

ANALYZING THE EFFECTS OF DEEP-LEVEL DIVERSITY ON TEAM
DYNAMICS

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ABSTRACT

ANALYZING THE EFFECTS OF DEEP-LEVEL DIVERSITY ON TEAM DYNAMICS

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This thesis intends to analyze the influence of diversity in deep-level characteristics of team members on team dynamics. Intragroup conflict (relationship and task conflict) and team cohesiveness are selected as the group dynamics to be studied. Deep-level diversity is investigated with respect to personality traits (extraversion and time-urgency) and values (individualism) of team members. In addition, the moderating effect of time on the diversity- team dynamic relationship is analyzed.

For the purpose of testing the hypotheses, a questionnaire study was conducted with 297 individuals from 55 teams, employed in defense and IT companies in Ankara. All analyses were performed at the group level. The results indicated that deep-level diversity in individualism was positively associated with relationship conflict in groups. Contrary to the hypothesis, it was also found that time played a neutralizing role on the effects of deep-level diversity on team conflict.

Keywords: Deep-Level Diversity, Value Diversity, Personality Diversity, Group Dynamics, Team Processes

ÖZ

TAKIM ÜYELERİ ARASINDAKİ DERİN ÇEŞİTLİLİĞİN TAKIM DİNAMİĞİ ÜZERİNDEKİ ETKİLERİ

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Bu çalışma takım üyeleri arasındaki derin çeşitliliğin takım dinamikleri üzerindeki etkilerini araştırmayı amaçlamıştır. Grup içi çatışma (ilişki çatışması ve görev çatışması) ve takım dayanışması araştırılan takım dinamikleri olarak seçilmiştir. Derin çeşitlilik takım üyelerinin kişilik özellikleri (dışadönüklük ve zaman duyarlılığı) ve değerleri (bireycilik) açısından incelenmiştir. Ayrıca, zamanın çeşitlilik-takım dinamikleri ilişkisindeki düzenleyici etkisi araştırılmıştır.

Hipotezlerin test edilmesi amacıyla, Ankara'daki savunma ve bilgi teknolojileri firmalarından 55 takımdan 297 çalışan ile anket çalışması yapılmıştır. Bütün analizler grup düzeyinde yapılmıştır. Çalışmanın bulguları bireycilik bakımından çeşitlilik gösteren grupların daha fazla ilişki çatışması yaşadıklarını ortaya koymuştur. Ayrıca, önerilenin tersine, zamanın derin çeşitlilik ve takım içi çatışma ilişkisinde etkisizleştirici bir rol oynadığı tespit edilmiştir.

Anahtar Kelimeler: Derin Çeşitlilik, Değer Çeşitliliği, Kişilik Çeşitliliği, Grup Dinamikleri, Takım Süreçleri

To My Family

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CHAPTER 1

INTRODUCTION

1.1. Diversity in the Management Literature

Diversity has been an area of interest for researchers from various domains for more than forty years, and it gained even more popularity since the changing nature of workforce was realized as a challenge for managers (Williams & O'Reilly, 1998). Levi (2007) emphasized on how important understanding diversity has become in the past two decades and listed some of the reasons for this as increasing numbers of women and ethnic minorities in the workforce, flatter organizational hierarchies that allow younger and older employees to work together, and requirement of recruiting a more diverse workforce to meet the needs of diverse markets. Diversity is also introduced into work groups through recent changes in organizational settings such as cross-functional project teams, mergers, acquisitions, and joint ventures (van Knippenberg & Schippers, 2007). As a consequence of such changes, diversity management is possibly one of the fastest growing areas of group processes and group relations research (Christian, Porter, & Moffitt, 2006) Harrison and Klein (2007) noted that the volume of research related to diversity has nearly doubled every five years, with 19 studies in 1988, 45 in 1993, 66 in 1998, and 134 in 2003.

The studies in the field generally aim to understand how various diversity variables affect the group processes and group performance. Despite the large number of research in the area, there is still much ambiguity in the findings (Williams & O'Reilly, 1998). A review of 63 studies from 1997 to 2002 by Jackson, Joshi, and Erhardt (2003) revealed that findings are mixed for most dimensions of diversity. Several researchers have tried to come up with an explanation to this ambiguity. Van Knippenberg and Shippers (2007, p. 519) suggested that "...conceptualizations of diversity that are more

complex may yield more insight to into the effects of diversity". Harrison and Klein (2007) presented a new diversity typology (separation, variety, and disparity), proposing that the construct of diversity should be refined in order to achieve more consistent results. Others have tried including possible mediators and moderators into the models. The present study aims to address the shortcomings of group diversity research by focusing on the commonly-neglected deep-level diversity dimensions and also investigating the moderator role of time in the diversity-dynamic relationship.

1.2. Definition of the Term "Diversity"

A definition of diversity is necessary before continuing with emphasizing the importance of the focus of this study. Diversity can be defined as "a characteristic of a social grouping that reflects the degree to which there are objective or subjective differences between group members" (van Knippenberg and Shippers, 2007, p. 519). Harrison and Klein (2007, p. 1200) define diversity as "the distribution of differences among the members of a unit with respect to a common attribute, X, such as tenure, ethnicity, conscientiousness, task attitude, or pay." Several other terms like heterogeneity, dissimilarity, and dispersion are also used in order to refer to diversity. Although these definitions are common, the operationalization of diversity varies among research. Researchers follow relational, compositional and perceptual approaches for operationalizing diversity. The distinction is important because "...different operational definitions stimulate and draw attention to different psychological processes" (Kravitz, 2005, p. i).

1.3. Importance of Investigating the Effects of Deep-Level Diversity

While diversity research has grown considerably in recent years, bulk of this research focus on heterogeneity in salient attributes such as age, gender or race (Williams & O'Reilly, 1998). However, majority of these studies yielded inconsistent findings regarding their effects on organizational and team level outcomes. Until recently, "deep-level" (Harrison, Price & Bell, 1998) characteristics like personality, attitudes and values, have been neglected by

most diversity researchers. In fact, one of the theoretical foundations of diversity research, similarity-attraction paradigm (Byrne, 1971), suggests that differences in these underlying characteristics are the ones that affect group processes and performance. In line with this theory, studies that used these less readily apparent attributes reported higher effect sizes in explaining the variance in workgroup outcomes (Joshi, Liao, & Roh, 2011). Limiting diversity research to surface-level attributes creates a “black box”, in which the underlying mechanisms of diversity effects are left undiscovered (Lawrence, 1997, p. 2). Moreover, studies in the past few decades suggest that deep-level heterogeneity effects are strengthened over-time, while the influences of surface-level dissimilarities diminish (e.g. Harrison et al, 1998). In light of these notions, further investigation of diversity in “underlying” attributes (Milliken & Martins, 1996) is a need for this research area.

1.4. Research Questions

This thesis aims to investigate how diversity in deep-level characteristics, (i.e., values and personality traits) of team members affects team dynamics, such as conflict and cohesion. In addition, the moderating effects of time will be analyzed on the association between deep-level diversity and group dynamics. Two key research questions of this study are:

1. Is deep-level diversity significantly related with team processes?
2. Do the associations between deep-level diversity and team processes vary according to how long team members have worked together?

1.5. Organization of the Thesis

This thesis is organized under five major chapters. The first chapter intended to provide an introduction to the concept of diversity, briefly discuss the importance of studying deep-level diversity and list the research questions that are aimed to be answered in this thesis.

In the second chapter, a review of the previous literature in diversity and group dynamics will be provided. Here, I will refer to the theories that underlie diversity research, discuss the typologies of diversity that were previously suggested by researchers, examine surface-level and deep-level diversity dimensions that are tested in this thesis, assess the relevance of time on diversity effects and briefly discuss the studied team processes.

In Chapter 3, the proposed model of the thesis will be illustrated and the hypotheses of the study will be stated relying on the theoretical framework and previous findings in the literature.

In Chapter 4, research methodology will be introduced. The sample and procedure of the study will be discussed in detail, followed by the measures utilized.

In Chapter 5, data analysis and results will be provided. Details of data screening, correlational analysis, determination of the control variables and results of hypothesis testing will be included in this chapter.

The final chapter, Chapter 6, will conclude the thesis by discussing the findings of the study, analyzing its practical implications, and stating the limitations and directions for future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Theories Underlying Diversity Research

Before reviewing the diversity literature, it is essential to examine the theoretical models that form the basis for these studies. The major theories that have been used by the researchers to explain the effects of diversity on team processes and outcomes are social identity theory (Tajfel, 1982; Tajfel & Turner, 1986) and similarity attraction paradigm (Byrne, 1971).

2.1.1. Social Identity Theory

Social identity theory suggests that people tend to classify themselves and others into social categories according to various characteristics, which are mostly salient ones like race, age, gender and status. This categorization provides individuals a systematic means of defining others as well as locating themselves in the social environment (Ashfort & Mael, 1989). Thus, they form cognitive in-groups, which they belong to, in order to fulfill their desire to maintain a high level of self-esteem (Williams & O'Reilly, 1998). In order to sustain their positive social identity, they draw comparisons that favor their social categories (in-groups) over other social categories (out-groups) (Riordan, 2000). The term "group" referred here is *psychological group*, which is defined by Turner (1984, p. 530) as "a collection of people who share the same social identification or define themselves in terms of the same social category membership."

Social categorization processes may produce more favorable attitudes towards the members of in-groups and may cause them to be perceived as more cooperative and trustworthy than members of out-groups (van

Knippenberg & Shippers, 2007). In her review of the experimental research on intergroup discrimination in favor of one's own group, Brewer (1979) stated that evaluative bias in favor of in-groups occurs mostly in terms of trustworthiness, honesty and loyalty. Many diversity researchers have utilized social identity theory to explain the unfavorable effects of heterogeneity on group processes. For instance, in their relational demography study with 1705 members of 151 teams, Tsui, Egan and O'Reilly (1992) found that being different in race and gender were associated with lower organizational attachment, whereas individuals who have high age difference from the other team members tend to have a lower desire to stay in their organizations. Pelled (1996a) also used social categorization theory to propose that diversity results in affective conflict in work teams because individuals perceive themselves superior to dissimilar others and thus, feel hostility towards them. She also proposed that the degree of affective conflict depends on the visibility of the demographic diversity variable.

There are few studies that aimed to directly test the link between social identity theory and relational demography. Chattopadhyay, George and Lawrance (2004) found support for the use of self-categorization theory by relational demographers, showing that demographic dissimilarity influences group identification through the processes outlined in self-categorization theory related to prototype valence, prototype clarity, and self-prototypicality. Goldberg, Riordan and Schaffer (2010) tested the moderating effects of the two primary motives of social identification (status enhancement and uncertainty reduction) on the relationship between diversity and individual's affective reactions towards their teams. Their study revealed that uncertainty reduction, which was operationalized as self-continuity, moderated the effect of race similarity on cohesiveness. In addition, status enhancement moderated the effects of age and race diversity on cohesiveness and liking.

2.1.2. Similarity-Attraction Paradigm

Byrne's similarity-attraction paradigm (1971) has been another theoretical model that was utilized by most diversity and relational demography researchers. As the name implies, this theory proposes that individuals tend to be attracted to and propose positive feelings for similar others. This similarity can be in various dimensions such as attitudes, personalities and demographic characteristics. Similarity also leads to behavioral outcomes like high social interaction, frequent communication, and desire to maintain group affiliation that may result in low turnover (Riordan, 2000; Tsui et al., 1992).

Applying Byrne's logic to organizations, Schneider developed the attraction-selection-attrition model (1987) that suggested that individuals are attracted to work organizations that have similar attributes in values, personality and interests with theirs. As a result of this attraction as well as the socialization processes that aim to increase the fit between the characteristics of employees and organizations and the departure of the unfitting individuals, organizations become more homogeneous over time (Ostroff & Aumann, 2004).

Tsui et al. (1992) suggests that social identity and similarity attraction theories should be treated as complementary. According to social identity theory, people categorize themselves using more salient characteristics, like age, gender and race. Individuals can identify themselves with psychological groups without necessarily engaging in interpersonal interaction with all or any members of that group (Tsui et. al, 1992). Hence, there is no need for personal interaction for social categorization. On the other hand, similarity attraction paradigm looks for interaction between individuals. Dissimilarity researchers argue that Byrne's framework more adequately explains deep-level dissimilarity effects than it explains surface-level effects (Guillaume, Brodbeck and Riketta, 2012). Based on this discussion, similarity-attraction paradigm is considered as a more suitable theoretical foundation for the

present study, since it focuses on the effects of deep-level diversity dimensions.

2.2. Typologies of Diversity

Before analyzing the diversity effects, there is a need to clarify the distinction between the types of diversity since the present study aims to focus on a particular one. Diversity researchers have sought to organize diversity using various categorizations in order to better understand the effects of diversity on group dynamics and outcomes (Christian et al., 2006). Jackson, May and Whitney (1995) suggested a scheme, which classified diversity based on content and labeled individual attributes as either *readily detectable* or *underlying* and as either *task-related* or *relations-oriented*. According to their categorization, attributes like sex, race, age and physical features are included in the readily detectable relations-oriented category. Organization tenure, group tenure and education level are task-related and readily detectable attributes. Underlying attributes include task-related ones such as knowledge, skills, and experience and relations-oriented ones such as social status, attitudes, personality and values.

In their review, which focused on the effects of different types of diversity on outcomes at different levels of organizations, Milliken and Martins (1996) proposed a similar classification and focused on the visibility of diversity traits. They labeled attributes such as age, race or gender as *observable* or *readily detectable*, whereas attributes like education, functional background, personality or values are labeled as *less visible* or *underlying*. Following the same reasoning, Harrison and colleagues (1998) used a different terminology (*surface-* and *deep-level* diversity) in order to distinguish between types of heterogeneity.

