Perceived deep-level dissimilarity: Personality antecedents and impact on overall job attitude, helping, work withdrawal, and turnover

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Liao, H., Chuang, A., & Joshi, A. (2008). Perceived deep-level dissimilarity: Personality antecedents and impact on overall job attitude, helping, work withdrawal, and turnover. *Organizational Behavior and Human Decision Processes, 106*, 106-124. https://doi.org/10.1016/j.obhdp.2008.01.002

Abstract:

The current research extends three research areas in relational demography: considering deep-level dissimilarity in theory building, assessing dissimilarity perceptions directly in theory testing, and examining the antecedents of dissimilarity perceptions. The results, based on two field studies using diverse samples, demonstrate the effects of enduring personality traits of Extraversion and Agreeableness on an individual's perceived deep-level dissimilarity to coworkers in the workgroup, and the effects of perceived deep-level dissimilarity beyond the effects of actual dissimilarity and perceived surface-level dissimilarity on critical work outcomes, including the individual's overall job attitude, and behaviors of helping, work withdrawal, and actual voluntary turnover.

Keywords: perceptions of dissimilarity | deep-level dissimilarity | relational demography | personality | overall job attitude (job satisfaction and affective commitment) | helping behavior | work withdrawal behavior | turnover

Article:

Over the past several decades, numerous empirical studies under the relational demography framework have examined the impact of an individual's demographic dissimilarity to a group on a wide array of work-related outcomes (see Riordan, 2000, for a review). The framework proposes that a high level of dissimilarity relative to other group members will negatively influence an individual's work attitudes and behaviors (Tsui and O'Reilly, 1989, Tsui et al., 1992). Yet, recent reviews have noted that the effects of demography dissimilarity on work outcomes have been weak and inconsistent, prompting researchers to reexamine extant approaches to relational demography (Riordan, 2000).

Researchers have observed that existing relational demography research has focused primarily on the effects of *surface-level*, i.e., easily observable demographic dissimilarity, such as ethnicity, gender, and age, and called for greater emphasis on dissimilarity in terms of non-visible, *deep-level* traits such as personality, values, and attitudes (Harrison et al., 1998, Harrison et al., 2002). Some researchers have also noted that *perceptual factors* underlying dissimilarity

outcomes have rarely been studied (Harrison et al., 2002, Lawrence, 1997) despite the fact that "much of the theory on relational demography within groups refers to individuals' *perceptions* of demographic similarity as the major cause for differences in work-related outcomes" (Riordan, 2000, p. 160, emphasis is ours). Furthermore, given the weak correlations between actual and perceived measures of dissimilarity in past research (e.g., Riordan, 1997), an understanding of factors other than demographics that can shape perceptions of dissimilarity is critical; we therefore need to supplement the relational demography framework with additional theories to gain a better understanding of the *antecedents* of dissimilarity perceptions.

The current study aims at extending the relational demography research by proposing and testing a framework of the antecedents and outcomes of perceived deep-level dissimilarity. We integrate relational demography approach with personality research to understand how enduring personality traits of Extraversion, Agreeableness, and Neuroticism may shape an individual's perceptions of deep-level dissimilarity to the workgroup. Our study adds to the growing body of research on the role of personality in influencing workplace diversity outcomes (Flynn et al., 2001, Klein et al., 2004).

Second, drawing on the similarity-attraction paradigm (Byrne, 1971), the social identity perspective (Tajfel and Turner, 1986, Turner, 1987) and attitude-engagement theory (Ajzen, 1988, Harrison et al., 2006), we examine the effects of perceived deep-level dissimilarity on a range of behavioral outcomes including helping, work withdrawal, and actual voluntary turnover via the mediation of overall job attitude. In so doing, we extend prior research on perceived dissimilarity (Cleveland and Shore, 1992, Kirchmeyer, 1995, Riordan, 1997, Strauss et al., 2001, Turban and Jones, 1988, Van der Vegt and Van de Vliert, 2005) to examine dissimilarity perceptions based on a broader set of deep-level characteristics and their impact on a broader set of theoretically related work outcomes. Fig. 1 depicts the theoretical framework of this study.

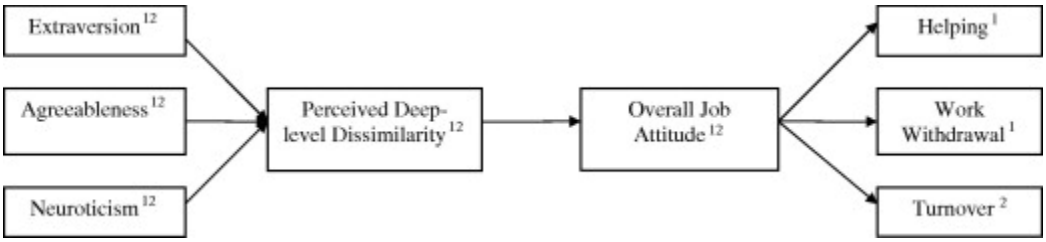

Fig. 1. Personality antecedents and work outcomes of perceived deep-level dissimilarity. Variables with a superscript of 12 are measured and tested in both Study 1 and Study 2. Variables with a superscript of 1 are measured and tested in Study 1 only. The variable with a superscript of 2 is measured and tested in Study 2 only. Although not of substantive interest in the current investigation, we control for the effects of Conscientiousness and Openness to Experience, actual dissimilarity in gender, age, education and in each of the Big Five personality dimensions, as well as perceived dissimilarity in gender and age.

Perceived deep-level dissimilarity and personality antecedents

Perceived dissimilarity: Definitions and study boundaries

We test our research propositions in small group settings which are typical in relational demography research. Following Gladstein (1984), we define a workgroup as a collection of two or more persons who interact with one another at work in a way such that each person influences and is influenced by the others. Consistent with prior work (Harrison et al., 2002, Jackson et al., 1995, Jehn et al., 1999), we define *perceived surface-level dissimilarity* as an individual's perceived differences to workgroup members in terms of overt, biological characteristics that are reflected in easily observable physical features. Examples of surface-level characteristics include gender, ethnicity, and age. We define *perceived deep-level dissimilarity* as an individual's perceived differences to workgroup members in terms of non-visible, underlying characteristics (Harrison et al., 1998, Jackson et al., 1995, Jehn et al., 1999); information on deep-level aspects of group members cannot be obtained directly by observing their physical features, but has to be learned by interacting with group members and observing their verbal and non-verbal behavior (Harrison et al., 1998). Examples of deep-level characteristics include personality, personal values, and work attitudes.

The similarity-attraction paradigm (Byrne, 1971) and the social identity perspective (Tajfel and Turner, 1986, Turner, 1987), which we detail below, suggest that similarities or differences between group members would form the basis for interpersonal attraction and categorization of group members into in-groups and out-groups, regardless of the source of that similarity or difference (van Knippenberg & Schippers, 2007). Thus, for the sake of parsimony in theory development and following the lead of others (e.g., Harrison et al., 2002, Kirchmeyer, 1995), we combine multiple surface-level characteristics to form a generic construct of perceived surface-level dissimilarity, and multiple deep-level characteristics to form a generic construct of perceived deep-level dissimilarity. In the current study, while controlling for actual dissimilarity and perceived surface-level dissimilarity, we focus on examining the antecedents and outcomes of perceived dissimilarity on *deep-level characteristics*, which have received less attention in the relational demography literature, yet may have profound influences on individual attitudes and behaviors (Harrison et al., 1998, Harrison et al., 2002, Pelled et al., 1999, Riordan, 2000). In the subsequent sections, we first discuss the personality antecedents of perceived deep-level dissimilarity and then turn our attention to its attitudinal and behavioral outcomes.

Antecedents of perceived deep-level dissimilarity

How do people form dissimilarity perceptions in workgroups? An obvious response to this question would draw attention to an individual's actual dissimilarity relative to the other group members. However, the limited empirical evidence finds only a weak correlation between perceptual and actual measures of dissimilarity in age, gender, and race, and no correlations between perceptual and actual measures of dissimilarity in education and tenure (Riordan, 1997). A recent thrust of research has considered whether personality traits can help individuals overcome the negative effects of actual demographic dissimilarity to the workgroup (Flynn et al., 2001) and achieve more desirable positions within their work units' social networks (Klein et al., 2004, Mehra et al., 2001). Extending this research, we examine an individual's enduring personality characteristics in shaping his or her dissimilarity perceptions. An individual's personality characteristics are relatively stable behavioral tendencies that may suggest the individual's predisposition toward viewing and interacting with others (Barrick and Mount, 1991, Goldberg, 1999).

