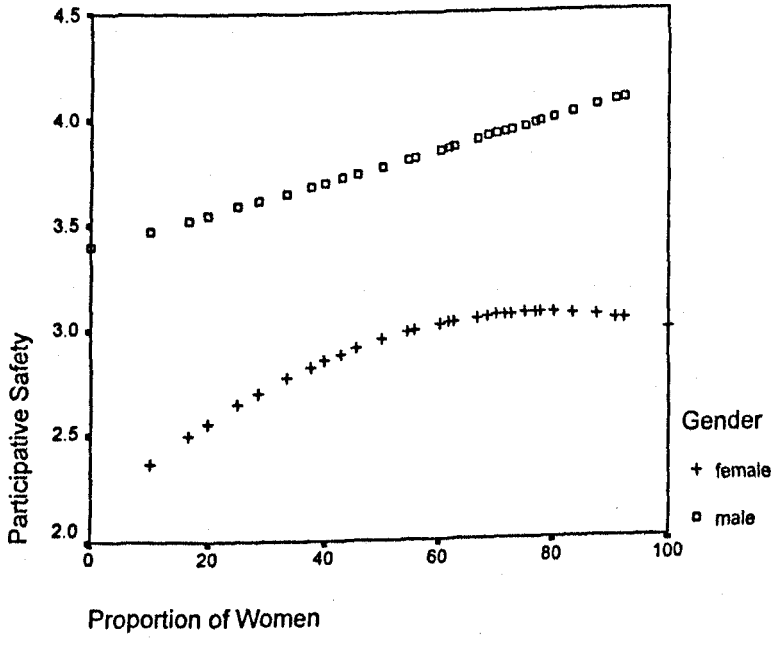
Hierarchical multiple regression analyses were conducted separately for the male and female samples to investigate whether or not there was a differential effect of gender diversity on men and women. These analyses were run after statistically controlling for team size, individual status, type of team and team tenure. The control variables were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women term was entered as step 3. The results of these analyses can be seen in tables 9.2 a & b.[1]

For the female sample there was found to be a meaningfully large, but non-significant, curvilinear relationship between the proportion of women in the team and perceptions of participative safety ($\Delta R^2 = 0.010$; $p > 0.1$) (see table 9.2a)[2]. As can be seen from figure 9.2 this effect followed that of the sample as a whole. That is, greater proportions of women were associated with higher perceived participative safety, but the relationship levelled off once the proportion of women in the team had reached 60%. In contrast, for the male sample there was found to be a positive linear relationship between the proportion of women in the team and perceptions of participative safety ($\Delta R^2 = 0.052$; $p = 0.004$) (see table 9.2b). This indicates that the greater the proportion of women in the team the higher men perceived the participative safety of their teams (see figure 9.2).

[1] The reason for not using interaction effects to determine a moderating effect is explained in section 7.1.5.

[2] Although not statistically significant this effect was considered meaningful because it was larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

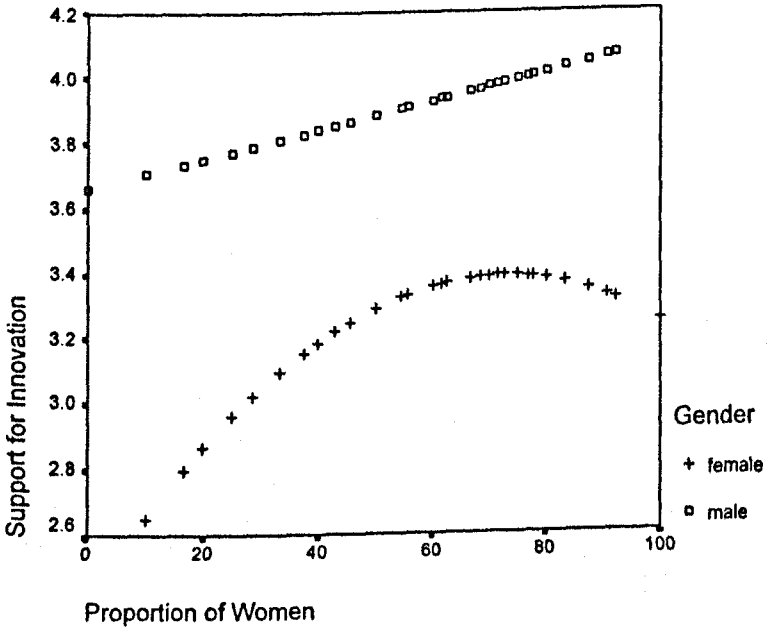
Figure 9.2: The relationship between the proportion of women in the team and perceptions of participative safety for men and women.



In terms of perceptions of support for innovation, there was found to be a meaningfully large, but non-significant, positive linear effect within the male sample ($\Delta R^2 = 0.016$, $p = 0.099$) (see table 9.2b) and a meaningfully large, but non-significant, curvilinear effect within the female sample (quadratic $\Delta R^2 = 0.016$, $p = 0.056$) (see table 9.2a)[3]. As can be seen from figure 9.3, the pattern of effects was very similar to that found for participative safety. That is, for both men and women increasing proportions of women were associated with increased support for innovation. However, for women this effect levelled off once there the proportion of women in the team reached 60%, after which further increases in the proportion of women in the team had little or no effect on women's perceptions of support for innovation.

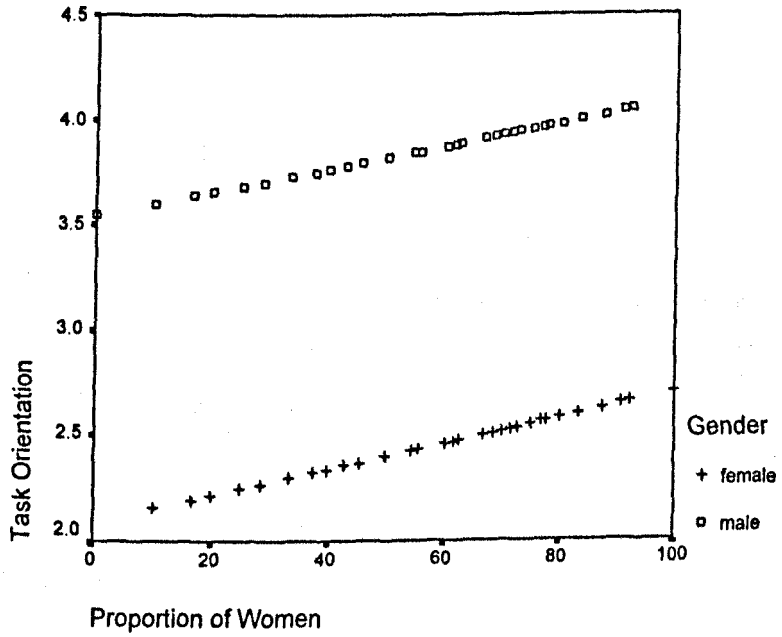
[3] Although not statistically significant these effects were considered to be meaningful because they were larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

Figure 9.3: The relationship between the proportion of women in the team and perceptions of support for innovation for men and women.



In terms of task orientation there was found to be a non-significant, but meaningfully large, linear effect within both the male ($\Delta R^2 = 0.024$, $p = 0.052$), and female ($\Delta R^2 = 0.015$; $p = 0.074$) samples (see tables 9.2 a & b). Therefore, as can be seen from figure 9.4, the greater the proportion of women in the team the higher both men and women perceived the task orientation of their teams, although this effect was larger within the male sample.

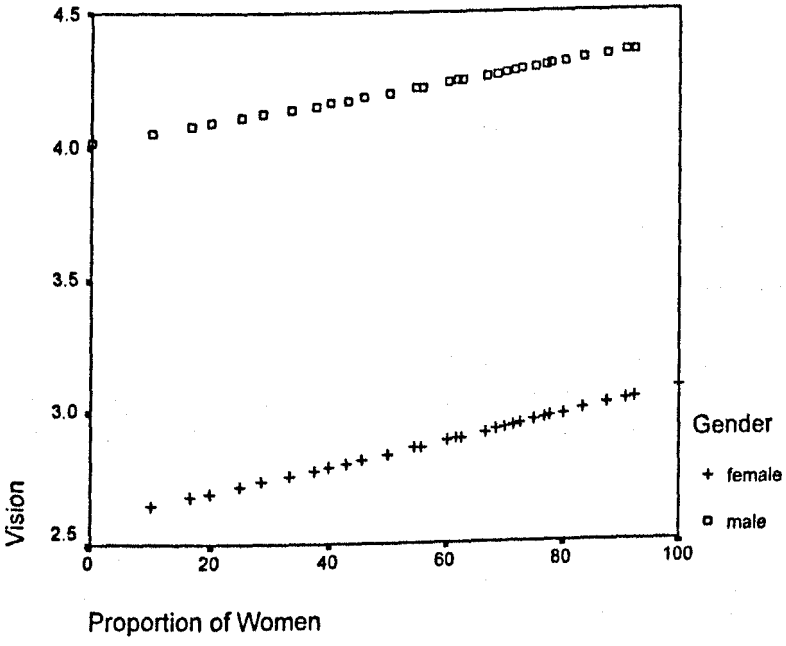
Figure 9.4: The relationship between the proportion of women in the team and perceptions of task orientation for men and women.



For vision there were also found to be meaningfully large, but non-significant, linear effects for both males ($\Delta R^2 = 0.013$, $p > 0.1$) and females ($\Delta R^2 = 0.013$, $p > 0.1$) (see tables 9.2 a & b)[4]. As can be seen from figure 9.5, the greater the proportion of women in the team the higher both men and women perceive the vision of their teams.

[4] Although not statistically significant these effects were considered to be meaningful because they were larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

Figure 9.5: The relationship between the proportion of women in the team and perceptions vision for men and women



Therefore, in summary, it was found that the greater the proportion of women in the team the higher both men and women perceived all four team processes. However, within the female sample the beneficial effects of increasing proportions of women on perceptions of participative safety and support for innovation levelled off once women represented 60% of the team.

Table 9.2 a: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Women (Local Government Housing Department Sample)

	Participative Safety (n = 210)			Support for Innovation (n= 210)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.017	0.013	-0.092	-0.030	0.013	-0.166**
Type of team	0.519	0.185	0.249***	0.036	0.180	0.017
Status	0.081	0.025	0.284***	0.068	0.024	0.244***
Team tenure	-0.002	0.001	-0.102	-0.001	0.001	-0.045
	$R^2 = 0.075$	df = 4	p = 0.003	$R^2 = 0.105$	df = 4	p < 0.001
Step 2						
Team size	-0.016	0.013	-0.086	-0.030	0.013	-0.164**
Type of team	0.456	0.205	0.219**	0.013	0.199	0.007
Status	0.087	0.027	0.307***	0.071	0.026	0.252***
Team tenure	-0.002	0.001	-0.105	-0.001	0.001	-0.046
Proportion of women	0.002	0.003	0.068	0.001	0.003	0.025
	$\Delta R^2 = 0.002$	df = 5	p > 0.1	$\Delta R^2 = 0.000$	df = 5	p > 0.1
Step 3						
Team size	-0.019	0.013	-0.103	-0.034	0.013	-0.186***
Type of team	0.273	0.237	0.131	-0.211	0.230	-0.102
Status	0.090	0.027	0.318***	0.075	0.026	0.265***
Team tenure	-0.002	0.001	-0.104	-0.001	0.001	-0.044
Proportion of women	0.024	0.015	0.763	0.027	0.014	0.891*
Quadratic proportion of women	-0.000	0.000	-0.643	-0.000	0.000	-0.801*
	$\Delta R^2 = 0.010$	df = 6	p > 0.1	$\Delta R^2 = 0.016$	df = 6	p = 0.056

	Task Orientation (n = 208)			Vision (n= 206)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.014	0.015	-0.065	0.006	0.013	0.035
Type of team	0.222	0.215	0.093	0.057	0.187	0.028
Status	0.074	0.029	0.227**	0.056	0.025	0.203**
Team tenure	-0.002	0.001	-0.085	-0.001	0.001	-0.035
	$R^2 = 0.052$	df = 4	p = 0.027	$R^2 = 0.035$	df = 4	p > 0.1
Step 2						
Team size	-0.011	0.015	-0.050	0.009	0.013	0.049
Type of team	0.042	0.236	0.018	-0.086	0.205	-0.042
Status	0.093	0.031	0.285***	0.071	0.027	0.256***
Team tenure	-0.002	0.001	-0.093	-0.001	0.001	-0.044
Proportion of women	0.006	0.003	0.171*	0.005	0.003	0.159
	$\Delta R^2 = 0.015$	df = 5	p = 0.072	$\Delta R^2 = 0.013$	df = 5	p > 0.1
Step 3						
Team size	-0.014	0.015	-0.066	0.007	0.013	0.041
Type of team	-0.143	0.273	-0.060	-0.168	0.239	-0.082
Status	0.096	0.031	0.295***	0.073	0.027	0.262***
Team tenure	-0.002	0.001	-0.092	-0.001	0.001	-0.044
Proportion of women	0.028	0.017	0.790*	0.015	0.015	0.477
Quadratic proportion of women	-0.000	0.000	-0.573	-0.000	0.000	-0.294
	$\Delta R^2 = 0.008$	df = 6	p > 0.1	$\Delta R^2 = 0.002$	df = 6	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

Table 9.2 b: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Men (Local Government Housing Department Sample)

	Participative Safety (n = 153)			Support for Innovation (n = 153)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.032	0.018	-0.151*	-0.060	0.018	-0.269***
Type of team	0.188	0.168	0.133	-0.131	0.171	-0.087
Status	0.009	0.024	0.043	0.013	0.025	0.059
Team tenure	-0.000	0.001	-0.007	0.000	0.001	0.008
	$R^2 = 0.025$	df = 4	p > 0.1	$R^2 = 0.103$	df = 4	p = 0.003
Step 2						
Team size	-0.054	0.019	-0.259***	-0.073	0.020	-0.330***
Type of team	0.131	0.165	0.093	-0.165	0.171	-0.110
Status	0.021	0.024	0.099	0.020	0.025	0.090
Team tenure	-0.000	0.001	-0.026	-0.000	0.001	-0.002
Proportion of women	0.007	0.003	0.274***	0.004	0.003	0.154*
	$\Delta R^2 = 0.052$	df = 5	p = 0.004	$\Delta R^2 = 0.016$	df = 5	p = 0.099
Step 3						
Team size	-0.052	0.019	-0.250**	-0.073	0.020	-0.326***
Type of team	0.180	0.168	0.127	-0.146	0.175	-0.097
Status	0.014	0.024	0.065	0.017	0.025	0.077
Team tenure	-0.000	0.001	-0.028	-0.000	0.001	-0.003
Proportion of women	0.018	0.008	0.651**	0.008	0.008	0.290
Quadratic proportion of women	-0.000	0.000	-0.424	-0.000	0.000	-0.153
	$\Delta R^2 = 0.013$	df = 6	p > 0.1	$\Delta R^2 = 0.002$	df = 6	p > 0.1

	Task Orientation (n = 152)			Vision (n = 152)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.051	0.019	-0.221***	-0.031	0.018	-0.149*
Type of team	-0.130	0.180	-0.084	-0.192	0.164	-0.137
Status	-0.011	0.026	-0.048	-0.018	0.024	-0.087
Team tenure	0.000	0.001	0.029	-0.001	0.001	-0.071
	$R^2 = 0.061$	df = 4	p = 0.052	$R^2 = 0.045$	df = 4	p > 0.1
Step 2						
Team size	-0.068	0.021	-0.295***	-0.042	0.019	-0.203**
Type of team	-0.171	0.180	-0.111	-0.219	0.165	-0.157
Status	-0.002	0.026	-0.011	-0.012	0.024	-0.059
Team tenure	0.000	0.001	0.016	-0.001	0.001	-0.081
Proportion of women	0.005	0.003	0.185*	0.004	0.003	0.136
	$\Delta R^2 = 0.024$	df = 5	p = 0.052	$\Delta R^2 = 0.013$	df = 5	p > 0.1
Step 3						
Team size	-0.069	0.021	-0.298***	-0.042	0.019	-0.202**
Type of team	-0.189	0.184	-0.122	-0.214	0.169	-0.153
Status	0.000	0.027	0.001	-0.013	0.025	-0.063
Team tenure	0.000	0.001	0.017	-0.001	0.001	-0.082
Proportion of women	0.002	0.008	0.058	0.005	0.008	0.178
Quadratic proportion of women	0.000	0.000	0.143	-0.000	0.000	-0.047
	$\Delta R^2 = 0.001$	df = 6	p > 0.1	$\Delta R^2 = 0.000$	df = 6	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

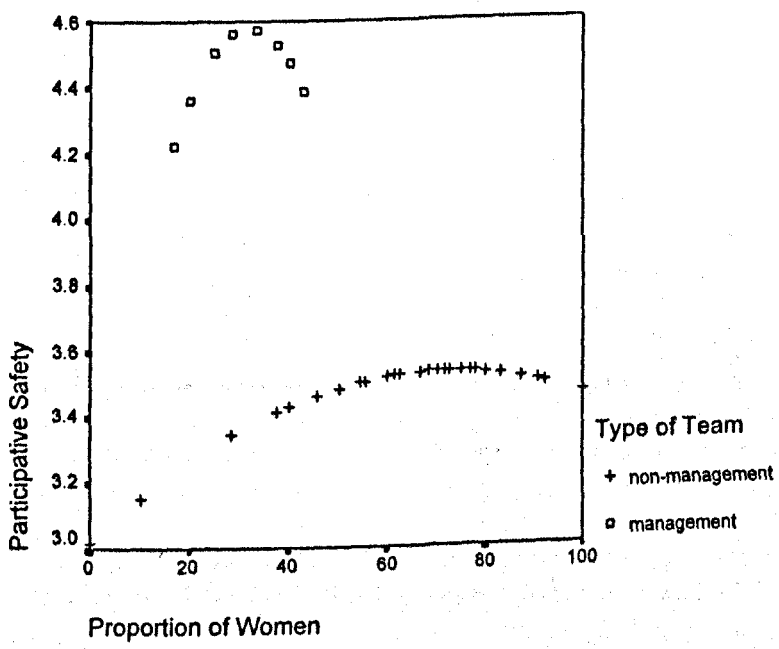
9.2.4 Research Question 3: Does the Effect of Team Gender Diversity Depend upon the Organisational Level at which the Team Operates?

As was the case for an interaction between gender and the proportion of women in the team (see section 7.1.5), type of team was too highly associated with the proportion of women in the team to enable interaction effects to be explored. Therefore, in order to determine whether or not there were differential effects of team gender diversity in management and non-management teams, hierarchical multiple regression analyses were conducted separately for the management and non-management samples. The control variables (team size, gender, individual status and team tenure) were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women term was entered as step3. The results of these analyses are shown in tables 9.3 a & b.

For respondents from non-management teams there was found to be a both a linear ($\Delta R^2 = 0.014$; $p = 0.040$) and curvilinear ($\Delta R^2 = 0.014$; $p = 0.038$) effect of the proportion of women in the team and perceptions of participative safety (see table 9.3b). There was therefore a curvilinear relationship between the proportion of women in the team and perceptions of participative safety within the non-management sample. As can be seen from figure 9.6, the relationship formed the same pattern as was found in the female sample. That is, increasing proportions of women in the team were associated with increased participative safety. However, this slope levelled off and once the proportion of women in the team was greater than 60% women, and further increases in the proportion of women had little affect on perceived participative safety (see figure 9.6). Within the management sample a meaningfully large (but not statistically

significant) curvilinear effect was also detected ($\Delta R^2 = 0.021$; $p > 0.1$) (see table 9.3a)[5]. However, the shape of this curve differed from that found within the non-management sample. As can be seen from figure 9.6 increases in the proportion of women were associated with greater perceived participative safety until the proportion of women in the team reached about 30%, after which further increases in the proportion of women led to decreased participative safety.