Although these scholars have used different labels, their classifications followed a common logic that took into account the visibility of the diversity traits. This differentiation is used mainly because “when differences between people are visible, they are particularly likely to evoke responses that are due

directly to biases, prejudices, or stereotypes” (Milliken & Martins, 1996, p. 404). Even though they may not be task-relevant, visible traits are likely to shape people’s perceptions and behaviors, through categorization and prejudice mechanisms (Pelled, 1996a; Thatcher, 1999).

While classifications of diversity have been mostly based on content, Harrison and Klein (2007) suggested a different perspective in order to clarify and refine the construct of diversity, as a response to the inconsistent findings in the literature. They proposed three types of diversity: *separation*, *variety* and *disparity*. They described separation as “differences in position or opposition among unit members” (p. 1200). They noted that separation primarily occurs of values, beliefs and attitudes and usually results in conflict, reduced cohesiveness and lower performance, which can be explained through the social identity, similarity attraction, and attraction-selection-attrition theories. The second type of diversity that they proposed was variety, which means “the number and spread of batches of information content, experience, or unique network ties available across unit members” (p. 1204). This type of diversity is associated with the law of requisite variety, information processing, and variation, selection, and retention theories, and it is said to be beneficial for the work-unit, producing creativity, innovation, and better decision quality (Harrison & Klein, 2007). Disparity, the third type of diversity they suggested, is differences among members of a work-unit in terms of “socially valued or desired resources” such as pay, status, or power (p. 1206). This type of heterogeneity, which is relatively less common in the organizational literature, may cause competition, deviance and withdrawal.

Throughout this paper, the terminology of Harrison and colleagues (surface- and deep-level diversity; 1998) will be used to refer to different types of diversity. With respect to the classification scheme of Harrison & Klein (2007), separation is the type of diversity that suits best to the focus of this study, since the effects of heterogeneity in attributes such as personality (time urgency) and values are examined. On the other hand, extraversion diversity, which is another diversity dimension in the present study, can be

an example of variety, in that it is proposed to be beneficial to group processes.

2.3. Surface-Level Diversity

As stated before, the focus of this study is the relationship between deep-level dissimilarities and team processes. However, majority of diversity research is on surface-level attributes, most of which are demographic characteristics such as age, race and gender. Some of these studies have presented significant relationships between readily observable differences and team processes and outcomes. However, their findings are mostly inconsistent. Yet, such effects should be controlled for when analyzing the effects of deep-level diversity. For this purpose, previous findings on surface-level heterogeneity will be reviewed in this section. Along with group level studies, relational demography research will also be included, since they form a significant part of the literature.

Being an easy to measure and salient characteristic, gender diversity has been used as a predictor of several group and individual outcomes. However, previous research has produced inconsistent results regarding the effects of gender diversity (Randel, 2002). Following a relational approach, Pelled (1996b) found that individual gender dissimilarity was positively related to perceived intra-group emotional conflict, plus it was indirectly and negatively related to perceived group performance. Similarly, in Jehn, Northcraft and Neale's study (1999) gender diversity, as part of social category diversity, was found to be positively associated with relationship conflict. On the other hand, Randel (2002) found that gender diversity had no main effect on relationship conflict. Besides, Harrison, Price, Gavin and Florey (2002) found no significant effect of gender diversity on team social integration. Moreover, Fields and Blum (2007) reported an asymmetrical finding with the social categorization theory, stating that employees working in gender-balanced groups have significantly higher job satisfaction levels than those working in groups that contain mostly men or mostly women.

According to the social categorization theory, it is expected that dissimilarity in age would lead to difficulties in communication, higher conflict and less cohesion in groups (Williams & O'Reilly, 1998). However, similar to gender diversity, conflicting findings are present in studies that examined age diversity effects. O'Reilly, Caldwell and Barnett (1989) found that age diversity had no significant association with social integration. Pelled (1996a) reported that, opposing to their hypothesis, age diversity led to less affective conflict in work groups, while O'Reilly, Williams, and Barsade (1997) found that the association between the same variables was non-significant. A review by Haas (2010) presented that only three out of fifteen reviewed studies found significant associations between age diversity and team performance.

Racial and ethnic dissimilarity gathered significant amount of attention in the diversity literature, which is formed mostly of studies conducted in the USA. Therefore, the findings regarding this dimension require a review, although it can be considered as relatively irrelevant within the Turkish context. Similar to the findings in age and gender diversity, research on race/ethnicity diversity presented inconsistent results. For instance, Pelled found a positive association between race diversity and emotional conflict in one study (1996b), whereas she did not find a significant relationship between these variables in another study (1996a). Examining the diversity effects on individual level outcomes, Tsui and colleagues (1992) found that employees who were racially different from other members of their work unit were less attached to their organizations.

Overall, the findings above show that the diversity literature on visible traits was not successful in drawing a clear picture regarding their effects on group outcomes. Indeed, the inconsistency of surface-level dissimilarity effects is illustrated in Joshi and Roh's review (2008), which included the studies on gender, race and age diversity from 1999-2007. They found that majority of the findings represented null effects of surface-level diversity on performance, categorization, and elaboration-based processes. Moreover, those findings that were significant varied in terms of the direction of the

relationships. In light of these findings, deep-level diversity measures should have greater emphasis in the future, in order to achieve a more consistent theoretical framework regarding group heterogeneity.

2.4. Deep-Level Diversity

As discussed above, organizational researchers have generally focused on more salient diversity dimensions like age, gender, or race and job-related attributes like educational or functional background (Williams & O'Reilly, 1998). Until recently, deep-level characteristics like personality, attitudes and values have been neglected by most diversity researchers. Although the direct effects of such attributes on behavior are commonly studied, research regarding their compositional effects on group outcomes has lagged behind (Milliken & Martins, 1996). In a review of relational demography literature from 1984 to 2009, Joshi, Liao and Roh (2011) found that only 20% of the reported findings accounted for less visible dissimilarity dimensions, while age, gender and race remained to be the most frequently studied attributes as they form more than 70% of the reviewed literature.

2.4.1. Importance of Deep-Level Dissimilarity Effects

In addition to the inconsistency of findings on surface-level diversity, there are several reasons why deep-level dissimilarity deserves more research concentration. Deep-level dissimilarity measures are found to have higher effects sizes in explaining group outcomes and their effects are found to become stronger over time. Moreover, there are criticisms regarding the assumption that surface-level traits are proxies of underlying attributes.

2.4.1.1. Higher Effect Sizes

Despite the emphasis on surface-level dissimilarity, studies that used less readily apparent attributes yielded higher effect sizes in explaining the variance in work outcomes such as performance and withdrawal (Joshi et al.,

2011). A similar argument can be made relying on the results of the meta-analysis by Guillaume and colleagues (2012), which included studies published in the years 1980-2009. They investigated the effects of surface- and deep-level heterogeneity on social integration and effectiveness-related outcomes at the individual-within-the-group-level. They found that the effect sizes of surface- and deep-level dissimilarity on social integration were -.06 and -.21, respectively. Likewise, Harrison and colleagues (2002) reported stronger negative effects of perceived deep-level diversity on team social integration than those of perceived surface-level heterogeneity. These findings suggest, as Hollenbeck, DeRue and Guzzo (2004) highlight, that “demographic diversity is actually less important to team performance than psychological diversity, especially over time” (p.357).

2.4.1.2. Unquestioned Assumptions

The basis of demographic diversity effects proposed by the similarity attraction paradigm relies on the notion of “individuals perceiving demographically similar others as having values similar to their own” (Chattopadhyay, 1999, p.235). It is also assumed that demographic characteristics, which are easier to measure and observe, are “reasonable proxies” for deep-level attributes (Harrison et al., 1998, p.96). Recently, however, the unquestioned acceptance of these assumptions is criticized. Lawrence (1997), for instance, criticized the *congruence assumption* that demographic measures can be replaced with subjective concepts in order to explain outcome variables, since they can capture the variance in these subjective concepts. She argued that these assumptions create a “black box” in theory, as previous research failed to support reliable relationships between demographic measures and subjective concepts. Following this perspective, further investigation of diversity in underlying attributes is essential.

2.4.2. Effects of Deep-Level Diversity

Having clarified why deep-level diversity requires more research interest, a review of the existing literature on how deep-level diversity affects groups will be presented next. Previous findings regarding the effects of deep-level diversity on team dynamics and outcomes will be summarized under two main aspects: personality and values.

2.4.2.1. Personality Diversity

Although organizational researchers have frequently investigated the link between personality traits and work outcomes, diversity literature seems to lag behind regarding this dimension. Neuman, Wagner and Christiansen (1999) highlighted that:

Traditionally, selection and placement strategies using personality have focused only on the elevation, or magnitude, of traits within the group in predicting job performance. However, team-based designs may also require the consideration of the diversity, or variability, of traits within the group to more fully understand the relationship between personality and job performance (1999, p. 29).

Majority of the existing research on personality diversity have utilized “Big Five” personality dimensions (Barrick & Mount, 1991; Costa & McCrae, 1992) as the predictors of team processes and outcomes. These are listed as extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience. The findings are yet equivocal, as some of these studies reported significant relationships, while others could not find any association or they found conflicting results. There are few studies, which examined diversity in personality dimensions other than the five-factor model, such as time urgency (Mohammed & Angell, 2004; Mohammed & Nadkarni, 2011) and positive affect (Barsade, Ward, Turner & Sonnenfeld, 2000).

Previous research on personality diversity will be briefly reviewed in the following sections. Firstly, diversity studies that examined the five

personality factors will be reviewed, with an emphasis on the dimension of extraversion. Secondly, research on time urgency diversity will be presented.

2.4.2.1.1. Extraversion Diversity

Among the five factors of personality, extraversion has been the most commonly examined dimension in diversity research, as well as it has provided the most consistent results (Mohammed & Angell, 2004). Hence, it is selected as one of the personality diversity dimensions in the present study. Extraversion can be defined as the tendency to be outgoing, energetic, social, talkative, optimistic, assertive and active (Costa & McCrae, 1992; Klein, Lim, Saltz & Mayer, 2004). On the other extreme, introverts are likely to be quiet, reserved and unenergetic (Costa & McCrae, 1992).

Relying on the similarity-attraction paradigm (Byrne, 1971), almost all dimensions of dissimilarity are assumed to affect team processes and team outcomes detrimentally. However, because of its relatedness with leadership, extraversion is likely to be an exception to this association. Extraverts apt to be active participants in group discussions (Littlepage, Schmidt, Whisler & Frost, 1995) and they assume leadership roles (Stein & Heller, 1979; as cited in Barry & Stewart, 1997). Too many extraverts in a team might lead to conflict and power struggles (Mohammed & Angell, 2003). Heterogeneity in extraversion may enhance team coordination because less extraverted members act as followers who complement the inputs of extraverts in the group (Barry & Stewart, 1997). Researchers have found some evidence supporting these propositions.

One of the studies on personality diversity was conducted by Neuman and colleagues (1999), who investigated the impact of personality on team performance in two aspects: team personality elevation (TPE) and team personality diversity (TPD). TPE referred to the aggregate score of team members on a personality trait, whereas TPD measured the variability of the members in terms of those attributes. Their findings revealed that diversity (TPD) in extraversion, as well as emotional stability, were positively

associated with team performance. They explained the reasonableness of these findings in the sense that heterogeneity in extraversion and emotional stability may enhance team coordination because of complementary roles, with some members leading and others following. Their results regarding the relationship between TPE and performance showed that teams with high aggregate scores of conscientiousness, agreeableness and openness to experience were better performers than teams with lower scores on these personality traits.

Barry and Stewart (1997) found a curvilinear relationship between the proportion of extraverts in a group and team performance. That is, teams having moderate proportion (20% to 40%) of extraverted members (i.e. high variability in extraversion) performed better than teams with lower or higher proportion of such members. They proposed a similar relationship for team cohesion. However, they could not find support for this hypothesis.

In a study conducted with student groups, Mohammed and Angell (2003) found that higher variability in agreeableness and neuroticism were associated with lower oral team performance, whereas higher variability in extraversion resulted in higher oral team performance. In another study, they proposed a negative association between extraversion diversity and relationship conflict, although they could not find any support for this hypothesis (Mohammed & Angell, 2004).

A study by Kristof-Brown, Barrick and Stevens (2005) with both student and work groups reported that individuals who are dissimilar from other team members in terms of extraversion are more attracted to their teams and that individuals who are more attracted to their teams are seen by others as better contributors to the team performance. Their findings suggest that complementary fit is beneficial for some types of personality traits.

A conflicting finding was presented by Arciniega, Allen, Poling and Woehr (2006), as they found negative associations of variability in extraversion with both team performance and cohesiveness. According to their results, groups

that are heterogeneous in agreeableness are poor performers, although they experience less affective conflict.

The above discussion of the inconsistent findings regarding the effects of diversity in five factors of personality indicate that further investigation of personality diversity is essential as well as an emphasis on personality dimensions other than the five-factor model.

2.4.2.1.2. Time Urgency Diversity

As mentioned above, five-factor model have been a common basis for most diversity researchers who studied the effects of personality heterogeneity on team outcomes (e.g. Neuman et al., 1999; Harrison et al., 2002; Liao, Chuang, & Joshi, 2008). However, there is a need to consider other dimensions of personality in order to reach a better understanding of the effects of deep-level heterogeneity on team processes and outcomes.