The similarity-attraction paradigm as well as the social identity (Byrne, 1971) and self-categorization theories (Tajfel and Turner, 1986, Turner, 1987) suggest that individuals who perceived themselves as similar to their workgroups find it easier to display positive attitudes and behaviors towards their group members. On the other hand, individuals who perceive a high level of dissimilarity will feel reluctant to communicate with others and are more likely to withdraw from social interactions. Therefore, people who are predisposed to view others positively as well as people who are predisposed to need, welcome, and/or enjoy high levels of interactions and relationships with others may want to subjectively perceive a low level of differences from others, while people who are predisposed to dislike or dread high levels of interactions and relationships with others may want to subjectively perceive a high level of differences from others. Thus, people may form a desirable perception by subjectively interpreting objective information. However, information on group members' surface-level traits such as gender, age, and ethnicity are harder to ignore and modify; as a result, personalities may not be suitable to predict perceived dissimilarity on apparent, directly observable characteristics. On the other hand, cues on group members' deep-level traits such as personality, values, and attitudes are more ambiguous thus more likely to be subject to the individual's idiosyncratic interpretation. Consequently, perceptions about deep-level dissimilarity may be more malleable by an individual's personality attributes.

A wealth of research suggests that virtually all personality measures can be categorized under the framework of the five-factor model of personality which includes the dimensions of Conscientiousness, Agreeableness, Extraversion, Neuroticism, and Openness to Experience (Barrick and Mount, 1991, Goldberg, 1999). Research also suggests that these personality traits remain quite stable throughout a person's lifetime, and that the five-factor structure generalizes across occupations, cultures, and sources of ratings (see Judge, Higgins, Thoresen, & Barrick, 1999). Within the five-factor personality framework, three dimensions have direct implications for an individual's general tendency of viewing and interacting with others—Extraversion, Agreeableness, and Neuroticism. We therefore focus on these three dimensions of personality as determinants of an individual's perceptions of deep-level dissimilarity.

Extraversion is associated with the behavioral tendency of being sociable, gregarious, outgoing, assertive, talkative, active, positive in outlook, and less self-preoccupied (Barrick & Mount, 1991). Since extraverted individuals welcome and enjoy social interactions and it is likely that they perceive less deep-level dissimilarity between themselves. Otherwise, as argued earlier based on the theories of similarity attraction and social identity, the heightened dissimilarity perception would make it more difficult for them to seek frequent interactions with others. In addition, the positive emotions often experienced by extraverts (Watson & Clark, 1992) may also make them more likely to view others in a more positive light and thus feel more positively toward them (George & Brief, 1992). The self-enhancement principle of the social identity theory further suggests that individuals are generally motivated to define their own identity and others' identity in their social environment in a way that may enhance their own self-esteem (Ashforth and Mael, 1989, Riordan, 2000). The general liking of and attraction to others combined with the self-enhancement motivation thus may make extraverts feel "I am one of the gang" or "they are like me" toward their coworkers. Therefore, extraverted individuals may perceive less deep-level dissimilarity to their group members. Indeed, Beck and Cartwright

(1982) found that Extraversion is associated with the tendency to assume similarity between oneself and others. Based on these arguments and evidence, we propose:

> **Hypothesis 1.** *Extraversion is negatively related to an individual's perceived deep-level dissimilarity from other members of his/her workgroup*.

Agreeableness is associated with the personality traits of being good-natured, soft-hearted, gentle, courteous, helpful, generous, caring, forgiving, conforming, tolerant, flexible, trusting, and cooperative (Barrick & Mount, 1991). Barrick, Stewart, and Piotrowski (2002) found Agreeableness to be associated with a communion striving intent, which stimulates acceptance-seeking behaviors. The longing for intimacy and close relationships, the preference to keep harmony with others, and the willingness to tolerate and compromise may make more agreeable individuals purposely pay less attention to information suggesting dissimilarity between themselves and others, and instead perceive a higher level of similarity to others.

To our knowledge, no empirical studies have examined the influence of Agreeableness on perceived dissimilarity. However, Klein et al. (2004) reported that more agreeable employees acquired more friendship ties and fewer adversarial ties within their work units' network. To the extent that perceived dissimilarity reduces one's identification with and attachment to the group members (Tajfel and Turner, 1986, Tsui et al., 1992), lessens interpersonal attraction and trust, and increases conflict and misunderstanding (Byrne, 1971), Klein et al. provides indirect evidence that agreeable individuals may perceive less deep-level dissimilarity. Therefore, we propose:

> **Hypothesis 2.** *Agreeableness is negatively related to an individual's perceived deep-level dissimilarity from other members of his/her workgroup*.

Neuroticism consists of six major characteristics: anxiety, hostility, depression, self-consciousness, vulnerability, and impulsiveness (Costa & McCrae, 1992). Neurotic individuals generally lack positive psychological adjustment and emotional stability, and are more likely to experience negative moods. Such negative outlook may make neurotic individuals view others negatively, thus feeling less attracted by others. As argued earlier, the negative view of others combined with the self-enhancement motivation suggests that neurotic individuals may feel reluctant to identify themselves with others and perceive a higher level dissimilarity from others. In addition, as neurotic individuals are more likely to feel anxious, insecure, stressed, and vulnerable, the differences between them and others may be viewed more pronounced in their eyes, leading to a heightened level of perceived deep-level dissimilarity. As indirect empirical evidence for this argument, Klein et al. (2004) found Neuroticism negatively predicted an individual's friendship network centrality, and positively predicted an individual's adversarial network centrality. Therefore, we propose:

> **Hypothesis 3.** *Neuroticism is positively related to an individual's perceived deep-level dissimilarity from other members of his/her workgroup*.

The other two personality dimensions, Conscientiousness and Openness to Experience, do not have direct implications regarding an individual's general behavioral preferences of viewing and

interacting with others. Conscientiousness concerns an individual's achievement orientation, dependability, and orderliness, whereas Openness to Experience concerns an individual's intellectance and unconventionality (Barrick and Mount, 1991, Judge et al., 1999). These characteristics offer no clear predictions of how they will influence an individual's dissimilarity perceptions. Nonetheless, the two dimensions are controlled for in our analyses.

Work outcomes of perceived deep-level dissimilarity

Next, we draw on the similarity-attraction paradigm (Byrne, 1971) and the social identity perspective (Ashforth and Mael, 1989, Tajfel and Turner, 1986, Turner, 1987) to understand the relationship between perceived deep-level dissimilarity and critical work outcomes, including overall job attitude and behaviors of helping, work withdrawal, and voluntary turnover.

Perceived deep-level dissimilarity and overall job attitude

Based on Harrison and colleagues' (2006) recent work, we consider overall job attitude as an outcome of individuals' perceived deep-level dissimilarity to the workgroup. Overall job attitude is a fundamental evaluation of one's job experience, and is conceptualized as a higher-order construct consisting of affective commitment and job satisfaction (Harrison et al., 2006). *Affective commitment to the workgroup* refers to the emotional significance that individuals attach to their membership in the group (Van der Vegt & Bunderson, 2005). *Job satisfaction* refers to "an internal state that is expressed by affectively and/or cognitively evaluating an experienced job with some degree of favor or disfavor" (Brief, 1998, p. 86). Researchers have noted a considerable conceptual and empirical overlap between job satisfaction and affective commitment (Harrison et al., 2006, Hulin, 1991, Mathieu and Zajac, 1990), and recommended that these two constructs be considered as indicators underlying an overall job attitude (Harrison et al., 2006).

Both the similarity-attraction paradigm and social identity theory suggest that a higher level of perceived deep-level similarity may result in a more positive overall job attitude. The similarity-attraction paradigm (Byrne, 1971) states that people are attracted to those who share their personal characteristics, attitudes, personalities, and values. Perceived deep-level similarity with workgroup members would make "interactions easier, reinforcing, and more desirable" (Riordan, 2000, p. 135), hence facilitating a greater commitment to the group and higher satisfaction with the job experience in the group.

Social identity theory makes a similar prediction. Social identity theory posits that individuals consider demographically similar others as members of their in-group, and dissimilar others as members of the out-group. This differentiation creates a sense of superiority over out-group members thereby helping individuals achieve a positive social identity and enhance their self-esteem (Tajfel & Turner, 1986). Thus, groups composed of members who share the individuals' existing social identities would be viewed more favorably and evoke higher commitment and satisfaction than groups composed of dissimilar others (Brewer, 1979). In the past, relational demography research has applied the social identity perspective to examine dissimilarity along surface-level demographic attributes such as gender, ethnicity, and age. However, recent theoretical developments suggest that deep-level dissimilarity on less observable dimensions can

also elicit the social identity and self-categorization processes (van Knippenberg, De Dreu, & Homan, 2004). In fact, although people base initial superficial, stereotypical categorization on physical, observable, and immutable characteristics, they use information on these surface-level traits "as the basis for inferring similarity in attitudes, beliefs, or personality" (Tsui et al., 1992, p. 551), and will revise their social categorization when information on the deep-level, psychological features of other individuals become available (Harrison et al., 1998). In addition, continued social identification and attraction hinge on similarity in personality attributes, attitudes, belief, and values (Schneider, 1987), making deep-level traits an ultimate and sustainable basis for social identification.

