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Social influence constrained by the heritability of attitudes

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ABSTRACT

Previous work by Tesser (1993) and Bourgeois (2002) found that heritable attitudes are more resistant to social influence and attitude change. The present study sought to replicate and extend previous work by utilizing attitudes and heritability estimates not previously used in studies examining the effect of heritable attitudes on social influence processes. It was hypothesized that attitudes with higher heritability estimates would change less after group discussion relative to attitudes with lower heritability estimates. As predicted, highly heritable attitudes did show greater resistance to social influence in the context of group discussion. The present findings add further support to the notion that attitude heritability is an important element of attitude change and extend previous work through the study of novel attitudes and heritability estimates.

1. Introduction

The transmission of attitudes, behaviors, and beliefs between members of an interacting social network is among the most widely supported phenomena in social psychology (Cialdini & Goldstein, 2004). From Newcomb's (1958) early work on college roommates to Festinger, Schachter, and Back's (1950) seminal work on MIT apartment complexes, decades of field and lab studies indicate that shared social space results in shared social identities and preferences (Harton & Bullock, 2007). Dynamic social impact theory (DSIT; Latané, 1996; Nowak, Szamrej, & Latané, 1990) suggests that as people influence each other their behaviors and attitudes become more similar (Harton, Green, Jackson, & Latané, 1998; Latané & Bourgeois, 1996, 2000), resulting in the emergence of stable social and cultural norms (Cullum & Harton, 2007; Harton & Bourgeois, 2003).

Yet not all social information is equal, and some attitudes and beliefs are more or less resistant to social influence relative to others. A wealth of work on attitudes strongly indicates that the intensity with which an attitude is held, an attitude's *strength*, significantly impacts a variety of attitudinal processes. Specifically, strong attitudes are more readily expressed, provide a more reliable basis for predicting future behavior, and are more resistant to change over time and in the presence of social influence (Petty & Krosnick, 1995).

While surprising, Tesser (1993) has suggested that attitude heritability may affect attitudes in a manner similar to *importance* (Krosnick, 1988), *accessibility* (Fazio, 1995), and *commitment* (Abelson, 1988). Indeed, twin studies have found that attitude heritability accounted for twenty-five percent of the variance in attitude importance and strength (Olson, Vernon, Aitken Harris, & Jang, 2001), indicating that heritability is related to attitude strength and thus is apt to have similar consequences for social influence and attitude change.

1.1. Heritable attitudes

While once controversial, the notion that some non-trivial component of many attitudes is heritable has received several lines of empirical support. Research by Eaves, Eysenck, and Martin (1989) examined over 400 MZ twin pairs and over 300 DZ twin pairs from the London Institute of Psychiatry Twin Registry. Eaves et al. found heritability coefficients for social attitudes ranging from .1 to .63, with 43 out of 60 items with heritability coefficients equal to or over .30. Significant heritability coefficients included attitudes toward religion, sex crimes, the death penalty, women's roles, and political orientation (Eaves et al., 1989). Specific investigations into particular attitudes have also found considerable heritability for religious attitudes and values (Waller, Kojetin, Bouchard, Lykken, & Tellegen, 1990) and work attitudes (Keller, Bouchard, Arvey, Segal, & Dawis, 1992).

More recent research by Olson et al. (2001) used a Canadian twin sample to establish several new attitudes as heritable (e.g. being a leader and getting along with other people). Olson et al. found that 22 out of 30 attitude items measured had significant

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genetic contributions. Olson et al. replicated the overall pattern of attitudes that have been shown to be high and low in heritability in previous research; for instance, attitudes toward the death penalty for murder, voluntary euthanasia, and organized religion all had high heritability coefficients, similar to previous studies. Olson et al. also found that behavioral characteristics high in heritability (e.g. sociability and athleticism) were correlated with similar highly heritable attitudes (e.g. attitudes toward leadership and athletics), indicating a possible causal mechanism for such attitudes and their heritability. The consistency of heritable attitudes across different samples suggests that these attitudes may have a deeper structure based in other heritable phenotypic traits.

Tesser has proposed several dispositional domains that might form a substrate of heritable attitudes: sensory structures, body chemistry, intelligence, temperament, and conditionability (1993); however, no empirical work to date has attempted to address this theoretical limitation concerning heritable attitudes. While the underlying factors contributing to attitude heritability are not yet well understood, several studies have indicated that heritable attitudes are consequential to social psychological processes.