Figure 9.6: The relationship between the proportion of women in the team and perceptions participative safety for management and non-management samples

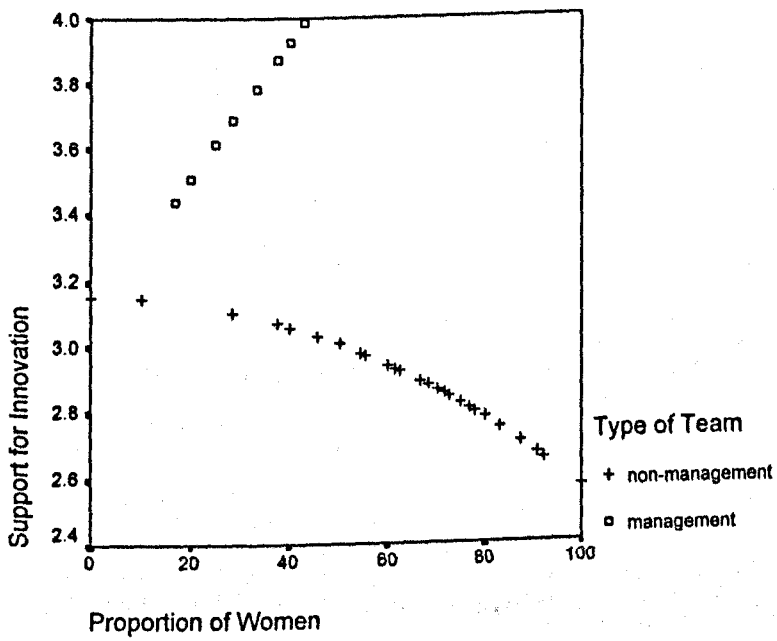


There was found to be a positive linear relationship between the proportion of women in the team and perceptions of support for innovation within the management sample ($\Delta R^2 = 0.078$; $p = 0.018$) (see table 9.3a), but no effect was found in the non-management sample (linear $\Delta R^2 = 0.001$, $p > 0.1$; quadratic $\Delta R^2 = 0.005$, $p > 0.1$) (see

[5] Although not statistically significant this effect was deemed large enough to be considered significant because it was larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

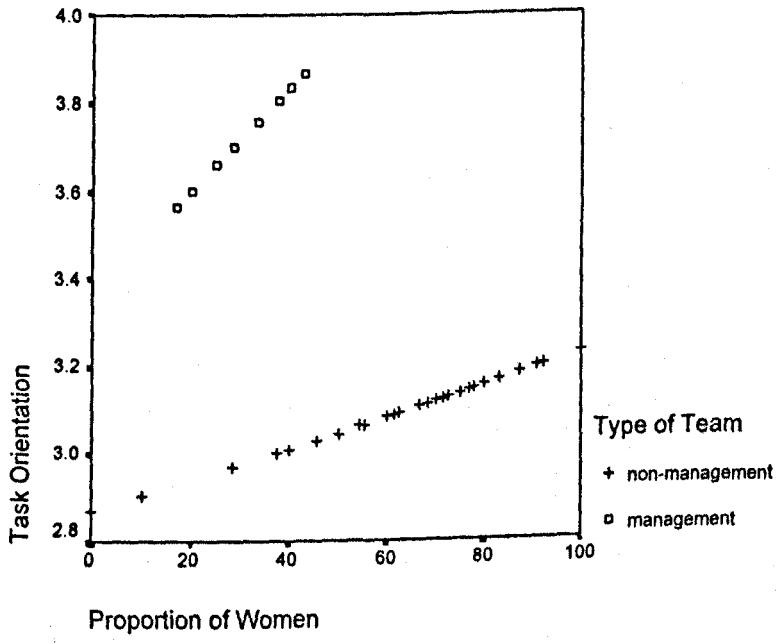
table 9.4b). Therefore, for individuals from management teams the greater the proportion of women in the team the higher the perceived support for innovation within the team. (see figure 9.7).

Figure 9.7: The relationship between the proportion of women in the team and perceptions support for innovation for management and non-management samples



In terms of task orientation there was found to be a reasonably large (though not statistically significant) linear effect within the management sample ($\Delta R^2 = 0.021$; $p > 0.1$) (see table 9.3a) and no effect within the non-management sample (linear $\Delta R^2 = 0.009$, $p > 0.1$; quadratic $\Delta R^2 = 0.000$, $p > 0.1$) (see table 9.3b). Therefore, the greater the proportion of women in the team the higher management team members perceived the task orientation of their teams (see figure 9.8).

Figure 9.8: The relationship between the proportion of women in the team and perceptions task orientation for management and non-management samples



No relationship between the proportion of women in the team and perceptions of team vision were found within either the management (linear $\Delta R^2 = 0.001$, $p > 0.1$; quadratic $\Delta R^2 = 0.008$, $p > 0.1$) or non-management (linear $\Delta R^2 = 0.005$, $p > 0.1$; quadratic $\Delta R^2 = 0.000$, $p > 0.1$) samples (see tables 9.3 a & b).

In summary, it was found that there were differential effects of gender diversity on the respondents from management and non-management teams. For respondents from management teams, the higher the proportion of women in the team the higher they perceived the support for innovation and task orientation within their teams. In addition to these linear effects, the proportion of women in the team was found to be related to perceptions of participative safety in a curvilinear way. In particular, in teams where women were in the minority, team member's perceived the participative safety of their teams as greater than in teams where women were either only tokenly or more equally

represented. The only team process not found to be effected by team gender diversity within this management sample was vision. In contrast, for respondents from non-management teams, the only team process found to be related to gender diversity was participative safety. In particular, it was found that the higher the proportion of women in the team the higher non-management team members perceived the participative safety of their teams. However, the beneficial impact of increasing proportions of women diminished as teams became more gender balanced. In fact after the representation of women in the team reached about 60% further increases in the representation of women had little or no impact on team members perceptions of participative safety.

Therefore, it was found that team gender diversity did have a differential impact within management and non-management teams and, broadly speaking, there was a larger effect of team gender diversity within management teams.

Table 9.3 a: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Management Teams (Local Government Housing Department Sample)

	Participative Safety (n = 71)			Support for Innovation (n = 71)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.092	0.044	-0.249**	-0.076	0.042	-0.222*
Status	-0.048	0.037	-0.164	-0.001	0.035	-0.005
Gender	-0.100	0.163	-0.78	0.013	0.154	0.011
Team tenure	0.001	0.002	0.054	-0.000	0.002	-0.026
	$R^2 = 0.099$	df = 4	p > 0.1	$R^2 = 0.053$	df = 4	p > 0.1
Step 2						
Team size	-0.088	0.045	-0.238*	-0.061	0.041	-0.179
Status	-0.042	0.038	-0.144	0.020	0.035	0.075
Gender	-0.101	0.164	-0.078	0.009	0.149	0.008
Team tenure	0.001	0.002	0.066	0.000	0.002	0.020
Proportion of women	0.006	0.009	0.077	0.021	0.009	0.302**
	$\Delta R^2 = 0.005$	df = 5	p > 0.1	$\Delta R^2 = 0.078$	df = 5	p = 0.018
Step 3						
Team size	-0.090	0.045	-0.245**	-0.064	0.041	-0.187
Status	-0.036	0.039	-0.123	0.027	0.035	0.099
Gender	-0.094	0.163	-0.073	0.017	0.148	0.014
Team tenure	0.001	0.002	0.070	0.000	0.002	0.025
Proportion of women	0.098	0.075	1.320	0.118	0.068	1.710*
Quadratic proportion of women	-0.002	0.001	-1.246	-0.002	0.001	-1.412
	$\Delta R^2 = 0.021$	df = 6	p > 0.1	$\Delta R^2 = 0.027$	df = 6	p > 0.1

	Task Orientation (n = 71)			Vision (n = 71)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.061	0.044	-0.172	-0.052	0.041	-0.156
Status	-0.027	0.037	-0.095	0.008	0.035	0.030
Gender	-0.169	0.161	-0.136	-0.158	0.152	-0.134
Team tenure	0.001	0.002	0.047	-0.001	0.002	-0.086
	$R^2 = 0.052$	df = 4	p > 0.1	$R^2 = 0.046$	df = 4	p > 0.1
Step 2						
Team size	-0.053	0.044	-0.150	-0.051	0.042	-0.151
Status	-0.015	0.038	-0.053	0.011	0.036	0.040
Gender	-0.171	0.161	-0.137	-0.158	0.153	-0.135
Team tenure	0.001	0.002	0.071	-0.001	0.002	-0.080
Proportion of women	0.011	0.009	0.159	0.002	0.009	0.037
	$\Delta R^2 = 0.021$	df = 5	p > 0.1	$\Delta R^2 = 0.001$	df = 5	p > 0.1
Step 3						
Team size	-0.054	0.044	-0.150	-0.052	0.042	-0.155
Status	-0.014	0.038	-0.051	0.014	0.036	0.053
Gender	-0.171	0.162	-0.137	-0.154	0.154	-0.131
Team tenure	0.001	0.002	0.071	-0.001	0.002	-0.077
Proportion of women	0.021	0.075	0.298	0.055	0.071	0.815
Quadratic proportion of women	-0.000	0.001	-0.140	-0.001	0.001	-0.780
	$\Delta R^2 = 0.000$	df = 6	p > 0.1	$\Delta R^2 = 0.008$	df = 6	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

Table 9.3 b: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes for Non-Management Teams (Local Government Housing Department Sample)

	Participative Safety (n = 292)			Support for Innovation (n = 292)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.021	0.011	-0.116**	-0.041	0.011	-0.219***
Status	0.065	0.019	0.205***	0.046	0.020	0.144**
Gender	0.082	0.087	0.058	0.063	0.088	0.045
Team tenure	-0.001	0.001	-0.054	-0.000	0.001	-0.006
	$R^2 = 0.056$	df = 4	p = 0.002	$R^2 = 0.067$	df = 4	p < 0.001
Step 2						
Team size	-0.025	0.011	-0.134**	-0.042	0.011	-0.223***
Status	0.073	0.020	0.230***	0.048	0.020	0.149**
Gender	-0.004	0.096	-0.003	0.046	0.098	0.032
Team tenure	-0.001	0.001	-0.063	-0.000	0.001	-0.008
Proportion of women	0.004	0.002	0.141**	0.001	0.002	0.029
	$\Delta R^2 = 0.014$	df = 5	p = 0.040	$\Delta R^2 = 0.001$	df = 5	p > 0.1
Step 3						
Team size	-0.030	0.011	-0.162***	-0.045	0.011	-0.239***
Status	0.065	0.020	0.206***	0.043	0.020	0.135**
Gender	-0.011	0.096	-0.008	0.042	0.098	0.029
Team tenure	-0.001	0.001	-0.068	-0.000	0.001	-0.011
Proportion of women	0.014	0.005	0.518***	0.007	0.005	0.249
Quadratic proportion of women	-0.000	0.000	-0.394**	-0.000	0.000	-0.232
	$\Delta R^2 = 0.014$	df = 6	p = 0.038	$\Delta R^2 = 0.005$	df = 6	p > 0.1

	Task Orientation (n = 289)			Vision (n = 287)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.030	0.013	-0.139**	-0.007	0.011	-0.039
Status	0.038	0.023	0.105*	0.016	0.020	0.050
Gender	-0.062	0.102	-0.038	-0.143	0.090	-0.102
Team tenure	-0.000	0.001	-0.027	-0.001	0.001	-0.039
	$R^2 = 0.038$	df = 4	p = 0.025	$R^2 = 0.020$	df = 4	p > 0.1
Step 2						
Team size	-0.033	0.013	-0.154***	-0.009	0.011	-0.050
Status	0.046	0.023	0.126**	0.020	0.020	0.065
Gender	-0.141	0.113	-0.088	-0.193	0.099	-0.138*
Team tenure	-0.001	0.001	-0.034	-0.001	0.001	-0.044
Proportion of women	0.004	0.002	0.114	0.002	0.002	0.082
	$\Delta R^2 = 0.009$	df = 5	p > 0.1	$\Delta R^2 = 0.005$	df = 5	p > 0.1
Step 3						
Team size	-0.033	0.013	-0.155**	-0.009	0.011	-0.051
Status	0.045	0.023	0.125*	0.020	0.021	0.064
Gender	-0.142	0.113	-0.088	-0.193	0.100	-0.138*
Team tenure	-0.001	0.001	-0.034	-0.001	0.001	-0.044
Proportion of women	0.004	0.006	0.133	0.003	0.005	0.093
Quadratic proportion of women	-0.000	0.000	-0.019	-0.000	0.000	-0.011
	$\Delta R^2 = 0.000$	df = 6	p > 0.1	$\Delta R^2 = 0.000$	df = 6	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

9.2.5 Comparing the Effects of Team Gender Diversity across Both Gender and Type of Team

In the analyses reported above, differential effects of team diversity were found in terms of both gender (see section 9.2.3) and type of team (see section 9.2.4) groups. Therefore, analyses were conducted to investigate the effects within both gender and type of team categories; that is, hierarchical multiple regression analyses were conducted separately for management men, management women, non-management men and non-management women samples. For each set of analyses the control variables (team size, individual status and team tenure) were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women term was entered as step 3. For a summary of these results see table 9.4 (full tables of results can be found in tables H9a to H9d in appendix H).

Table: 9.4: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes across Gender and Type of Team Groups (Local Government Housing Department Sample).

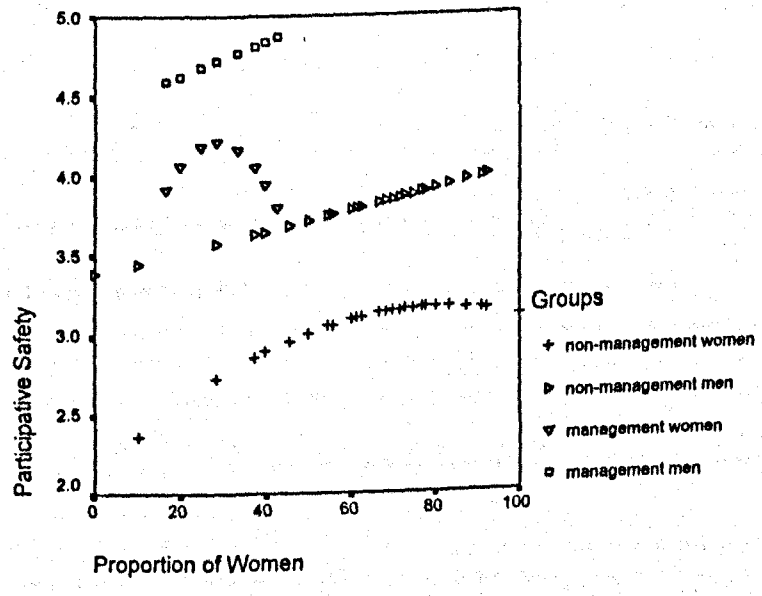
	Management Men		Management Women	
Variable	Linear ΔR^2	Curvilinear ΔR^2	Linear ΔR^2	Curvilinear ΔR^2
Participative Safety	0.015	0.008	0.014	0.054
Support for Innovation	0.106**	0.017	0.018	0.028
Task Orientation	0.018	0.000	0.082	0.002
Vision	0.002	0.015	0.002	0.000
	Non-Management Men		**Non-Management Women**	
Variable	Linear ΔR^2	Curvilinear ΔR^2	Linear ΔR^2	Curvilinear ΔR^2
Participative Safety	0.055	0.013	0.005	0.009
Support for Innovation	0.009	0.000	0.000	0.013
Task Orientation	0.028	0.004	0.015	0.004
Vision	0.011	0.000	0.017	0.003

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.001$

In terms of perceptions of participative safety it was found that there was a significant linear effect for non-management men ($\Delta R^2 = 0.055$; $p = 0.016$), and meaningfully large (but non-significant) linear effect for management men ($\Delta R^2 =$

0.015, p > 0.1) (see table 9.4). This indicates that the greater the proportion of women in the team the more positively both management and non-management men perceived the participative safety of their teams (see figure 9.9). In addition, a meaningfully large, but non-significant, curvilinear effect was found within the management women sample ($\Delta R^2 = 0.054$; $p > 0.1$)[6]. As can be seen from figure 9.9 it was found that as the proportion of women in the team increased beyond token status perceptions of participative safety increased. However, once the proportion of women in the team reached approximately 30% further increases in the proportion of women in the team were associated with decreased participative safety. No relationship was found between the proportion of women in the team and perceptions of participative safety with the non-management women sample (linear $\Delta R^2 = 0.005$, $p > 0.1$; quadratic $\Delta R^2 = 0.009$, $p > 0.1$) samples (see table 9.5).

Figure 9.9: The relationship between the proportion of women in the team and of participative safety in management men, management women, non-management men and non-management women samples.

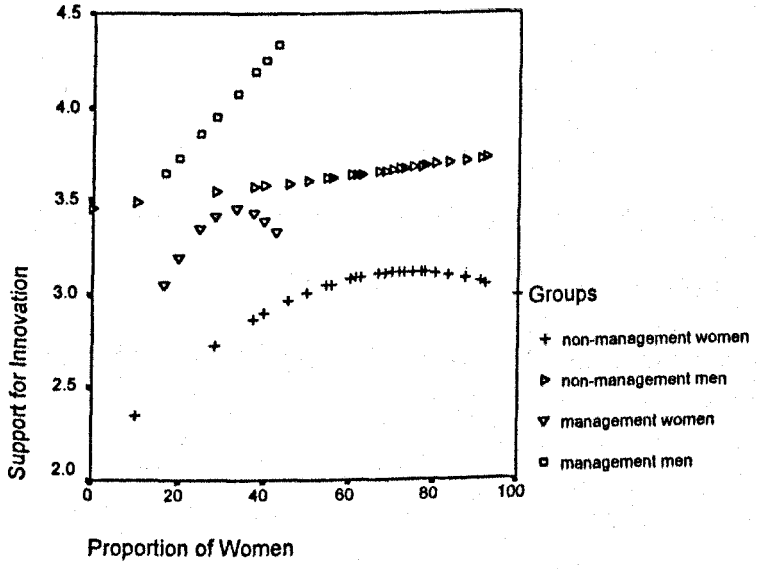


[6] Although not statistically significant this effect size was considered meaningful because it was larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

In terms of support for innovation there was found to be a significant linear effect of team gender diversity within the sample of management men ($\Delta R^2 = 0.106$; $p = 0.020$) (see table 9.4). Therefore, the greater the proportion of women in the team the higher management men perceived the support for innovation of their teams (see figure 9.10). In addition, the curvilinear effect sizes within the management women ($\Delta R^2 = 0.028$, $p > 0.1$) and non-management women ($\Delta R^2 = 0.013$, $p > 0.1$) samples, although not statistically significant, were reasonably large (see table 9.4)[7]. As can be seen from figure 9.10, the higher the proportion of women in the team the higher management women perceived the support for innovation of their teams. However, once the proportion of women in the team exceeded approximately 30% this trend reduced and further increases in the proportion of women in the team were associated with decreased perceptions of support for innovation amongst management women. In contrast, for non-management women there was an inverted curvilinear effect. As can be seen from figure 9.10, increasing proportions of women were associated with higher perceived support for innovation. However, this effect levelled off as the gender proportions within teams became more balanced, and increasing proportions of women in the team had little effect once women represented 60% of the team. No effect was found within the non-management male sample (linear $\Delta R^2 = 0.009$, $p > 0.1$; quadratic $\Delta R^2 = 0.000$, $p > 0.1$) (see table 9.4).