Prior studies have examined the extent to which actual dissimilarity predicts positive job attitudes (Chatman and O'Reilly, 2004, Cleveland and Shore, 1992, Liao et al., 2004, O'Reilly et al., 1989, Tsui et al., 1992, Van der Vegt et al., 2003). However, findings from these studies have been mixed. The failure to consider perceptions of dissimilarity may to some extent account for these equivocal findings (Riordan, 2000). Therefore, based on the theoretical perspectives discussed above, we propose:

> **Hypothesis 4.** *An individual's perceived deep-level dissimilarity from other members of his/her workgroup will be negatively related to the individual's overall job attitude*.

Perceived deep-level dissimilarity and helping, work withdrawal, and turnover

Harrison and colleagues' (2006) attitude-engagement model suggests that the overall job attitude construct contributes to individual tendencies to engage in positive or negative behaviors that express or manifest the attitude (Ajzen, 1988, Harrison et al., 2006). Based on this theory, we propose that overall job attitude will act as a motivational force and mediate the relationship between perceived deep-level dissimilarity and critical work behaviors including helping, work withdrawal, and voluntary turnover.

Helping

Helping is a type of interpersonal, cooperative, and affiliative extra-role behavior directed towards members of one's workgroup (Van Dyne & LePine, 1998). Unlike in-role task performance, which is specified in job descriptions, helping is not specifically entailed in advance by role requirements, may not be immediately recognized by formal reward systems, and usually does not have punitive consequences when not performed by the employee (Van Dyne & LePine, 1998). Therefore, in the context of a workgroup, an individual has a large discretion in deciding whether to go above and beyond the call of duty to help coworkers. When an individual perceives a high level of deep-level similarity with the workgroup, the individual will be more committed to the group and more satisfied with the job experience in the group, thus more willingly engage in cooperative helping behaviors toward coworkers as such favoring behaviors "protect, enhance, or achieve a positive social identity" for the individual and members of in-group (Tajfel, 1982, p. 24). Conversely, individuals who perceive a high level of dissimilarity will experience less favorable overall job attitude, and hence will be less willing to help others whom they consider as members of out-group. The limited research on helping behavior as an outcome of relational dissimilarity has reported mixed results (Chattopadhyay,

1999, Chattopadhyay and George, 2001, Van der Vegt et al., 2003). While Chattopadhyay found that an individual's actual race and age dissimilarity to the workgroup was negatively related to the altruistic behavior toward group members, the two other studies did not find a significant effect of actual dissimilarity. We surmise that the lack of a direct assessment of dissimilarity perceptions might in part account for these conflicting findings. Therefore, based on the theoretical arguments discussed above, we propose:

> **Hypothesis 5.** *An individual's perceived deep-level dissimilarity from other members of his/her workgroup will be negatively related to the individual's helping behaviors via the mediation of overall job attitude*.

Work withdrawal

When individuals perceive a high level of deep-level dissimilarity and form a low level of overall job attitude, the lack of emotional attachment to the group and the lack of positive evaluation of the work experience in the group may prompt the individuals to withdraw psychologically from the workgroup (Tsui et al., 1992). Consequently, they may engage in work withdrawal behaviors to remove themselves temporarily from the work situation, such as taking long lunch breaks, being late for work, and finding excuses to get out of work (Hanisch & Hulin, 1990). Work withdrawal represents poor performance and interrupts organizational functioning (Hanisch & Hulin, 1990). Work withdrawal consists of mundane, less noticeable, and relatively discretionary behaviors, and may be driven more by an individual's affect and attitude than by cognitive ability (Weiss & Cropanzano, 1996). Prior studies have shown that work withdrawal is negatively related to employee integration and commitment (e.g., Kammeyer-Mueller & Wanberg, 2003). Therefore, work withdrawal is another important behavioral outcome of perceived deep-level dissimilarity.

To date, Tsui et al. (1992) was the only study that examined the impact of relational demography on one form of work withdrawal behavior—absenteeism. They found that dissimilarity in race decreased an individual's psychological commitment and increased frequency of absences. We extend Tsui et al. in two ways. First, we broaden the criterion domain to include a wide range of behavioral manifestations of work withdrawal. Within the limits of a workplace setting, the opportunity for an individual to engage in a specific type of withdrawal behavior is limited. Therefore, measures summing across a range of withdrawal behaviors provide more reliable and valid assessment of the underlying construct (Rosse & Hulin, 1985). Second, recognizing the importance of dissimilarity perceptions along deep-level characteristics, we examine the impact of perceived deep-level dissimilarity on work withdrawal as mediated by overall job attitude. We propose:

> **Hypothesis 6.** *An individual's perceived deep-level dissimilarity from other members of his/her workgroup will be positively related to the individual's work withdrawal behaviors via the mediation of overall job attitude*.

Turnover

The attraction–selection–attrition (ASA) framework (Schneider, 1987), which is based on the similarity-attraction paradigm, predicts that individuals are attracted to workgroups based on their perceptions of similarity to them; when this perception of similarity is violated, employees feel uncomfortable and less integrated in the workgroup and may ultimately leave the group. Turner (1987) also noted that "when social identity in terms of group membership is unsatisfactory, members will attempt to leave that group (psychologically or in reality)" (p. 30). Turnover theories have also argued that a strong affective attachment to, identification with, and involvement in a social unit bind an individual to the unit and thus reduce the likelihood of turnover (e.g., Mowday, Steers, & Porter, 1979), and these linkages have been supported in meta-analyses (e.g., Griffeth, Hom, & Gaertner, 2000). Consequently, an individual's turnover from a group serves as an ultimate test of the ASA framework and the social identity and self-categorization theories.

Research in the area of relational demography has examined the relationship between employee *actual*, *demographic* dissimilarity and turnover intentions or actual turnover (Chatman and O'Reilly, 2004, Jackson et al., 1991, O'Reilly et al., 1989, Tsui et al., 1992, Wagner et al., 1984, Wiersema and Bird, 1993). The common assumption for many of these studies is that actual dissimilarity will result in perceived dissimilarity, which in turn will trigger the self-categorization processes. However, such perceptions have rarely been examined directly. Extending this literature, in this study, we assess deep-level dissimilarity perceptions directly and examine their impact on actual turnover as mediated by overall job attitude. We propose:

> **Hypothesis 7.** *An individual's perceived deep-level dissimilarity from other members of his/her workgroup will be positively related to the individual's turnover via the mediation of overall job attitude*.

In sum, this research integrates and furthers several new research streams in relational demography to examine personality antecedents and work outcomes of perceived deep-level dissimilarity. We conducted a *pilot study* to examine the construct validity of the perceived deep-level dissimilarity measure, and two field studies to test the proposed framework. In Study 1, we test the hypotheses regarding the personality antecedents of perceived deep-level dissimilarity and the impact of perceived deep-level dissimilarity on helping and work withdrawal as mediated by overall job attitude. In Study 2, we use a different field sample to cross-validate the personality hypotheses tested in Study 1, and test the impact of perceived deep-level dissimilarity on actual voluntary turnover as mediated by overall job attitude.

Pilot study

To assess the construct validity of the perceived deep-level dissimilarity measure developed in this research, in a pilot study we examined the measure's dimensionality and relationships with the constructs in its nomological network. One hundred and thirty-nine working adults enrolled in a non-degree, evening business program in a large university in Taiwan were approached; 132 participants (95%) returned their surveys, and the final usable sample size was 126. The participants had an average age of about 36 years old and workgroup tenure of about 3.5 years, and 53% of the sample was female. All measures originally in English used in the pilot and the

two field studies were translated into Chinese and back-translated by two bilinguals following the procedures recommended by Brislin (1980).

Measures and construct validity evidence

To measure *perceived deep-level dissimilarity*, we asked the respondents to report on a 7-point scale regarding how similar they thought they were on average to their coworkers in their current workgroup in terms of each of the following non-physical, underlying characteristics: *personality attributes*, *personal values*, *work attitudes*, *education*, and *lifestyle* (1, very similar; 7, very dissimilar). The former three dimensions are the important deep-level characteristics commonly identified in prior studies (e.g., Harrison et al., 2002, Jackson et al., 1995, Riordan, 2000). We expanded the list to include education because recent research has shown that differences in education may influence team identification and OCB (Van der Vegt et al., 2003). We conceptualize education as a deep-level characteristic because it is *non-visible* (Riordan, 2000), and reflects an individual's cognitive ability, knowledge, and training and skill (Bantel & Jackson, 1989) which are aspects of important *underlying* characteristics suggested by Jackson et al. In addition, in our field settings, which include apparel stores and hair salons, there is no minimum professional accreditation required to perform these jobs. There is also very little logical reason for employees to display their diplomas overtly. Furthermore, employees in these types of work settings might quite often be working while obtaining additional educational qualifications. Therefore, by simply observing a coworker's physical features, it is hard to tell his or her educational background. We also included lifestyle as a deep-level dimension which concerns manners of living such as habits of consumption, dress, and recreation, and is influenced by domestic situation and responsibilities. Lifestyle is less work-related but may be an important basis for social categorization, given that it reflects a person's attitudes, values, and social classification (American Heritage Dictionary of the English Language, 2000), and that life issues often have spillover effects on work activities (Greenhaus & Parasuraman, 1999). Consistent with past research (e.g., Harrison et al., 2002), we take a composite approach to measuring perceived deep-level dissimilarity as perceptions across a variety of deep-level dimensions.[1] Indeed, a scree test revealed the one-factor structure for the scale, and the scale items had a high internal consistency α of .78.