Temporal issues have been neglected in diversity research, although they are considered critical for all team phenomena (Kozlowski & Bell, 2004). Perceptions of deadlines and remaining temporal resources may differ among team members and managing these differences is crucial in achieving team success (Vinton, 1992; as cited in Waller, Conte, Gibson & Carpenter, 2001). Research on temporal diversity and associated team outcomes are very few in number (e.g. Jansen & Kristof-Brown, 2005; Mohammed & Angell, 2004; Mohammed & Nadkarni, 2011). In an effort to fill in this gap, time urgency is selected as one of the personality traits to be studied in this dissertation.

Time urgency, which is seen as the most significant trait in Type-A behavior pattern (Friedman & Rosenman, 1974), refers to “frequent concern with passage of time” (Waller et al., 2001).

The notion is that some people are more concerned about time and its passage than others, and, as a result, may be more prone to suffer the

physical and psychological symptoms associated with strain when time demands are high (Landy, Rastegary, Thayer & Colvin, 1991, p. 644).

Time urgent individuals may perceive time as their enemy (Price, 1982) or a limited source that must be preserved (Mohammed & Nadkarni, 2011). They generally schedule many tasks in tight deadlines (Waller et al., 2001). Time urgency is accepted as a stable personality trait, such that non-time urgent individuals are difficult to train for increasing their work pace or focusing on deadlines (Waller et al., 2001). Landy and colleagues (1991) suggested that time urgency is a multidimensional construct which contains factors of awareness of time, eating behavior, nervous energy, list making, scheduling, speech patterns and deadline control.

Temporal diversity is considered a “double-edge sword” in the sense that it can affect team processes both positively and negatively. While coexistence of time urgent and non-time urgent individuals in a team can enhance team outcomes by balancing aspects such as quality and speed, it can also lead to conflict between members because of inconsistent work priorities and pacing behaviors (Mohammed & Nadkarni, 2011).

In an individual-within-group level study, Jansen and Kristof-Brown (2005) found that group members who were dissimilar from their colleagues with respect to time urgency diversity were less satisfied and less likely to engage in helping behavior. In the studies conducted by Mohammed and Angell (2004) and Mohammed and Nadkarni (2011), no evidence was found to support the main effect of time urgency diversity on relationship conflict or performance in teams. However, they revealed interaction effects between time urgency diversity and other variables. Firstly, they found that higher time urgency diversity was associated with lower relationship conflict, when effective team processes (communication, cooperation, and leadership) were present (Mohammed & Angell, 2004). Secondly, they reported that in the presence of strong team temporal leadership, time urgency diversity was more positively related to team performance (Mohammed & Nadkarni, 2011). This study also revealed that team temporal leadership is positively related to team performance.

2.4.2.2. Value Diversity

Another important dimension of deep-level or psychological heterogeneity is value diversity. Values reflect “individuals' fundamental beliefs regarding the desirability of behavioral choices” (Enz, 1988; Rokeach, 1973, as cited in Jehn, Chadwick & Thatcher, 1997). Unlike the five-factor model of personality, there is no single typology that is agreed upon by researchers regarding values. Therefore, studies on value diversity vary greatly on the specific dimensions and measurements of values that are investigated, making it difficult to find common patterns in their findings.

Jehn and her colleagues (1997), for example, utilized the typology by O'Reilly, Chatman and Caldwell (1991) that included nine value dimensions, namely innovativeness, stability, detail orientation, outcome orientation, aggressiveness, supportiveness, reward orientation, team orientation and decisiveness. They used the Organizational Culture Profile (OCP) by O'Reilly and colleagues (1991) to measure value congruence scores. However, this choice was criticized by Woehr, Arciniega and Poling (2012), in the sense that OCP was developed as an instrument to measure profiles of cultures of organizations rather than individual values. Jehn and colleagues' findings from their quasi-experimental study suggested that value congruence was negatively related to both relationship and task conflict. They also found that value congruence was negatively related to perceptual performance and satisfaction via the mediation of relationship conflict.

Value diversity appeared to be one of the predictors in another study by Jehn and colleagues (1999), which examined the relationship between three distinct types of heterogeneity (social category, informational and value) on workgroup conflict and worker morale. They utilized a perceptual measure of value diversity in this study. They found that perceived value diversity predicted not only all three types of conflict (task, relationship and process conflict) and worker morale (satisfaction, intent to remain and commitment), but also objective performance, perceptual performance and efficiency of workgroups. They also revealed that process conflict mediated the negative

associations between value diversity and all aspects of worker morale, while relationship conflict mediated the negative links between value diversity and satisfaction and intent to remain. Perceived value diversity also took a moderator role in their model, in the sense that informational diversity was more beneficial to the performance of workgroups when value diversity was low. Overall, their findings suggested that value diversity have detrimental effects on workgroup processes and outcomes.

Another study regarding value diversity in workgroups was conducted by Klein and colleagues (2011), who emphasized on the moderation of leadership type in the link between value diversity and team conflict. They chose work-ethic and traditionalism as value dimensions, taking into account that they are work-relevant and moral. They found that task-focused leadership weakened the negative effects of work-ethic diversity on team conflict, whereas person-focused leadership made the traditionalism diversity and team conflict association stronger. In addition, team effectiveness was negatively affected by value diversity through the mediation of team conflict.

In a recent study, Woehr and colleagues (2012) made use of a different typology by Schwartz (1992) that classified values under 10 types: self-direction, universalism, benevolence, conformity, tradition, security, power, achievement, hedonism and stimulation. Although they could not find any association between value diversity and team performance, they found evidence in support of significant effects of value diversity on team processes. After controlling for the effects of value mean level, diversity in six of ten value dimensions (security, self-direction, achievement, benevolence, hedonism and power) were related to at least two of group process variables (task conflict, relationship conflict, team efficacy and cohesion). Relationship conflict was the most strongly related group process to value diversity because of both the number of diversity dimensions associated and the variance that is explained in it by value diversity after controlling for the mean value levels ($\Delta R^2 = .24$). Overall, value diversity resulted in lower team cohesion, lower efficacy and more conflict in groups.

2.4.2.2.1. Individualism Diversity

There are innumerable value dimensions that can be investigated. In the present research, the value dimension to be studied was selected as individualism diversity. A brief introduction of this value type and a review of the related literature are presented in this section.

In an effort to overcome the challenges created by the global competitive forces, a great part of today's organizations have decentralized team-based structures rather than the traditional hierarchical models (Jehn et al., 1999). Consequently, companies now take into account the candidate's willingness to work in a team context while making hiring decisions (Eby & Dobbins, 1997). This construct is referred to as team orientation, which is a person's tendency to work comfortably in group settings (Driskell & Salas, 1992; Mohammed & Angell, 2004).

Whether an individual is team-oriented or not, is highly related to his/her collectivistic orientation (Eby & Dobbins, 1997). Collectivism is a cultural value construct that refers to the individuals' tendency to see themselves as parts of one or more collectives (in-groups such as family, nation or workgroup), and give priority to the needs, wants or goals of those collectives over their own (Triandis, 1995). Collectivists believe in interdependency of individuals and approach tasks with this principle (Wagner, 1995). Collectivism is accepted as a cultural characteristic because it shows higher variance between cultures than it does within cultures (Tyran & Gibson, 2008). However, its reflection in the individual level of analysis is also common among researchers.

At the opposite extreme, there is individualism, which is defined by Wagner and Moch (1986) as "the condition in which personal interests are accorded greater importance than are the needs of groups". Individualists see themselves as independent of any collectives (Triandis, 1995). Personal desires are primary to individualists, who tend to disregard group interests in case they conflict with their own (Wagner, 1995).

A psychological definition for individualism was provided by Hofstede (1980, 1991). He suggested that individualism refers to a society where individuals are loosely connected to each other and they are expected to look after only the self or the immediate family (Realo, Koido, Ceulemans & Allik, 2002). Waterman (1984) suggested that individualism has four main aspects: “(i) being true to one’s self (as in Maslow’s theory of self-actualization); (ii) freedom of choice within the constraints of the like freedom of others; (iii) personal responsibility which accompanies a sense of being a causally effective agent; and (iv) universality, which involves respect for the integrity of others” (as cited in Realo et al., 2002, p. 165).

Individualism-collectivism has gained research popularity since it was introduced in Hofstede’s study (1980) as one of the four dimensions of cross-cultural psychological variation, along with power distance, uncertainty avoidance and masculinity-femininity (Freeman & Bordia, 2001). It was originally presented as a one-dimensional bipolar construct. However, recent research have questioned this conceptualization and proposed alternative models, including a two dimensional unipolar construct. Moreover, Triandis and colleagues (1988) reported that individualism and collectivism are orthogonal constructs. Following this assumption, the individualism dimension will be studied in this thesis.

The research that examined the effects of diversity in team orientation or individualism-collectivism in groups is very limited. Mohammed & Angell (2003) proposed that variability in team orientation would negatively affect oral task performance. However, their study, which was conducted with student teams, did not support their hypothesis. They suggested that previous team building activities might have reduced the variability in this dimension. In another study, rather than using diversity in team orientation, Mohammed & Angell (2004) investigated the moderating effect of mean level of team orientation on the relationship between surface-level diversity and emotional conflict. They found that team orientation helped to weaken the positive effects of gender diversity on relationship conflict. Tyrann and Gibson (2008) found that collectivism diversity was positively related with group

efficacy, which was contradictory to their expectations.. These few-in-number and inconsistent findings indicate a need to investigate this value diversity dimension further.

2.5. Time as a Moderator in the Diversity-Group Dynamics Relationship

Research has shown that as team members spend more time together (as team tenure increases), the effects of deep-level dissimilarity dimensions become stronger while the surface-level diversity effects tend to weaken (van Knippenberg & Schnippers, 2007). The logic behind these changes is that as individuals interact and get to know each other, they get free of stereotyped ideas resulting from salient differences and realize other similarities, which may result in reduced conflict and higher cohesiveness (contact hypothesis; Allport, 1954; Amir, 1969). For instance, in a longitudinal study with students and employees, Chatman & Flynn (2001) tested the effects of demographic dissimilarity on cooperative group norms and found that the negative association between these variables that was present at the early group stage (at week 3) became non-significant at week 15. Similarly, Harrison and colleagues (1998) revealed that the negative impact of gender diversity on work group cohesion was reduced over time, whereas the effect of dissimilarity in overall job satisfaction (a deep-level diversity dimension) on the same outcome became stronger. Another study by Harrison and colleagues (2002) showed that time spent in collaboration moderated the negative association between perceived surface-level diversity and team social integration in such a way that the relationship was non-significant when collaboration was high. They also found that perceived deep-level dissimilarity effects on team social integration became more negative as time spent in collaboration increased.

2.5.1. Time and Perceptions of Diversity

Research in team diversity has generally used actual (objective) dissimilarity measures as predictors of team processes and outcomes. However, "...perception rather than reality is what influences work attitudes and

involvement" (Lawrence, 1997, p. 18). The use of objective measures makes it uncertain whether individuals are aware of their differences in terms of the type of diversity studied and whether these measures affect the group processes (Acar, 2010). Actual diversity measures may fail to capture the salience of those dissimilarities for the team members (Hobman, Bordia, & Gallois, 2004), who may experience dissimilarities differently from one another (Oosterhof, Van der Vegt, van de Vliert & Sanders, 2009). Hence, perceived diversity measures may have more explanatory power than objective measures since "individuals' perceptions of their social environment have stronger, more direct influences on behavior than does the social environment itself" (Harrison & Klein, 2007, p.1216).

Perceived dissimilarity is "a subjective measure of dissimilarity where individuals rate how different they think they are from other team members, in terms of various characteristics" (Hobman, Bordia and Gallois, 2003, p.303). Recently, diversity researchers have begun following a perceptual approach in their studies (e.g. Cunningham, 2007; Harrison et al, 2002; Kirchmeyer, 1995; Williams, Parker, & Turner, 2007). Some of these studies report that perceptions of dissimilarity are better predictors of group outcomes than actual dissimilarity measures. For example, Turban and Jones (1988) found that perceived similarity between supervisor and subordinates showed stronger relations with job satisfaction, performance and pay ratings of subordinates, compared to actual demographic similarity. Harrison et al. (2002) found that perceived diversity mediated the effects of objective diversity on social integration. Hobman and colleagues (2004) found that perceived visible and informational dissimilarity were negatively related to work group involvement. In a longitudinal study, Acar (2010) demonstrated that perceived deep-level diversity was significantly and positively associated with emotional conflict in the middle stage of group interaction. These findings suggest that perceptions of diversity should be paid more importance for investigating the effects of team member composition on group dynamics and outcomes.

This thesis does not directly test the effects of perceived dissimilarity. However, by utilizing time as a moderator in deep-level diversity and group processes relationship, a perceptual approach is also followed. This is because perceptions of diversity, especially in deep-level attributes, are likely to be shaped over time, as team members get to know each other in more detail.

2.6. Group Dynamics

The diversity dimensions which act as predictors and time which is the moderator in this study were discussed above. In this section, the outcome variables are intended to be discussed. Group dynamics are critical in understanding the processes through which diversity influences team outcomes such as performance or turnover. Recently, researchers focused on investigating the association between group dissimilarity and group processes, in an effort to explain the inconsistent findings regarding diversity-performance link (Haas, 2010). Based on Williams and O'Reilly's review (1998), social integration, communication and conflict are the three most frequently studied group processes in diversity literature. The present study aims to explain diversity effects on cohesiveness (a facet of social integration) and intragroup conflict (relationship and task) in teams.