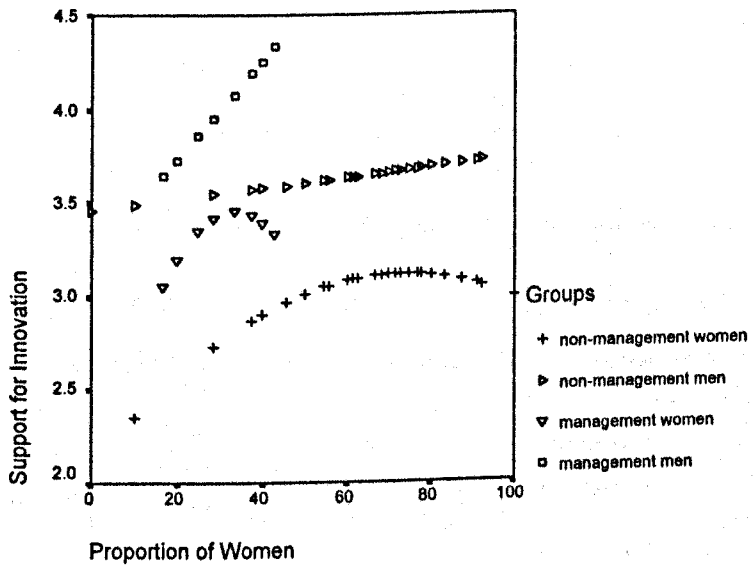
[7] Although not statistically significant these effect sizes were considered meaningful because they were larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

Figure 9.10: The relationship between the proportion of women in the team and of support for innovation in management men, management women, non-management men and non-management women samples.



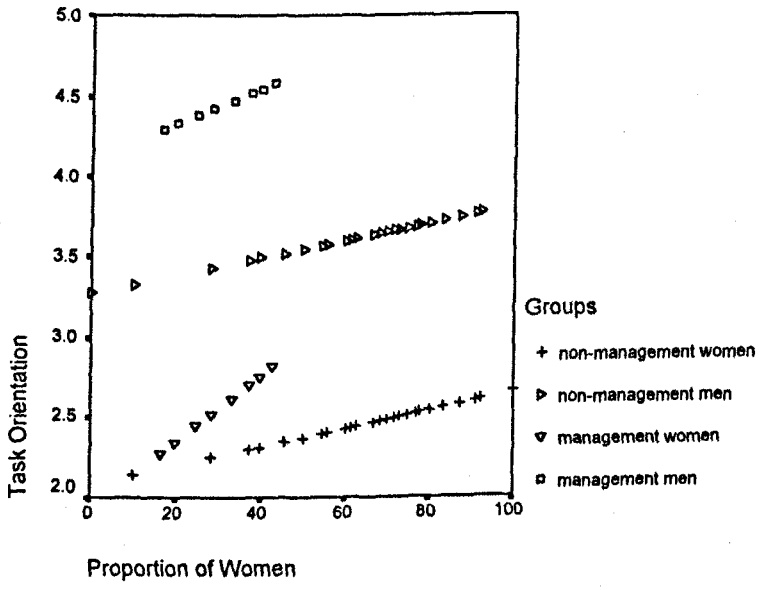
Although the proportion of women in the team was not found to be significantly related to perceptions of task orientation within any of the samples, the linear effect sizes within all the samples were larger than effects found to be significant in the analyses of the whole sample. It was therefore concluded that there was a positive linear effect of the proportion of women in the team on perceptions of task orientation for management men ($\Delta R^2 = 0.18$, $p > 0.1$), management women ($\Delta R^2 = 0.082$; $p > 0.1$), non-management men ($\Delta R^2 = 0.028$; $p = 0.086$) and non-management women ($\Delta R^2 = 0.015$, $p = 0.096$) (see table 9.4). As can be seen from figure 9.11, it was found that, for all the groups, the greater the proportions of women in the team the higher the perceived task orientation. However, it is important to note that the effect was substantially large within the sample of management women, with the proportion of women in the team accounting for 8.2% of the variance in management women's perceptions of task orientation.

Figure 9.10: The relationship between the proportion of women in the team and of support for innovation in management men, management women, non-management men and non-management women samples.



Although the proportion of women in the team was not found to be significantly related to perceptions of task orientation within any of the samples, the linear effect sizes within all the samples were larger than effects found to be significant in the analyses of the whole sample. It was therefore concluded that there was a positive linear effect of the proportion of women in the team on perceptions of task orientation for management men ($\Delta R^2 = 0.18$, $p > 0.1$), management women ($\Delta R^2 = 0.082$; $p > 0.1$), non-management men ($\Delta R^2 = 0.028$; $p = 0.086$) and non-management women ($\Delta R^2 = 0.015$, $p = 0.096$) (see table 9.4). As can be seen from figure 9.11, it was found that, for all the groups, the greater the proportions of women in the team the higher the perceived task orientation. However, it is important to note that the effect was substantially large within the sample of management women, with the proportion of women in the team accounting for 8.2% of the variance in management women's perceptions of task orientation.

Figure 9.11: The relationship between the proportion of women in the team and of task orientation in management men, management women, non-management men and non-management women samples.

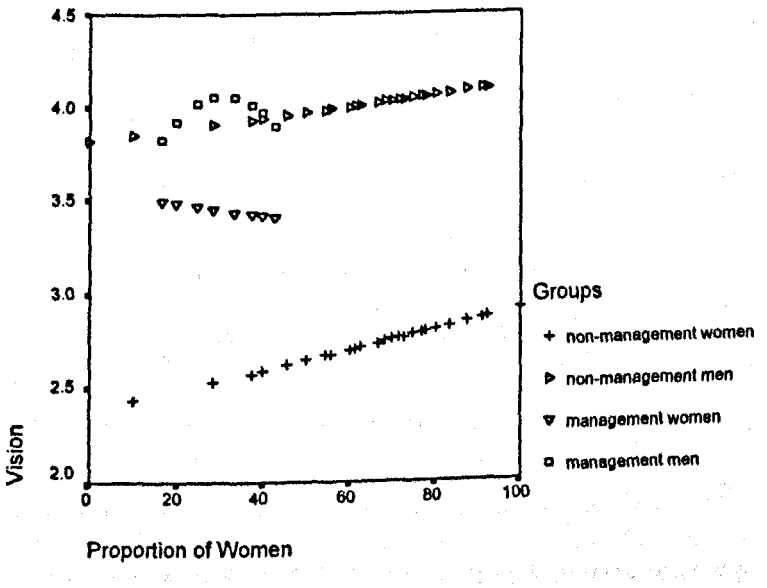


The proportion of women in the team was not found to be significantly related to perceptions of team vision in any of the samples (see table 9.4). However, the linear effect sizes for the samples of non-management women ($\Delta R^2 = 0.017$, $p = 0.076$) and non-management men ($\Delta R^2 = 0.011$, $p > 0.1$) were large enough to be of note[8]. As can be seen from figure 9.12, it was found that the greater the proportion of women in the team the higher non-management men and women perceived the vision of their teams. In addition, the curvilinear effect of the proportion of women on management men's perceptions of vision was also reasonably large ($\Delta R^2 = 0.015$, $p > 0.1$). It was found that as the proportion of women in the team increased beyond token status management men's perceptions of vision increased. However, once the proportion of women in the team increased beyond 30% further increases in the proportion of women were

[8] Although not statistically significant this effect size was considered meaningful because it was larger than effects found to be significant in the analyses of the whole sample (see section 9.2.2).

associated with decreased perceptions of vision (see figure 9.12). No relationship between the proportion of women in the team and perceptions of vision was found in the sample of management women (linear $\Delta R^2 = 0.002$, $p > 0.1$; quadratic $\Delta R^2 = 0.000$, $p > 0.1$) (see table 9.4).

Figure 9.12: The relationship between the proportion of women in the team and of vision in management men, management women, non-management men and non-management women samples.



The analyses in this section therefore produced a confusing pattern of effects. It was found that the greater the proportion of women in the team the higher management men perceived the participative safety, support for innovation and task orientation of their teams. In terms of perceptions of team vision, management men in token women and gender balanced teams reported lower perceived team vision than management men from teams with a minority (but not token) representation of women. In contrast, in the management women sample, greater proportions of women were associated with higher task orientation, and management women from token and balanced teams reported lower participative safety and support for innovation than management women from

teams with a minority of women. Interestingly the proportion of women in the team was not found to affect management women's perceptions of vision. The pattern of effects within the non-management men sample was again different. In particular, it was found that the greater the proportion of women in the team the higher non-management men perceived the participative safety, task orientation and vision of their teams. Interestingly, no effect was found for support for innovation within the non-management men sample. Finally, within the non-management women sample, greater proportions of women were associated with higher perceived support for innovation, task orientation and vision (no effect was found for participative safety). However, for support for innovation this beneficial effect of increasing proportions of women levelled off once women represented 60% of the team.

Therefore, although there were differential patterns of effects across the four samples generally it was found that increasing proportions of women in the team were beneficial to team functioning. However, for management men's perceptions of vision and management women's perceptions of participative safety and support for innovation these beneficial effects were only true as the proportion of women increased from a token to a minority representation. Once the proportion of women in the team exceeded 30%, further increases in the proportion of women were found to be detrimental to these aspects of team functioning (within these two groups).

9.3 DISCUSSION

This third study addressed the first three research questions of this thesis within a relatively gender balanced organisational context, namely a local government housing department. Firstly it examined the overall relationship between team gender diversity and perceptions of team functioning. Secondly, it investigated the possibility of differential gender diversity effects for men and women. Finally it explored whether there was a differential impact of team gender diversity on management and non-management teams.

9.3.1 General Gender Diversity Effects

The only team process found to be influenced by team gender diversity was participative safety. In particular, it was found that greater proportions of women were associated with higher perceived participative safety, but this effect levelled once the proportion of women in the team exceeded 60%. It is important to note that in this study, unlike studies 1 and 2, the teams ranged from 0% women to 100% women. The effect of team gender diversity on perceptions of participative safety found within this third study therefore suggests that, in direct contrast to the findings of studies 1 and 2, in the housing department sample diversity *per se* does not have an effect. If diversity (regardless of which gender were represented) had had an effect either a u-shaped or an inverted u-shaped curve (depending upon whether diversity had a beneficial or a detrimental effect) would have been found within the data. This was not the case. Rather the results show that women in particular bring something to the team that increases the participative safety within the team. This finding therefore supports a Demographic

Differences Perspective (see section 3.1). That is, the finding suggests that men and women behave differently in teams and, further, that this difference is related to participation and support. Thus increasing proportions of women means increasing proportions of team members acting in a participative and supportive manner.

Another interesting aspect of the results from this study was that the beneficial effect of increasing proportions of women levelled once women represented 60% of the team. None of the theories address this issue. However, it is plausible that increasing proportions of women facilitated participative safety up to a certain point but that once a majority of people behave in such a way a team norm was created and thus further representation of women had no additional benefit.

Finally, it is important to note that gender diversity was not found to affect perceptions of support for innovation, task orientation or vision. However, these team processes were found to be affected when analyses were conducted separately for men and women (see section 9.2.3) and for management and non-management teams (see section 9.2.4). The null effects within the sample as a whole are therefore merely due to the confounding affects of gender diversity across gender and type of team. This emphasises the critical importance of investigating possible moderators of the relationship between gender diversity and team processes.

9.3.2 The Differential Effect of Team Gender Diversity on Men and Women

The second research question addressed in this study was the possibility that men and women are differentially effected by team gender diversity. Although some differences were found, it must be noted that these differences were small. In particular it was found that, for both the male and female samples, increasing proportions of

women in the team were associated with higher participative safety, support for innovation, task orientation and vision. Therefore, these results suggest that women in particular, rather than diversity, create better team functioning. This supports the Demographic Differences Approach. However, the task vs. socio-emotional gender differences in behaviour that were observed in past research suggested that women would behave in a more socio-emotional way than men, and thus the greater the number of women in the team the more socio-emotional behaviour would be exhibited in the team. In discussing the TCI (see section 5.4) it was therefore suggested that only the socio-emotional processes (participative safety and support for innovation) would be affected positively by increasing proportions of women. However, this study did not find this to be the case, since within the male and female samples all team processes were found to be positively influenced by increasing proportions of women. There are two possible explanations for this finding. Either it is not socio-emotional behaviour that underlies the effects found, or, all team processes are socio-emotional (for a similar argument see section 7.3.1). However, regardless of which alternative is correct, the results suggest that men and women behave differently in teams and that team processes are a reflection of the proportion of individuals acting in a certain way, a finding that supports the Demographic Differences Perspective.

However, within the female sample, the beneficial effects of increasing proportions of women on participative safety and support for innovation were only evidenced in teams with less than 60% women. Once women were in the majority, further increases in the proportion of women had little or no effect on women's perceptions of participative safety and support for innovation. This effect is the same as that found for participative safety in the sample as a whole. In the discussion relating to

this finding (see section 9.3.1) it was suggested that once there was a majority of women in the team a team norm might be created. However, since the effects within the male sample were linear (i.e. participative safety and support for innovation kept on increasing with greater proportions of women) this explanation is refuted. Rather the findings suggest that there are specific interaction dynamics occurring within the teams that lead to the increased perceptions of participative safety and support for innovation levelling off within the female sample but not in the male sample. However, on the basis of the current research it is impossible to determine what these dynamics are.

It is also interesting to note that the effects for task orientation and vision were linear within the female sample. This leaves the question of why, within the female sample, the effects of gender diversity level off for participative safety and support for innovation but not for task orientation and vision. Again, it is unclear why this is the case.

In summary, the findings of this study support the proposition that there are differential effects of gender diversity on men and women. However, current theory cannot explain the pattern of effects found. Therefore, whilst it is possible to speculate why some of the effects might have occurred, no definitive conclusions can be made.

9.3.3 The Differential Effect of Team Gender Diversity across Type of Team

The third research question explored the possibility that the effect of team diversity is dependent upon the level at which the team operates. The first finding of note is that gender diversity had a more pervasive effect on team functioning in management teams. Gender diversity was found to affect perceptions of participative safety, support for innovation, and task orientation within the management sample but

was only found to affect participative safety within the non-management sample. Two theories suggest possible explanations for this effect. Gender-Role Theory proposes that multi-disciplinary teams might be more affected by gender diversity than teams whose members have similar work roles (see section 3.1.2.3). Whereas, Expectations-States Theory implies that gender diversity effects will be reduced in highly defined status hierarchies. Since management teams within the housing department were both more multi-disciplinary and less defined by hierarchy than the non-management teams, either (or both) of these explanations could underlie the observed effect.

However, other explanations are also possible. For example, non-management teams tend to work together in a more ongoing way. In support of this supplementary analyses showed that members of management teams were less likely to share an office [$\chi^2(1) = 113.401$; $p < 0.001$] and were less likely to be in daily contact with one another [$\chi^2(1) = 100.535$; $p < 0.001$] (see appendix I for tables of these analyses). Thus, in accordance with the propositions of Social Contact Theory, it could be that the greater frequency of contact between team members in non-management teams breeds familiarity and enhances team development beyond gender based interaction. In addition, in contrast to the lower organisational levels, the higher organisational levels of the housing department are male dominated (as evidenced by the higher status of men and the fact that all the management teams within the sample have less than 50% women: see sections 9.2.1.3 and 9.2.4). Therefore it is also possible that the greater gender diversity effect within management teams is due to the differential proportions of women within the different levels of the department.

Further, although gender diversity effected perceptions of participative safety within both the management and non-management samples, the nature of these effects

differed. Within the non-management sample the effect of gender diversity was the same as that found for the samples as whole. That is, increasing proportions of women were associated with higher perceived participative safety until the proportion of women reached 60%, after which further increases in the proportion of women in the team had little or no effect. In contrast, in the management sample it was found that as the proportion of women in the team increased beyond token status perceptions of participative safety increased. Although, once the proportion of women in the team reached 30%, further increases in the proportion of women were associated with decreased participative safety[9]. The finding that token women teams had low team functioning is similar to the tokenism effects found in studies 1 and 2 (see sections 7.3.1 and 8.3.1) and therefore is supportive of Social Contact Theory. However, why management team members should find teams with a minority representation to be more beneficial than an equal proportion of women is unclear and cannot be explained by existing theory.

In addition, it was found that team gender diversity had an effect on perceptions of support for innovation and task orientation within the management sample but not in the non-management team sample. In particular, it was found that the greater the proportion of women in the team the higher management team members perceived the support for innovation of their teams. As was noted earlier (see section 9.3.1) it is unclear why these effects were linear when the effect for participative safety was curvilinear.

Despite uncertainty about why many of the effects occurred, it is clearly evident that the effect of gender diversity was dependent upon the organisational level at which

[9] It is important to note that none of the management teams were female-dominated. Thus, this study cannot determine the effect that gender diversity has on teams with a female majority.

the team operates. This is in contrast to Jackson et al (1991) who found there to be no difference in the effect of diversity between teams with differing status. However, as was argued previously (see section 4.3.3), the two organisational levels under comparison within the Jackson et al study were both within the upper echelons of the companies. The findings of the present study therefore suggest that a distinction between management and non-management teams is more appropriate than a distinction between different types of management teams.

9.3.4 The Differential Effects of Team Gender Diversity across both Gender and Type of Team

Since differential effects of team gender diversity were found across both gender and type of team, additional analyses were conducted to investigate the differential effects of gender diversity within the samples of management men, management women, non-management men and non-management women. As was noted in section 9.2.5, a confusing pattern of effects emerged. To try to gain a better understanding of this pattern of effects this discussion concentrates on the comparisons of men and women within the two types of team and the comparison of types of team within each gender group (i.e. the difference in effects between management women and non-management men and between management men and non-management women are not discussed).

9.3.4.1 Differential Gender Diversity Effects for Management Men and Women

The only similarity in the effects found was that increases in the proportion of women in the team were associated with higher perceived task orientation in both the

samples. However, whilst team gender diversity accounted for only 1.8% of the variation in management men's perceptions of task orientation it accounted for 8.2% of the variation in management women's perceptions of task orientation. Therefore, although the nature of the effect of gender diversity on perceptions of task orientation was the same within the samples of management men and women, the effect was much greater for management women. In terms of support for innovation there was also a difference in the magnitude of effects within the two samples. However, the situation was reversed with team diversity accounting for 10.6% of the variation in management men's perceptions of support for innovation but only 2.8% of the variation in management women's perceptions of support for innovation. In addition to the difference in the size of the effect the nature of the effect was also different. For management men it was found that there was a positive linear association between the proportion of women in the team and perceptions of support for innovation. In contrast, for management women increasing proportions of women were only found to have a beneficial effect on perceptions of support for innovation in teams with less than 30% women. Once 30% of the team were women further increases in the proportion of women were associated with decreased support for innovation.

This differential effect was also found for participative safety, with the effect of the proportion of women in the team being related in a linear way to management men's perceptions of participative safety but curvilinearly related to management women's perceptions of participative safety. Again the size of the effect was also different, as was the case for task orientation it was found that gender diversity had a greater effect on the perceptions of management women (accounting for 5.4% as opposed to 1.5% of the variance in participative safety). Finally, gender diversity was found to affect

management men's, but not management women's, perceptions of team vision. Interestingly, although the effects of the proportion of women on the other team processes had been linear within this sample of management men, the effect for vision was curvilinear. The nature of this curvilinear effect was the same as that found within the management women sample. That is, as the proportion of women increased beyond token status, management men's perceptions of team vision increased. However, once the proportion of women reached 30% further increases in the proportion of women were associated with decreased team vision.