Convergent validity

Next we examined the convergent validity of the perceived deep-level dissimilarity measure. We found that the correlation between our measure and Harrison et al.'s (2002) *perceived deep-level*

[1] We argue that this composite approach is justified for two reasons. First, individuals' perceptions about different deep-level dimensions may co-vary. The same type of life and educational experience that shape an individual's personality attributes may also influence the individuals' values, work attitudes, life style, and so on (House, Shane, & Herold, 1996). In addition, researchers have argued that when faced with uncertainty, individuals tend to engage in cognitive shortcut and use known information as "heuristic substitutes" for related information (Lind, 2001). Therefore, an employee may use information about one attribute (e.g., personality) of a coworker to infer information about another attribute (e.g., values) of the coworker. Second, the major objective of the current research is to examine the personality antecedents and work outcomes of perceived deep-level dissimilarity. Our predictions based on the personality research, similarity attraction paradigm, and social identity perspectives, do not differ for different dimensions of deep-level dissimilarity perceptions. Therefore, it is theoretically justifiable to combine different dimensions to form an overall construct of perceived deep-level dissimilarity.

team diversity scale (α = .85) adapted to the individual level of analysis was very high (r = .83, p < .001) and approaches unity when adjusted for unreliability in both measures. This result provided convergent validity evidence for our measure.[2]

Discriminant validity

To demonstrate the discriminant validity of the perceived deep-level dissimilarity measure, we expected it to have a weaker correlation with *perceived surface-level dissimilarity* than with Harrison et al.'s (2002) perceived deep-level team diversity measure. We assessed perceived surface-level dissimilarity using two of the three-item scale by Harrison et al.; on a 7-point scale, the respondents reported how similar they thought they were on average to their coworkers in the workgroup in terms of *age* and *marital status* (1, very similar; 7, very dissimilar); we did not include ethnicity as a dissimilarity dimension because all of the participants were from Taiwan and thus were of the same ethnicity. We added *gender* because prior work has shown gender to be an important basis for social categorization. We found that our perceived deep-level dissimilarity measure correlated at .22 (p < .05) with perceived age dissimilarity, at .17 (ns) with perceived marital status dissimilarity, and at .19 (p < .05) with perceived gender dissimilarity, all of which were significantly lower than and not contained in the 95% confidence interval of the estimated correlation between ours and Harrison et al.'s measure of perceived deep-level dissimilarity, thus providing evidence of discriminant validity.

Criterion-related validity

We then evaluated the criterion-related validity of the perceived deep-level dissimilarity measure by examining whether it was significantly related to the outcome variables in the relational demography framework. Specifically, we measured four outcomes, including *affective commitment to the workgroup, coworker satisfaction, social integration, and person–group fit*. These variables, although not all the focus of the current research, were important outcomes of

[2] We believe that the perceived deep-level diversity measure by Harrison et al. (2002) has a substantial amount of evidence for its construct validity; thus it was appropriate for us to use this scale as an anchor to assess the convergent validity of our measure. A perusal of the Harrison et al. article found that first their measure had a reliability of .82 that was above the conventional standard of .70 for a newly developed scale (Hinkin, 1998). In addition, this measure correlated significantly yet moderately with perceived surface level diversity measure (r = .47), providing some evidence of its discriminant validity. Another piece of discriminant validity evidence is that the perceived deep-level diversity was not significantly associated with the student participants' GPA, a variable that was not theoretically related. Further, we found evidence of criterion-related validity for Harrison et al.'s perceived deep-level diversity measure. It significantly correlated with a theoretically related outcome variable, team collaboration (r = −.30, p < .01), and significantly predicted team social integration (r = −.57, p < .01) assessed at a later time. Further, the data we collected in the Pilot study provided additional evidence concerning Harrison et al.'s (2002) measure's discriminant validity and criterion-related validity. For example, we found that after adapting Harrison et al.'s measure to the individual level of analysis, perceived deep-level dissimilarity had a low correlation with perceived age dissimilarity (r = .19, p < .05) and was not significantly associated with perceived gender or marital dissimilarity. Besides, the measure was significantly correlated with criterion variables such as coworker satisfaction (r = −.59, p < .01), affective commitment (r = −.58, p < .01), social integration (r = −.57, p < .01), and person–group fit (r = −.71, p < .01). In addition, a confirmatory factory analysis based on available information in our pilot study shows that an eight-factor measurement model involving Harrison et al.'s perceived deep-level dissimilarity measure and other variables in the nomological network had a good fit (χ^2 = 236.47, df = 145, RMR = .03, RMSEA = .05, CFI = .98, NNFI = .97). In sum, these results provide confidence in using Harrison et al.'s scale as a basis to establish the convergent validity of our perceived deep-level dissimilarity measure.

dissimilarity implied by prior research on relational demography (see Riordan, 2000) and person–environment fit (see Kristof-Brown, Zimmerman, & Johnson, 2005). We measured *affective commitment to the workgroup* using the 9-item Mowday et al.'s (1979) affective commitment scale which assesses an individual's identification with, involvement in, and emotional attachment to the group; the scale's alpha was .91. *Coworker satisfaction* was assessed using the 18-item coworker scale from the job descriptive index (Smith, Kendall, & Hulin, 1985) as updated by Roznowski (1989); its α was .80. We measured *social integration* using the 6-item scale by Van der Vegt (2002); its α was .89. To assess *person–group fit*, we adapted the 3-item person–organization fit measure of Cable and Judge (1996) by changing the comparison referent from "the organization" to "members of the workgroup" (α = .91). The results revealed that perceived deep-level dissimilarity was significantly correlated with affective commitment to the workgroup ($r = -.48$, $p < .001$), coworker satisfaction ($r = -.51$, $p < .001$), social integration ($r = -.47$, $p < .001$), and person–group fit ($r = -.61$, $p < .001$), providing evidence of its criterion-related validity.

Confirmatory factor analysis

To demonstrate the distinctiveness of the perceived deep-level dissimilarity measure and the seven measures used to assess its discriminant and criterion validity, we conducted a confirmative factor analysis using LISREL 8.54. We found that the one-factor model fit the data poorly ($\chi^2 = 911.50$, $df = 152$, RMR = .06, RMSEA = .20, CFI = .82, NNFI = .80), and that the hypothesized eight-factor model fit the data well ($\chi^2 = 200.14$, $df = 127$, RMR = .03, RMSEA = .07, CFI = .98, NNFI = .97), and significantly better than the one-factor model ($\Delta\chi^2 = 711.36$, $df = 25$, $p < .001$; no overlap in the 90% confidence interval of RMSEA). Further, in the eight-factor model, all items loaded significantly on posited latent constructs, and none of the 95% confidence interval around the correlation coefficient of each pair of the latent constructs contained the value of 1, providing evidence for the overall convergent and discriminant validity of the model (Anderson & Gerbing, 1988).

In conclusion, the above results jointly provided construct validity evidence for the perceived deep-level dissimilarity measure.

Study 1

The purpose of Study 1 is to examine the hypotheses regarding the personality antecedents of perceived deep-level dissimilarity as well as the impact of perceived deep-level dissimilarity on overall job attitude, helping, and work withdrawal.

Participants and procedures

Three hundred and thirty-five sales employees in 107 stores of three apparel franchises in northern Taiwan were approached for Study 1. In the current study, we treat each store as an intact workgroup for two reasons. First, the stores are small and reflect the typical small groups that we expect in most studies on relational demography. In Study 1, store sizes ranged from two to six, with an average of three employees. Second, store employees worked on flexible shifts

and therefore had opportunities to interact with all other employees in the stores, and they worked together towards the same goal of serving customer needs.

Trained research assistants visited each store to distribute surveys to employees, set up a central collection box for survey drop-offs, and provided self-addressed, self-stamped envelopes for mailing-in options. With the headquarters' strong support for the project, we obtained returned surveys from 286, or 85%, of the employee participants. After deleting cases with incomplete data, the final usable sample size for this study was 271 employees.

Measures

We assessed *perceived deep-level dissimilarity* using the same measure as described in the pilot study. The alpha coefficient was .84 in the current sample.