2.6.1. Team Cohesiveness

Team cohesiveness can be defined as "members' attraction to the group, which in turn is predominantly considered in terms of group members' liking for one another" (Hogg, 1993, p. 87). It is one of the facets of team social integration, along with satisfaction with coworkers, positive social interaction, and enjoyment of team experiences (Harrison et al., 2002). Cohesiveness is an important group dynamic because it has several consequences. Members of groups with high cohesiveness are more likely to stay with the group, conform to the norms and accept the goals of the group, participate in group activities, and gain a sense of security that enhances self-esteem and lowers anxiety (Cartwright, 1968). The results of a recent meta-

analysis by Evans and Dion (2012) illustrated that there is a positive relationship between the levels of cohesiveness and performance in groups.

Diversity researchers suggest that diversity influences group outcomes, like withdrawal from work and task performance, indirectly and these negative effects are "...transmitted via lower levels of social integration" (Guillaume et al., 2012, p. 87). Therefore, it is critical to examine the association between dissimilarity dimensions and group cohesiveness -the "primary affective dimension" (Harrison et al., 1998, p.96) of social integration-, in order to understand the processes underlying the outcomes such as effectiveness and efficiency of teamwork.

2.6.2. Intragroup Conflict

Another important group process that affects the effectiveness of teams is intragroup conflict, which is seen as a "key intervening process" of diversity effects on team performance (Jehn et al., 1999, p.742). There are two main types of this group dynamic, namely task and relationship conflict. These two conflict types are believed to reflect the "double-edge sword" aspect of diversity because they have opposite effects on team performance (Amason, 1996; Amason & Sapeinze, 1997; Jehn, 1994, Priem, 1990).

Relationship conflicts are "disagreements and incompatibilities among group members about issues that are not task-related" (Jehn et al., 1997, p.289) but "that focus on personal issues" (Jehn et al., 2008, p.178). It involves tension, animosity, and annoyance among members within a group. Effective management of relationship conflict in teams is critical since it has detrimental effects on satisfaction and performance levels of group members. Its negative association with team performance is due to the fact that relationship conflict costs the valuable energy and time of team members that should be used for task accomplishment (De Dreu & Weingart, 2003).

On the other side, task conflicts can arise in issues like "the distribution of resources, procedures and policies, and judgments and interpretation of

facts.” (De Dreu & Weinhart, 2003, p.741). Most researchers have assumed that task conflict might have beneficial impacts on the effectiveness of the teams, contrary to the effects of relationship conflict (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012).

While both of them have gathered interest among diversity researchers, relationship conflict is a more consistent criterion of dissimilarity measures in personality and values, in the sense that task conflicts are mostly generated from differences in knowledge and abilities of team members. Nevertheless, both types of conflict are assessed in this research.

CHAPTER 3

THEORETICAL FRAMEWORK AND HYPOTHESES

The model to be tested in this study is summarized in Figure 1. In the following sections, the hypotheses will be presented relying on the existing literature and theoretical foundations.

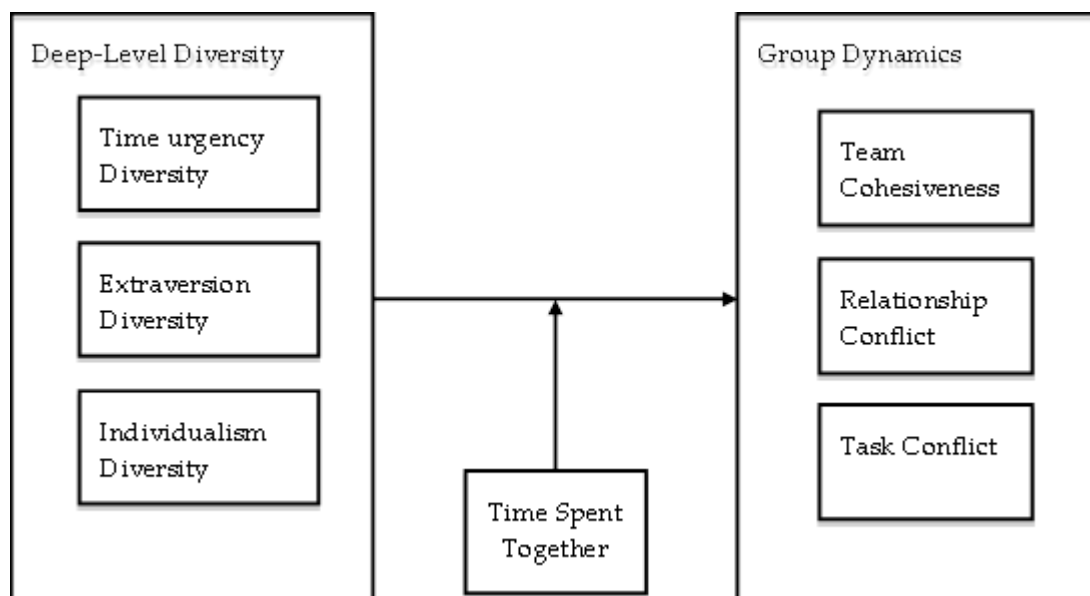


Figure 1 Hypothesized Model Between the Variables

3.1. Deep-Level Diversity and Team Cohesiveness Association

As stated earlier, group cohesiveness is a primary facet of team social integration and a major part of previous diversity research used social integration in their models. Therefore, while investigating the relationship between deep-level diversity and team cohesiveness, studies that examined the diversity-social integration link will also be discussed. Moreover, the existing research on the effects of deep-level dissimilarity dimensions that are used in this study (extraversion, time urgency and individualism) is very limited. Thus, findings on other deep-level diversity measures will be

included as well, in order to have an understanding of actual deep-level heterogeneity effects on team cohesiveness.

Both of the previously mentioned theories that underlie diversity research (similarity attraction paradigm and social categorization theory) suggest that individuals tend to be attracted to and have positive feelings towards similar others. The reason for this attraction according to Guillaume and colleagues is that "...similarity in personality, attitudes, and values eases interpersonal interactions, facilitates communication and friendship, and leads to the verification and reinforcement of people's own attitudes, beliefs, and personality" (2012, p. 85). Although small in number, previous research reported findings that support these theories through negative associations between deep-level dissimilarity and group cohesiveness or team social integration.

Harrison and colleagues (1998) examined the effects of deep-level diversity in attitudes on work group cohesion. They chose attitudinal diversity dimensions to be studied as overall satisfaction, supervisor satisfaction, work task satisfaction and organizational commitment. Although they could not find any significant main effect of these variables on team cohesion, they reported that the negative impact of dissimilarity in overall satisfaction became significant and was strengthened over time. As discussed before, this finding is consistent with the idea that as team members spend more time together, interact with each other and share more information, deep-level dissimilarities are more salient to them and the influences of such dissimilarities become stronger.

A recent study by Woehr and colleagues (2012) examined the effects of value diversity on cohesion and reported that deep-level diversity resulted in lower team cohesion, specifically for values of self-direction and security. The value diversity in these two dimensions accounted for 10% of the variance in team cohesion.

Guillame and colleagues (2012) investigated the effects of deep-level dissimilarity on social integration and individual effectiveness related

outcomes through a meta-analysis. Their meta-analysis included only the studies that utilized diversity measures at the individual-within-group level and used a difference score approach. Their findings suggested that deep-level dissimilarity is negatively related to social integration and this negative effect was even stronger under high team interdependence. They also found that social integration was negatively associated with turnover, whereas it was positively associated with both task and contextual performance. Harrison and colleagues (2002) found that teams with high perceived deep-level heterogeneity had lower team social integration.

Accordingly, a negative association between deep-level diversity (in time urgency and individualism) and team cohesion is proposed:

Hypothesis 1a. Deep-level diversity in terms of time urgency is negatively related to team cohesiveness.

Hypothesis 1b. Deep-level diversity in terms of individualism is negatively related to team cohesiveness.

As discussed before, extraversion diversity is considered as an exception to the arguments of social categorization theory and similarity-attraction paradigm, in the sense that it might have beneficial effects on team dynamics and outcomes. Coexistence of extraverts and intraverts in a group is likely to enhance team cohesion because they would create a balance between the leader and follower roles. Therefore, the following hypothesis is suggested:

Hypothesis 1c. Deep-level diversity in terms of extraversion is positively related to team cohesiveness.

3.2. Deep-Level Diversity and Intragroup Conflict Association

Consistent with the logic of social categorization theory (Tajfel, 1982; Tajfel & Turner, 1986), most studies propose a positive association between deep-level diversity and intragroup conflict. Jehn and colleagues (1997) investigated the link between value congruence (measured as coefficient alpha of value scores) and relationship conflict in teams. They found that

teams with higher value congruence experienced lower relationship conflict. In another study, Jehn and Mannix (2001) used the term “group value consensus” to refer to how similar group members are in terms of their values. They found that group value consensus is negatively associated with relationship conflict at the middle and late stages of group interaction.

Mohammed & Angel (2004) also studied the deep-level diversity effects on relationship conflict, focusing on personality traits (time urgency and extraversion). They operationalized the diversity variables as the standard deviation of personality scores in each team. Although they did not find any main effects of deep-level diversity variables, they found that time-urgency diversity was positively associated with relationship conflict when effective team processes were not frequent, whereas the association was non-significant for teams with higher team process distribution.

Studies which used perceptual measures of deep-level diversity can also enlighten us about the effects of deep-level diversity on conflict. Jehn and her colleagues (1999) found that higher perceived value diversity lead to higher relationship conflict in workgroups. They also reported that relationship conflict mediated the link between perceived value diversity and worker morale (satisfaction and intent to remain). Similarly, Hobman et al. (2003) found that perceived value dissimilarity was positively associated with relationship conflict.

My next hypothesis is in line with the previous research, proposing a positive relationship between objective deep-level heterogeneity (in time urgency and individualism) and relationship conflict in groups:

Hypothesis 2a. Deep-level diversity in terms of time-urgency is positively related to relationship conflict.

Hypothesis 2b. Deep-level diversity in terms of individualism is positively related to relationship conflict.

On the other hand, relationship conflicts are less likely for groups that are heterogeneous in extraversion. Relying on the same arguments that were discussed for team cohesion, the following hypothesis is:

Hypothesis 2c. Deep-level diversity in terms of extraversion is negatively related to relationship conflict.

Similar hypotheses are proposed for the effects on task conflict:

Hypothesis 3a. Deep-level diversity in terms of time-urgency is positively related to task conflict.

Hypothesis 3b. Deep-level diversity in terms of individualism is positively related to task conflict.

Hypothesis 3c. Deep-level diversity in terms of extraversion is negatively related to task conflict.

3.3. Moderating Effects of Time on the Relationship Between Deep-Level Diversity and Group Dynamics

There are a number of research on the interaction effects of time on the relationship between various diversity measures and team outcomes such as team social integration (e.g. Harrison et al., 1998; 2002). These studies demonstrated that the effects of deep-level diversity are stronger in tenured groups or in groups that spent more time together. Relying on these findings, it can be assumed that time strengthens the effects of deep-level diversity on team processes because the differences in deep-level attributes become more salient in teams whose members had interacted with each other for a reasonable period of time. As team members acquire more detailed information about each other in terms of their underlying attributes such as values and personality, they become more aware of these differences (Acar, 2010). Therefore, time plays a moderating role in the relationship between deep-level diversity and team processes, so that the association is stronger when groups have spent more time together.

Hypothesis 4. Time moderates the relationship between deep level diversity and team processes: the effect is stronger when time spent together is high.

CHAPTER 4

METHOD

4.1. Sample and Procedure

This study was conducted using secondary data that were previously collected by METU MBA and Executive MBA students for their own projects, which were also supervised by Prof. Pınar Acar. The necessary permissions were obtained from the Middle East Technical University Human Subjects Ethics Committee for this study. A copy of the informed consent form is provided in Appendix A. Data were collected via both pen-and-paper questionnaires and web-based questionnaires in Turkish. Pen-and-paper questionnaires were printed as a booklet and distributed to the participants via contact persons in the companies. On the other hand, web-based questionnaires were electronically prepared and its link was distributed over the Internet. The questionnaires included information about the identity and contact information of the research coordinator, the purpose of the study, statements about the confidentiality and volunteerism of participation, scales tested in the study and demographic questions. In addition to the questions in the pen-and-paper survey, the web-based questionnaire asked for the name of the participant as well as the names of the participant's team colleagues in order to determine which team the respondent belonged to. Relevant scales from the questionnaire in Turkish are provided in Appendix B.

The sample consisted of respondents working for nine different organizations located in Ankara, Turkey. These organizations operated in defense and information technology sectors. The company names are not disclosed for privacy purposes. Pen-and-paper questionnaires were distributed to Companies A, B, C, D, and E. Respondents in companies F, G,

H and I filled out web-based questionnaires. Table 1 illustrates the number of teams and response rates for each organization.

Table 1 Response Rates According to the Companies in the Sample

Company	Industry	Number of surveys distributed	Number of surveys collected	Number of teams	Response rate
Company A	Defense	165	107	13	64.85%
Company B	Defense	20	11	2	55.00%
Company C	IT	27	27	5	100.00%
Company D	IT	50	48	8	96.00%
Company E	IT	39	30	6	76.92%
Companies F-I	Defense	125	74	21	59.20%
TOTAL		426	297	55	69.72%

Information regarding structure, functioning, number and size of teams in each organization is described below. Team size information provided below represents the total number of members in the team as reported by the team members, regardless of the number of respondents in the team.