It is evident therefore that team gender diversity had a substantially different effect on management men and management women. However, although there were differences in the magnitude of effects, sometimes management men were affected to a greater extent, and sometimes management women were affected to a greater extent. This is somewhat surprising, especially since the results of study 1 would suggest that the gender skewed context of the management level in the housing department would lead to women (as the minority) being effected to a greater extent than men (as the majority). It is also important to note that the nature of the effects also differed within the samples of management men and women. However, there does not appear to be a theoretical or intuitive pattern to the effects found. Therefore, until further research is conducted the only conclusion that can be made is that management men and women are effected differently by the gender diversity of their teams.

9.3.4.2 Differential Gender Diversity Effects for Non-Management Men and Women

The difference in the effects of gender diversity on non-management men and women was less distinct than that between management men and women. In general, increasing proportions of women were associated with higher team functioning in both samples. However, it was found that although there was an effect of gender diversity on perceptions of participative safety within the sample of non-management men, there was no effect found for the sample of non-management women. In contrast, although gender diversity was found to affect perceptions of support for innovation in the sample of non-management women, no effect was found for non-management men. Finally, the effect for perceptions of support for innovation was curvilinear within the sample of non-management women, with increasing proportions of women only having a beneficial effect until 60% of the team were women (after which point, further increases in the proportion of women had little or no effect). In contrast, the other effects within the non-management women sample, and all the effects within the sample of non-management men, were found to be linear.

Therefore there were found to be differential effects of gender diversity within the samples of non-management men and women. However, overall these differences were not vast, and in general it was found that increasing proportions of women in non-management teams were beneficial to both men's and women's perceptions of team functioning. The fact that these differences were not vast could be due to the fact that the non-management working environment was relatively gender balanced, and thus neither the men nor the women were in the minority in the context as a whole.

9.3.4.3 Differential Gender Diversity Effects for Management and Non-Management Men

A comparison of the effects of gender diversity on management and non-management men shows that there were both similarities and differences in the effects found. For both groups increasing proportions of women were found to be linearly related to perceptions of participative safety and task orientation. That is, for both management and non-management men it was found that the greater the proportion of women in the team the higher the perceived participative safety and task orientation. However, differential effects were found within the samples of management men and non-management men for the other two team processes. Firstly, it was found that the greater the proportion of women in the team the higher management men perceived the support for innovation of their teams, but no gender diversity effect was found in the sample of non-management men. Secondly, the proportion of women in the team was found to have a linear effect on management men's perceptions of team vision but a curvilinear effect on non-management men's perceptions of team vision (see section 9.2.5 for a description of these effects).

Therefore gender diversity was found to have a differential effect on management and non-management men's perceptions of support for innovation and vision, but the effect was similar for perceptions of participative safety and task orientation. As with the other comparisons that have been made, there seems to be no logical pattern to the effects found. Therefore, yet again, all that can be concluded is that there are differential effects of gender diversity for management and non-management men.

9.3.4.4 Differential Gender Diversity Effects for Management and Non-Management Women

The differential effect of gender diversity on management and non-management women's perceptions of team functioning was quite substantial. Firstly, gender diversity had a greater affect on management women than on non-management women. In particular gender diversity was found to account for between 2.8% and 8.2% of the variation in management women's perceptions of team functioning, but only between 1.3 and 1.7% of the variation in non-management women's perceptions of team functioning. Secondly, although the proportion of women was found to be linearly related, in a positive direction, to both management and non-management women's perceptions of task orientation, in terms of the other team processes differential effects were found within these two samples. For management women there was found to be an effect of gender diversity on perceptions of participative safety but not for vision. In contrast, for management women there was found to be a gender diversity effect on perceptions of vision but not for participative safety. In addition, although gender diversity was found to have a curvilinear effect on perceptions of support for innovation in both management and non-management women samples the nature of the effects were very different (see section 9.2.5 for a description of these effects).

Therefore in conclusion gender diversity had a differential effect on management and non-management women, and in particular management women were found to be effected to a greater extent than non-management women. It is possible that this effect occurred because women were in the minority within management settings but were equally represented in non-management settings. Therefore, according to Social Identity Theory (see section 3.2.1), gender is likely to have been more salient to management

women, and this greater salience may underlie the greater gender diversity effects found. However, again, existing theory makes no headway in explaining why the nature of the effects occurred.

9.3.4.5 Summary of Comparisons

In summary gender diversity was found to have markedly different effects across gender and type of team. However, currently theory cannot explain the particular pattern of effects found. It is therefore critical that further research is conducted so as to explain why gender diversity has the effect that it does. The comparisons do however highlight two important points. Firstly, there was a bigger gender difference in the effects of gender diversity within the management sample than in the non-management sample. As noted within section 9.3.3 the greater effects within the management sample could be due to the fact that management teams were more multi-disciplinary, less hierarchically structured, had less contact, or because the demographic profile of the higher levels of the organisation were male-dominated. Secondly, there was found to be a greater difference between the gender diversity effects of management and non-management teams within the female than within the male sample. This may be because women are in the minority at management levels. Thus the distinction between being management and non-management for women means the difference between being in a setting where their gender is equally represented and a setting whether their gender is in a minority. In contrast, for men, the difference is between being in a setting where their gender is equally represented to being in a setting where their gender is in the majority. Perhaps the distinction between equity and minority is more pronounced than the

distinction between equity and majority, and maybe this explains why the distinction between management and non-management teams is greater for women than for men.

9.4 CHAPTER SUMMARY

This third study has shown that, within a gender balanced context, increasing proportions of women in the team generally had a beneficial affect on team functioning, although noticeably an effect was only observed for participative safety. In addition it is important to note that the nature of the effects found in this study were very different from those found in studies 1 and 2.

However, as with the other two studies there was also found to be a differential effect of team gender diversity on men and women. In addition, there was a marked distinction in the effect of gender diversity on management and non-management teams. Of most note was the fact that team gender diversity had a greater effect within management teams. Analyses comparing across both gender and type of team highlighted two important findings. Firstly, the differential effects of gender diversity on men and women were more pronounced within management than non-management teams. Secondly, there was a greater difference in the effects of gender diversity across type of team within the female than the male sample.

CHAPTER 10

GENERAL DISCUSSION

The aim of this final chapter is to integrate the results from each of the studies and to discuss their theoretical and practical implications. The results relating to each study were discussed previously (see sections 7.3, 8.3 and 9.3). This chapter therefore discusses the broader issues that emerge from the research and, in particular, the issue of organisational context. The findings are therefore summarised, and the implications of the findings are discussed. Further, suggestions are made about how the work here could be both improved upon and extended, and recommendations are made as to how future diversity research should develop.

In spite of the fact that there are both theoretical and practical reasons for expecting team gender diversity to be an important factor in team functioning, a review of the literature identified a great need for further research in this area. Generally, very little research has investigated the issue of gender diversity and the research that has been published brings the research field little closer to a definitive understanding of the effect on team functioning. The basic aim of this thesis was therefore to investigate the effect of team gender diversity on team members' perceptions of the processes of their teams. However, the review of the literature also highlighted the possibility of moderating factors. Three of these were noted to be of particular importance at both a theoretical and practical level. Therefore, in addition to investigating the overall effect of team gender diversity on perceptions of team functioning, this research explored the possibility that the effects of gender diversity differ across gender, type of team and organisational context.

To achieve this three cross-sectional questionnaire-based studies were conducted. The first was conducted in the male-dominated manufacturing industry (see chapter 7), the second was conducted in the female-dominated health service (see chapter 8) and the third was conducted in a gender-balanced local government housing department (see chapter 9).

The differential effects of gender diversity on men and women and within management and non-management teams were discussed in previous chapters (see sections 7.3, 8.3 and 9.3). However, the issue of organisational context has not yet been directly discussed. The following section therefore integrates the results of the three studies and focuses on the implications of the findings with regard to organisational context.

10.1 THE IMPORTANCE OF ORGANISATIONAL CONTEXT

Taken in combination, the results of the three studies reported here provide strong support for the proposition that there is a differential impact of team gender diversity across organisational context. In fact, in discussing the results of each study (see sections 7.3, 8.3 and 9.3) it was impossible to reach conclusions without taking into account the organisational context from which the results were obtained. This section therefore summarises the conclusions already reached and draws together the findings that are of particular relevance to the issue of organisational context.

The three studies presented here were conducted in very different organisational contexts. The first study was conducted in the male-dominated manufacturing industry, the second study was conducted in the female-dominated (but hierarchically male) health service and the final study was conducted in the more gender balanced (but still hierarchically male) local government housing department. Whilst team gender

diversity was found to influence team members' perceptions of team functioning within each of these contexts the pattern of findings suggest some intriguing context effects.

In study 1, which was set in the manufacturing industry (see Chapter 7), it was found that generally, a greater the proportion of women in the team was associated with higher perceived participative safety, support for innovation and task orientation. However, a token representation of women was found to be particularly detrimental to these team processes, with members from such teams reporting the lowest levels of team functioning. In addition, it was observed that whilst any increase in the proportion of women was beneficial for women, increasing proportions of women were only beneficial to men once women represented more than 20% of the team. The effect of team gender diversity on women was also found to be substantially greater for women than for men.

A similar pattern, but in a reversed direction, was found within the health service (see Chapter 8). In this second study it was found that, generally, the greater the proportion of women in the team the lower team members perceived all four of the team processes measured (participative safety, support for innovation, task orientation, and vision). However, similar to the manufacturing industry results, it was found that members of token teams reported particularly low scores, which were not evident in the all-female teams. In addition, it was observed that whilst any increase in the proportion of men was beneficial for men, increasing proportions of men were only beneficial to women once men represented more than 20% of the team. However, in contrast to the findings of the manufacturing industry, the magnitude of the gender diversity effects did not differ within the male and female health service samples (see section 8.3.2).

As previously noted (see sections 7.3.1 and 8.3.1), the results from the manufacturing industry and the health service are consistent with the proposition of the

Social Contact Theories (in particular from the work of Kanter, 1977) that token representation of a minority leads to particular difficulties (such as discrimination, isolation, and performance pressures being placed on tokens) which diminish with increased proportions of the minority. However, such tokenism effects were not detected in the local government housing department data (see chapter 9). This suggests that tokenism effects only occur when the gender proportions within the context as a whole are skewed.

The results from the manufacturing and health service studies also implied that, once the minority gender exceeded tokenism, increasing gender diversity was beneficial to team functioning regardless of which gender was in the minority. If the results of either of these studies were considered alone they could have been interpreted as supporting a demographic differences perspective. That is, it could have been suggested that women (if looking at the manufacturing industry) or men (if looking at the health service) bring something unique to the team that enhances the processes of the team. However, since the effects occur in opposite directions within the two studies it would appear that the effects are not to do with gender per se, but rather to do with increased numbers of a minority gender. Therefore the results taken together suggest that, in a context dominated by one gender, teams with greater proportions of the minority gender function more effectively than those whose team composition reflects that of the context as a whole.

As noted previously (see sections 7.3.1 and 8.3.1), once tokenism is exceeded, these findings refute the proposition that gender diversity is detrimental to team functioning. In addition since the same sex teams within each of the samples were not found to have a greater (or similar) level of team processes than more gender balanced teams it would seem that Social Contact dynamics (see section 7.3.1) cannot be

underlying the effects found. Instead it seems that the presence of the 'minority' gender creates some dynamic that provides more psychologically healthy team functioning. Perhaps the presence of those who are different challenges the norms of the context thus forcing teams to interact in a way that increases team functioning. Such an idea is similar to that of Group Think (Janis, 1982) in which homogeneity and interpersonal attraction are proposed to be two (of many) antecedents to defective decision-making. It can be concluded therefore that, within contexts where gender proportions are skewed, team gender diversity (once it exceeds tokenism) was beneficial to teams.

In contrast, the pattern of effects within the local government housing department (see Chapter 9) were dramatically different. It was found that the greater the proportion of women in the team the higher team members perceived the participative safety. However, the beneficial effect of increasing proportions of women levelled once the proportion of women in the team reached about 60%, with further increases in the representation of women having little or no effect. In addition, when the male and female samples were analysed separately all team processes were found to be affected by the proportion of women in the team. The only difference was that for women the beneficial effects of increasing proportions of women on participative safety levelled off once there were 60% women in the team. Whereas for men the effect was linear, with increasing proportions of women increasing mens perceptions of participative safety and support for innovation up until men were tokenly represented.

Therefore the results from the housing department do not support a proposition that diversity was beneficial to teams (see section 9.3.1). In this third study there was no evidence of tokenism effects, nor is there any suggestion that gender diversity creates better team functioning. Instead the results suggest that the presence of each woman (because they are a women rather than because they are the minority) creates something

additional to the team. This finding supports a demographic differences perspective of team diversity (see section 3.1). As discussed previously (see section 9.3.1) the results suggest that women behave differently in teams than men do, and that this difference is related to aspects of behaviour that affect team functioning. In particular the findings suggest that women behave in a way that increases team functioning.

The comparison of the results obtained in the three studies therefore suggests that the dynamics underlying the effect of team gender diversity are different within gender skewed (i.e. male dominated and female dominated) and gender balanced settings. Whilst there was clear evidence of both the detrimental impact of tokenism and the beneficial impact of diversity within the male dominated and female dominated contexts (see sections 7.3.1 and 8.3.1), there was no evidence of such effects within the gender balanced organisational context (see section 9.3.1). In fact, not only were the effects found in the gender skewed contexts not observed within the gender balanced context but a completely different pattern of effects was detected. Within the gender-balanced context increasing proportions of women were found to be beneficial to the functioning of teams above and beyond the impact of diversity. Thus it was concluded that the impact of team gender diversity was related to diversity within gender skewed contexts (see section 8.3.1) but related to demographic differences within gender balanced contexts (see section 9.3.1).

A final point to note is that the magnitude of the effects differed across organisational contexts. Whilst team gender diversity accounted for between 2.1% and 9.2% of the variation in perceptions of team processes within the manufacturing industry sample, it accounted for between 1.3% the and 5.3% within the health service, and only 1.3% to 3.3% in the housing department sample. It is possible that the gender proportions in the organisational contexts also underlies these differential effects.

Unsurprisingly team gender diversity had less of an effect within a gender balanced setting than in the contexts where gender proportions are more skewed. This is similar to the findings of Martins et al (1999) that race diversity had a greater effect on student project groups within a homogenous than in a heterogeneous context. It may be, as was suggested by Social Identity Theory (see section 3.2.1.3), that gender is less salient in contexts where the two genders are more equally represented, and thus gender diversity has less of an impact. Another possible explanation is given by Social Contact Theory (see section 3.3.1.3). It may be that men and women have more contact with members of the opposite gender in heterogeneous contexts and that this increased contact reduces the gender based interactions into more individualised interaction.

There is also a distinction, although less marked, between the effect sizes obtained from the two gender skewed contexts. Again, it could be that salience of gender creates this distinction. In the manufacturing industry all sections of the organisations were male dominated. In contrast, although generally there was a predominance of female employees within the health service, at the higher levels of the organisation the situation was the opposite, with men taking a larger proportion of the positions. It is therefore possible that the greater presence of the minority in higher organisational levels made gender less salient within the health service than in the manufacturing industry, where there are few women at all levels of the organisations. Alternatively it may be that the dominance of men in the higher organisational levels means that there is considerable contact between both genders regardless of the rarity of men at lower organisational levels and thus contact dynamics may reduce the gender based interaction that occurs.

The fact that such different effects were found across the three studies implies that analyses should not be conducted using data combined across organisational context. Additional analyses were conducted to show this statistically (see appendix J). When

analyses were conducted without controlling for organisational context the proportion of women in the team was found to affect all four team processes. However, after organisational context was controlled for, all but one of these effects disappeared. This finding is similar to that of Tsui et al (1992) and Wiersema & Bird (1993) who also found that the effects of diversity were eliminated after controlling for company/industrial type. The moderating impact of organisational context does not therefore appear to be relevant to gender alone. Rather, it would seem that other forms of demographic diversity (and possibly all types of diversity) have different consequences within different settings.

These analyses of the data combined across organisational contexts therefore suggest that although the gender diversity effects found in data that is combined across organisational contexts may appear interesting, they are an artefact of the differential effects that occur across each of the organisational contexts. Therefore, it can be concluded that there is no general gender diversity effect on perceptions of team processes. Instead, the effect that gender diversity has on team members' perceptions is a complex interaction between the composition of the team and the context within which the team is embedded. In addition, the analyses show that data cannot be meaningfully combined across organisational contexts, since, even if organisational context is controlled for the true effects within the data are not uncovered.

In summary, within all three contexts team gender diversity has been found to affect perceptions of team functioning and these gender diversity effects have been found to differ within male and female samples. However, comparing the results from each of the three contexts demonstrates that the nature and magnitude of the effect of team gender diversity on team functioning is dependent upon the organisational context within which the team operates. Within gender skewed contexts (i.e. male dominated or

female dominated organisational contexts) a token representation of the minority was found to be particularly detrimental to perceptions of team functioning. However, once the proportion of the minority exceeded tokenism, greater gender diversity was found to be beneficial to perceptions of team functioning. In contrast, it was concluded that different team diversity dynamics occur in gender balanced contexts. In such a context it was found that the impact of team gender diversity was more to do with demographic differences than diversity, with women bringing something to the team that creates better team functioning. It was also suggested that the magnitude of the effect of team gender diversity might also be dependent upon either the salience of gender or the amount of contact between gender groups within a given organisational context. With greater effects occurring in contexts where gender is salient and / or contact between gender groups is reduced. Finally, analyses of the data combined across the three studies clearly demonstrated that the comparative approach taken in this research is most appropriate since combined data does not enable the true dynamics of team gender diversity to be detected.

10.2 SUMMARY OF IMPLICATIONS

Not only has it been shown that team gender diversity does affect perceptions of team functioning, the moderating effects of gender, type of team and organisational context have also been demonstrated. In addition, it has been shown that team gender composition cannot be usefully understood by combining data across organisational contexts.

Organisational context was identified as being important. Of particular note is the fact that within gender skewed contexts there was a detrimental effect of tokenism, but once tokenism was exceeded there were beneficial effects of diversity. In contrast, in a

gender balanced context it was found that the increasing proportions of women were beneficial to team functioning beyond diversity, suggesting that a demographic differences (rather than diversity) effect occurs within such settings. Further, within gender skewed contexts, tokenism was found to only affect those team members whose gender comprises the majority.

The differential impact of team gender diversity on men and women was also evidenced by the fact that team gender diversity affected different team processes within the male and female samples. The salience of gender and/or the amount of contact between gender groups, within a given context was also suggested to be of importance since the magnitude of the effect of team gender diversity differed across the organisational contexts, and between men and women within the manufacturing industry.

Further, although gender diversity had an effect within both management and non-management teams the effect was greater within management teams. However, this research question was only addressed within the gender balanced setting and therefore the differential impact of team gender composition on management and non-management teams in gender skewed contexts remains unclear. However, since both overall and differential effects across gender were found within all three types of context it is likely that the type of team distinction will hold. On the basis of the comparisons of the results from each of the studies it is likely that the distinction between management and non-management teams will be larger within gender skewed contexts than was found within the gender balanced context. However, until this is specifically investigated such propositions cannot be more than speculative.

Overall, it was found that the effects of team gender diversity are dependent upon the gender of the individual, the type of team under investigation, and the gender composition of the organisational context in which the teams are set.

10.3 WIDER IMPLICATIONS

In highlighting the importance of gender, type of team and organisational context in understanding the effect of team gender diversity on team functioning, the empirical findings of this thesis have implications for theory, methodology and practice.