Overall job attitude

Adopting the approach taken by Harrison et al. (2006), we use job satisfaction and affective commitment to the workgroup as the indicators of overall job attitude. We measured an individual employee's job satisfaction using the 3-item scale (1 = strongly disagree; 7 = strongly agree) by Cammann, Fichman, Jenkins, and Klesh (1998). Its α was .72. We assessed affective commitment to the workgroup using the same measure as described in Pilot study and its alpha was .94 in this sample. The correlation between job satisfaction and workgroup commitment is .74. We then created the overall job attitude variable as the average of the standardized job satisfaction and affective commitment scores.

Helping

Employees' helping behaviors were assessed by store managers using the 7-item Van Dyne and LePine (1998) scale adapted to the customer service context. On a 7-point scale, store managers indicated their agreement with statements such as, "This employee helps others in the store with customer service-related responsibilities." α was .97.

Work withdrawal

Employees' work withdrawal behaviors were assessed using the 12-item work withdrawal scale by Hanisch and Hulin (1990). Since many withdrawal behaviors may be undetected by others, especially by supervisors (Sackett & DeVore, 2001), we used employees' self-report to assess this variable. On an 8-point scale (1 = never; 8 = once a week or more), employees reported the frequency with which they engaged in behaviors such as "looking at your watch or clock a lot." The α was .81.

Personality dimensions

We measured each of the five personality dimensions using a 10-item scale from Goldberg's (1999) International Personality Item Pool (IPIP). Employees rated how accurately each item described them as they generally were, on a 5-point scale (1 = very inaccurate to 5 = very

accurate). The α coefficient was .82 for Conscientiousness, .80 for Openness, .75 for Extraversion, .78 for Agreeableness, and .83 for Neuroticism.

Control variables

Because employees of this study were from three apparel franchises, we controlled for their company affiliations by creating two dummy variables (Company A and Company B). In addition, we controlled for *store size* and *average tenure*, employee demographic characteristics including *gender* (1 = female; 0 = male), *age* (reported in eight categories ranging from "1 = younger than 20 years old" to "8 = older than 50 years old" with 5 years as the class interval), and *education level* (measured by five categories ranging from "1 = primary school or less" to "5 = graduate degree"), as well as *Conscientiousness* and *Openness to Experience*.

Further, we controlled for an individual's *actual dissimilarity* to workgroup members in terms of gender, age, education, and personality dimensions as measured in Euclidean distance, or the *D* score (Tsui et al., 1992). The *D* score is the most widely used approach in the relational demography literature to operationalize an individual's actual dissimilarity (see Riordan, 2000, for a review) and reflects the average dyadic difference between the focal individual and others in the group. The high response rate of each store ensures that the responses accurately represented the store employees' characteristics. To maximize the use of available information, we calculated the *D* score for a relevant variable based on all members who provided responses for that particular variable before we dropped any observation due to missing information on other study variables. Finally, we controlled for employee *perceived surface-level dissimilarity*. On a 7-point scale, the employees reported how similar they thought they were on average to others in the workgroup in terms of gender and age (1 = very similar; 7 = very dissimilar). Due to the low internal consistency (α = .52), we treated the two dimensions as two variables in the analysis. We did not include marital status as a surface-level dimension, because we learned from the Pilot study that as a tradition, most people in Taiwan do not wear wedding rings like people do in the US (Harrison et al., 2002); marital status is not thus visible. In addition, as revealed in the Pilot study, perceived dissimilarity in marital status was not significantly related to affective commitment to the workgroup (r = −.11, ns) or perceived deep-level dissimilarity (r = .17, ns); thus our omission of this category in this research setting should not be a significant concern.

Analysis strategy

Since the employees were nested within stores, their responses may not be independent of each other, violating the statistical independence assumption of OLS analysis. Therefore, we used the cluster method developed by Rogers (1993), which generates a robust variance–covariance matrix to account for the interdependence of the observations within a cluster (i.e., store) and the heterogeneous errors across clusters. The cluster method can be combined with regular regression analysis (e.g., Milton & Westphal, 2005), as will be used in Study 1, and with advanced statistical models such as survival analysis (e.g., Liao, Arvey, Butler, & Nutting, 2001), as will be used in Study 2. We performed the analyses using STATA 8.0.

Results

The descriptive statistics and intercorrelations of all study variables are presented in Table 1. Hypothesis 1, Hypothesis 2, Hypothesis 3 concerned the personality antecedents of perceived deep-level dissimilarity. *M*1 in Table 2 reported the results testing these hypotheses. In support of Hypothesis 1, Hypothesis 2, we found perceived deep-level dissimilarity was negatively predicted by Extraversion ($b = -.24$, $p < .01$) and Agreeableness ($b = -.53$, $p < .01$). However, it was not significantly related to Neuroticism; therefore, Hypothesis 3 was not supported.

Hypothesis 4 predicted that an individual's perceived deep-level dissimilarity would be negatively related to overall job attitude. As shown in *M*2 of Table 2, perceived deep-level dissimilarity had a significant negative effect ($b = -.49$, $p < .01$) on overall job attitude after accounting for a variety of control variables; therefore, Hypothesis 4 was supported. Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4 also imply that personalities might be related to overall job attitude indirectly via the mediation of perceived deep-level dissimilarity. A Sobel's (1982) test confirmed that the indirect effect was significant for Extraversion ($b = .12$, $p < .05$) and Agreeableness ($b = .26$, $p < .01$).

Hypothesis 5 predicted a negative relationship between perceived deep-level dissimilarity and helping, and that overall job attitude would mediate this relationship. We followed the test procedures described in Kenny, Kashy, and Bolger (1998) to examine the presence of mediation and performed Sobel's (1982) test to assess the significance of the mediated effect. The results showed that perceived deep-level dissimilarity negatively predicted helping ($b = -.26$, $p < .05$, in *M*3), the relationship became non-significant after overall job attitude was added to the model ($b = -.22$, $p > .10$, in *M*4); yet overall job attitude did not have a significant positive relationship with helping. Consequently, Hypothesis 5 was not supported.

Hypothesis 6 predicted a positive relationship between perceived deep-level dissimilarity and work withdrawal, and that overall job attitude would mediate this relationship. The results showed that perceived deep-level dissimilarity positively predicted withdrawal ($b = .47$, $p < .01$, in M5), the relationship remained significant but with reduced magnitude ($b = .33$, $p < .01$, in M6) after overall job attitude was added to the model, and overall job attitude had a significant negative relationship with withdrawal ($b = -.28$, $p < .01$, in M6). A Sobel's (1982) test confirmed that the indirect effect was significant ($b = .14$, $p < .01$). Overall job attitude, then, partially mediated the effect of perceived deep-level dissimilarity on withdrawal, providing some support to Hypothesis 6.

In summary, Study 1 revealed that more extraverted and agreeable individuals perceived a lower level of deep-level dissimilarity, perceived deep-level dissimilarity was negatively related to helping and work withdrawal, and that overall job attitude partially mediated the effects of perceived deep-level dissimilarity on work withdrawal.

Table 1. Descriptive statistics, intercorrelations, and coefficient αs of study variables in Study 1[a] and Study 2[b]

Variable	*n*1	*n*2	*M*1	*SD*1	*M*2	*SD*2	1	2	3	4	5	6	7	8	9
1. Company A	273		0.27	0.45			—								
2. Company B	273		0.37	0.48			−.46	—							
3. Group size	273	448	2.69	0.69	4.37	1.35	−.24	.12	—	.19	−.03	.01	−.07	−.03	.02
4. Group average tenure	273	448	3.12	0.88	4.31	1.28	−.19	.09	−.04	—	.09	.16	−.13	.04	.08
5. Gender[c]	273	422	0.86	0.34	0.94	0.24	−.04	.03	−.03	.02	—	−.11	−.02	−.10	−.16
6. Age	273	448	2.01	0.70	2.57	0.99	.06	.04	−.05	.09	.05	—	−.34	.25	.24
7. Education	273	448	3.37	0.50	2.96	0.38	−.23	−.08	−.06	.05	−.08	.03	—	.03	.04
8. Conscientiousness	273	432	3.59	0.47	3.48	0.46	−.07	.01	−.01	.04	.00	.22	.08	***.82/.77***	.55
9. Openness to Experience	273	432	3.40	0.47	3.29	0.44	−.03	.05	.04	−.01	−.11	.05	.10	.46	***.80/.76***
10. Extraversion	273	432	3.26	0.49	3.07	0.44	.02	.07	.08	−.05	−.10	.02	.05	.35	.54
11. Agreeableness	273	432	3.72	0.42	3.49	0.43	−.06	.11	.04	−.04	.01	.07	.05	.50	.60
12. Neuroticism	273	432	2.79	0.60	3.03	0.55	−.06	.00	.01	.05	.10	−.17	−.04	−.46	−.21
13. Actual gender dissimilarity	273	422	0.22	0.32	0.11	0.25	.03	.01	.17	−.05	−.65	−.07	.02	.02	.08
14. Actual age dissimilarity	273	448	0.61	0.54	1.00	0.65	−.07	.08	.22	.00	.04	.22	−.08	−.05	−.03
15. Actual education dissimilarity	273	448	0.42	0.33	0.31	0.36	−.05	−.23	.12	−.01	−.05	−.03	.23	.04	.06
16. Actual Conscientiousness dissimilarity	271	432	0.45	0.28	0.49	0.26	.05	−.19	.10	.09	−.04	.05	−.03	.08	.10
17. Actual Neuroticism dissimilarity	273	432	0.55	0.36	0.58	0.33	−.03	−.14	.15	−.05	−.13	−.09	−.01	.02	.14
18. Actual Extraversion dissimilarity	273	430	0.46	0.31	0.45	0.28	.05	−.05	.04	−.08	−.07	.04	.04	.12	.13
19. Actual Agreeableness dissimilarity	271	432	0.41	0.24	0.47	0.25	.10	−.17	.04	−.08	−.05	.01	.02	.14	.04
20. Actual Openness dissimilarity	273	428	0.43	0.26	0.46	0.27	−.16	−.02	.06	−.12	−.10	.04	.16	.13	.25
21. Perceived gender dissimilarity	273	432	2.18	1.02	2.72	1.38	−.03	−.01	.00	−.03	−.52	−.04	.01	.03	.04
22. Perceived age dissimilarity	273	434	2.52	0.80	3.56	1.10	−.07	.05	.03	.01	−.08	.16	−.03	−.05	−.08
23. Perceived deep-level dissimilarity	273	433	2.65	0.61	3.66	0.85	.00	−.03	.00	−.04	−.07	−.06	.01	−.12	−.09
24. Overall job attitude	273	434	0.01	0.91	0.00	0.91	.00	−.01	.09	−.04	.05	.08	−.04	.30	.24
25. Helping	273		5.35	1.03			.17	.02	−.02	−.03	.15	.08	−.03	.08	.04
26. Work withdrawal	273		2.32	0.96			−.03	.09	−.02	.05	−.09	−.23	−.06	−.29	−.16
27. Turnover		426			0.22	0.41									