Company A is an electronics solution provider operating in the defense sector. The functional departments in this company are treated as workgroups for the purposes of the study. These groups are formal and permanent. They work together on tasks which serve for the overall functioning of the organization. A total of 107 questionnaires were collected from 13 departments, which are composed of 5-14 employees.

Company B operates in the defense industry. The workgroups in this organization are temporary teams, which come together to perform two-year projects and disband at the end of the project lifetime. 11 surveys from two work teams were collected. The teams had 5 and 6 members.

Company C is in the information technology sector. The group structure is similar to Company A, in the sense that functional departments are regarded

as workgroups. 27 questionnaires were collected from 5 departments, consisting of 4-8 members.

Company D is an e-education solution provider company in the IT industry. The company operates on a team-basis and workgroups are formed temporarily for a one-year period. The teams are composed of members from different functional backgrounds and they are assigned projects with specified deadlines. 48 questionnaires were collected from 8 teams. Group size differed from 5 to 7 members.

Company E is a system integration and software development company, which also works on a team basis. The functioning of the project teams is similar to Company D. 30 questionnaires were returned from six teams, sized between 5 to 8 members.

74 responses were collected from four defense companies (Companies F-I). The respondents in this group cannot be allocated to the organizations since the data were collected via web-based questionnaires. There were 21 teams, whose size ranged between 2 and 23 members, in this subsample.

For statistical concerns such as increasing the statistical power, data from these companies were combined into a single sample because of the small number of teams in each company. As a result, prior to data screening, the sample consisted of 297 individuals. The ages of participants ranged between 19 and 62, with a mean of 31.4 (SD = 7.02). 188 (63.3%) of the respondents were male. 58.9% of the participants were university graduates, 38% had higher education and the remaining were high school graduates. Total number of teams in the sample was 55. Overall, the minimum team size was 2 and the maximum team size was 23. Mean team size was 6.91 members (SD = 3.56). A summary of demographic distribution of participants is provided in Table 2.

Table 2 Demographic Distribution Statistics of Participants

Variable	Frequency	%
Gender (N=297)		
Male	188	63.3
Female	109	36.7
Education Level (N=297)		
High School	8	2.7
University	175	58.9
Masters	104	35.0
Doctorate	9	3.0
Other	1	0.3
Age (N=297)		
20 and below	1	0.3
21-30	168	56.8
31-40	98	33.1
41-50	25	8.4
51 and above	4	1.4
Missing (=1)		
	Mean = 31.4	SD = 7.02

4.2. Measures

4.2.1. Deep-Level Diversity

In order to calculate dissimilarity scores, individual personality and value measures were first collected. All items were asked on a five-point Likert scale, where a score of 1 represented “definitely disagree” and a score of 5 represented “definitely agree”.

Time urgency was measured using the general and task-related hurry subscales from the scale by Landy, Rastegary, Thayer and Colvin (1991). Items from these two subscales were included because of their association with the functioning of the work teams in our sample and because previous studies on time urgency diversity followed the same procedure (e.g., Jansen & Kristof-Brown, 2005; Mohammed & Nadkarni, 2011).

An exploratory factor analysis using principal components analysis with a varimax rotation was conducted for the task-related hurry and general hurry subscales of time-urgency scale. Table 3 illustrates the results of this analysis, where the correctly loaded items are emphasized in bold. As it can be seen in the factor score loadings table, most of the items loaded on factors which they theoretically belonged to. Item “Others rate me as easygoing” was excluded from the scale because it did not load to any of the factors. Another item, “Pressed for time”, was also discarded because it cross-loaded on two factors. Therefore, the final scale consisted of ten items ($\alpha = .67$). Items with reverse wording were coded accordingly and time urgency score was measured by taking the average of these ten items.

Table 3 Results of the Factor Analysis of General and Task-Related Hurry Subscales of Time Urgency using Varimax Rotation

Items	Task-Related Hurry	General Hurry
Work slowly (R)	.806	-.067
Work fast	.757	.154
Work quickly and energetically	.728	.157
Slow doing things (R)	.713	-.231
Work is slow and deliberate (R)	.502	.123
Others rate me as easygoing (R)	.076	.005
In a hurry	.243	.748
Do things in a hurry	.206	.664
Restless and fidgety	.048	.600
Never in a rush (R)	.055	.591
Pressed for time	-.272	.333
Consider myself as easygoing (R)	-.144	.287

For the *extraversion* measure, seven items from the Big Five Inventory by John, Donahue and Kentle (1991) were asked to the respondents. A principal components analysis with a varimax rotation revealed that one of the items (“Sometimes shy and inhibited”) loaded on a separate factor (Table 4). Therefore, it was excluded and the final scale consisted of six items with a coefficient alpha of .87. The single item with a reverse meaning was coded accordingly and the average of these six items was measured as the extraversion score for each individual.

Table 4 Results of the Factor Analysis of Extraversion Scale using Varimax Rotation

Items	Factor 1	Factor 2
Talkative	.863	.141
Have an assertive personality	.854	.130
Generate enthusiasm	.833	.079
Outgoing and sociable	.799	.157
Full of energy	.687	-.054
Sometimes shy, inhibited (R)	-.055	.934
Tends to be quite (R)	.529	.564

In order to measure *individualism* scores, the individualism-related items of individualism-collectivism scale by Earley (1994) were utilized; following the argument that individualism-collectivism is a unipolar two-dimensional construct (Triandis et al, 1998). The scale consisted of 4 items, with a moderate reliability score ($\alpha = .63$).

Following previous studies (e.g. Harrison et al., 2002), the within-group standard deviation was used in order to index deep-level diversity scores for each of these personality and value measures.

4.2.2. Time Spent Together

In order to measure this variable, participants were asked how long they have been working in their current group (in months). Following Harrison and colleagues' study (1998) and because of the skewness of this variable in each group, the median of the individual scores were accepted as the time spent together measure for each group.

4.2.3. Group Dynamics

Group dynamics variables were initially collected at the individual level. All items were asked on a five-point Likert scale, where a score of 1 represented "none" and a score of 5 represented "a lot".

Cohesiveness was measured using four-item scale of Seashore (1954). The respondents were asked to assess their team members on defending each other from criticism by outsiders, helping each other on their job, getting along with each other and sticking together. The reliability of the scale was high ($\alpha = .87$).

Relationship conflict was measured utilizing the related subscale of Jehn's Intragroup Conflict Scale (1994). The participants were asked to rate the extent to which friction, anger, personality clashes and emotional conflict were present in their group. The scale consisted of four items and it had adequate reliability ($\alpha = .88$).

Task conflict was also measured via the Intragroup Conflict Scale by Jehn (1994). The items included questions such as "To what extent are there differences of opinions regarding the task in your work group?". Cronbach's alpha was .87 for this scale, indicating high reliability.

An exploratory factor analysis was conducted for the group process variables using principle components analysis and varimax rotation. As it can be seen in Table 5, the items loaded appropriately to the scales which they belonged to.

Cohesiveness, relationship conflict and task conflict measures were aggregated for each group by calculating the average of team members' individual scores.

4.2.4. Control Variables

Several control variables were planned to be included in the analysis because of previous findings regarding their significant effects on the outcome variables.

Firstly, surface-level diversity dimensions (age, gender and education level diversity) were controlled for. Age, gender and educational level scores were all self-reported by the participants. Age diversity was calculated using the

Table 5 Results of the Factor Analysis of Relationship Conflict, Task Conflict and Cohesiveness using Varimax Rotation

Items	Relationship Conflict	Cohesiveness	Task Conflict
How much friction is present in your work group?	.807	-.226	.284
How much emotional conflict is there in your work group?	.807	-.191	.274
To what extent are personality clashes present in your work group?	.767	-.213	.364
How much anger is present in your work group?	.695	-.234	.296
Team members help each other on the job.	-.127	.869	-.122
Team members stick together.	-.297	.847	-.115
Team members are ready to defend each other from criticism by outsiders.	-.082	.773	-.168
Team members get along with each other.	-.411	.727	-.204
How often do people in your work group disagree about the work being done?	.291	-.143	.846
To what extent are there differences of opinions regarding the task in your work group?	.224	-.209	.820
How often do people in your work group disagree about ideas regarding the task?	.353	-.133	.812
How frequently are there disagreements about the task you are working on in your work group?	.438	-.162	.561

within-group standard deviation. Gender diversity and education level diversity were measured using the Blau's index (1977) following the majority of previous research.

Secondly, team size was controlled for because of its potential effect on both diversity and team processes, as illustrated in previous studies. Team size was also self-reported by the respondents. To eliminate slight disagreements between the team members' reports, median of individual scores was used for aggregating this measure for each group.

CHAPTER 5

RESULTS

5.1. Data Screening

Prior to analysis, all variables were examined using SPSS statistical program in order to check for the accuracy of data entry, missing values, univariate and multivariate outliers, the assumptions of normality, linearity and homoscedasticity, and also multicollinearity.

Accuracy of data entry was confirmed by an analysis of minimum and maximum values for all scales. Missing values accounted for less than 5% of all cases for all variables. The single missing value in task conflict was replaced by the mean of the relevant group. Single missing values in time urgency and age were ignored so that the diversity scores were calculated using the scores of the rest of the team members.

Individual level data was restructured into group level data following the procedures that were explained in the measures section for each variable. Before continuing with the analysis, within-team response rates were examined because previous research showed that calculating diversity scores based on incomplete member data can distort the correlations between true diversity and outcomes (Allen, Stanley, Williams & Ross, 2007). Within-team response rates were calculated as the ratio of number of respondents in each team to the team size. To be included in the analysis, teams should have had at least 3 respondents and a response rate of minimum 50% (Kearney & Gebert, 2009). Teams that originally had 2 members (dyads) were not subject to this standard. As a result, five teams that did not meet the within-team response rate criterion were deleted and the sample size dropped to 50.

Another team was excluded from the analysis because it was both a univariate outlier with z-scores above critical for age diversity (3.51) and time spent in group (3.52) measures and a multivariate outlier with Mahalanobis distance of 27.97, higher than the critical score of 21.67 (df = 9, $p < .001$). As a result, 49 teams were left for final analysis.

Normality assumption was checked via the examination of skewness and kurtosis values, histograms, as well as PP and QQ plots for all the variables in the model. Most of the variables had skewness and kurtosis measures within the range of -1.00 and +1.00. Although some variables did not meet this rule of thumb, a significant deviation from normality was not recognized because all values were within the acceptable range of -1.50 and +1.50. Taking histograms and PP-QQ plots also into account, transformation was not considered as necessary.

No violation of linearity and homoscedasticity assumptions were detected through an examination of bivariate scatter plots. Multicollinearity of variables was also tested using collinearity diagnostics. All VIF and tolerance values, plus condition indices were in acceptable ranges, indicating no sign of multicollinearity.

5.2. Correlation Analysis

Table 6 presents the means, standard deviations and bivariate pearson correlations for all variables in the hypothesized model. Significant correlations are marked with an asterisk. Only one of the control variables has significant correlations with the outcome variables. The correlation coefficients indicate a positive association between team size and relationship conflict ($r = .46, p < .01$). A similar relationship exists between team size and task conflict ($r = .43, p < .01$). Regarding the deep-level diversity variables, individualism diversity is positively correlated with relationship conflict ($r = .40, p < .01$) and task conflict ($r = .34, p < .05$). The other deep-level diversity measures do not have any significant correlation with neither of the team processes assessed in the model.

Table 6 Means, Standard Deviations and Pearson Correlations for All Variables (N=49 teams)

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
Control												
1. Team size	6.67	2.83										
2. Age diversity	5.54	2.94	.17									
3. Gender diversity	0.34	0.17	.03	.02								
4. Education diversity	0.40	0.17	.03	-.03	-.07							
Deep-level diversity												
5. Time urgency	0.48	0.18	-.02	-.01	.11	.11						
6. Extraversion	0.69	0.23	.22	.03	-.12	.22	.22					
7. Individualism	0.68	0.25	.32*	.14	.08	-.22	-.03	-.03				
Moderator												
8. Median time spent in the team	22.22	16.19	.28	.19	-.34*	-.20	-.19	.05	.31*			
Team processes												
9. Relationship conflict	1.89	0.48	.46**	.21	.24	-.03	.11	-.05	.40**	.22		
10. Task conflict	2.09	0.34	.43**	.17	.25	-.03	.06	-.06	.34*	.09	.83**	
11. Cohesiveness	4.03	0.39	-.07	.12	.09	-.12	-.02	-.12	-.05	-.11	-.37**	-.34*

* $p < .05$.

** $p < .01$.

5.3. Determination of Control Variables

In order to identify which variables to control for, two procedures were followed. Firstly, the correlation matrix as shown in Table 6 was examined seeking significant correlations between the proposed control variables and the outcomes in the model. The correlation coefficients indicated that team size had significant correlations with relationship conflict ($r = .46, p < .01$) and task conflict ($r = .43, p < .01$), whereas surface-level diversity measures did not have significant correlations with any of the team process measures.

As a second step, all of the control and independent variables, and moderators in the study were put into regression equations to predict relationship conflict, task conflict and cohesion (Table 7). The standardized regression coefficients inferred similarly with the correlation analysis. Among the proposed control variables, only team size had significant correlations with the outcomes; relationship conflict ($b=.35, p<.05$) and task conflict ($b=.38, p< .05$). As a result, team size was chosen as the only measure to be controlled for in the regression models and diversity measures in age, gender and education level were left out of the final analysis.