1.2. Consequences of heritable attitudes

In a series of studies, Tesser (1993) showed that attitude heritability affects attitudes much like attitude strength. Tesser found that attitudes with higher heritabilities were responded to faster relative to attitudes with lower heritabilites, and interpreted this difference to indicate that heritable attitudes were more accessible (Fazio, 1995). Further, when participants rated a series of targets as desirable friends, romantic partners, and spouses, the targets were rated more favorably as the number of highly heritable attitude items the target reported agreed with the participant. Finally, Tesser presented participants with false normative information about other participants' responses to heritable attitude items, finding that attitudes with higher heritability coefficients were more resistant to normative influence, changing less in the direction of the false feedback as compared to attitudes with low heritability coefficients.

Extending Tesser's work, Bourgeois (2002) hypothesized that heritable attitudes would affect the outcomes of social influence at the group-level and tested this prediction in the context of dynamic social impact theory (DSIT; Nowak et al., 1990). Dynamic social impact theory suggests that as people interact and come to influence each other, stable social patterns, or cultural norms, will emerge at the macro-level (Latané, 1996). DSIT predicts that four specific phenomena will come to characterize groups as they influence each other over time: clustering (regional self-organization of distinct groups), correlation (emergent relationships between previously unrelated thoughts, feelings, and behaviors), consolidation (reduction in minority thoughts, feelings, and behaviors), and continued diversity (stable surviving minorities within a population). Bourgeois predicted that groups discussing highly heritable attitudes would show less clustering (*spatial self-organization*) and consolidation (*a reduction in minority viewpoints over time*) within social networks.

A wealth of previous work supporting DSIT suggests that over time, communication within groups leads to clustering and consolidation, where groups come to develop their own unique normative characteristics and minority attitudes and behaviors become increasingly marginal with on-going social influence (Cullum & Harton, 2007; Latané & Bourgeois, 2000; Nowak et al., 1990). However, heritable attitudes may represent a constraining factor, where heritable attitudes are more resistant to on-going social influence within groups.

Utilizing both lab-based and naturally occurring groups, Bourgeois (2002) examined the effects heritable attitudes have on social influence processes. Bourgeois asked small groups of participants to report their attitudes before and after a group discussion of the same attitudes. The attitudes themselves were taken from Eysenck's (1951) Public Opinion Inventory, and represented attitudes with high and low heritability coefficients. The post-discussion pattern at the group level was similar to that found by Tesser (1993) at the individual level; as heritability decreased there was increased change in attitudes after discussion which in turn led to a reduction in variability within the group. These results indicate that as the heritability of an attitude increases and consolidation decreases, attitude heritability can constrain social influence within groups.

In a larger field study, Bourgeois examined the effect of heritable attitudes among participants living in campus residence halls. Participants were given attitude measures at the end of the school year and asked to indicate their room number as well. Because DSIT predicts that spatial clustering will occur over time as a product of social influence, Bourgeois reasoned that the degree to which participant's attitudes clustered within the floor of their residence hall was in part an indication of attitude similarity due to social influence. The pattern for the field study was similar to the group-discussion findings; as the heritability of attitudes increased, the less predictive a participant's floor was for their attitudes and less spatial clustering for those attitudes occurred (2002). Across the lab-based and field studies, Bourgeois' hypotheses were supported, indicating that heritability of an attitude constrains social influence processes and thus the bottom-up dynamics of group-level self-organization.

1.3. Overview of the current study and hypotheses

The current study sought to replicate Bourgeois' previous experimental work while utilizing novel attitude items taken from a more recent twin sample (Olson et al., 2001). Bourgeois' previous work used attitude items with heritability estimates based on a British twin sample collected in the early 1970's (Eaves et al., 1989). In fact, the few studies to investigate the influence heritable attitudes have on other social psychological processes (Bourgeois, 2002; Crelia & Tesser, 1996; Tesser, 1993; Tesser & Crelia, 1994; Tesser, Whitaker, Martin, & Ward, 1998), have only utilized the attitude items and heritiability estimates reported by Eaves et al. (but see Conway, Dodds, Towgood, McClure, & Olson, 2011 for a notable exception). The current study utilized novel attitude items and heritability estimates based on a Canadian twin sample collected by Olson et al. (2001). Thus while the present study is both a theoretical and methodological replication of previous work, the use of novel attitude items taken from a novel twin sample constitutes a meaningful extension of the existing literature.

Based on the predictions of DSIT, it was hypothesized that social influence during group discussions would lead to attitude change within groups such that within-group similarity would increase following discussion (i.e. cluster) and overall diversity in group attitudes would decrease (i.e. consolidate). Further, based on previous research examining the influence of heritable attitudes on social influence within groups, it was hypothesized that highly heritable attitudes would show greater resistance to social influence (i.e. less clustering and consolidation), whereas attitudes low in heritability would be less resistant to social influence.

2. Method

2.1. Participants

Ninety-six participants (32 3-person groups) were recruited from introductory psychology courses, and received course credit