Variable	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. Company A																		
2. Company B																		
3. Group size	−.05	−.06	.03	.14	.19	.14	.14	.37	.12	.04	.15	−.06	−.02	.01	.05			−.10
4. Group average tenure	.02	.00	−.04	−.18	.27	.05	.05	−.07	.01	−.04	.06	−.08	.02	−.11	.12			−.16
5. Gender[c]	−.12	−.09	.09	−.68	−.05	.03	−.01	.01	−.07	.00	−.05	−.38	−.18	−.11	−.02			−.08
6. Age	.16	.16	−.23	.02	.48	.23	.03	.04	.08	.03	.06	.11	.41	.12	.13			−.05
7. Education	−.03	.04	.03	.07	−.19	−.17	.07	−.04	−.02	.12	.07	−.14	−.16	−.05	−.11			.04
8. Conscientiousness	.32	.59	−.38	.08	.17	.09	.30	.12	.25	.20	.18	−.12	.00	−.02	.22			−.02
9. Openness to Experience	.50	.55	−.17	.12	.14	.07	.24	.16	.30	.23	.33	−.08	.04	.03	.20			−.01
10. Extraversion	***.75/.74***	.47	−.39	.00	.07	.04	.10	.01	.20	.20	.18	−.02	−.10	−.17	.37			.01

Variable	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
11. Agreeableness	.52	***.78/.76***	−.25	.00	.12	.04	.22	.13	.24	.33	.21	−.16	−.08	−.13	.32			−.01
12. Neuroticism	−.46	−.33	***.83/.79***	−.01	−.11	−.06	−.05	.06	−.05	−.07	−.09	−.05	−.10	.06	−.24			−.03
13. Actual gender dissimilarity	.13	−.06	−.17	—	.05	−.02	.06	.02	.14	−.02	.11	.26	.10	.12	−.03			.08
14. Actual age dissimilarity	−.07	.03	.11	−.06	—	.33	.01	.15	.09	.03	.02	.05	.20	.01	.12			−.06
15. Actual education dissimilarity	.07	.09	−.06	.06	−.04	—	−.04	−.04	−.02	.02	−.04	.01	.06	.05	.08			−.09
16. Actual Conscientiousness dissimilarity	.06	.08	−.03	.00	.08	.08	—	.18	.31	.48	.37	−.08	.02	.03	.02			−.09
17. Actual Neuroticism dissimilarity	.11	.12	.04	.18	.14	.14	.20	—	.24	.18	.15	.00	.01	.02	−.03			−.04
18. Actual Extraversion dissimilarity	.12	.19	−.10	.05	.02	−.09	.09	.32	—	.36	.39	−.02	.03	.00	.10			.00
19. Actual Agreeableness dissimilarity	.11	.10	−.11	.01	−.05	.13	.32	.21	.22	—	.39	−.04	.03	−.05	.05			−.01
20. Actual Openness dissimilarity	.10	.13	.05	.14	.12	−.02	.16	.12	.25	.28	—	−.06	.12	.11	.01			.00
21. Perceived gender dissimilarity	.04	−.14	−.04	.47	.00	.09	−.04	.13	−.08	−.08	.02	—	.36	.39	−.21			.09
22. Perceived age dissimilarity	−.22	−.16	.10	.06	.27	−.08	−.06	.06	.00	−.13	.06	.34	—	.51	−.20			.04
23. Perceived deep-level dissimilarity	−.27	−.30	.22	.10	.09	.09	−.03	.14	.07	−.04	.07	.37	.44	***.84/.83***	−.32			.11
24. Overall job attitude	.30	.29	−.19	.10	.00	−.01	.05	−.01	−.05	−.06	−.01	−.06	−.19	−.38	***.84/.79***			−.24
25. Helping	.11	.07	−.09	−.12	−.09	−.02	.05	−.01	−.03	−.05	−.11	−.08	−.06	−.15	.14	***.97***		
26. Work withdrawal	−.20	−.12	.32	−.02	.04	−.02	−.03	.11	−.02	.06	.01	−.01	.04	.26	−.39	−.17	***.81***	
27. Turnover																		—

[a] *n*1, *M*1, *SD*1, and the lower triangle of the correlation matrix are for Study 1, $n = 271–273$. For sample size of 271, correlation values larger than .12 are significant at $p < .05$.

[b] *n*2, *M*2, *SD*2, and the upper triangle of the correlation matrix are for Study 2, $n = 422–448$. For sample size of 422, correlation values larger than .10 are significant at $p < .05$. Scale coefficient *α*s are in bold italics along the diagonal; the first number is from Study 1, and the second number is from Study 2.

[c] Gender: female, 1; male, 0.

Table 2. Regression Results from Study 1

	Perceived deep-level dissimilarity	Overall job attitude	Helping		Work withdrawal	
Variable	***M*1**	***M*2**	***M*3**	***M*4**	***M*5**	***M*6**
Intercept	3.85**	−2.28*	4.16**	4.36**	2.60**	1.96†
Control variables						
Company A	.06	−.07	.63**	.64**	.04	.02
Company B	.10	−.17	.32†	.34†	.25†	.20
Group size	−.05	.06	.09	.09	−.06	−.05
Group average tenure	−.03	−.08	−.02	−.02	.08	.06
Gender (female = 1)	.00	.57*	.42	.37	−.67*	−.51
Age	−.05	.06	.07	.07	−.20**	−.19**
Education	.00	−.07	.12	.12	−.09	−.11
Conscientiousness	.14	.43**	.15	.11	−.32†	−.20
Openness to Experience	.20	.10	−.03	−.04	−.26†	−.23
Actual gender dissimilarity	.14	.72**	−.30	−.36	−.25	−.05
Actual age dissimilarity	.12	.08	−.24†	−.25†	.04	.06
Actual education dissimilarity	.28**	−.05	.06	.06	−.05	−.06
Actual Conscientiousness dissimilarity	−.06	.17	.32	.31	−.15	−.11
Actual Neuroticism dissimilarity	.20†	−.03	.23	.24	.25	.24
Actual Extraversion dissimilarity	.24*	−.12	−.07	−.05	−.23	−.27
Actual Agreeableness dissimilarity	−.13	−.40	−.40	−.36	.42	.31
Actual Openness dissimilarity	.08	−.20	−.11	−.09	.07	.02
Perceived gender dissimilarity		.05	.06	.05	−.15	−.14
Perceived age dissimilarity		−.05	.06	.07	−.07	−.08
Hypothesized variables						
Extraversion	−.24**	.24	.13	.11	−.05	.02
Agreeableness	−.53**	.10	−.11	−.12	.36†	.39*
Neuroticism	.10	.14	−.03	−.04	.28**	.32**
Perceived deep-level dissimilarity		−.49**	−.26*	−.22	.47**	.33**
Overall job attitude				.09		−.28**
N	271	271	271	271	271	271
F	4.98**	6.03**	2.55**	2.53**	4.57**	8.25**
df	(20, 105)	(23, 105)	(23, 105)	(24, 105)	(23, 105)	(24, 105)
R^2	0.22	0.31	0.13	0.14	0.28	0.33

∗ $p < .05$. ∗∗ $p < .01$. † $p < .10$.

Study 2

The goal of Study 2 is to test whether individuals who perceive a higher level of deep-level dissimilarity would be more likely to turnover and, using a different field sample, to cross-validate the hypotheses tested in Study 1 regarding the personality antecedents of perceived deep-level dissimilarity, and its effect on overall job attitude.

Participants, procedures, and measures

We collected data from the stylists working in 112 hair salons of a salon franchise in Taiwan. This is one of the largest salon chains in Taiwan and serves a wide range of customers. For similar reasons as explained in Study 1, we consider each salon as an intact workgroup in which the stylists perform their day-to-day tasks and interact with each other. Salon sizes ranged from 2 to 8, with an average of four employees per salon. To ensure the confidentiality of employee responses, we had trained research assistants administer the surveys directly to all of the 449

hairstylists employed at the salons. A central collection box was set up in each store for survey drop-offs. The respondents were also provided with the option to mail the survey back directly to the research team using a postage-paid return envelope. With strong support from the company's management, we obtained a high response rate of 97%.

We used the same measure of perceived surface- and deep-level dissimilarity, actual dissimilarity, overall job attitude, personality attributes, gender, age, and education level as used in Study 1. In order to assess *turnover*, we obtained the hiring date and turnover information for the employees from each salon's archival database, nine months after we collected the employee surveys. The salons classified the reasons for an employee's turnover as voluntary if it was initiated by the employee, and involuntary if employment was terminated by the salons due to poor performance. During the 9-month period, 21% of the sample voluntarily left, and no employees were fired. The average complete employment duration was 25 months for those who left, and was unknown or right-censored for the remaining employees.

Analysis strategy

We conducted multiple regression analyses for models involving employee-perceived deep-level dissimilarity and overall job attitude as the outcome variable. For models involving turnover as the outcome, we conducted survival analyses. Survival analysis models the *conditional probability*, or hazard rate, of turnovers occurring at a particular time, allowing us to utilize the information on both the *occurrence* and *timing* of voluntary turnover (Morita, Lee, & Mowday, 1993). We estimated Cox proportional hazards models using STATA 8.0. The reported estimates were hazard ratios; by taking 100× (hazard ratio – 1), the resulting value can be interpreted as the percentage change in the likelihood of turnover for a unit change in the predictor. Therefore, if a predictor has an estimated hazard ratio of one, then it has no effect on the likelihood of turnover; predictors with estimated hazard ratios significantly larger (or smaller) than one are said to significantly increase (or decrease) turnover likelihood. Further, we calculated a pseudo-R^2statistic based on the Kullback–Leibler information gain and computed the index of Akaike's information criterion to assess model fit. As in Study 1, we used the cluster method to account for the statistical interdependence among observations from the same store.

Results

Descriptive statistics, intercorrelations, and scale α are presented in Table 1. As shown in *M*1 of Table 3, perceived deep-level dissimilarity was significantly negatively predicted by Extraversion ($b = -.42$, $p < .01$) and Agreeableness ($b = -.33$, $p < .05$), providing support for Hypothesis 1, Hypothesis 2. Contrary to Hypothesis 3, it was not significantly predicted by Neuroticism.[3]

[3] To provide support for our focus on the main effects of personality on perceived deep-level dissimilarity, we further examined the potential moderating effects of personality on the relationship between actual dissimilarity and perceived deep-level dissimilarity. Given that we have eight dimensions of actual dissimilarity and five personality dimensions, there are altogether 40 interaction terms. We standardized each of the components and then created the interactions. We found that out of the 40 interactions, only one was significant using the Study 1 data, and four were significant using the Study 2 data, and none of these interactions was significant in both studies. The lack of a consistent pattern of significant interactions across the two field studies suggests that there is no clear moderating effect thus providing support for our focus on the main effects of personality on perceived deep-level dissimilarity.

Table 3. Regression and survival analysis results from Study 2[a]

	Perceived deep-level dissimilarity	Overall job attitude	Actual turnover	
Variable	***M*1**	***M*2**	***M*3**	***M*4**
Intercept	5.62**	−.12		
Control variables				
Group size	−.01	.04	.94	.99
Group average tenure	−.10**	.02	.55**	.55**
Gender (female = 1)	−.37†	−.04	.61	.69
Age	.13*	.06	.79	.81
Education	−.10	−.23†	1.77	1.46
Conscientiousness	.03	−.07	1.13	1.00
Openness to Experience	.31†	−.08	.83	.83
Actual gender dissimilarity	−.01	.03	1.24	1.30
Actual age dissimilarity	−.01	.07	.94	1.07
Actual education dissimilarity	.11	.10	.56†	.56†
Actual Conscientiousness dissimilarity	.12	.04	.38†	.34*
Actual Neuroticism dissimilarity	−.03	−.10	.93	.89
Actual Extraversion dissimilarity	−.10	.16	1.37	1.50
Actual Agreeableness dissimilarity	−.22	−.25	1.31	1.35
Actual Openness dissimilarity	.49**	−.02	1.31	1.12
Perceived gender dissimilarity		−.06	1.00	1.00
Perceived age dissimilarity		−.10†	1.01	.94
Hypothesized variables				
Extraversion	−.42**	.41**	1.11	1.28
Agreeableness	−.33*	.42**	.94	1.15
Neuroticism	.02	−.21*	.94	.77
Perceived deep-level dissimilarity		−.18**	1.35*	1.25
Overall job attitude				.59**
N	414	414	411	411
F (or χ^2 for *M*3 and *M*4)	3.49**	7.40**	84.42**	117.69**
df	(18, 109)	(21, 109)	21	22
R^2 (or pseudo R^2 for *M*3 and *M*4)[b]	0.14	0.29	0.19	0.25
AIC[c]			891.28	880.68

[a]Estimates for *M*3 and *M*4 are hazard ratios of survival analysis.
[b]The pseudo R^2 was calculated based on the Kullback–Leibler information gain.
[c]AIC = Akaike's information criterion. Lower AIC values indicate more information per estimated parameter and better model fit.
∗ $p < .05$. ∗∗ $p < .01$. † $p < .10$.

Consistent with Hypothesis 4, as shown in *M*2 of Table 3, perceived deep-level dissimilarity had a significant negative effect ($b = -.18$, $p < .01$) on overall job attitude. Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4 imply that personality attributes might be related to overall job attitude indirectly via the mediation of perceived deep-level dissimilarity. A Sobel's (1982) test confirmed that the indirect effect was significant for Extraversion ($b = .08$, $p < .05$) and were marginally significant for Agreeableness ($b = .06$, $p < .10$).

Hypothesis 7 predicted that perceived deep-level dissimilarity would positively predict turnover, and this effect would be mediated by overall job attitude. The survival analysis of *M*3 and *M*4 in Table 3 served to test this hypothesis. *M*3 revealed that perceived deep-level dissimilarity had a significant hazard ratio of 1.35 ($p < .01$), indicating that a unit increase in perceived deep-level dissimilarity increased the turnover hazard rate by 35%. In addition, as reported in *M*4, when

overall job attitude was added in the survival analysis, the relationship between perceived deep-level dissimilarity and turnover hazard became non-significant. In the same model, overall job attitude had a significant hazard ratio of .59 ($p < .01$), indicating that a one-unit increase in overall job attitude reduced the likelihood of turnover by 41%. A Sobel's (1982) test confirmed that the indirect effect of perceived deep-level dissimilarity on turnover via overall job attitude was significant ($b = .09$, $p < .05$). Therefore, in support of Hypothesis 7, overall job attitude mediated the effect of perceived deep-level dissimilarity on turnover.

In sum, Study 2 demonstrated that perceived deep-level dissimilarity positively predicted actual voluntary turnover, and the effect was mediated by overall job attitude. In addition, Study 2 replicated Study 1, showing consistent results that more extraverted and agreeable individuals perceived lower levels of deep-level dissimilarity.

Discussion

The current research extends three new areas of research in relational demography to consider deep-level dissimilarity in theory building, directly assess dissimilarity perceptions in theory testing, and draw on insights from personality research to understand the antecedents of dissimilarity perceptions. The results based on one pilot study and two field studies provided some support for the proposed relationships. This research makes several theoretical contributions, and offers some interesting implications for future research and practice.