5.4. Hypothesis Testing

All analyses were conducted at the group level. The hypotheses of the study were tested via sequential regression models using SPSS REGRESSION program and simple slope tests were performed for significant interactions using the SPSS MODPROBE macro by Hayes and Matthes (2009). Aiken and West (1991) suggest centering the independent and moderator variables, in order to avoid the problem of multicollinearity in regression equations with interactions. Accordingly, before continuing with the analysis, team size, deep-level diversity dimensions, and time spent with the team were centered so that their means were equal to zero. The interaction terms were computed by multiplying the centered independent variables with the centered moderator.

Table 7 Regressions of Control Variables, Independent Variables and Moderator on Cohesiveness, Relationship Conflict, and Task Conflict

Variable	Model 1:	Model 2:	Model 3:
	Cohesiveness	Relationship Conflict	Task Conflict
	β	β	β
Team size	-0.02	0.35*	0.38*
Age diversity	0.16	0.09	0.08
Gender diversity	0.03	0.24	0.20
Education diversity	-0.13	0.08	0.04
Time urgency diversity	-0.02	0.16	0.08
Extraversion diversity	-0.08	-0.16	-0.14
Individualism diversity	-0.06	0.22	0.20
Time spent together	-0.13	0.18	0.01
Full Model F	0.36	3.21	2.19
R²	0.07	0.39	0.31
Adjusted R²	-0.12	0.27	0.17
df	8,40	8, 40	8, 40

N = 49 teams

* $p < .05$.

Given the small sample size, the statistical power of the study would have suffered considerably if we had entered all of the deep-level diversity variables and interactions into the regression equation together. To overcome this issue to some extent, dependent variables were regressed on each deep-level diversity dimension and its relevant interaction with the moderator in separate regression models. Main effect of the control variable was tested in the first step, main effects of the deep-level diversity and moderator were tested in the second step, and interaction effects were tested in the final step.

5.4.1. Deep-Level Diversity and Team Cohesiveness

Hypothesis 1 proposed that deep-level diversity in time-urgency and individualism were negatively related to cohesion, while deep-level diversity in extraversion was positively related to this team process. Tables 8, 9 and 10

present the results of the sequential regression analyses with the independent variables of time urgency diversity, individualism diversity and extraversion diversity, respectively. Model 1 in tables 8, 9 and 10 display the standardized regression coefficients (β), the changes in R^2 (ΔR^2), R^2 , and adjusted R^2 of the regression analyses. The results illustrate that none of the deep-level diversity dimensions predicted team cohesion significantly, after controlling for team size. The regression equations predicting team cohesion were non-significant for time-urgency diversity, $R^2 = .02$, $F(3, 45) = .25$, $p = .86$, extraversion diversity, $R^2 = .03$, $F(3, 45) = .42$, $p = .74$ and individualism diversity, $R^2 = .02$, $F(3,45) = .22$, $p = .88$. Therefore, hypothesis 1 was not supported for any of the deep-level diversity dimensions.

5.4.2. Deep-Level Diversity and Relationship Conflict

Hypothesis 2 proposed that time-urgency diversity and individualism diversity predicted relationship conflict positively and extraversion diversity predicted relationship conflict negatively. The results of the hierarchical regression analyses are displayed separately for the main effects of time-urgency diversity, individualism diversity and extraversion diversity in Tables 8, 9 and 10, sequentially. Although the regression equations are significant for all diversity dimensions, team size accounted for a large part of the variance, $R^2 = .21$, $F(1, 47) = 12.66$, $p < .01$.

As illustrated in Table 8, the model with main effects of team size, time urgency diversity and time in the equation is significant, $R^2 = .24$, $F(3, 45) = 4.83$, $p < .01$. After step 2, with time-urgency diversity and median time spent in the equation, $R^2 = .24$, $F_{inc}(2, 45) = .93$, $p = .40$. Addition of time-urgency diversity and the moderator did not improve R^2 significantly ($\Delta R^2 = .02$) and the standardized regression coefficient was non-significant for this deep-level diversity dimension ($\beta = .15$, $p = .27$). Therefore, hypothesis 2a was not supported.

Table 8 Sequential Regressions of Team Size, Time urgency Diversity, Time Spent and Interaction of Time with Time Urgency Diversity on Cohesiveness, Relationship Conflict, and Task Conflict

Variable	Model 1: Cohesiveness			Model 2: Relationship Conflict			Model 3: Task Conflict			
	Main effects		Moderated Effects	Main effects		Moderated Effects	Main effects		Moderated Effects	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1: Control Team size	-0.07	0.01	-0.04	0.21**	0.43**	0.19**	0.43**	0.42**		
Step 2: Main effects Time urgency diversity	-0.04	0.01	-0.06	0.03	0.18	0.01	0.06	0.09		
Median time spent in the team (moderator)	-0.11		-0.13	0.14	0.18	-0.02	-0.02	0.02		
Step 3: Interaction with time Time x Time urgency diversity			-0.05	0.00	0.07	0.00	0.08	0.00		
Full Model F		0.25		4.83**		3.61*		3.51*		2.64*
R²		0.02		0.24		0.25		0.19		0.19
Adjusted R²		-0.05		0.19		0.18		0.14		0.12
df		3,45		3,45		4,44		3,45		4,44

N = 49 teams

* $p < .10$

* $p < .05$.

** $p < .01$.

Table 9 Sequential Regressions of Team Size, Individualism Diversity, Time Spent and Interaction of Time with Individualism Diversity on Cohesiveness, Relationship Conflict, and Task Conflict

Variable	Model 1: Cohesiveness			Model 2: Relationship Conflict			Model 3: Task Conflict			
	Main effects		Moderated Effects	Main effects		Moderated Effects	Main effects		Moderated Effects	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1: Control										
Team size	-0.07	0.01	-0.01	0.21**	0.30*	0.19**	0.43**	0.31*		
Step 2: Main effects										
Individualism diversity	-0.01	0.01	-0.01	0.07	0.27*	0.05	0.25 [†]	0.25 [†]		
Median time spent in the team (moderator)	-0.10		-0.19	0.04	0.19		-0.09	0.06		
Step 3: Interaction with time										
Time x Individualism diversity			0.18	0.02	-0.30*	0.07*		-0.31*	0.07*	
Full Model F	0.22	0.44		6.02**		6.02**		4.71**	4.96**	
R²	0.02	0.04		0.29		0.35		0.24	0.31	
Adjusted R²	-0.05	-0.05		0.24		0.30		0.19	0.25	
df	3, 45	4, 44		3, 45		4, 44		3, 45	4, 44	

N = 49 teams

[†] $p < .10$

* $p < .05$.

** $p < .01$.

Table 10 Sequential Regressions of Team Size, Extraversion Diversity, Time Spent and Interaction of Time with Extraversion Diversity on Cohesiveness, Relationship Conflict, and Task Conflict

Variable	Model 1: Cohesiveness			Model 2: Relationship Conflict			Model 3: Task Conflict			
	Main effects		Moderated Effects	Main effects		Moderated Effects	Main effects		Moderated Effects	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1: Control Team size	-0.07	0.01	-0.02	0.21**	0.46**	0.45**	0.19**	0.43**	0.46**	
Step 2: Main effects Extraversion diversity	-0.11	0.02	-0.11	0.03	-0.15	-0.17	0.03	-0.16	-0.17	
Median time spent in the team (moderator)	-0.10		-0.12	0.10	0.18	0.18	-0.03	-0.03	0.03	
Step 3: Interaction with time										0.03
Time x Extraversion diversity			-0.05	0.00		0.23 [†]			0.18	
Full Model F		0.42	0.33	4.87**		4.53**		3.97*		3.46*
R²		0.03	0.03	0.25		0.29		0.21		0.24
Adjusted R²		-0.04	-0.06	0.20		0.23		0.16		0.17
df		3, 45	4, 44	3, 45		4, 44		3, 45		4, 44

N = 49 teams

[†] $p < .10$

* $p < .05$

** $p < .01$

Table 9 demonstrates the model with main effects of team size, individualism diversity and time in the equation which is significant, $R^2 = .29$, $F(3, 45) = 6.02$, $p < .01$. After step 2, with individualism diversity and time spent in the equation, $R^2 = .29$, $F_{\text{inc}}(2, 45) = 2.33$, $p = .11$. Addition of individualism diversity and time spent improved R^2 by 7% after controlling for team size. Supporting hypothesis 2b, individualism diversity predicted relationship conflict positively, ($\beta = .28$, $p < .05$).

The model with main effects of team size, extraversion diversity and time in the equation is significant, $R^2 = .25$, $F(3, 45) = 4.87$, $p < .01$ (Table 10). After step 2, with extraversion diversity and median time spent in the equation, $R^2 = .24$, $F_{\text{inc}}(2, 45) = .98$, $p = .38$. The unique variance accounted for extraversion diversity and median time spent was not significant ($\Delta R^2 = .03$) and as well as the beta coefficient of extraversion diversity ($\beta = -.15$, $p = .25$).

Given these results, main effect on relationship conflict was supported for only individualism dimension of deep-level diversity (hypothesis 2b).

5.4.3. Deep-Level Diversity and Task Conflict

Hypothesis 3 proposed that time-urgency diversity and individualism diversity predicted task conflict positively and extraversion diversity predicted task conflict negatively. The results of the hierarchical regression analyses are displayed separately for the main effects of time-urgency diversity, individualism diversity and extraversion diversity in Tables 8, 9, and 10. Although these three regression equations were significant, team size accounted for a large part of the variance, $R^2 = .19$, $F_{\text{inc}}(1, 47) = 10.64$, $p < .01$ and neither of the models yielded significant improvements in R^2 after entering the diversity measures.

Analyzing the main effect of time urgency diversity on task conflict (Table 8), the model is significant, $R^2 = .19$, $F(3, 45) = 3.51$, $p < .05$. After step 2, with time-urgency diversity in the equation, $R^2 = .19$, $F_{\text{inc}}(2, 45) = .13$, $p = .88$. Yet, addition of time-urgency diversity did not improve R^2 significantly ($\Delta R^2 =$

.03) and the standardized regression coefficient was non-significant for this dimension of deep-level heterogeneity ($\beta = .07, p = .65$). Therefore, hypothesis 2a was not supported.

The model with main effects of team size, individualism diversity and median time spent (Table 9) is significant, $R^2 = .24, F(3, 45) = 4.71, p < .01$. After step 2, with individualism diversity in the equation, $R^2 = .24, F_{\text{inc}}(2, 45) = 1.60, p = .21$. Change in R^2 was 5% for individualism diversity, with a non-significant beta coefficient ($\beta = .25, p = .08$).

As shown in Table 10, the model with main effects of team size, extraversion diversity and time in the equation is significant, $R^2 = .21, F(3, 45) = 3.97, p < .01$. After step 2, with extraversion diversity in the equation, $R^2 = .21, F_{\text{inc}}(2, 45) = .70, p = .50$. The unique variance accounted for extraversion diversity and the moderator was not significant ($\Delta R^2 = .03$). In addition, extraversion diversity had a non-significant beta coefficient ($\beta = -.16, p = .25$).

5.4.4. Moderating Effects of Time

Hypothesis 4 suggested that time moderated the link between deep-level diversity and team processes in such a way that the effect became stronger in teams, which have spent more time together. Tables 8, 9, and 10 present the moderated effects of each deep-level diversity dimension on cohesion, relationship conflict, and task conflict. Relying on previous studies which stated that detecting moderators in field data has low statistical power (e.g. McLelland & Judd, 1993) and following Harrison and colleagues (1998), the alpha levels were relaxed to .10 for the interaction terms. Given the small sample size, it is more reasonable to take the effect sizes into account rather than the significance levels.

The hierarchical regression analyses have shown that none of the deep-level diversity variables had a moderated effect on team cohesion. The overall equations were non-significant, as were the unique variance explained by the interaction terms.

In predicting relationship conflict, significant interactions were found for individualism and extraversion diversity, although they were in opposite directions of the hypothesis. As Table 9 displays, full model with individualism diversity, moderator, and the interaction term, is significant, $R^2 = .35$, $F(4, 44) = 6.02$, $p < .01$. When interaction terms are entered into the equation, there was a significant increase in explained variance ($\Delta R^2 = .07$). The interaction term had a significant regression coefficient ($\beta = -.30$, $p < .05$). Figure 2 illustrates the interaction between time and individualism in predicting relationship conflict. A simple slope test (Aiken & West, 1991) revealed that individualism diversity was positively related to relationship conflict when time spent together was low (raw $b = 1.07$, $t = 2.99$, $p < .01$), while the association was non-significant (raw $b = -.03$, $t = -.08$, $p = .94$) for less tenured teams, contrary to hypothesis 4. In other words, time did not *strengthen* but neutralized the positive impact of individualism diversity on relationship conflict.