10.3.1 Theoretical and Methodological Implications

A particularly important aspect of the research included in this thesis is the identification of both curvilinear and linear effects. Only one of the past studies into team gender diversity (Alexander et al, 1995) tested for the possibility of non-linear effects, yet the majority of relationships found in all three studies (reported here) were curvilinear. Whilst past theory implies that effects may be non-linear, empirically the issue has been almost entirely overlooked by previous diversity research. The results of the present studies therefore demonstrate how past research may be subject to two fundamental errors. First, within some of the analyses both linear and curvilinear effects were detected. Had only linear relationships been tested a misleading conclusion of a linear effect would have been made (Type I Error). Second, within other analyses only curvilinear effects were detected. Again, if only linear effects had been explored a misleading conclusion, this time of a null effect would have been made (Type II Error). It is a distinct possibility that many (or even all) of the findings reported within the literature have led to one or other of these misleading conclusions, and therefore past research may not have represented the true nature of team diversity.

Another particular strength of the present work is its consistency in methodology across three separate studies. The findings reported here therefore enable conclusions to be made which have not been possible from existing evidence. For instance, it was suggested in the literature review that the conflicting pattern of results within the literature could be a result of the differing organisational contexts in which the studies were conducted (see section 4.3.2). However, inconsistencies in the methodological approach of these studies, in terms of both the conceptualisation of gender diversity and the dependent variables under investigation, meant that only tentative conclusions could be made. The fact that the same approach was adopted in all the three studies reported here enables us to conclude that the differing patterns of effects within each of the studies were a result of organisational context. This is a significant step forward for the research field since, not only does it highlight the fact that the effect of gender diversity differs across organisational contexts, it helps us interpret the conflicting pattern of findings within past research. The findings of this research also imply that effects observed within one type of organisational context cannot be generalised to other types of organisational context. This is supported by analyses of the data combined across all three studies (see appendix J), which showed that the relationships observed in data that is combined data across different organisational contexts were an artefact of the differential gender diversity effects that occur within the different contexts. These analyses also showed that controlling for organisational context was ineffective in determining the true dynamics of gender diversity. Since some studies (e.g. Kirchmeyer, 1995; Fields & Blum, 1997) have done this in the past, this finding renders the results of such studies problematic. This research therefore lends empirical support to the proposition that team gender diversity effects vary across organisational context.

The comparison of the effects across each of the three studies also adds to an understanding of why team gender diversity effects occur. For example, on the basis of the results of the manufacturing industry study alone it could have been concluded that it was the presence of women per se that led to the fact that greater proportions of women were associated with increased team functioning. However, in light of the health service study (which found that greater proportions of men were associated with increased team functioning) it is apparent that in gender skewed contexts it is not the presence of a particular gender that increases team functioning but rather an effect based on increasing numbers of a minority (i.e. diversity).

This research also demonstrated that there are differential effects of gender diversity across both gender and type of team. This highlights the importance of considering moderating variables in the relationship between diversity and team functioning. Further the results demonstrate that there is no overall effect of team gender diversity. In order to gain an understanding of team gender diversity it is therefore essential to consider both the gender of the team member and the type of team to which the team member belongs.

The differential gender effects also imply that the work environment effects men and women differently. This raises the possibility that the links between work design and organisational outcomes that are abundant in the literature may be different for men and women. Thus a wider implication of this finding is that the field of occupational psychology in general may need to reinvestigate already established links to check that they hold for both male and female employees.

In addition, the fact there are differential effects of gender diversity in management and non-management teams suggests that some of the conflicting patterns of effects within the literature could be attributable to the fact that studies have

investigated different types of team. For example, Allen et al (1996) and Knight et al (unpublished) investigated Top Management Teams whereas DiTomaso et al (1996) and O'Reilly et al (1999) investigated lower organisational teams. The results of the current research suggest that the effect of team diversity in one type of team cannot be simply generalised to other types of team.

Finally, at a broad level the evidence (from these studies) suggests that team gender diversity effects perceptions of team functioning. Whilst this is in accordance with propositions arising from past work on team diversity, it is something that is largely unaccounted for within the broader team working literature. Although some frameworks of team working (e.g. Hackman, 1990) mention team composition as one of the many possible characteristics of a team, the vast majority of the theory and empirical work into team working neglects this issue altogether. However, since team gender diversity has consistently been found to influence team functioning across several different organisational contexts (including other studies) it is important that team diversity is built into our future models of team working, both theoretically and methodologically.

10.3.1 Practical Implications

The research presented here also has important practical implications. In particular, the results suggest that diversity training cannot be generalised beyond a particular organisational context. In addition, it must take into account the fact that an individuals reaction (and therefore the most appropriate company response) to diversity depends upon their gender, the gender of others in their team, and the type of team they belong to. Therefore, training programmes designed to reduce the detrimental effects of

diversity need to be specifically designed for both a given situation and particular groups of individuals and cannot be applied globally across different settings.

10.4 DIRECTIONS FOR FUTURE RESEARCH: WHERE DO WE GO FROM HERE?

The current research has made some considerable headway in understanding the effects that team gender diversity has on team functioning. However there are many potential directions for future research, which will both improve upon and extend the research reported here. The most important of these are discussed within this section.

10.4.1 A Need for Replication

With regard to the wider implications of the present findings, a first point to raise is the need for replication to test the robustness of the findings. It is important to ascertain whether the findings within each context are generalisable to other similar contexts. In addition, there is a need to explore what it is about the contexts that is important. It was suggested that the findings of each of the studies were attributable to the gender composition of the context within which the teams were operating. Although strength is gained from the commonality between the findings of the two gender skewed contexts it is necessary for further studies to replicate the findings within each type of context. In other words, it is important to determine whether the findings reported here are unique to their particular context (e.g. manufacturing industry) or whether they are generalisable to other contexts with a similar gender composition.

10.4.2 Widening the Focus of Enquiry

There would also be some obvious benefits to establishing how other aspects of team functioning (e.g. cohesion, conflict, and potency) are affected by team gender diversity as well as investigate whether team members' perceptions of their teams' outcomes (e.g. performance, innovativeness, team viability, and team member satisfaction) are effected. This would ensure that the relationships uncovered within this thesis are not specific to team climate but rather are indicative of the impact that team gender diversity has on wider aspects team functioning.

There would also be much value to be gained from identifying what other factors moderate the relationship between team gender diversity and perceptions of team processes. At the individual level, for example, there may be personality, cognitive and demographic differences (other than gender) that influence how an individual is affected by the gender diversity of their team. At the team level there are numerous potential moderators, such as the type of task undertaken by the team, the frequency and nature of contact between team members, and the degree of interdependence within the team. Finally, at the organisational level there may also be other important moderators, in particular the Human Resource practices, equal opportunities policies, degree of training and the size of the company.

10.4.3 Understanding the Mechanisms of Team Gender Diversity

Whilst the relationship between gender diversity and perceptions of team climate has been established, and three important moderators of the relationship have been identified, it was not within the scope of this thesis to uncover the mechanisms underlying the effects that were found. A key area for future research lies in exploring why the effects are occurring. This is especially the case in gender balanced contexts

where many of the findings remain unaccounted for by current theories (see section 9.3). Although there are many issues that require further explanation three key issues stand out.

Firstly, it was suggested that the magnitude of the team gender diversity effect might be determined by the salience of gender within a given context. The findings of this thesis, although in accordance with such a proposition, do not provide supportive evidence. In addition, it was concluded that different team diversity dynamics occur within gender skewed and gender balanced contexts. Much value would be gained from investigating exactly what it is about each context that creates the gender diversity effects that are observed.

Secondly, team gender diversity was found to have a greater effect within management than non-management teams in the housing department. It was suggested that this difference could arise because of the greater hierarchy, the greater degree of multi-disciplinarity or the reduced contact between team members in management teams. It is important for future research to identify exactly what it is about management teams that make them more susceptible to gender diversity effects. In addition, research needs to investigate the possibility that there might be differences between other types of team (e.g. work teams vs. problem-solving teams). Plus, whilst these effects were investigated within the gender-balanced context, this issue was not explored within either of the gender skewed contexts. Thus, it is important that future research explores the possibility of differential gender diversity effects across management and non-management teams within gender skewed contexts.

Thirdly, research needs to explore the reasons why different team processes are affected within male and female samples. Several theoretical perspectives suggested

that differential effects would occur (see section 4.3.1). An important goal of future research would therefore be to determine which explanation or explanations are correct.

By exploring these questions (and others) not only will a better understanding of the effect that team gender diversity has on team functioning be achieved, but the development of a theoretical perspective from which to understand compositional effects will be closer. There is a great need for such theory development since none of the existing theories (outlined in chapter 3) can explain all the effects found within this thesis. Without further research being conducted a theory of team diversity is therefore out of our reach.

10.4.4 Causality

The issue of causality also needs further investigation. It has been assumed here that team gender diversity causes perceptions of team functioning, since the possibility that team functioning influences team gender diversity seems less likely. However, the Selection-Attraction-Attrition Model (Schneider, 1987) suggests that those who are dissimilar are less likely to be selected into a team and, if they do become members of the team, they are less likely to be attracted to that team and are thus more likely to leave the team. It is therefore possible that team functioning influences team diversity. For example, within gender skewed contexts those teams with poor team climate may be less accepting of dissimilar others, and therefore when a new team member is needed someone of similar gender may be more likely to be selected. Therefore, although this research (as with all past diversity research) has assumed that gender diversity influences team functioning, until causality is determined through longitudinal analyses, the possibility that team functioning affects gender diversity cannot be ruled out.

10.4.5 Longitudinal Research

Another direction for future research is to investigate whether the effects of team gender diversity change over time. Social Contact Theory (see section 3.3.1) suggests that stereotyping and prejudice decrease as the degree of contact and familiarity between social groups increases. In addition, research has shown that having superordinate goals can (at least when the goals are realised) reduce in-group favouritism (e.g. Sherif, Harvey, White, Hood, & Sherif, 1961; Blake & Mouton, 1962; Brown, Condor, Matthews, Wade & Williams, 1986). It is possible therefore that gender diversity effects are weaker when teams have been together longer. For example, the effect of tokenism may be greater when the team first starts working together but as the team members become more familiar with each other, and work together on team tasks, the negative consequences of having a token representation of one gender may reduce. The beneficial effect of diversity may also diminish over time. In the gender skewed contexts it was concluded that increasing proportions of people dissimilar in gender might be enhancing team functioning by breaking up the norms and cliques within an organisation and by bringing a different perspective to the group. However, as time passes the dissimilar individuals may adapt and fit into the existing team norms, plus their perspectives may no longer be novel. This possibility of diminishing effects of gender diversity over time is supported by cross-sectional research that has shown that demographic diversity has stronger effects in teams with a low average team tenure (Harrison et al, 1998; Pelled et al, 1999). Cross-sectional research does not however adequately assess changing diversity dynamics. In addition the average tenure in the team is not the most appropriate measure of the length of the time that the team has been together. Longitudinal studies therefore need to be conducted with the effect of

team gender diversity being investigated from when teams are first formed or altered and for a considerable time following.

10.4.6 Complementary Methodological Approaches

There are also some obvious benefits of using other methodological approaches. The present research contributes to the body of survey-based investigations of gender diversity, by improving upon the methods and conceptualisations utilised by past research (see chapter 5). However, the results only relate to team members' perceptions, and the results are therefore subject to many of the usual limitations of cross-sectional quantitative approaches. More research is therefore needed using methodologies other than the typical questionnaire-based investigation. Observational studies of team working, whilst time consuming, would be very enlightening as would analyses of interaction patterns within team meetings. Both of these approaches would help provide an insight into the dynamics underlying the effect of gender diversity on team members' perceptions of their teams' functioning.

Objective performance data would also be valuable since it would enable researchers to determine the extent to which the effects on team members' perceptions observed in studies such as those reported here were related to organisational outcomes. Finally, it would also be interesting to conduct interviews with team members. Since the respondents in the studies in this thesis were unaware of the nature of the studies (they were merely informed that it was an investigation into team functioning) it leaves the possibility that team members are unaware of the impact that gender diversity was having on their perceptions of team functioning. It would therefore be interesting to seek team members' perceptions of how the gender diversity of their team affects both the teams' functioning and their feelings about being a member of the team.

10.4.7 Other Types of Team Diversity

Taking a wider perspective, there is no reason why the ideas and propositions in this thesis could not be extended to other forms of diversity. Although it cannot be assumed that all types of diversity affect teams in identical ways (section 4.1) it is possible that some of the issues raised can be generalised to other forms of diversity, especially other types of demographic diversity. It is therefore certainly worth using the results of this research into gender diversity to guide research into other forms of team diversity. In particular, it would be interesting to see if the effect of other forms of team diversity also differ across demographic groups, types of team and organisational contexts. In addition, it would be very interesting to explore how other types of diversity in conjunction with gender diversity effect team functioning.

10.4.8 Wider Aspects of Team Functioning

Finally, taking an even broader outlook it would be interesting to incorporate the team diversity literature with other aspects of occupational psychology. Team composition is also a social context (Levine & Moreland, 1990) in which the team operates. How then do other organisational phenomena operate within the social context of team composition? For example, it would be interesting to explore whether team gender diversity moderates the relationship between team interdependence and team performance.

10.5 CONCLUSION

This thesis has provided strong empirical support for the proposition that gender diversity influences perceptions of team functioning. However, the relationship was not straightforward. Firstly, men and women were affected differently by the gender diversity of their teams. Secondly, the effect of team gender diversity was greater within management than non-management teams. Finally, the effect that team gender diversity had on perceptions of team functioning was dependent upon organisational context. In particular, whilst increasing proportions of the minority (regardless of which gender is in the minority) was found to be beneficial to perceptions of team functioning in gender skewed contexts, in a gender balanced context increasing proportions of women (rather than diversity) were found to be beneficial to perceptions of team functioning.

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APPENDICES

APPENDIX A

COVER LETTERS FOR STUDY 1

ACCESS LETTER TO MANAGING DIRECTORS

Dear *{name}*

Within the last few years your company has participated, along with 200 others, in CEPs research into organisational effectiveness and innovation in UK manufacturing. To date you will have received specific back on the findings from your company, as well as the overall reports titled 'Innovation in UK Manufacturing' and 'Still Far to Go: The Management of UK Manufacturing'. We hope that you have found these both interesting and useful.

The centre for Economic Performance is now undertaking an investigation into the characteristics of teams below the top-management level. We will be looking at how these teams contribute to the effectiveness and innovativeness of manufacturing companies. This phase of the ongoing research agenda will take the form of a short questionnaire (taking approximately 15 minutes to complete) which will be distributed in May to each of the individual team members. Incorporated within this questionnaire is the Team Climate Inventory, which is a well-established and reliable method of assessing aspects of team functioning. Strict confidentiality will be maintained. Reports arising from the study will not identify any individual, team or company.

Clear detailed feedback will be promptly sent to your team, allowing you to compare yourselves with other participating teams, and with norm data available for the TCI.
Feedback will be provided on:

- the clarity of, and commitment to, team objectives
- team responsiveness to change
- team commitment to excellence
- level of information sharing
- level of team member participation
- team support for innovation

At this stage we need to know the title of the team(s) that you wish us to survey, and a list of team names and job titles of each of the team members. It would also be very useful if we could have a contact name of somebody who supervises the team.

We would greatly value the participation of your company in this phase of our research programme. A reply slip is enclosed for your convenience, and we would be grateful if you could return it as soon as possible indicating whether or not your company wishes to join this research programme.

If you have any queries please to not hesitate to contact Helen Williams on *{telephone number}*.

Yours sincerely

Professor Michael West
(Director of Corporate
Performance Programme, CEP)

Helen Williams
(Research Officer)

REPLY SLIP

Team Survey

Company Name: .....

Please tick:

☐ We **do** wish to participate

☐ We **do not** wish to participate

Team name : .....

Title (e.g. Mr, Mrs, Miss, Ms)	Name of Team Member	Job Title of Team Member

Supervisors name: .....

If you would like to put forward more than one team please feel free to copy this form and complete one for each participating team.

Thank you for your co-operation

Please return to: Helen Williams, CEP, Institute of work Psychology, University of Sheffield, Sheffield S10 2TN.

COVER LETTER TO TEAM SUPERVISORS

Dear *{name}*

Your company has given us permission to send our questionnaire to the *{team name}* team, of which you are named as their supervisor.

The questionnaires enclosed are part of a large-scale investigation into the characteristics of effective teams. The team will be sent feedback on its functioning and how it compares to other participating teams. This feedback will include sections on:

- the clarity of, and commitment to, team objectives
- team responsiveness to change
- team commitment to excellence
- level of information sharing
- level of team member participation
- team support for innovation

We would be very grateful if you could distribute the envelopes enclosed to the relevant individuals.

We would like to stress that at no time will the responses of individual team members be identified. The answers given are completely confidential. Published reports arising from the research will not identify any participating individual, team or company.

Completion of the questionnaire is of course voluntary. However, if only one or two members participate we will not be able to present a reliable picture of your team's functioning, therefore please encourage all the team members to participate.

If you have any queries about the questionnaires or this survey please do not hesitate to telephone Helen Williams on *{telephone number}*

Thank you for your help.

Yours sincerely

Helen Williams
(Researcher)

APPENDIX B
SCALES USED IN STUDIES

The Team Climate Inventory, developed by Anderson & West (1994), contains four scales: participative safety, support for innovation, task orientation and vision. The items within each of these scales are given below.

Participative Safety

1. We share information generally in the team rather than keeping it to ourselves
2. We all influence each other
3. We keep in regular contact with each other
4. People feel understood and accepted by each other
5. Everyone's view is listened to even if it is in a minority
6. We have a 'we are in it together' attitude
7. We interact frequently
8. People keep each other informed about work-related issues in the team
9. There is a lot of give and take
10. We keep in touch with each other as a team
11. There are real attempts to share information throughout the team
12. Members of the team meet frequently to talk both formally and informally

Response Scale: 5-point likert scale

1 = strongly disagree: 3 = neither agree nor disagree: 5 = strongly agree

Support for Innovation

1. Assistance in developing new ideas is readily available
2. In this team we take the time needed to develop new ideas
3. The team is open and responsive to change
4. People in the team co-operate in order to help develop and apply new ideas
5. Members of the team provide and share resources to help in the application of new ideas
6. People in this team are always searching for fresh, new ways of looking at problems
7. This team is always moving towards the development of new answers
8. Team members provide practical support for new ideas and their application

Response Scale: 5-point likert scale

1 = strongly disagree: 3 = neither agree nor disagree: 5 = strongly agree

Task Orientation

1. Do your team colleagues provide useful ideas and practical help to enable you to do the job to the best of your ability?
2. Do you and your colleagues monitor each other so as to maintain a high standard of work?
3. Are team members prepared to question the basis of what the team is doing?
4. Does the team critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome?
5. Do members of the team build on each other's ideas in order to achieve the best possible outcome?
6. Is there a real concern among team members that the team should achieve the highest standards of performance?
7. Does the team have clear criteria which members try to meet in order to achieve excellence as a team?

Response Scale: 5-point likert scale

1 = to a very little extent: 3 = to some extent: 5 = to a very great extent

Vision

1. How clear are you about what your team objectives are?
2. To what extent do you think they are useful and appropriate objectives?
3. How far are you in agreement with these objectives?
4. To what extent do you think other team members agree with these objectives?
5. To what extent do you think your team's objectives are clearly understood by other members of the team?
6. To what extent do you think your team's objectives can actually be achieved?
7. How worthwhile do you think these objectives are to you?
8. How worthwhile do you think these objectives are to the organisation?
9. How worthwhile do you think these objectives are to wider society?
10. To what extent do you think these objectives are realistic and can be attained?
11. To what extent do you think members of your team are committed to these objectives?