Theoretical contributions and implications

The examination of the personality antecedents of dissimilarity perceptions was a novel contribution of this research to the relational demography literature. Our propositions were based on a significant body of research that has found Extraversion, Agreeableness, and Neuroticism to be associated with general liking or disliking of others, interaction and social attachment seeking behavior, willingness to tolerate others and compromise, and a tendency to form friendships in small group settings (e.g., Barrick et al., 2002, Beck and Cartwright, 1982, Klein et al., 2004). Although this research has not considered personality dimensions as correlates of dissimilarity perceptions, we extended past findings to hypothesize that less extraverted, less agreeable and more neurotic individuals would perceive a higher level of deep-level dissimilarity between themselves and coworkers. These results indicate that the relationships between personality dimensions and perceived deep-level dissimilarity are not pre-ordained; there is actually possibility that they would *not* be supported. In fact, the effect of Neuroticism was not supported in either of the two field studies, but the effects of Extraversion and Agreeableness held up under evidence scrutiny over contexts in both of the field studies. The findings suggest that socially oriented personality dimensions including Extraversion and Agreeableness are more dependably related to an individual's interpersonal comparison between himself/herself with workgroup members on deep-level characteristics.[4] Neurotic individuals, who generally have a negative view of the world, may not necessarily feel they are more different from other group members yet still tend to have negative overall job attitude and engage in more work withdrawal behavior. These findings add to the limited but growing evidence that individuals' enduring personality characteristics influence their experiences of workplace diversity (Flynn et al., 2001, Klein et al.,

[4] We thank David Harrison for this observation.

2004, Mehra et al., 2001). Our models explained only a modest amount of variance in perceived deep-level dissimilarity, suggesting that personality dispositions do not account for the full picture. Therefore, a promising avenue for future research would be to examine individual factors such as cognitive complexity and contextual factors such as group diversity climate, organizational culture, and leadership in relation to employees' dissimilarity perceptions. Future research may also examine how factors such as impression management and interpersonal familiarity moderate the relationship between actual and perceived dissimilarity.

Second, we found that controlling for the effects of actual dissimilarity and perceived surface-level dissimilarity, perceived deep-level dissimilarity were significantly negatively related to an individual's overall job attitude and helping behavior, and significantly positively related to work withdrawal behavior actual voluntary turnover. These findings contribute to predominant theoretical perspectives in relational demography research such as the similarity attraction paradigm (Byrne, 1971), attraction–selection–attrition (ASA) framework (Schneider, 1987), and social identity theory (Tajfel and Turner, 1986, Turner, 1987). Early applications of these theoretical perspectives emphasized overt, surface-level features as a basis for interpersonal attraction and social categorization. Adding to recent theoretical and empirical developments (e.g., Van der Vegt & Van de Vliert, 2005), the current research supports the applicability of these theories to deep-level characteristics, extends prior research on compositional diversity at the team-level (Harrison et al., 1998, Harrison et al., 2002) to the individual-level of analysis, and expands the criterion domain to include critical behavioral outcomes implied by these theories but rarely assessed in prior studies.

On a related note, such an approach is in line with research calls by Lawrence (1997) and Riordan (2000). Our results underscore the importance of assessing *perceived* dissimilarity in relation to attitudinal and behavioral outcomes to test theoretical frameworks that have received attention in past relational demography research. While the experiences of demographic minorities such as women and ethnic minorities in organizations cannot be disregarded, we suggest that investigations of demographic attributes and actual demographic dissimilarity be supplemented by measures of perceived differences on deep-level characteristics.

Our findings also have relevance to a theoretical perspective that has received less attention in relational demography research, specifically, the attitude-engagement theory (Harrison et al., 2006). This theory is rooted in a substantial tradition of research on attitudes in social psychology (e.g., Allport, 1935, Campbell, 1963, Eagly, 1992). In response to early criticisms that attitudes are poor predictors of behavior, researchers proposed that the attitude–behavior link could be strengthened by measuring an overall job attitude construct in relation to broad aggregates of behavior (Ajzen and Fishbein, 1980, Harrison et al., 2006). Extending these perspectives, we find that the overall job attitude construct that we focused on does serve as a "directive and dynamic force" (Eagly, 1992, p. 694) linking perceived deep-level dissimilarity to broad sets of behaviors such as helping, work withdrawal and actual voluntary turnover. Also contributing to the cognitive-response perspective on attitude formation, our findings show that perceived deep-level dissimilarity may serve as a basis for cognitive evaluations regarding the objects of one's evaluation (such as the workgroup) and thereby manifesting in the overall job attitude (see Eagly, 1992). Future research may also examine specific contexts in which perceived deep-level dissimilarity is more or less likely to manifest in overall job attitude.

Third, this research extends the helping, work withdrawal, and turnover literatures. Reviews (e.g., Griffeth et al., 2000, Sackett and DeVore, 2001) reveal that extant research has primarily examined these behaviors as an individual phenomenon. We found that perceived deep-level dissimilarity to others in the workgroup significantly predicted these critical behavioral outcomes after a variety of individual demographic and personality attributes had been accounted for. As perceived dissimilarity reflects an individual's experienced relationship with others in the work unit (Wagner et al., 1984), our findings underscore the importance of studying the social context the individual is associated with as an antecedent of the individual's helping and withdrawal behavior. This approach also corroborates recent theoretical development in turnover research which considers how turnover can be reduced by increasing an individual's *embeddedness* in the current job that manifests as the individual's *links* to other people or activities, *fit* between jobs and other aspects of life, and *sacrifice* if these links are broken (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). We argue that a higher level of perceived deep-level similarity indicates the individual perceives a strong linkage with others at work, a good fit with the workgroup, and a large social loss if he/she were to leave. Therefore, future research may examine perceived deep-level similarity as a predictor of job embeddedness.

Finally, our findings, using data from Taiwan, were largely consistent with extant relational demography research conducted primarily in the US, thus joining Chattopadhyay, George, and Lawrence (2004), Kirchmeyer (1995), and Wiersema and Bird (1993), our study contributed to the literature by demonstrating the external validity of relational demography framework in non-US settings. Although the single-culture context of the current research rules out the confounding effects due to cultural differences, we propose that future studies incorporate data from multiple cultures to examine how culture differences shape dissimilarity perceptions.

Limitations

Like all research, this study has limitations. First, in each of the two field studies, we constrained the sample to the same occupation (sales employees for Study 1 and hairstylists for Study 2). Although this approach ruled out the effects of extraneous factors associated with different occupations, the generalizability of our results to other types of occupations and organizations need to be investigated in future research. Further, the participants in both samples were relatively homogeneous in terms of their demographic background; they were relatively young, of the same ethnicity, and mostly women. This homogeneity might have to some extent muted the effects of actual and perceived dissimilarity in the current research. In addition, we had very high yet still imperfect response rates in the two field studies which might also have limited the variance of the study variables. Future research needs to strive to achieve a perfect response rate, and examine how the relationships studied here play out in more diverse samples.

Second, because many of our measures were assessed via self-reports, the significant relationships found in this study are not immune to common method variance and social desirability bias. However, the different magnitudes of the detected relationships, and in some cases, the lack of significant relationships, suggest that the results are not driven by method variance (George & Bettenhausen, 1990). Further, method bias should not have been a problem in the prediction of helping behavior which was evaluated by store managers, or in the prediction

of actual turnover which was obtained from archival data nine months after we measured dissimilarity perceptions and the other variables. In addition, social desirability bias should have been accounted for, at least to some extent, by controlling for self-reported personality traits.

Third, although our measure of perceived deep-level dissimilarity follows the method used in prior studies (e.g., Harrison et al., 2002), it contains rather generic statements about an individual's perceived differences from group members in personality, personal values, work attitudes, and so on. The pattern of relationships between this measure and other theoretically related variables in the nomological network revealed in the pilot study and the two field studies using three distinct samples provided evidence for its construct validity. Nonetheless, future research should strive to develop a more detailed measure of perceived deep-level dissimilarity to better capture its complex content and to increase its predictive power. In addition, future research may employ a "roster method" that is employed in network research to examine the focal individual's perceptions of dissimilarity relative to *every other* individual in the group.

Lastly, our cross-sectional data (with regard to the measures of dissimilarity perceptions and overall job attitude) are not appropriate for studying the effects of *time* on surface- and deep-level differences (Harrison et al., 2002). Future research could follow a sample of organizational newcomers over time. By collecting dissimilarity perceptions and individual outcome measures repeatedly in multiple phases, one may examine whether in different stages, these newcomers' attitudes and behaviors are affected differentially by perceived surface-level dissimilarity and perceived deep-level dissimilarity.

In conclusion, this study sheds new light on the relational demography research, which has been plagued by equivocal findings and small effect sizes. Our results demonstrate the importance of perceived differences on deep-level characteristics in predicting critical work outcomes. In addition, we found enduring personality traits play a modest, yet significant role in the formation of individual deep-level dissimilarity perceptions. We hope this study will inspire more research to continue the examinations of the antecedents and consequences of employee perceived dissimilarity. Endeavors along this line will provide information that will aid organizations' efforts to more effectively manage an increasingly diverse workforce.

Acknowledgments

We thank the National Science Council in Taiwan for providing research grants (NSC 91-2416-H-011-008-SSS, NSC 92-2416-H-011-011-SSS) to support this study. We also thank Susan Jackson, John Kammeyer-Mueller, Editor David Harrison and the anonymous reviewers for their very helpful comments and suggestions.

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