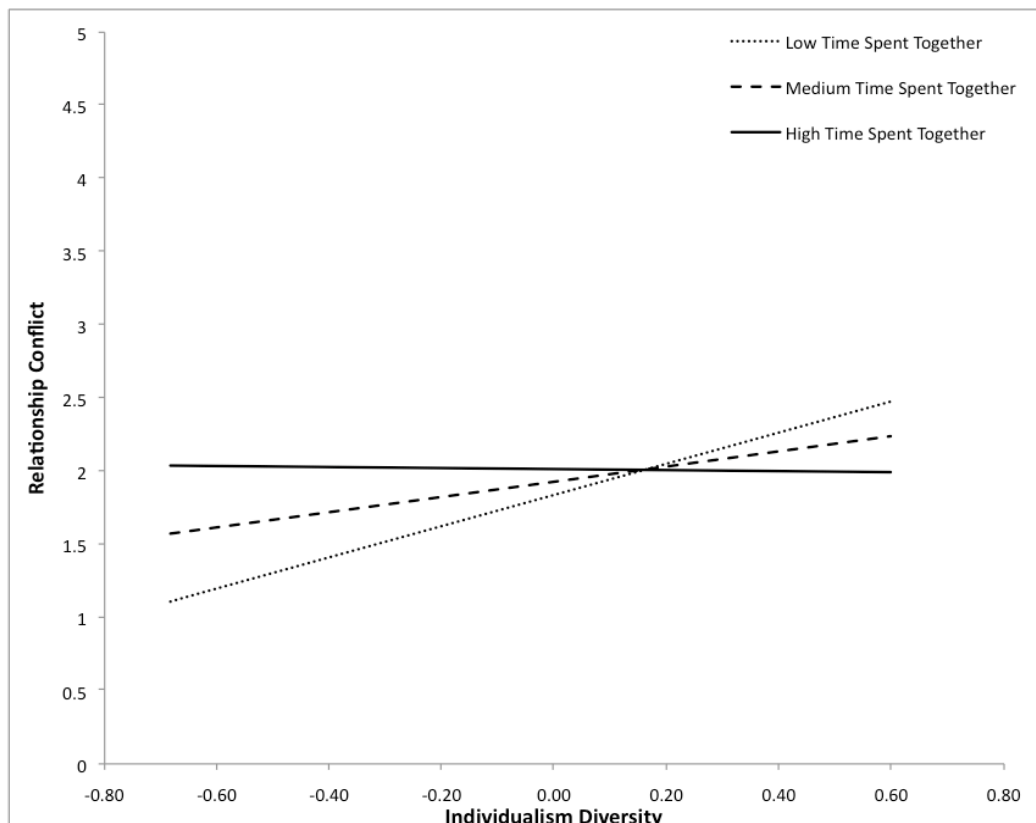


Figure 2 Interaction Effect of Time and Individualism Diversity on Relationship Conflict

Table 10 displays the moderating effects of time on the relationship between extraversion diversity and relationship conflict. The model is significant, $R^2 = .29$, $F(4, 44) = 4.53$, $p < .01$. The interaction of time and extraversion diversity explained an additional 5% of the variance in relationship conflict, and regression coefficient was significant at .10 alpha level ($\beta = .23$, $p < .10$). Figure 3 plots this interaction effect. Simple slope analysis showed that extraversion diversity was negatively related to relationship conflict in short-term groups (raw $b = -.85$, $t = -2.06$, $p < .05$), while there was no significant association in teams with high tenure (raw $b = .14$, $t = .37$, $p = .71$).

Time also moderated the relationship between individualism diversity and task conflict. The full model was significant, $R^2 = .31$, $F(4, 44) = 4.96$, $p < .01$. Adding the interaction of time and individualism diversity improved the explained variance by 7% and the interaction term was significant ($\beta = -.31$, $p < .05$). The moderation of time in this relationship is illustrated in Figure 4. A

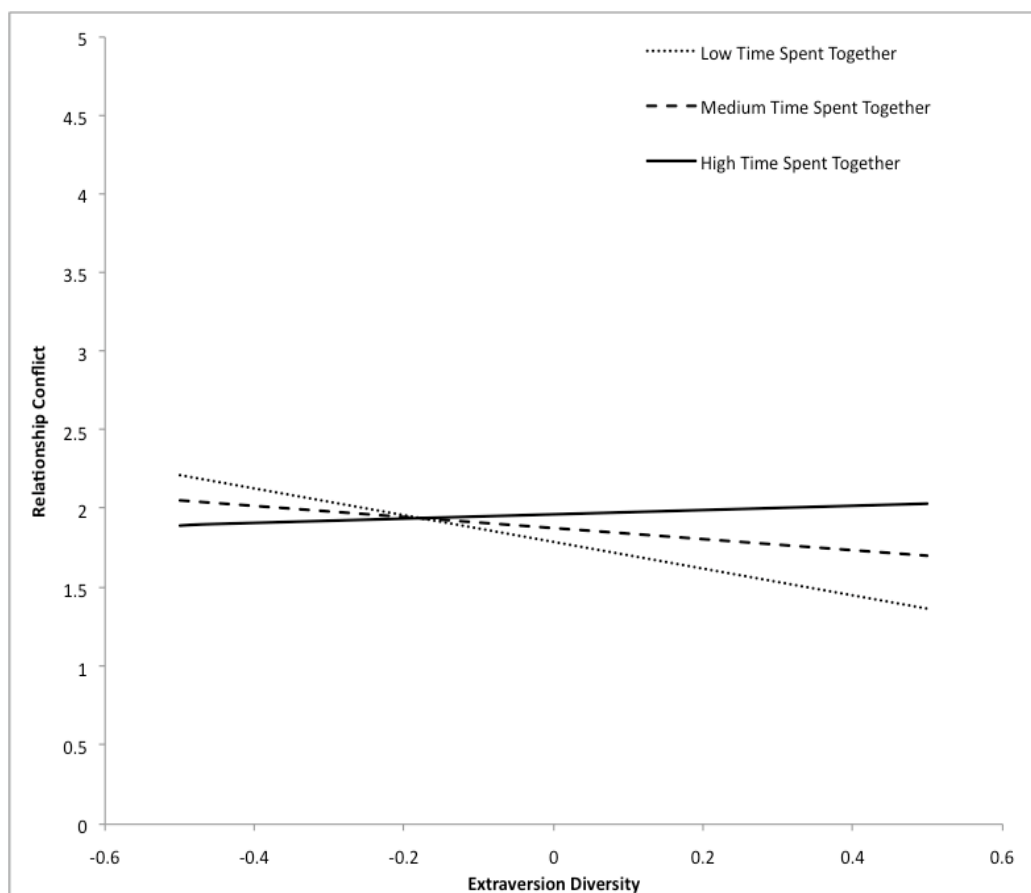


Figure 3 Interaction Effect of Time and Extraversion Diversity on Relationship Conflict

simple slope analysis confirmed the interaction effect of time, illustrating that when time spent together was low individualism diversity positively predicted task conflict (raw $b=.74$, $t=2.82$, $p<.05$), while the association was non-significant when time spent together was high (raw $b=-.07$, $t=-.25$, $p=.81$).

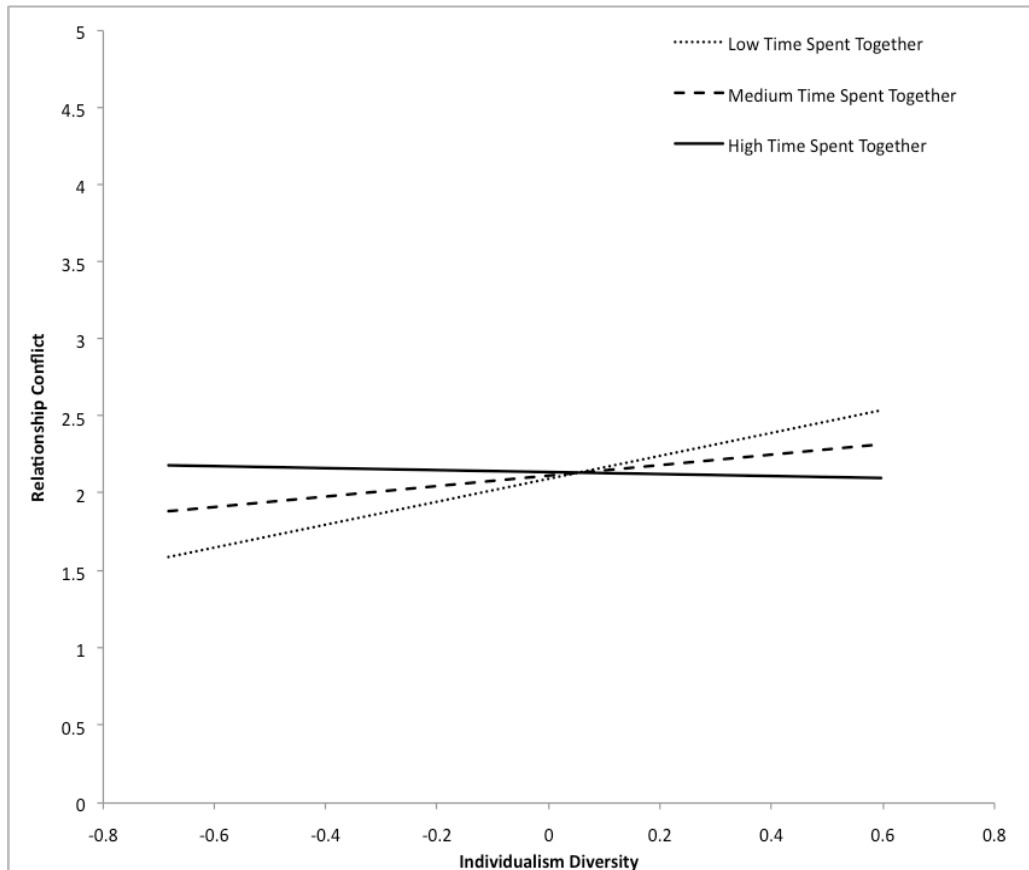


Figure 4 Interaction Effect of Time and Individualism Diversity on Task Conflict

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1. Discussion

The present study produced two major results for the diversity research. Firstly, the findings support a main effect of deep-level diversity (in terms of values) on relationship conflict in work groups. Secondly, moderating effects of time on the associations between deep-level diversity (in individualism and extraversion) and team conflict were found. These findings will be discussed in detail in the following paragraphs along with the possible explanations to the unsupported hypotheses.

6.1.1. Main Effects of Deep-Level Diversity

Our study revealed that groups that are diverse with respect to their members' individualism scores tend to encounter more emotional conflict than less diverse groups. The finding is consistent with previous findings, which claim that dissimilarities in group members' values have unfavorable effects on group processes. As stated earlier, this value dimension is especially important in group settings because it directly reflects a person's willingness to cooperate with others in the team or look after his/her own interest rather than that of the group. A diverse group with respect to this dimension would include both members who put their benefit ahead of the group's and others who work for the team's interests. Relationship conflicts seem inevitable in such a group environment.

The direct association between deep-level diversity and team processes could only be illustrated for a value dimension and was not true for the personality

characteristics studied here (extraversion and time urgency). Given this, it could be said that dissimilarities in values play a more important role in shaping team processes compared to the personality differences between team members. It might also be that, even though these personality dimensions are relevant to most work and task situations, they might be irrelevant for the teams in our sample. For instance, time-urgency might not be such an important personality characteristic for these teams (especially the departmental groups) because they might not be subject to tight deadlines when performing tasks. Extraversion might also be less relevant because leadership roles might have been delivered according to the titles of employees rather than natural processes.

6.1.2. Moderating Effect of Time

Another important finding of this study is the moderating effect of time on the diversity-process link in groups. However, the findings contradicted with the hypothesis that time would play a strengthening role on this relationship. Data showed that, individualism diversity led to relationship and task conflict in teams who have been working together for a short period of time. However, for teams who spent more time together, these associations were not valid. These findings oppose the notion that deep-level dissimilarities become more apparent as team members spend more time together and exchange interpersonal information with each other, and therefore affect team processes in a stronger manner (Harrison et al., 1998). A possible explanation to this contradictory finding could be that team members find ways to manage their value differences as they get to know each other in time. The contact hypothesis of Allport (1954) can give an insight about this justification. The theory states that contact between individuals helps to reduce prejudice, especially under favorable conditions. These conditions might include the existence of functionally important objectives or superordinate goals (Amir, 1969), which help to reduce tension and conflict in workgroups. It could be that, as team longevity increases, team members learn about many different aspects of their group colleagues. It might be easier for them to solve relationship or task conflicts because they know each

other's characteristics better than members of newly built or relatively short-term groups. In addition, group members' sensitivity to value differences could be diminished in time. Therefore, value differences would not play as an important role in generating conflicts in long-term groups as they did in short-term groups.

Time also neutralized the negative effect of extraversion diversity on relationship conflict. Short-term groups benefited from extraversion diversity in such a way that higher extraversion diversity led to lower relationship conflict. On the other hand, the association became non-significant for long-term groups. We had expected that long-term groups would benefit even more from extraversion diversity because a balance between the leader-follower roles would be achieved as team members learn more about each other's standing with respect to this personality dimension. The contradictory finding can be justified in a similar way as we did for individualism diversity. Team members' sensitivity to differences in extraversion might be reduced as they spend more time together. Therefore, team dynamics would not be influenced from extraversion dissimilarities in long-term groups as they did in short-term groups.

6.1.3. Exploratory Analysis: Effect of Team Size

Although it was not hypothesized, our study also pointed a significant and noticeable effect of group size on team conflict. Consistent with the findings of previous studies in the group literature, larger groups experienced higher levels of relationship and task conflict. Because of the considerable effect size of this variable, it was intended to investigate this effect in more detail. Consequently, an independent samples t-test was conducted in order to determine how conflict levels vary for different group sizes. The results of this analysis are provided in Table 11. Teams with 6 or less members ($M = 1.76$, $SD = .46$) had significantly lower levels of relationship conflict than teams with 7 or more members ($M = 2.08$, $SD = .45$), $t(47) = -2.40$, $p < .05$. On the other hand, task conflict did not vary significantly between small groups ($M = 2.02$, $SD = .36$) and large groups ($M = 2.20$, $SD = .29$), $t(47) = -1.84$, $p =$

ns. Therefore, it could be discussed that team size should not exceed 6 members in order to maintain acceptable levels of relationship conflict.