Response Scale: 5-point likert scale

1 = not at all: 3 = somewhat: 5 = completely

APPENDIX C
ADDITIONAL TABLES FOR STUDY 1

TABLE C1: Table of Chi-square Analysis Investigating Gender differences in Response Rates

	Respond	Non-respond
Men	82	16
	(80.4)	(17.6)
Women	14	5
	(15.6)	(3.4)

$\chi^2 = 1.078$ $p > 0.1$

Expected count in parentheses

TABLE C2 T-test Analyses Investigating Gender Differences in Background Characteristics

	Mean Score		t value
	Men	Women	
company tenure	150.77	139.21	0.28
team tenure	18.91	28.93	-0.079
team size	6.85	7.79	-1.74 *
age	41.71	38.93	0.085

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE C3: Chi-Square Analyses Investigating Gender Differences in Background Characteristics

		Value for Men	Value for Women	χ^2 value
Frequency of team meetings	Daily	23 (23.1)	4 (3.9)	6.942
	2-3 times per week	7 (6)	0 (1.0)	
	Weekly	7 (6)	0 (1.0)	
	2-3 times per month	6 (5.1)	0 (0.9)	
	Monthly	8 (10.3)	4 (1.7)	
	Less often	27 (27.4)	5 (4.6)	
Educational Background	no formal education	3 (4.2)	2 (0.8)	4.782
	GCSEs	8 (9.3)	3 (1.7)	
	A levels	22 (21.1)	3 (3.9)	
	HNC	20 (19.4)	3 (3.6)	
	Degree	14 (12.6)	1 (2.4)	
	Postgraduate	8 (8.4)	2 (1.6)	
Race	White - UK	73 (73.2)	13 (12.8)	6.943
	White - Eire	1 (0.9)	0 (0.1)	
	White - Other	1 (0.9)	0 (0.1)	
	Black - Caribbean	0 (0)	0 (0)	
	Black - African	0 (0)	0 (0)	
	Black - Other	0 (0)	0 (0)	
	Indian	2 (1.7)	0 (0.3)	
	Pakistani	3 (2.6)	0 (0.4)	
	Chinese	0 (0)	0 (0)	
	Other	0 (0.9)	1 (0.1)	

Expected count in parentheses * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE C4 Mean Scores of Men's and Women's Perceptions of Team Processes

	Mean Score	
	Men	Women
Participative Safety	3.60	3.81
Support for Innovation	3.53	3.92
Task Orientation	3.52	3.80
Vision	3.88	4.22

TABLE C5 Analyses of Variance of Dependent Variables by Gender, Controlling for Team Size and Team Tenure

	Sum of Squares	DF	Mean Square	F
Participative Safety				
covariates (combined)	0.035	2	0.018	0.058
team size	0.015	1	0.015	0.049
team tenure	0.027	1	0.027	0.088
main effects: gender	0.427	1	0.427	1.403
explained	0.48	3	0.161	0.531
residual	25.850	85	0.304	
total	26.334	88	0.299	
Support for Innovation				
covariates (combined)	0.007	2	0.003	0.009
team size	0.003	1	0.003	0.008
team tenure	0.003	1	0.003	0.007
main effects: gender	1.654	1	1.654	4.373 **
explained	1.779	3	0.593	1.568
residual	31.767	84	0.378	
total	33.546	87	0.386	
Task Orientation				
covariates (combined)	0.263	2	0.131	0.269
team size	0.261	1	0.261	0.534
team tenure	0.003	1	0.003	0.005
main effects : gender	0.662	1	0.662	1.356
explained	1.100	3	0.367	0.751
residual	41.512	85	0.488	
total	42.612	88	0.484	
Vision				
covariates (combined)	2.719	2	1.360	3.252**
team size	2.499	1	2.499	5.978**
team tenure	0.539	1	0.539	1.288
main effects: gender	0.785	1	0.785	1.877
explained	4.031	3	1.344	3.213**
residual	34.285	82	0.418	
total	38.315	85	0.451	

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE C6: Descriptive Statistics and Zero-Order Correlations Among Variables

	Mean	SD	1	2	3	4	5	6	7	8
1. proportion of women	15.28	16.19	1.00							
2. team size	7.01	1.87	0.49***	1.00						
3. team tenure	20.45	25.03	0.18*	0.20*	1.00					
4. gender	0.15	0.35	0.41***	0.18*	0.15	1.00				
5. participative safety	3.63	0.55	0.15	0.01	0.04	0.14	1.00			
6. support for innovation	3.59	0.61	0.21**	0.05	0.038	0.23*	0.76***	1.00		
7. task orientation	3.56	0.71	0.10	0.09	0.02	0.14	0.69***	0.74***	1.00	
8. vision	3.93	0.61	0.18*	0.25**	-0.05	0.18*	0.40***	0.51***	0.65***	1.00

(n ranges from 86 to 97) * p< 0.1 ** p < 0.05 *** p < 0.01

APPENDIX D

COVER LETTERS FOR STUDY 2

COVERING LETTER TO TEAM CONTACT

Dear Colleague

RE: NHS Workforce Initiative: team level analysis

Please find enclosed the questionnaires that you have agreed to distribute to the other members of your team.

The Workforce Initiative is the first large-scale survey to be undertaken in the NHS and will cover 20 Provider Units (both acute and community) sampling up to 20,000 NHS employees. This study is fully endorsed by the senior management team of the Trust and professional bodies such as the BMA, UKCC, RCN, Institute of Health Service Managers and the Chartered Society of Physiotherapy.

The survey has been designed to explore the views and concerns that NHS staff have about their work and the impact their work has on their health. Questionnaires that explore individuals views' about their work and the Trust have previously been distributed to a randomly selected sample within your organisation, however, this questionnaire specifically explores *the impact of working in a team on an individual's well being.*

The information provided by the participants will be **confidential**, being returned directly to the researchers in Sheffield. The Trust does not know who has been asked to participate, and **will not** have access to individual responses.

The findings from the team research will be combined with information gathered from other Trusts to protect confidentiality of individual teams. In due course the grouped results will be made available to all those who participate and to Trust Board members.

An individual team profile will only be made available to that participating team.

Full instructions of how to complete this survey are given on page 2 of the questionnaire. ***Please focus your comments as to your work with the team named at the front of the survey.*** Should you have any questions or queries do not hesitate to contact me on the number above.

Yours sincerely

Angela Carter
Research Psychologist

COVERING LETTER TO TEAM MEMBERS

Dear Colleague

RE: NHS Workforce Initiative: team level analysis

The Workforce Initiative is the first large-scale survey to be undertaken in the NHS and will cover 20 Provider Units (both acute and community) sampling up to 20,000 NHS employees. This study is fully endorsed by the senior management team of the Trust and professional bodies such as the BMA, UKCC, RCN, Institute of Health Service Managers and the Chartered Society of Physiotherapy.

The survey has been designed to explore the views and concerns that NHS staff have about their work and the impact their work has on their health. Questionnaires that explore individuals views' about their work and the Trust have previously been distributed to a randomly selected sample within your organisation, however, this questionnaire specifically explores *the impact of working in a team on an individual's well being.*

The information provided by the participants will be **confidential,** being returned directly to the researchers in Sheffield. The Trust does not know who has been asked to participate, and **will not** have access to individual responses.

The findings from the team research will be combined with information gathered from other Trusts to protect confidentiality of individual teams. In due course the grouped results will be made available to all those who participate and to Trust Board members.

An individual team profile will only be made available to that participating team.

Full instructions of how to complete this survey are given on page 2 of the questionnaire. ***Please focus your comments as to your work with the team named at the front of the survey.*** Should you have any questions or queries do not hesitate to contact me on the number above.

Yours sincerely

Angela Carter
Research Psychologist

PROMPT LETTER SENT TO NON-RESPONDERS

Dear Colleague

RE: NIIS Workforce Initiative: team level analysis

We recently sent out a questionnaire from the NHS Workforce Initiative team. The survey has been designed to explore the views and concerns that NHS staff have about their work and the impact their work has on their health. **Initial response to the questionnaire has been very good; however, we would still like to hear your views. The more people who respond in the team the more useful the survey will be.**

Questionnaires that explore individuals views' about their work and the Trust have previously been distributed to a randomly selected sample within your organisation, however, this questionnaire specifically explores *the impact of working in a team on an individual's well being.*

The Workforce Initiative is the first large-scale survey to be undertaken in the NHS and will cover 20 Provider Units (both acute and community) sampling up to 20,000 NHS employees. This study is fully endorsed by the senior management team of the Trust and professional bodies such as the BMA, UKCC, RCN, Institute of Health Service Managers and the Chartered Society of Physiotherapy.

The information provided by the participants will be **confidential**, being returned directly to the researchers in Sheffield. The Trust does not know who has been asked to participate, and **will not** have access to individual responses.

The findings from the team research will be combined with information gathered from other Trusts to protect confidentiality of individual teams. In due course the grouped results will be made available to all those who participate and to Trust Board members.

An individual team profile will only be made available to that participating team.

Full instructions of how to complete this survey are given on page 2 of the questionnaire. ***Please focus your comments as to your work with the team named at the front of the survey.*** Should you have any questions or queries do not hesitate to contact me on the number above.

Yours sincerely

Angela Carter
Research Psychologist

APPENDIX E
ADDITIONAL TABLES FOR STUDY 2

TABLE E1: Table of Chi-square Analysis Investigating Gender Differences in Response Rates

	Respond	Non-respond
Men	40	25
	(47.3)	(17.7)
Women	421	148
	(413.7)	(155.3)

$\chi^2 = 4.558$ p = 0.033

Expected count in parentheses

TABLE E2a Factor Loadings, Communalities (h^2), Percents of Variance and Covariance for Principle Factors Extraction and Oblimin Rotation on Participative Safety and Support for Innovation Items.

Item	Factor 1	Factor 2	Factor 3	Factor 4	h^2
participative safety 1	.75				.60
participative safety 2	.55				.42
participative safety 3	.81				.63
participative safety 4	.69				.64
participative safety 5	.64				.46
participative safety 6	.68				.65
participative safety 7	.74				.56
participative safety 8	.73				.61
participative safety 9	.58				.56
participative safety 10	.77				.64
participative safety 11	.71				.61
participative safety 12	.63				.44
support for innovation 1			.75		.61
support for innovation 2			.75		.58
support for innovation 3			.74		.67
support for innovation 4			.79		.70
support for innovation 5			.71		.66
support for innovation 6			.79		.68
support for innovation 7			.70		.64
support for innovation 8			.71		.74
vision 1		.68			.57
vision 2		.78			.68
vision 3		.80			.70
vision 4		.76			.61
vision 5		.77			.68
vision 6		.58			.37
vision 7		.81			.63
vision 8		.56			.39
vision 9		.70			.49
vision 10		.67			.46
vision 11		.65			.64
task orientation 1				.59	.58
task orientation 2				.73	.53
task orientation 3				.72	.55
task orientation 4				.81	.66
task orientation 5				.70	.64
task orientation 6				.65	.54
task orientation 7				.66	.60
Percent of variance	37.6	9.8	6.4	5.2	

[loadings under 0.34 are not reported] For a listing of items see of items see appendix B

TABLE E2b Correlations between factors

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.00			
Factor 2	.33	1.00		
Factor3	.46	.34	1.00	
Factor 4	.48	.37	.40	1.00

TABLE E3 T-test Analyses Investigating Gender Differences in Background Characteristics

	Mean Score		t value
	Men	Women	
age	41.1	38.876	1.28
team size	10.7	14.822	-5.26 ***
team tenure	42.975	53.807	-1.63

* p< 0.1 ** p < 0.05 *** p < 0.01

TABLE E4 Chi-Square Analyses Investigating Gender Differences in Background Characteristics

		Value for Men	Value for Women	χ^2 value
Type of team	nursing	19 (22.7)	239 (235.3)	2.983
	management	10 (6.3)	62 (65.7)	
	multi-disciplinary	11 (10.9)	113 (133.1)	
Job title	nurse	17 (25.2)	265 (256.8)	64.228 ***
	doctor	11 (2.3)	15 (23.7)	
	admin	0 (3.1)	35 (31.9)	
	manager	9 (2.4)	18 (24.6)	
	PAMS	3 (7.0)	75 (71.0)	

Expected count in parentheses * p< 0.1 ** p < 0.05 *** p < 0.01

TABLE E5 Mean Scores of Men's and Women's Perceptions of Team Processes

	Mean Score	
	Men	Women
Participative Safety	3.76	3.73
Support for Innovation	3.38	3.52
Task Orientation	2.63	2.63
Vision	2.87	2.88

TABLE E6 Analyses of Variance of Dependent Variables by Gender, Controlling for Team Size, Team Tenure and Type of Team

	Sum of Squares	DF	Mean Square	F
Participative Safety				
covariates (combined)	4.221	4	1.055	2.339 *
team size	2.038	1	2.038	4.518 **
tenure in team	2.716	1	2.716	6.022 **
type of team - nursing	0.447	1	0.447	0.991
type of team - management	0.045	1	0.045	0.100
main effects: gender	0.009	1	0.009	0.021
explained	4.235	5	0.847	1.878 *
residual	195.749	434	0.451	
total	199.984	439	0.456	
Support for Innovation				
covariates (combined)	3.680	4	0.920	1.982 *
team size	0.007	1	0.007	0.015
tenure in team	2.731	1	2.731	5.883 **
type of team - nursing	1.041	1	1.041	0.135
type of team - management	0.699	1	0.699	0.221
main effects: gender	0.690	1	0.690	1.487
explained	4.517	5	0.903	1.946 *
residual	200.980	433	0.464	
total	205.497	438	0.469	
Task Orientation				
covariates (combined)	3.782	4	0.946	2.963 **
team size	0.494	1	0.494	1.549
tenure in team	0.835	1	0.835	2.618
type of team - nursing	0.295	1	0.295	0.925
type of team - management	0.337	1	0.337	1.057
main effects: gender	0.027	1	0.027	0.085
explained	3.786	5	0.757	2.373 **
residual	138.482	434	0.319	
total	142.268	439	0.324	
Vision				
covariates (combined)	1.430	4	0.358	1.288
team size	0.638	1	0.638	2.296
tenure in team	0.918	1	0.918	3.305 *
type of team - nursing	0.009	1	0.009	0.033
type of team - management	0.145	1	0.145	0.522
main effects: gender	0.002	1	0.002	0.008
explained	1.431	5	0.286	1.031
residual	119.380	430	0.278	
total	120.812	435	0.278	

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE E7 | **Descriptive Statistics and Zero-Order Correlations Among Variables**

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. proportion of women	90.79	10.67	1.00									
2. team size	14.42	10.37	0.28***	1.00								
3. team tenure	52.41	55.00	0.14***	0.26***	1.00							
4. nursing teams	0.57	0.50	0.21***	0.21***	0.02	1.00						
5. management teams	0.16	0.37	-0.26***	-0.24***	-0.15***	-0.50**	1.00					
6. gender	0.91	0.28	0.39***	0.11**	0.06	0.06	-0.08*	1.00				
7. participative safety	3.73	0.69	0.11**	-0.04	0.07	0.07	-0.08	-0.01	1.00			
8. support for innovation	3.51	0.68	0.06	0.04	0.10**	0.07	-0.01	0.06	0.61***	1.00		
9. task orientation	2.63	0.57	0.07	0.11**	0.11**	0.11**	-0.13***	0.00	0.59***	0/54***	1.00	
10. vision	2.88	0.53	0.03	-0.04	0.05	0.02	-0.05	0.01	0.45***	0.45***	0.49***	1.00

(n ranges from 450 to 465) * p< 0.1 ** p < 0.05 *** p < 0.01

APPENDIX F

CONVERSION OF 7-POINT SCALES INTO 5-POINT SCALES

The 7-point scales used for task orientation and vision within the health service study (study 2) were converted into 5-point scales so as to be comparable with both the other scales within this study, and the scales in both studies one and three. The typical method of converting such scales is to divide each score by 7 and multiply by 5. Using this method leads to the following possible scores:

$(1 \div 7) \times 5 = 0.714 = 1$

$(2 \div 7) \times 5 = 1.429 = 1$

$(3 \div 7) \times 5 = 2.143 = 2$

$(4 \div 7) \times 5 = 2.857 = 3$

$(5 \div 7) \times 5 = 3.571 = 4$

$(6 \div 7) \times 5 = 4.286 = 4$

$(7 \div 7) \times 5 = 5 \quad = 5$

As can be seen, this does not provide scores equivalent to those rated on a 5-point scale. In a 5-point scale the minimum score is 1 and the maximum score is 5. This is not the case if you use the above calculation, where the minimum score becomes 0.714 and the maximum score becomes 5. In addition the mid-score of 3 converts into 2.857. Even if the scores are rounded to one significant figure the scale is not equivalent. Although, the range does become 1 to 5, the score of 2 becomes a 1 (which is labelled as "not at all"). This is therefore not logical, especially since at the other end of the scale the score of 6 is not converted to a 5 but instead converts to a 4.

An alternative method of converting scores therefore needs to be used. The extremes of the scales are the same within both the 5 and 7 point scales. So a score of 1 on both scales indicates not at all / to a very little extent and the highest scores on each of the scales (5 or 7) indicates completely / to a very great extent. Similarly, the mid-point (3 on the 5-point scale and 4 on the 7-point scale) are also labelled identically: somewhat / to some extent. Therefore it would seem that the most appropriate conversion from a 7-point to a 5-point scale is to converge the scores so that 1 = 1, 2=2, 3 = 2, 4 = 3, 5 = 4, 6 = 4, and 7 = 5. This gives a 5-point scale ranging from 1 to 5 with a mid-value of 3.

It is this latter method of conversion that was used within the health service study. One problem with the conversion used is that it is less discriminatory, since the distinction between values 2 and 3, and between 5 and 6, are lost. However, this is better than the non-numerical equivalence of scales, especially when the data is combined across studies (see appendix J).

APPENDIX G

COVER LETTER FOR STUDY 3

COVER LETTER TO TEAM SUPERVISORS

Dear *{name}*

The Housing Department has given me permission to send my questionnaire to the *{team name}* team, of which you are named as their supervisor. The questionnaires enclosed are part of a large-scale investigation into the characteristics of effective teams. This phase of the ongoing research agenda is a short questionnaire, which should take approximately 15 to 20 minutes to complete. The team will be sent feedback on its functioning and how it compares to other participating teams, and provide recommendations on how to improve the way the team works.

I would be very grateful if you could distribute the envelopes enclosed to the relevant individuals.

I would like to stress that strict confidentiality will be maintained throughout my research. Although each team will receive a feedback report, at no point in time will the responses of individual team members be identified. In addition a feedback report providing an overview of the findings from the survey as a whole will be made available to managers. However, no team or individual will be identifiable within this report, nor in any publications arising from the study.

Completion of the questionnaire is of course voluntary. However, if only one or two members participate we will not be able to present a reliable picture of your team's functioning, therefore please encourage all the team members to participate.

If you have any queries about the questionnaires or this survey please do not hesitate to telephone me on *{telephone number}*.

Thank you for your help.
Yours sincerely

Helen Williams
(Researcher)

APPENDIX H

ADDITIONAL TABLES FOR STUDY 3

TABLE H1 Table of Chi-square analysis investigating gender differences in response rates

	Respond	Non-respond
Men	217	62
	(208.8)	(70.2)
Women	161	65
	(169.2)	(56.8)

$\chi^2 = 2.836$ $p = 0.092$

[expected count in parentheses]

TABLE H2a Factor Loadings, Communalities (h^2), Percents of Variance and Covariance for Principle Factors Extraction and Oblimin Rotation TCI Items.

Item	Factor 1	Factor 2	Factor 3	Factor 4	h^2
participative safety 1				0.56	0.45
participative safety 2					0.28
participative safety 3				0.88	0.67
participative safety 4	0.48			0.36	0.53
participative safety 5	0.54				0.49
participative safety 6				0.41	0.45
participative safety 7				0.79	0.64
participative safety 8				0.62	0.53
participative safety 9				0.47	0.53
participative safety 10				0.79	0.65
participative safety 11				0.48	0.56
participative safety 12				0.55	0.37
support for innovation 1	0.65				0.55
support for innovation 2	0.64				0.52
support for innovation 3	0.72				0.56
support for innovation 4	0.64				0.61
support for innovation 5	0.41			0.40	0.61
support for innovation 6	0.64				0.59
support for innovation 7	0.69				0.64
support for innovation 8	0.58				0.59
vision 1		0.68			0.53
vision 2		0.79			0.67
vision 3		0.83			0.67
vision 4		0.63			0.57
vision 5		0.63			0.53
vision 6		0.72			0.56
vision 7		0.79			0.67
vision 8		0.73			0.56
vision 9		0.63			0.47
vision 10		0.77			0.58
vision 11		0.43			0.59
task orientation 1					0.49
task orientation 2			-0.61		0.46
task orientation 3			-0.73		0.60
task orientation 4			-0.72		0.60
task orientation 5			-0.60		0.70
task orientation 6			-0.69		0.57
task orientation 7			-0.51		0.52
Percent of variance	36.4	10.4	4.6	4.2	

[loadings under 0.4 are not reported] For a listing of items see appendix B

TABLE H2b Correlation between factors				
	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.00			
Factor 2	0.28	1.00		
Factor 3	-0.36	-0.38	1.00	
Factor 4	0.49	0.29	-0.38	1.00

TABLE H3	T-test Analyses Investigating Gender Differences in Background Characteristics		
	Mean Score		t value
	Men	Women	
Department tenure	157.4 months	92.52 months	6.88 ***
Job tenure	74.49 months	48.25 months	4.08 ***
Team tenure	50.38 months	37.48 months	2.42 **
Team size	8.12	9.27	-3.34 ***
Age	41.13	35.99	5.18 ***
Status	8.3	5.86	8.07 ***

* p < 0.1 ** p < 0.05 *** p < 0.01

TABLE H4	Chi-Square Analyses Investigating Gender Differences in Background Characteristics			
		Value for Men	Value for Women	χ^2 value
Type of team	management	49(31.5)	25 (42.5)	21.001 ***
	non-management	112 (129.5)	192 (174.5)	
Frequency of team meetings	Daily	0 (0.4)	1 (0.6)	16.82 ***
	2-3 times per week	5 (2.1)	0 (2.9)	
	Weekly	34 (39.8)	60 (54.2)	
	2-3 times per month	22 (18.2)	21 (24.8)	
	Monthly	55 (45.8)	53 (62.2)	
	Less often	40 (49.6)	77 (67.4)	
Share office	yes	97 (112.4)	166 (150.6)	12.594 ***
	no	62 (46.6)	47 (62.4)	
Educational background	no formal education	22 (19.9)	25 (27.1)	29.857 ***
	CSEs	3 (2.5)	3 (3.5)	
	GCSEs	13 (26.6)	50 (36.4)	
	A levels	18 (28.3)	49 (38.7)	
	HNC/HND	50 (40.6)	46 (55.4)	
	Degree	23 (16.1)	15 (21.9)	
	Postgraduate	28 (23.2)	27 (31.8)	
	misc	1 (0.8)	1 (1.2)	
Professional background	housing mgmt	78 (65.4)	66 (78.6)	52.406 ***
	finance	5 (10.0)	17 (12.0)	
	advisory	6 (15.0)	27 (18.0)	
	personnel	1 (1.8)	3 (2.2)	
	admin	19 (27.2)	41 (32.8)	
	sales	1 (2.7)	5 (3.3)	
	general mgmt	7 (5.0)	4 (6.0)	
	property/technical	24 (12.3)	3 (14.7)	
	health care	0 (2.3)	5 (2.7)	
	other	17 (16.3)	19 (19.7)	
Full-time	full-time	159 (140.4)	170 (188.6)	35.144 ***
	part-time	1 (19.6)	45 (26.4)	
marital status	single	28 (25.8)	33 (35.2)	0.761
	living with partner	111 (114.7)	160 (156.3)	
	separated / divorced	18 (16.5)	21 (22.5)	
Children	yes	102 (101.7)	136 (136.3)	0.004
	no	57 (57.3)	77 (76.7)	

Expected count in parentheses * p < 0.1 ** p < 0.05 *** p < 0.01

TABLE H5 Mean Scores of Men's and Women's Perceptions of Team Processes

	Mean Score	
	Men	Women
Participative Safety	3.53	3.52
Support for Innovation	3.31	3.22
Task Orientation	3.11	2.94
Vision	3.51	3.33
Task Reflexivity	3.23	3.18
Social reflexivity	3.59	3.67

TABLE H6 Analyses of Variance of Dependent Variables by Gender, Controlling for Team size, Status, Type of Team and Team Tenure

	Sum of Squares	DF	Mean Square	F
Participative Safety				
covariates (combined)	5.986	4	1.496	3.514***
team size	2.628	1	2.628	6.171**
status	2.441	1	2.441	5.732**
type of team	3.282	1	3.282	7.706***
team tenure	0.331	1	0.331	0.776
main effects: gender	0.164	1	0.164	0.386
explained	5.992	5	1.198	2.814
residual	152.886	359	0.426	
total	158.878	364	0.426	
Support for Innovation				
covariates (combined)	15.146	4	3.787	9.051***
team size	7.493	1	7.493	17.910***
status	1.856	1	1.856	4.435**
type of team	0.105	1	0.105	0.252
team tenure	0.020	1	0.020	0.048
main effects: gender	0.217	1	0.217	0.518
explained	15.936	5	3.187	7.618***
residual	150.198	359	0.418	
total	166.134	364	0.456	
Task Orientation				
covariates (combined)	6.469	4	1.617	2.989**
team size	3.953	1	3.953	7.305***
status	0.899	1	0.899	1.662
type of team	0.014	1	0.014	0.025
team tenure	0.090	1	0.090	0.167
main effects: gender	0.475	1	0.475	0.877
explained	9.178	5	1.836	3.392***
residual	192.644	356	0.541	
total	201.822	361	0.559	
Vision				
covariates (combined)	2.618	4	0.655	1.547
team size	0.363	1	0.363	0.858
status	0.231	1	0.231	0.545
type of team	0.224	1	0.224	0.530
team tenure	0.327	1	0.327	0.772
main effects: gender	1.427	1	1.427	3.372*
explained	6.015	5	1.203	2.843**
residual	149.778	354	0.423	
total	155.792	359	0.434	

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

TABLE H8 | **Descriptive statistics and Zero-Order Correlations Among Variables**

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. proportion of women	57.72	26.34	1.00									
2. team size	8.78	3.44	0.29***	1.00								
3. staus	6.89	3.02	-0.55***	-0.21***	1.00							
4. type of team	0.80	0.40	0.53***	0.27***	-0.70***	1.00						
5. gender	0.57	0.50	0.51***	0.17***	-0.40***	0.24***	1.00					
6. team tenure	42.97	47.72	0.02	0.09	-0.01	0.03	-0.13**	1.00				
7. participative safety	3.52	0.66	0.06	-0.13**	0.068	0.04	-0.01	-0.06	1.00			
8. support for innovation	3.26	0.68	-0.13**	-0.26***	0.22***	-0.21***	-0.07	-0.04	0.73***	1.00		
9. task orientation	3.01	0.76	-0.04	-0.19***	0.16***	-0.11**	-0.11**	-0.03	0.55***	0.59***	1.00	
10. vision	3.41	0.67	-0.07	-0.10*	0.18***	-0.14***	-0.13**	-0.04	0.45***	0.48***	0.57***	1.00

(n ranges from 367 to 378) * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

Table H9a: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes, Controlling for Team Size, Status of Individual and Type of Team for the Management Men Sample

Variable	Participative Safety (n = 47)			Support for Innovation (n =47)		
	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.145	0.055	-0.370**	-0.119	0.052	-0.329**
Status	-0.037	0.052	-0.101	0.002	0.049	0.007
Team tenure	0.001	0.002	0.050	-0.000	0.002	-0.028
	$R^2 = 0.157$	df = 3	p = 0.055	$R^2 = 0.110$	df = 3	p > 0.1
Step 2						
Team size	-0.136	0.056	-0.347**	-0.097	0.050	-0.268*
Status	-0.031	0.052	-0.085	0.017	0.047	0.052
Team tenure	0.001	0.003	0.077	0.001	0.002	0.045
Proportion of women	0.011	0.012	0.130	0.026	0.011	0.347**
	$\Delta R^2 = 0.015$	df = 4	p > 0.1	$\Delta R^2 = 0.106$	df = 4	p = 0.020
Step 3						
Team size	-0.138	0.057	-0.351**	-0.099	0.050	-0.274*
Status	-0.024	0.053	-0.067	0.026	0.047	0.078
Team tenure	0.001	0.003	0.079	0.001	0.002	0.048
Proportion of women	0.072	0.098	0.878	0.110	0.087	1.455
Quadratic proportion of women	-0.001	0.002	-0.750	-0.001	0.001	-1.112
	$\Delta R^2 = 0.008$	df = 5	p > 0.1	$\Delta R^2 = 0.017$	df = 5	p > 0.1

Variable	Task Orientation (n = 47)			Vision (n = 47)		
	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.094	0.052	-0.259*	-0.091	0.047	-0.279*
Status	-0.072	0.048	-0.214	0.021	0.044	0.070
Team tenure	0.003	0.002	0.172	-0.002	0.002	-0.124
	$R^2 = 0.141$	df = 3	p = 0.079	$R^2 = 0.096$	df = 3	p > 0.1
Step 2						
Team size	-0.085	0.053	-0.234	-0.088	0.049	-0.270*
Status	-0.066	0.049	-0.196	0.023	0.045	0.077
Team tenure	0.003	0.002	0.201	-0.002	0.002	-0.112
Proportion of women		0.011	0.141	0.004	0.010	0.053
	$\Delta R^2 = 0.018$	df = 4	p > 0.1	$\Delta R^2 = 0.002$	df = 4	p > 0.1
Step 3						
Team size	-0.085	0.053	-0.234	-0.089	0.049	-0.275*
Status	-0.066	0.050	-0.197	0.030	0.046	0.101
Team tenure	0.003	0.002	0.201	-0.002	0.002	-0.110
Proportion of women	0.007	0.092	0.087	0.074	0.084	1.082
Quadratic proportion of women	0.000	0.002	0.054	-0.001	0.001	-1.032
	$\Delta R^2 = 0.000$	df = 5	p > 0.1	$\Delta R^2 = 0.015$	df = 5	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.01

Table H9b: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes, Controlling for Team Size, Status of Individual and Type of Team for the Management Women Sample

Variable	Participative Safety (n = 23)			Support for Innovation (n = 23)		
	B	SE B	β	B	SE B	β
Step 1						
Team size	0.046	0.070	0.147	0.033	0.069	0.113
Status	-0.078	0.049	-0.351	-0.017	0.049	-0.082
Team tenure	0.000	0.004	0.006	-0.001	0.004	-0.051
	$R^2 = 0.119$	df = 3	p > 0.1	$R^2 = 0.014$	df = 3	p > 0.1
Step 2						
Team size	0.042	0.071	0.136	0.037	0.071	0.125
Status	-0.091	0.055	-0.411	-0.003	0.055	-0.016
Team tenure	-0.000	0.004	0.000	-0.001	0.004	-0.044
Proportion of women	-0.008	0.014	-0.135	0.008	0.014	0.150
	$\Delta R^2 = 0.014$	df = 4	p > 0.1	$\Delta R^2 = 0.018$	df = 4	p > 0.1
Step 3						
Team size	0.037	0.071	0.119	0.033	0.072	0.112
Status	-0.086	0.055	-0.388	0.000	0.056	0.001
Team tenure	-0.000	0.004	-0.015	-0.001	0.004	-0.055
Proportion of women	0.118	0.116	1.985	0.095	0.118	1.685
Quadratic proportion of women	-0.002	0.002	-2.126	-0.001	0.002	-1.539
	$\Delta R^2 = 0.054$	df = 5	p > 0.1	$\Delta R^2 = 0.028$	df = 5	p > 0.1

Variable	Task Orientation (n = 23)			Vision (n = 23)		
	B	SE B	β	B	SE B	β
Step 1						
Team size	0.038	0.076	0.111	0.043	0.085	0.119
Status	0.006	0.053	0.023	-0.016	0.059	-0.061
Team tenure	-0.007	0.005	-0.330	-0.000	0.005	-0.017
	$R^2 = 0.112$	df = 3	p > 0.1	$R^2 = 0.013$	df = 3	p > 0.1
Step 2						
Team size	0.046	0.075	0.137	0.041	0.087	0.115
Status	0.040	0.058	0.166	-0.021	0.067	-0.081
Team tenure	-0.007	0.004	-0.315	-0.000	0.005	-0.019
Proportion of women	0.021	0.015	0.324	-0.003	0.018	-0.046
	$\Delta R^2 = 0.082$	df = 4	p > 0.1	$\Delta R^2 = 0.002$	df = 4	p > 0.1
Step 3						
Team size	0.045	0.077	0.133	0.041	0.090	0.116
Status	0.041	0.059	0.170	-0.021	0.069	-0.082
Team tenure	-0.007	0.005	-0.318	-0.000	0.005	-0.018
Proportion of women	0.047	0.126	0.727	-0.008	0.147	-0.110
Quadratic proportion of women	-0.000	0.002	-0.404	0.000	0.002	0.064
	$\Delta R^2 = 0.002$	df = 5	p > 0.1	$\Delta R^2 = 0.000$	df = 5	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.01

Table H9c: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes, Controlling for Team Size, Status of Individual and Type of Team for the Non-Management Men Sample

	Participative Safety (n = 105)			Support for Innovation (n = 105)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.020	0.019	-0.108	-0.054	0.020	-0.262***
Status	0.023	0.027	0.084	0.018	0.029	0.059
Team tenure	-0.000	0.001	-0.007	0.000	0.001	0.022
	$R^2 = 0.016$	df = 3	p > 0.1	$R^2 = 0.067$	df = 3	p = 0.067
Step 2						
Team size	-0.043	0.020	-0.231**	-0.064	0.022	-0.312***
Status	0.034	0.027	0.124	0.023	0.029	0.075
Team tenure	-0.000	0.001	-0.034	0.000	0.001	0.011
Proportion of women	0.007	0.003	0.268**	0.003	0.003	0.108
	$\Delta R^2 = 0.055$	df = 4	p = 0.016	$\Delta R^2 = 0.009$	df = 4	p > 0.1
Step 3						
Team size	-0.042	0.020	-0.223**	-0.064	0.023	-0.311***
Status	0.026	0.028	0.094	0.021	0.031	0.072
Team tenure	-0.000	0.001	-0.040	0.000	0.001	0.010
Proportion of women	0.015	0.008	0.627*	0.004	0.009	0.154
Quadratic proportion of women	-0.000	0.000	-0.383	-0.000	0.000	-0.049
	$\Delta R^2 = 0.013$	df = 5	p > 0.1	$\Delta R^2 = 0.000$	df = 5	p > 0.1

	Task Orientation (n = 104)			Vision (n = 104)		
Variable	B	SE B	β	B	SE B	β
Step 1						
Team size	-0.048	0.021	-0.219**	-0.024	0.020	-0.121
Status	0.004	0.031	0.013	-0.027	0.028	-0.093
Team tenure	0.000	0.001	0.007	-0.001	0.001	-0.059
	$R^2 = 0.048$	df = 3	p > 0.1	$R^2 = 0.030$	df = 3	p > 0.1
Step 2						
Team size	-0.067	0.024	-0.307***	-0.035	0.022	-0.176
Status	0.013	0.031	0.042	-0.021	0.029	-0.075
Team tenure	-0.000	0.001	-0.014	-0.001	0.001	-0.073
Proportion of women	0.005	0.003	0.189	0.003	0.003	0.118
	$\Delta R^2 = 0.028$	df = 4	p = 0.086	$\Delta R^2 = 0.011$	df = 4	p > 0.1
Step 3						
Team size	-0.068	0.024	-0.311***	-0.035	0.022	-0.175
Status	0.018	0.032	0.058	-0.023	0.030	-0.079
Team tenure	-0.000	0.001	-0.010	-0.001	0.001	-0.074
Proportion of women	-0.000	0.009	-0.003	0.004	0.008	0.172
Quadratic proportion of women	0.000	0.000	0.205	-0.000	0.000	-0.057
	$\Delta R^2 = 0.004$	df = 5	p > 0.1	$\Delta R^2 = 0.000$	df = 5	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.01

Table H9d: Summary of Hierarchical Regression Analyses for Linear and Curvilinear Predictors of Team Processes, Controlling for Team Size, Status of Individual and Type of Team for the Non-Management Women Sample

Variable	Participative Safety (n = 186) B	SE B	β	Support for Innovation (n= 186) B	SE B	β
Step 1						
Team size	-0.015	0.013	-0.080	-0.030	0.013	-0.165**
Status	0.112	0.028	0.283***	0.084	0.027	0.217***
Team tenure	-0.002	0.001	-0.116	-0.001	0.001	-0.050
	$R^2 = 0.110$	df = 3	p < 0.001	$R^2 = 0.088$	df = 3	p = 0.001
Step 2						
Team size	-0.013	0.013	-0.071	-0.029	0.013	-0.162**
Status	0.122	0.030	0.309***	0.087	0.029	0.225***
Team tenure	-0.002	0.001	-0.121*	-0.001	0.001	-0.051
Proportion of women	0.003	0.003	0.077	0.001	0.003	0.023
	$\Delta R^2 = 0.005$	df = 4	p > 0.1	$\Delta R^2 = 0.000$	df = 4	p > 0.1
Step 3						
Team size	-0.017	0.014	-0.091	-0.034	0.013	-0.187**
Status	0.122	0.029	0.309***	0.087	0.029	0.224***
Team tenure	-0.002	0.001	-0.120*	-0.001	0.001	-0.050
Proportion of women	0.026	0.017	0.645	0.028	0.017	0.719*
Quadratic proportion of women	-0.000	0.000	-0.577	-0.000	0.000	-0.708
	$\Delta R^2 = 0.009$	df = 5	p > 0.1	$\Delta R^2 = 0.013$	df = 5	p > 0.1

Variable	Task Orientation(n= 184) B	SE B	β	Vision (n = 182) B	SE B	β
Step 1						
Team size	-0.014	0.016	-0.065	0.007	0.013	0.039
Status	0.084	0.033	0.186**	0.070	0.028	0.184**
Team tenure	-0.002	0.002	-0.075	-0.001	0.001	-0.040
	R^2 =0.050	df = 3	p = 0.026	$R^2 = 0.035$	df = 3	p = 0.094
Step 2						
Team size	-0.011	0.016	-0.049	0.010	0.013	0.055
Status	0.104	0.035	0.231***	0.088	0.030	0.232***
Team tenure	-0.002	0.002	-0.083	-0.001	0.001	-0.051
Proportion of women	0.006	0.004	0.129*	0.005	0.003	0.140*
	$\Delta R^2 = 0.015$	df = 4	p = 0.096	$\Delta R^2 = 0.017$	df = 4	p = 0.076
Step 3						
Team size	-0.014	0.016	-0.064	0.008	0.014	0.044
Status	0.104	0.035	0.231***	0.088	0.030	0.232***
Team tenure	-0.002	0.002	-0.083	-0.001	0.001	-0.052
Proportion of women	0.024	0.020	0.527	0.017	0.017	0.450
Quadratic proportion of women	-0.000	0.000	-0.404	-0.000	0.000	-0.315
	$\Delta R^2 = 0.004$	df = 5	p > 0.1	$\Delta R^2 = 0.003$	df = 5	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.01

APPENDIX I

ANALYSES COMPARING THE FREQUENCY OF CONTACT WITHIN MANAGEMENT AND NON-MANAGEMENT TEAMS

Chi-Square Analyses Comparing the Frequency of Contact within Management and Non-Management Teams

		Value for Management Sample	Value for Non-Management Sample	χ^2 value
Daily Contact	Daily contact with team mates	17 (51.5)	246 (211.5)	100.535 ***
	Non-Daily contact with team mates	55 (20.5)	50 (84.5)	
Office	Share office with team mates	15 (52.3)	248 (210.7)	113.401 ***
	Do not share office with team mates	59 (21.7)	50 (87.3)	

Expected count in parentheses * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$

APPENDIX J

ANALYSES OF DATA COMBINED ACROSS ORGANISATIONAL CONTEXT

In order to determine whether or not the effect of team gender diversity can be meaningfully investigated using data that is combined across all three of the organisational contexts used in this thesis (the manufacturing industry, the health service, and a local government housing department), the data from the three previous studies were combined into one large data set.

The total sample, across the three organisational contexts, was 942 individuals from 144 teams. The distribution of participants was not equal across the three contexts, 10.30% of the sample were from the manufacturing industry, 49.58% were from the health service, and 40.13% from the local government housing department. For details about the sample for each of the organisational contexts see sections 7.1.1, 8.1.1 and 9.1.1. The teams in this combined sample ranged from 0% to 100% women. In each of the samples the measure was an accurate index of the gender diversity of the team and did not rely on information provided by respondents.

The Cronbach alpha coefficients for each of the four TCI factors within this combined data were high: participative safety (Cronbach alpha = 0.91), support for innovation (Cronbach alpha = 0.91), task orientation (Cronbach alpha = 0.88), and vision (Cronbach alpha = 0.94). Principle components analysis with oblimin rotation with four factors was conducted. Four factors were extracted. The items factored as expected, and the percentage of variance explained by the four factors was 59.2%.

RESULTS

Hierarchical regression analyses were conducted to test the relationship (either linear or curvilinear) between the proportion of women in the team and perceptions of team functioning, after controlling for team size, team tenure and gender. The control variables were entered as step 1, the proportion of women in the team was entered as step 2, and the quadratic proportion of women term was entered as step 3. As can be seen in Table J1, a positive linear relationship was found between the proportion of women in the team and perceptions of participative safety ($\Delta R^2 = 0.014$; $p < 0.001$). In addition, negative linear relationships were found between the proportion of women in the team and perceptions of task orientation ($\Delta R^2 = 0.043$; $p < 0.001$) and vision ($\Delta R^2 = 0.057$; $p < 0.001$). Therefore (as can be seen from figures J1, J3 and J4 respectively) the greater the proportion of women in the team the higher team members perceive the participative safety within their team, and the lower they perceive the task orientation and vision of their team. In addition a curvilinear relationship was found between the proportion of women in the team and support for innovation ($\Delta R^2 = 0.005$: $p = 0.028$). As can be seen from figure J2 the relationship forms a relatively uniform u-shaped curve. In other words, in male dominated teams the levels of support for innovation were perceived as relatively high, however as the proportion of women in the team increased the perceived level of support for innovation reduced. This trend continued until the teams became gender balanced, after which point increases in the proportion of women in the team were associated with increases in perceived support for innovation.

Table J1: Results of Hierarchical Regression Analyses Testing for both Linear and Curvilinear Effects of the Proportion of Women in the Team on Perceptions of Team Processes, Controlling for Team Size, Gender and Team Tenure

	Participative Safety (n = 901)			Support for Innovation (n = 900)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.002	0.003	-0.030	0.001	0.003	0.009
Gender	0.077	0.049	0.054	0.054	0.052	0.036
Team tenure	0.001	0.000	0.042	0.001	0.000	0.038
	$R^2 = 0.004$	df = 3	p > 0.1	$R^2 = 0.003$	df = 3	p > 0.1
Step 2						
Team size	-0.005	0.003	-0.064*	0.001	0.003	0.015
Gender	-0.067	0.063	-0.047	0.081	0.067	0.054
Team tenure	0.000	0.000	0.028	0.001	0.000	0.041
Proportion of women	0.004	0.001	0.167***	-0.001	0.001	-0.030
	$\Delta R^2 = 0.014$	df = 4	p < 0.001	$\Delta R^2 = 0.000$	df =4	p > 0.1
Step 3						
Team size	-0.006	0.003	-0.074**	0.000	0.003	0.002
Gender	-0.069	0.063	-0.048	0.079	0.067	0.052
Team tenure	0.000	0.000	0.029	0.001	0.000	0.041
Proportion of women	-0.001	0.003	-0.065	-0.007	0.003	-0.316**
Quadratic proportion of women	0.000	0.000	0.244*	0.000	0.000	0.316**
	$\Delta R^2 = 0.004$	df = 5	p = 0.072	$\Delta R^2 = 0.005$	df = 5	p = 0.028

	Task Orientation (n = 899)			Vision (n = 889)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.004	0.003	-0.050	-0.011	0.003	-0.130***
Gender	-0.372	0.052	-0.240 ***	-0.416	0.049	-0.276***
Team tenure	-0.000	0.000	-0.014	-0.000	0.000	-0.032
	$R^2 = 0.067$	df = 3	p < 0.001	$R^2 = 0.116$	df = 3	p < 0.001
Step 2						
Team size	0.001	0.003	0.009	-0.005	0.003	-0.063*
Gender	-0.099	0.065	-0.064	-0.110	0.062	-0.073*
Team tenure	0.000	0.000	0.011	-0.000	0.000	-0.005
Proportion of women	-0.007	0.001	-0.292***	-0.008	0.001	-0.335***
	$\Delta R^2 = 0.043$	df = 4	p < 0.001	$\Delta R^2 = 0.057$	df = 4	p < 0.001
Step 3						
Team size	0.001	0.003	0.009	-0.005	0.003	-0.060*
Gender	-0.099	0.065	-0.064	-0.110	0.062	-0.073*
Team tenure	0.000	0.000	0.011	-0.000	0.000	-0.005
Proportion of women	-0.006	0.003	-0.277**	-0.006	0.003	-0.264**
Quadratic proportion of women	-0.000	0.000	-0.016	-0.000	0.000	-0.075
	$\Delta R^2 = 0.000$	df = 5	p > 0.1	$\Delta R^2 = 0.000$	df = 5	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001

Figure J1: The relationship between the proportion of women in the team and perceptions of participative safety.

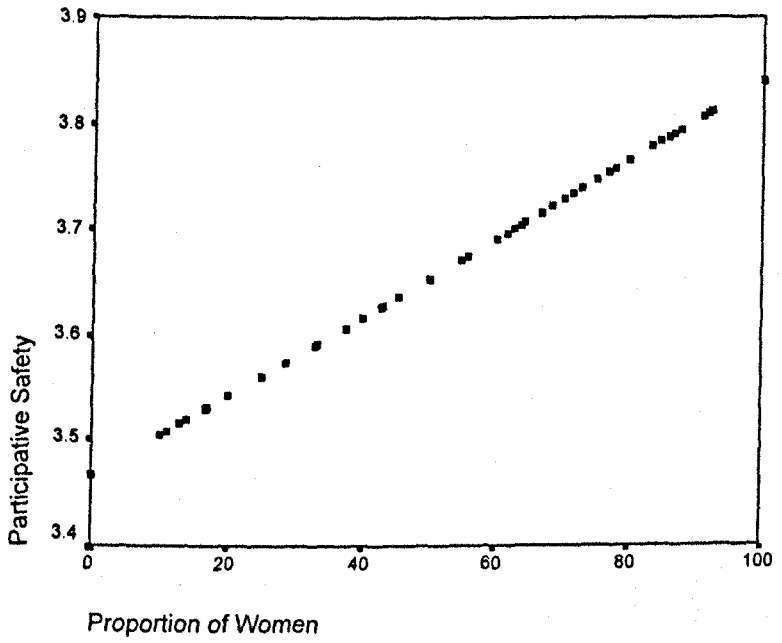


Figure J2: The relationship between the proportion of women in the team and perceptions of support for innovation.

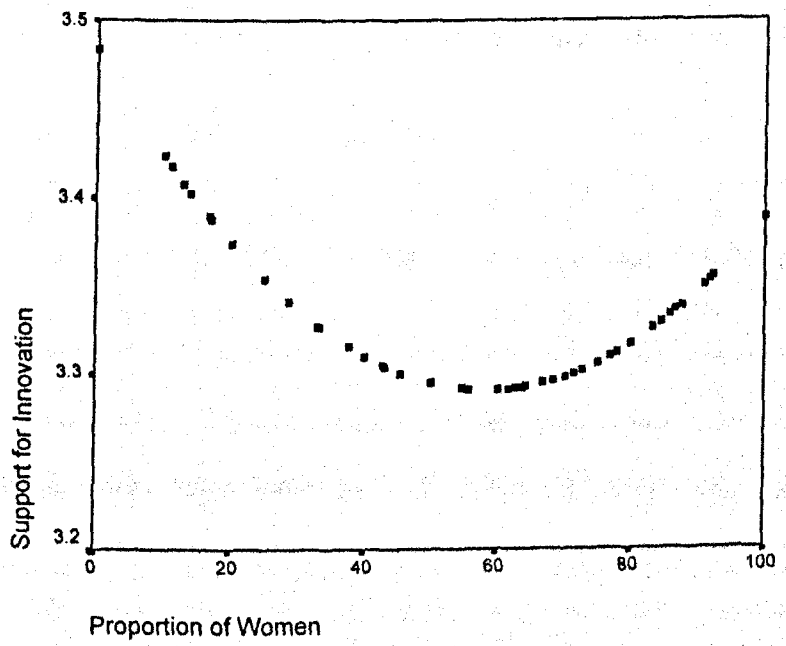


Figure J3: The relationship between the proportion of women in the team and perceptions of task orientation.

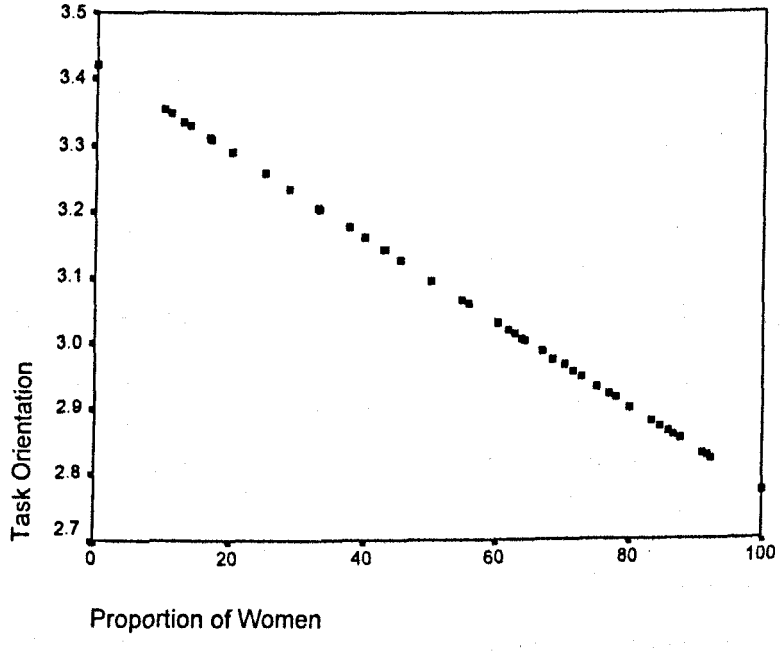
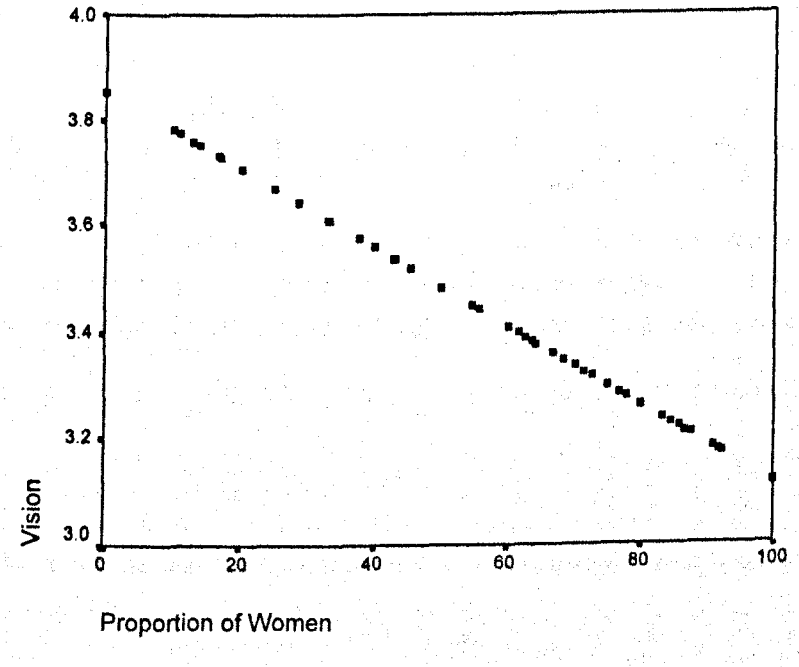


Figure J4: The relationship between the proportion of women in the team and perceptions of vision.



However, the three previous studies found different patterns of effects within each of the organisational contexts. Therefore, hierarchical regression analyses were conducted after statistically controlling for organisational context in addition to team

size, gender and team tenure. As before the control variables were entered as step 1, the proportion of women in the team was entered as step 2 and the quadratic proportion of women term was entered as step 3. As can be seen from Table J2, the only significant finding was that the proportion of women in the team was positively related in a linear way to participative safety ($\Delta R^2 = 0.005$; $p = 0.025$). Therefore when controlling for team size, team tenure, gender and organisational context the higher the proportion of women the higher respondents perceived the participative safety of their teams. However, interestingly, the negative relationships detected for task orientation and vision and the curvilinear effect found for support for innovation when the analyses were run without controlling for context were no longer found to be statistically significant.

SUMMARY

In summary, it was found that when organisational context was not controlled for the greater the proportion of women in the team the higher the perceived participative safety and the lower the perceived task orientation and vision. In addition, it was found that individuals from gender balanced teams perceive their teams as having lower support for innovation than individuals from both male dominated and female dominated teams. However, when organisational context was controlled for it was found that the proportion of women in the team had no effect on perceptions of support for innovation, task orientation and vision.

This suggests that the results found when not controlling for organisational context were an artefact of the differential effects that occur within each of the organisational contexts. It is therefore not meaningful to investigate the impact of team

gender diversity in data sets that combine samples from different organisational contexts. Further, it is not enough to control for organisational context within analyses. Instead, the impact of team gender diversity needs to be investigated separately within each type of organisational context.

Table J2: Results of Hierarchical Regression Analyses Testing for both Linear and Curvilinear Effects of the Proportion of Women in the Team on Perceptions of Team Processes, Controlling for Team Size, Gender, Team Tenure and Organisational Context

	Participative Safety (n = 901)			Support for Innovation (n = 900)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	-0.006	0.003	-0.080**	-0.003	0.003	-0.030
Context - manufacturing	0.152	0.080	0.069*	0.372	0.085	0.160***
Context – health service	0.274	0.051	0.209***	0.255	0.054	0.185***
Gender	-0.002	0.055	-0.001	0.035	0.058	0.023
Team tenure	0.001	0.000	0.041	0.001	0.000	0.048
	$R^2 = 0.036$	df = 5	p < 0.001	$R^2 = 0.042$	df = 5	p < 0.001
Step 2						
Team size	-0.007	0.003	-0.092**	-0.002	0.003	-0.022
Context - manufacturing	0.248	0.091	0.113***	0.308	0.096	0.132***
Context – health service	0.204	0.060	0.115***	0.303	0.063	0.219***
Gender	-0.068	0.063	-0.047	0.080	0.066	0.053
Team tenure	0.000	0.000	0.037	0.001	0.000	0.051
Proportion of women	0.003	0.001	0.137**	-0.002	0.001	-0.088
	$\Delta R^2 = 0.005$	df = 6	p = 0.025	$\Delta R^2 = 0.002$	df = 6	p > 0.1
Step 3						
Team size	-0.007	0.003	-0.091**	-0.002	0.003	-0.021
Context - manufacturing	0.257	0.097	0.117***	0.326	0.102	0.140***
Context – health service	0.209	0.062	0.159***	0.312	0.066	0.226***
Gender	-0.067	0.063	-0.047	0.081	0.066	0.054
Team tenure	0.000	0.000	0.38	0.001	0.000	0.051
Proportion of women	0.004	0.003	0.179	-0.000	0.004	-0.016
Quadratic proportion of women	-0.000	0.000	-0.043	-0.000	0.000	-0.076
	$\Delta R^2 = 0.000$	df = 7	p > 0.1	$\Delta R^2 = 0.000$	df = 7	p > 0.1

	Task Orientation (n = 899)			Vision (n = 889)		
Variable	**B**	**SE B**	**β**	**B**	**SE B**	**β**
Step 1						
Team size	0.003	0.003	0.032	-0.003	0.003	-0.032
Context - manufacturing	0.506	0.080	0.213***	0.477	0.076	0.203***
Context – health service	-0.406	0.051	-0.285***	-0.490	0.048	-0.354***
Gender	-0.080	0.056	-0.051	-0.096	0.052	-0.064*
Team tenure	0.000	0.000	0.028	0.000	0.000	0.012
	$R^2 = 0.179$	df = 5	p < 0.001	$R^2 = 0.259$	df = 5	p < 0.001
Step 2						
Team size	0.002	0.003	0.029	-0.003	0.003	-0.034
Context - manufacturing	0.529	0.091	0.222***	0.489	0.085	0.209***
Context – health service	-0.423	0.060	-0.297***	-0.500	0.056	-0.361***
Gender	-0.096	0.063	-0.062	-0.105	0.059	-0.069*
Team tenure	0.000	0.000	0.028	0.000	0.000	0.012
Proportion of women	0.001	0.001	0.031	0.000	0.001	0.017
	$\Delta R^2 = 0.000$	df = 6	p > 0.1	$\Delta R^2 = 0.000$	df = 6	p > 0.1
Step 3						
Team size	0.003	0.003	0.030	-0.003	0.003	-0.034
Context - manufacturing	0.536	0.097	0.225***	0.492	0.091	0.210***
Context – health service	-0.419	0.063	-0.295***	-0.498	0.058	-0.360***
Gender	-0.095	0.063	-0.061	-0.105	0.059	-0.069*
Team tenure	0.000	0.000	0.028	0.000	0.000	0.012
Proportion of women	0.001	0.003	0.057	0.001	0.003	0.027
Quadratic proportion of women	-0.000	0.000	-0.028	-0.000	0.000	-0.011
	$\Delta R^2 = 0.000$	df = 7	p > 0.1	$\Delta R^2 = 0.00$	df = 7	p > 0.1

* p < 0.1 ** p < 0.05 *** p < 0.001