Table 11 Relationship Conflict and Task Conflict Means for Groups Sized 6 or Less Members and Groups Sized 7 or More Members

	Group Size		<i>t</i>	<i>df</i>
	6 members and smaller	7 members and larger		
Relationship Conflict	1.76 (.46)	2.08 (.45)	-2.40*	47
Task Conflict	2.02 (.36)	2.20 (.29)	-1.84	47

* $p < .05$. Standard deviations appear in parentheses below means.

6.2. Contributions

This study contributes to the literature in several ways. First of all, majority of the studies in organizational and group diversity literature relies on the assumption that diversity in surface-level attributes such as age, race or gender, causes differences in perspectives and as a result, affects the team processes. This assumption has been unquestioned by many researchers and the mechanism underlying these effects have been left as a “black box” (Lawrence, 1997). This thesis aims to test these assumptions by examining the effects of deep-level diversity dimensions on group processes and also the moderating effect of time in this relationship.

A second contribution of this study is that its setting brings a distinctive perspective to the group diversity research, majority of which were conducted in countries like United States or United Kingdom. Racial dissimilarities are not as apparent and noticeable in Turkey as they are in those countries. Given that, their impacts on group dynamics are relatively limited in this setting. In this sense, the current study, which was carried out with Turkish citizens working in companies settled in Turkey, manages to put forward the deep-level diversity and group process linkages, isolated from surface-level (especially racial) dissimilarity effects as much as possible.

6.3. Limitations and Directions for Future Research

The current study is not without limitations. Specifically, limited sample size, common method bias, design of the study, and low reliability scores in some variables should be considered when inferring from the findings of this study.

First of all, the study was conducted using data from a relatively small number of teams. Although the number of individuals in the sample was quite satisfactory, the analyses were done at the group level and the final sample included 49 teams. Given the suggestions by Tabachnick and Fidell (Sample size $\geq 50 + 8 \times$ Number of predictors; 2007), this sample size is an important limitation in achieving the desired statistical power. However, some of the primary studies in this area, with comparable number of variables, had similar sample sizes (e.g. Barrick et al., 1998; Jehn & Mannix, 2001; Mohammed & Angell, 2004). Besides, as an effort to overcome this limitation and increase the ratio of cases to predictors, multiple regression analyses were performed separately for each of the deep-level diversity dimensions. However, the readers are recommended to approach the findings with precaution. The use of departments as groups in some of the companies might also be a limitation. Future research is suggested to repeat the study using larger sample sizes, which are composed solely of project/task teams.

A second limitation of this study is common method bias, due to the fact that all variables were measured by a single questionnaire and self-reported by the respondents. This might have caused inflation in the correlations between the variables. Future research should administer multiple techniques to avoid this problem. Besides, objective measures of team processes, such as conflict and cohesion, should be utilized in order to avoid common source bias.

Another limitation of the study is that it reflects the deep-level diversity effects with respect to a small set of personality and value dimensions. There are various other deep-level attributes that could be investigated. Future

research can benefit from analyzing diversity in other personality dimensions in the five-factor model, such as conscientiousness and agreeableness, or in other value dimensions in order to have a broader understanding of deep-level diversity effects.

It should also be noted that a cause-and-effect relationship between the variables cannot be concluded given the design of this study. To infer causality, an experimental design study must be conducted. The operationalization of time spent in the team might also be improved. A longitudinal design through which data from teams are collected in different points of time might have greater statistical power in reflecting the moderating effects of time on diversity and team process association.

A final limitation of this study is the low reliability scores in some of the scales, especially in those with reverse coded items. This problem was mainly caused by the fact that meanings of some English expressions were altered or distorted as they were being translated into Turkish. Since most of the scales were not previously used in Turkish literature, it was not possible to use already-tested Turkish translations of them. In order to improve reliability scores, some problematic items were deleted considering the results of exploratory factor analyses. However, reliability remained to be an issue and findings should be treated with this information in mind.

6.4. Managerial Implications

There are several implications for managers and professionals that can be inferred from the findings of this thesis. Firstly, the positive association between individualism diversity and relationship conflict indicates that hiring and team building processes should take into account the value composition of group members. In order to have low levels of relationship conflict, which is detrimental to group performance, a recruitment process should include measurement of values (especially in individualism) of candidates and matching them with employees with similar attributes. Managers should also develop strategies that help team members to solve

the emotional conflicts aroused from interpersonal incompatibilities in a constructive manner. Employees should be encouraged to develop group norms that emphasize on respecting individual differences.

Secondly, since the results indicated that time neutralizes the negative effects of individualism diversity on group functioning, managers should encourage group members to spend more time together. This could be achieved by organizing out-of-work activities that can help group members to learn more about each other and discover similarities they might have.

Finally, again considering the effects of time, temporary teams such as project groups are suggested to have longer project lives. Teams with longer tenure were not affected from diversity as much as teams with lower tenure. This implies that group dynamics can be improved as team longevity increases. Short-term teams might not find enough time and opportunity to get familiar with each other and solving interpersonal conflicts are more difficult for such teams. Therefore, project groups can benefit from being together for longer periods or for multiple projects.

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APPENDICES

Appendix A. Informed Consent Form

Gönüllü Katılım Formu

Bu çalışma, Orta Doğu Teknik Üniversitesi İşletme Bölümü Yüksek Lisans Programı öğrencisi Derya Ballı tarafından BA5097 dersi kapsamında Dr. Pınar Acar'ın danışmanlığında yürütülen, takım içi dinamikler ile takım etkinliği arasındaki ilişkiyi araştıran bir projenin parçasıdır. Çalışmanın amacı, katılımcıların takım çalışması ile ilgili olarak edindiği duygu ve düşünceler hakkında bilgi toplamaktır. Çalışmaya katılım tamamıyla gönüllüdür. Ankette, kimlik belirleyici hiçbir bilgi istenmemektedir. Katılımcıların cevapları tamimiyle gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler yalnızca bilimsel amaçla kullanılacaktır.

Anket, genel olarak kişisel rahatsızlık verecek soruları içermemektedir. Anketin çalışmaya katkı sağlayabilmesi için sizden her soruya yanıt vermeniz ve soruları içtenlikle ve dürüstçe cevaplamanız istenmektedir. Anketi cevaplamak yaklaşık olarak 15-20 dakikanızı alacaktır. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda anketi uygulayan kişiye, anketi tamamlamadığınızı söylemek yeterli olacaktır. Katılmamaktan ötürü ya da katılımdan vazgeçme nedeni ile olumsuz hiçbir sonuç ortaya çıkmayacaktır. Anket sonunda, bu çalışmayla ilgili sorularınız cevaplanacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için İşletme Bölümü öğretim üyelerinden Dr. Pınar Acar (Oda: H118; Tel: 0312 210 2052; E-posta: pacar@metu.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad

Tarih

İmza

Alınan Ders

Appendix B. Relevant Sections From the Questionnaire (In Turkish)

INTRAGROUP CONFLICT SCALE

Bu bölümdeki sorular takımınızda yaşanan etkileşimler hakkındaki düşüncelerinizi almaya yöneliktir. Her bir maddenin sizin görüşünüzü ne oranda yansıttığını değerlendiriniz.

		Hiç		Biraz		Çok
1	Takımınız içinde ne kadar sürtüşme var?	1	2	3	4	5
2	Takımınızda ne ölçüde kişilik çatışmaları var?	1	2	3	4	5
3	Takımınızda ne kadar öfke mevcut?	1	2	3	4	5
4	Takımınızda ne kadar duygusal çatışma var?	1	2	3	4	5
5	Takımınızda işle ilgili konularda ne ölçüde görüş ayrılıkları var?	1	2	3	4	5
6	Takımınızın üyeleri ne sıklıkla yapılan işle ilgili anlaşmazlığa düşüyorlar?	1	2	3	4	5
7	Üzerinde çalıştığınız görev hakkında takımınızda ne sıklıkla anlaşmazlık çıkmaktadır?	1	2	3	4	5
8	Takımınızın üyeleri hangi sıklıkla işle ilgili görüşlerde anlaşmazlığa düşüyorlar?	1	2	3	4	5

TIME URGENCY AND EXTRAVERSION SCALES

Aşağıda sizi kısmen tanımlayan (ya da pek tanımlayamayan) bir takım özellikler sunulmaktadır. Örneğin, başkaları ile zaman geçirmekten hoşlanan birisi olduğunuzu düşünüyor musunuz? Lütfen aşağıda verilen özelliklerin sizi ne oranda yansıttığını ya da yansıtmadığını belirtmek için sizi **en iyi** tanımlayan rakamı daire içine alınız.

		Kesinlikle Katılmıyorum	Kısmen Katılmıyorum	Tarafsızım	Kısmen Katılıyorum	Kesinlikle Katılıyorum
1	İş yapmada yavaşım.	1	2	3	4	5
2	Zaman sıkışıklığı hissedirim.	1	2	3	4	5
3	Çok hızlı yerim.	1	2	3	4	5
4	Enerji doluyumdur.	1	2	3	4	5
5	Hızlı konuşurum.	1	2	3	4	5
6	Çalışmam yavaş ve dikkatlidir.	1	2	3	4	5
7	Başkalarının sözlerini ağızlarından alırım.	1	2	3	4	5
8	Huzursuz ve yerinde duramayan biriyimdir.	1	2	3	4	5
9	Hiç bir zaman telaş içinde değilimdir.	1	2	3	4	5
10	Çevremdekilere göre daha yavaş yerim.	1	2	3	4	5
11	Yavaş çalışırım.	1	2	3	4	5
12	Yüksek sesle konuşurum.	1	2	3	4	5
13	Yemekte çok vakit harcarım.	1	2	3	4	5
14	İşleri acele ile yaparım.	1	2	3	4	5
15	Başkaları beni rahat, adam sendeci biri olarak görürler.	1	2	3	4	5
16	Hızlı çalışırım.	1	2	3	4	5

17	Yavaş, temkinli bir konuşmacıyım.	1	2	3	4	5
18	Çok hızlı yerim.	1	2	3	4	5
19	Başkalarını ikna etmeye çalışırım.	1	2	3	4	5
20	Kendimi rahat biri olarak görürüm.	1	2	3	4	5
21	Çabuk ve enerjik bir şekilde çalışırım.	1	2	3	4	5
22	Acele içindeyimdir.	1	2	3	4	5
23	Sosyal, girişkenimdir.	1	2	3	4	5
24	Konuşkanım.	1	2	3	4	5
25	Atılgan bir kişiliğe sahibimdir.	1	2	3	4	5
26	Heyecan yaratabilen biriyimdir.	1	2	3	4	5
27	Bazen utangaç, çekingen olabilirim.	1	2	3	4	5
28	Çabuk yerim.	1	2	3	4	5
29	Sessiz bir yapıdayım.	1	2	3	4	5

INDIVIDUALISM-COLLECTIVISM SCALE

Lütfen aşağıdaki tümcelere ne kadar katıldığınızı **en iyi** yansıtan rakamı daire içine alınız.

		Kesinlikle Katılmıyorum	Kısmen Katılmıyorum	Tarafsızım	Kısmen Katılıyorum	Kesinlikle Katılıyorum
1	Çalışanlar yalnız çalışmaktansa bir grup içinde çalışmaktan hoşlanırlar.	1	2	3	4	5
2	Eğer bir grup beni yavaşlatıyorsa, ondan ayrılmak ve yalnız çalışmak daha iyidir.	1	2	3	4	5
3	Daha üstün olmak için kişi tek başına olmalıdır.	1	2	3	4	5
4	Kişi grup içinde çalışmaktansa tek başına çalışarak daha iyi iş yapar.	1	2	3	4	5
5	Kişisel bir problemimi arkadaşlarımla görüşmektense, onunla kendi başıma uğraşmayı tercih ederim.	1	2	3	4	5
6	Bir çalışan kişisel olarak farklı bir fikre sahip olsa bile grup kararını kabul etmelidir.	1	2	3	4	5
7	Problem çözmenin bir grup tarafından yapılması bireyler tarafından yapılmasından daha iyi sonuç verir.	1	2	3	4	5
8	Bana yakın insanların ihtiyaçları benim kişisel ihtiyaçlarımdan önce gelmelidir.	1	2	3	4	5
9	Toplumda insanlar birbirine bağlı ve birbirini koruyan geniş aile veya aşiretlerde doğarlar.	1	2	3	4	5
10	Hayatta sadece kendi kendine yetebilenler başarılı olurlar.	1	2	3	4	5

DEMOGRAPHIC QUESTIONS

Lütfen uygun bilgileri yazınız veya size en uygun olanı işaretleyiniz.

1. Yaşınız _____
2. Cinsiyetiniz Erkek _____ Kadın _____
3. Eğitim Durumunuz (birini işaretleyiniz)
Lise _____
Üniversite _____
Lisansüstü _____
Doktora _____
Diğer _____ (Lütfen belirtiniz)
4. Takımınızda siz dahil toplam kaç kişi bulunmaktadır? _____
5. Bu takımdaki hizmet süreniz (ay olarak) _____
6. Bu kurumdaki toplam hizmet süreniz (ay olarak) _____
7. Toplam çalışma süreniz (ay olarak) _____
8. Takımınız ne kadar süredir birlikte çalışmaktadır (ay olarak)? _____
9. Bu takımdaki göreviniz _____
10. Takım lideri misiniz? _____

Appendix C
TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü

Sosyal Bilimler Enstitüsü

Uygulamalı Matematik Enstitüsü

Enformatik Enstitüsü

Deniz Bilimleri Enstitüsü

YAZARIN

Soyadı :
Adı :
Bölümü :

TEZİN ADI (İngilizce) :

TEZİN TÜRÜ : Yüksek Lisans Doktora

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz.

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: