Community and Prejudice: Relationships among Social Capital, Intergroup Contact,
Group Categorization, and Racial Attitudes

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Dedication

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Abstract

Interpersonal contact with members of different groups can reduce prejudice and encourage people to see members of other social categories as part of their own ingroups. This research examines a quality of the social environment that might facilitate this type of contact: social capital, or the norms about trust and reciprocity within a social network. People who believe that their communities have high levels of social capital may be likely to have positive contact with members of other social groups. This positive contact could then lead these people to focus on their shared identity as members of that community. Both of these processes could lead to improved attitudes about other groups. Two studies are conducted to test these relationships. Study 1 surveys students about their perceptions of social capital levels within their university community as well as their experiences with students of other races and their attitudes about racial groups. This study provides cross-sectional evidence that social capital relates to contact quality, social categorization and racial attitudes. Study 2 extends this theory by investigating how these variables affect each other over time. Panel data support the claim that social capital is an antecedent of intergroup contact and categorization. These two studies provide novel evidence that qualities of the social environment can influence individual-level experiences and intergroup attitudes.

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Chapter 1: Literature Review and Theory Development

Imagine two students attending school in an urban neighborhood. Both spend their time in class interacting with fellow students of several other races. At lunch, they both have the opportunity to socialize with these diverse students. Will they? In psychological terms, both students have the opportunity for quality interracial contact. They can get to know others who are different from them under conditions that promote prejudice reduction. However, this does not mean that both will take that opportunity. One of these students may frequently interact with diverse groups of fellow students, whereas the other prefers to spend time with those who are racially similar. Likewise, one student might pay attention to the characteristics that all students share, but the other mainly notices the differences between racial groups. If one follows these students over time, one would probably not be surprised to learn that the first student has more positive attitudes about members of other races than does the second student.

How can we account for the difference in these students' experiences and attitudes? One approach might be to examine the factors that promote quality interracial contact. Perhaps these students differ in their expectations and beliefs about their school community. Imagine that the first student believes her fellow students in general are trustworthy people who would welcome her when she approaches them, whereas the second student expects that students at her school typically don't look out for one another or trust one another. In this thought experiment, the two students differ in their beliefs about *social capital* – the norms about trustworthiness and reciprocity within a social network – in the community of their fellow students. If one knew that these

students held such different expectations about their community, one would not be surprised to see them engaging with it in such different manners.

The concepts highlighted in this brief thought experiment – social capital, contact quality, and interracial attitudes – have long been of interest to social scientists from various disciplines. Those who wish to reduce racial prejudice have honed in on a strategy of promoting quality contact between people of different races. Research has also suggested mechanisms to explain how such contact influences racial attitudes; for instance, contact can change the way people define their social categories. However, less is known about how broader aspects of the community could affect interracial contact. Social capital is a useful concept from which to draw inspiration, because it has a wealth of benefits for individuals and their communities (i.e., promoting it could potentially improve interracial contact as well as a broader range of social problems). Issues of trust and community well-being are inherent in the concept of social capital; because parallel issues affect racial relations in diverse communities, the psychological connections between these different constructs could prove valuable to explore. Understanding how social capital relates to intergroup contact and attitudes could lead to a theory that better predicts when interracial contact will be more or less effective. Ultimately, it is possible that enhancing a community's social capital could result in individual community members who have more positive attitudes about all members of the community—thus reducing racial prejudice without an explicit focus on race.

Overview of the Chapter

In this thesis research, the overarching question is whether and how social capital relates to intergroup attitudes. How can a general sense of trust and norms of

inclusivity influence how a community is defined, how one interacts with other members of the community, and how one feels about people different from oneself? This interdisciplinary connection is relatively new and provides a fresh perspective for examining prejudice in a broader social context. Psychological research on intergroup attitudes tends to focus rather closely on the specific intergroup dynamic under investigation in a particular study, but it could benefit from attention to broader aspects of the community in which the intergroup dynamic unfolds. Interdisciplinary research suggests that there could be connections between social capital and social categorization (especially the process of recategorizing into a superordinate ingroup), and between social capital and intergroup contact. However, these connections have not been thoroughly explored in intergroup relations research. This chapter presents research from psychology and other disciplines to support the argument that social capital can influence racial attitudes by promoting interracial contact and inducing a common ingroup identification.

To support this claim, the chapter begins by examining existing research from several theoretical perspectives. First is a summary of contact theory (e.g., Allport, 1954; Pettigrew, 1998) and evidence that having contact with members of different groups can influence one's attitudes about their groups. Next is an examination of cognitive mechanisms for this effect, specifically, theories of decategorization, mutual intergroup differentiation, and recategorization. All three of these processes change the salience of ingroup and outgroup boundaries. Recategorization involves a more inclusive ingroup – basically, changing the definitions of one's salient ingroup so that it includes people who had been in an outgroup. Because social capital can be considered

an aspect of one's community, and communities are frequently relevant ingroups, the recategorization process will be the most relevant mechanism in the context of contact within a defined community. Thus, a more detailed section on recategorization research is included – specifically as it is conceptualized in the Common Ingroup Identity Model (e.g., Gaertner & Dovidio, 2000).

After reviewing these psychological theories, the chapter turns to the interdisciplinary literature to provide a more detailed explanation of social capital. Two debates in the social capital literature are highlighted. First, there is the question of whether social capital is considered a property of the individual or of the community. There is evidence for both cases, and an individual-level conceptualization will be most useful for the present psychological research. Next, there is the question of social capital's two subtypes: bridging and bonding. This distinction presents a secondary research question for this dissertation research: How might bonding and bridging social capital differentially relate to intergroup attitudes? To develop predictions about this research question, I draw from a social identity theory perspective to argue that social capital's bridging and bonding dimensions may be connected to a one's salient social identities and the extent to which those identities are inclusive or exclusive of others.

After providing background on all of these theories, the chapter returns to the main question of how beliefs about social capital in one's community might influence intergroup attitudes. There is some evidence that there might be a negative relationship, based on data suggesting that more diverse communities are less trusting of one another. However, researchers reporting this negative relationship have overlooked some crucial connections: These researchers do not consider the quality of contact in such diverse

communities, nor do they distinguish between bonding and bridging social capital. When bridging social capital is prevalent and people have high-quality contact with other groups, people in diverse areas can have positive, trusting attitudes about one another. Some initial data from a prior study of social capital and academic engagement, which happened to include some measures of interracial attitudes, provides some support for this claim.

After presenting this background information, I integrate the theories and propose some answers to the research questions. This work suggests that an understanding of social capital should improve predictions of when intergroup contact will be more or less effective. Based on the theories discussed throughout Chapter 1, bridging social capital should be positively associated with interracial attitudes because it promotes quality contact and common ingroup categorization. I then discuss two empirical studies – presented in great detail in Chapters 2 and 3 – that will address specific hypotheses – derived from the theoretical claims – about social capital, contact, recategorization and racial attitudes. The research in these studies will contribute to a more nuanced understanding of prejudice in the social context.

Intergroup Contact Theory

For the better part of the last century, the social-psychological area of intergroup relations has been focused on how people think, feel and behave towards those who differ from them. Sociologists were among the first to develop ideas about how groups relate to each other and to propose that the manner of contact affects this dynamic (Williams, 1947). Opportunities arose to conduct natural field experiments (e.g., in desegregating military units or public housing projects), which provided support for the

power of interracial contact (Brophy, 1946; Deutsch & Collins, 1951). Within

psychology specifically, a key area of research has been the ways that contact with

members of other groups can affect attitudes about those groups. Much of our

contemporary theorizing on intergroup contact can be traced back to Allport's (1954)

The Nature of Prejudice (see Dovidio, Glick, & Rudman, 2005, for an extensive

analysis of this book's influence on modern psychology). In this work, Allport

proposed that the conditions under which such contact occurs are crucial to

understanding its effects. If members of groups meet under circumstances that promote

equal status between the two groups, shared goals to pursue, cooperation to achieve

those goals, and a sense of institutional support for the intergroup contact, then contact

tends to have a positive effect on attitudes about the outgroup.

Later research provided empirical support for Allport's (1954) claims about the

conditions of quality contact, and investigated additional factors that could moderate the

contact effect. A variety of other facilitating factors have been proposed, such as the

potential for intimate contact and friendships (Pettigrew, 1997, 1998). In a notable

example of such research, Pettigrew (1997) tested the contact hypothesis in an extensive

survey of people from four European countries. Respondents reported how many cross-

race friends they had; the number of friends predicted generalized prejudice against

racial outgroups. So, for example, a German who claimed to have several Turkish

friends was less prejudiced not only against Turks, but also less prejudiced against West

Indians and Vietnamese. These results held when controlling for factors that could

affect prejudice, such as political ideology, urban residence, education, and nationalism.

In addition, friendships were more predictive of prejudice than prejudice was of

friendships, meaning that these effects cannot be explained simply by low-prejudice people selecting outgroup friends. The message of this study is that cross-group friendships are especially likely to meet criteria for positive intergroup contact, and are therefore especially powerful at reducing prejudice.

Other research further rules out the self-selection of low-prejudiced people into cross-race friendships and supports the theorized causal direction of contact to intergroup attitudes. For instance, van Laar, Levin, Sinclair, and Sidanius (2005) took advantage of a natural experiment and studied randomly-assigned college roommate pairs. Students who lived with a cross-race roommate generally had larger decreases in prejudice over the course of the school year than those who did not have this type of contact. Of course, roommate contact is also likely to meet Allport's (1954) criteria: The institutional authorities clearly sanction the contact as the university had assigned it, the two students are of equal status in the university's eyes, and they depend on each other to achieve the common goal of a harmonious living situation. This study shows that such conditions can occur in non-voluntary contact situations.

As Pettigrew (1998) argued, the danger of studying the many potential facilitating conditions associated with contact theory is in the proliferation of qualifiers. In addition to friendship, researchers have documented facilitating effects like a shared native language (Wagner & Machleit, 1986) and a potential for stereotype disconfirmation (Cook, 1978), and negative effects like poorly organized integration (Brooks, 1975). There is also evidence suggesting that extended contact (e.g., being friends with someone who has outgroup friends) reduces prejudice (Paolini, Hewstone, Cairns, & Voci, 2004; Turner, Hewstone, Voci, & Vonofaku, 2008; Wright, Aron,

McLaughlin-Volpe, & Ropp, 1997). Pettigrew and Tropp's (2006) extensive meta-analysis was a valuable step toward understanding and simplifying contact theory. They examined 515 studies that measured intergroup contact and attitudes in many cross-group situations: race, ethnicity, religion, sexuality, disability status, and so on. Studies were coded to determine whether the intergroup contact met Allport's (1954) conditions for quality. The analysis revealed that contact alone is sometimes sufficient to bring about more favorable attitudes toward an outgroup, but quality contact – that which meets Allport's criteria – is an especially powerful prejudice reduction strategy.

All in all, it is hard to deny the importance of favorable contact conditions. They have great power to enhance and facilitate attitude change after intergroup contact. Thus, it is important to investigate factors that affect intergroup contact, as well as the positivity or negativity of the situation in which such contact occurs. As discussed above, psychology has already made many inroads into the individual psychology of people who experience such contact, and the ramifications of contact for them. Still, the field has paid relatively less attention to broader factors that may affect these individuals and the kind of contact that they experience. This dimension has not been ignored: One could argue that Allport's (1954) institutional support factor could be considered an aspect of the broader community, as it focuses on the social norms that authorities supply. One goal of the current research is to explore the role of social capital – as another set of norms that captures the influence of the broader community – that could influence both contact and prejudice. Studying this connection will shed light on how norms derived from all members of the community (i.e., not only authorities and institutions) affect contact processes. Before expanding on this idea, however, I will

briefly outline relevant mechanisms behind the connection between contact and intergroup attitudes that might also benefit from attention to social capital in the social contexts in which they occur.

Mechanisms of Prejudice Reduction through Contact

After establishing that contact can reduce prejudice, an important question remained: how? Recent research examines the mechanisms that drive the contact effect. One perspective on the mechanism for contact effects takes a cognitive approach, and focuses on how people categorize groups (Dovidio, Gaertner, Saguy, & Halabi, 2008; Gaertner & Dovidio, 2000). One quality that social categorization theories share is the attention they pay to distinguishing between ingroups and outgroups based on social identities, a history that traces back to Social Identity Theory (Tajfel & Turner, 1979) and Self Categorization Theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). These theories (discussed in more detail below) suggest that people place themselves into social categories or groups based on what they share in common with others. Once they have defined such an ingroup, people who do not fit that particular category are members of outgroups. People tend to show a preference for their ingroup members over outgroup members (Tajfel & Turner, 1979; Turner et al., 1987); therefore, social categorization theories suggest that prejudice can be reduced by changing the way ingroups and outgroups are defined.

Within categorization accounts for prejudice reduction are several competing explanations. For example, the process of decategorization (Brewer & Miller, 1984) involves a reduction in the salience of group boundaries, and a corresponding increase in the tendency to see others as separate individuals. Decategorized interactions should

consist of more attention to unique characteristics of the individual rather than a focus

on the characteristics that person shares with his or her group; in other words, the out-

group becomes more differentiated and less homogenous. Prejudice can be reduced

through decategorization because intergroup biases are no longer relevant when one

does not use group membership to categorize others. Empirical work on this model

suggests that personalized interactions serve to decategorize an outgroup member; after

such personalized interactions, individuals had more positive attitudes about their

interaction partner's group (Ensari & Miller, 2002, 2005).

Another type of categorization is the Mutual Intergroup Differentiation model

(Hewstone & Brown, 1986). With this strategy, people maintain their ingroup/outgroup

categorizations, but focus on ways that their groups can cooperate. This strategy does

not require group boundaries to fade, but rather focuses on a change in the way the two

groups perceive their degree of competition and cooperation. In this case, the outgroup

remains an outgroup, but prejudice can be reduced because one's ingroup is cooperating

rather than competing with it. Recent refinements to this theory (Brown & Hewstone,

2005) suggest that contact will be most effective when both intergroup and

interpersonal qualities are salient. In terms of categorization, they argue that the

existence of group distinctions is necessary to generalize the positive interpersonal

interaction to the rest of the outgroup.

A third alternative mechanism, the process of recategorization, suggests that

contact reduces the salience of group boundaries, but in a direction opposite to

decategorization theory's predictions. The Common Ingroup Identity Model (which

incorporates recategorization as its mechanism; Gaertner & Dovidio, 2000) proposes

that people switch from categorizing others into separate groups and instead focus on a

characteristic that they share with others. In essence, people pay attention to what their

groups have in common, and turn to a categorization strategy that emphasizes their

shared ingroup status. The research conducted for this dissertation focuses on the

recategorization process, so this theoretical overview provides a more detailed

background on the Common Ingroup Identity Model of social recategorization.

The Common Ingroup Identity Model suggests that perceiving individuals as

part of a superordinate group, rather than as two subgroups or as separate individuals,

will have the most positive effects on attitudes about outgroup members. That is,

undergoing a process of recategorization can change the way an individual regards

outgroup members and lead him or her to consider these targets more like ingroup

members. A typical lab study of recategorization might involve groups working on a

series of collaborative tasks, in which group identities are manipulated via seating

arrangements, group nicknames and/or clothing (e.g., Gaertner et al., 1989).

Participants work on a task with two others, and then join another group of three for a

second task. When they are induced to view the second group as one group of six rather

than two groups of three, they tend to like all other participants equally well. When they

maintain the original group distinctions in the larger group task, participants prefer their

original group members. The induction of a common group identity leads people to treat

former outgroup members as if they are now ingroup members. Similar patterns

emerge when studying situations with naturally occurring groups, such as corporate

mergers and stepfamilies. Such studies find that people who perceive the new situation

as characterized by one superordinate group have more positive attitudes than those

who view their situation as comprised by two coexisting groups (e.g., Gaertner &

Dovidio, 2000).

Later research indicates that a common ingroup identity manipulation can be

effective not only for minimal groups and those without a history of problematic

relations, but also for those that have a more entrenched history of conflict as racial and

ethnic groups often do. After Gaertner et al. (1994) found survey evidence that students

who see their schools as a common ingroup are less prejudiced toward other students of

different races, Nier and colleagues (2001) followed up with several experimental

studies. In one study, white participants interacted with a white or black confederate

while participating in lab group tasks. These participants liked the black confederate

better when she had been on their team than when they had worked individually

(whereas no such effect was present for the white confederate), and this relationship

was mediated by the salience of their common group membership during the task. In a

second study, black and white confederates approached people attending a college

football game while wearing university logo clothing and asked them to take a brief

survey. Football fans were more likely to comply with the black confederate when their

shared university affiliation was salient. Thus, a salient common ingroup – either the lab

team or the university – can lead to more positive attitudes and behaviors in an

interracial interaction (Nier et al., 2001). More recent research (Dovidio et al., 2004)

also examined racial prejudice. When participants learned about a racial outgroup

member who had experienced discrimination, they report greater feelings of injustice

about it when they had been asked to consider things that they share in common with

the target person beforehand. Experiencing a salient common identity and feeling

injustice on behalf of a person of another race led to more positive attitudes that generalized to the target person's racial group as a whole.

Superordinate group categorizations and perceptions of a common ingroup identity are most likely to occur when the contact between the groups occurs under conditions that closely match those proposed by contact theory. For instance, when members of the two groups believe that they are of equal status during their contact with each other, they are more likely to see themselves as one broader group. Situations in which there is a marked status difference lead individuals to retain their subordinate group identities. For instance, when one lab group has outperformed the other in a prior task (Gaertner & Dovidio, 2000), when one company has taken over another rather than merged on equal terms (Bachman et al., 1993, as cited in Gaertner & Dovidio, 2000), or when members of a historically higher status ethnic group are motivated to maintain the hierarchical status quo (as demonstrated in research on Israeli Arabs and Jews; Halabi, Dovidio & Nadler, 2008; Halabi, Nadler, Dovidio & Noor, 2010), common ingroup identities are more difficult to maintain. Of course, it is possible for people to have dual identities; that is, people may simultaneously identify with both a subgroup and a superordinate group (e.g., Brewer & Schneider, 1990; Nier et al., 2001, see also Brown & Hewstone, 2005). Such a categorization structure also leads to more positive interactions between subgroups than when people consider themselves as two completely separate groups (Gaertner et al., 1994).

In sum, there is extensive evidence that social categorization affects intergroup attitudes in a variety of ways: through decategorization, recategorization, or mutual differentiation. Intergroup contact is one condition that triggers changes in social

categorization. But, could there be others? This work considers broader social factors

that might affect both contact and social categorization and thus influence intergroup

attitudes. In the interracial context specifically, could there be social factors –

independent of racial issues – that influence racial experiences and attitudes? Qualities

of the communities in which an individual lives, works, or studies may influence his or

her attitudes and behavior.

<div align="center">*Social Capital*</div>

One such quality of community life that is likely to play a role—but that has not

received attention in the intergroup relations literature—is social capital. Social capital

as a concept has roots in sociology with theorists such as Bourdieu (1980; see also Lin,

2001; Portes, 1998; Shusterman, 1999) and Coleman (1988). These theorists considered

social capital as a parallel to human or physical capital: a resource that one can convert

to benefits for oneself or one's group. Specifically, social capital allows people to use

their social networks to obtain goods, services, or opportunities. A new spike in

scholarly attention to social capital began in the 1990s, starting with political scientist

Robert Putnam (1993, 2000), who moved away from a strictly literal definition of

capital and characterized social capital in terms of trust and social norms of reciprocity

within a social network. In other words, a community with high social capital is one in

which people generally act in a manner that benefits the community, because they tend

to trust others and to expect that the community will look out for their own interests in

turn. Such a definition suggests that trust, reciprocity, and social ties are the

mechanisms that allow people to benefit from their social networks (Putnam, 2000).

This new research demonstrates that social capital is associated with a wide range of qualities in various communities. Many types of civic participation are higher in areas with more social capital: volunteering, signing petitions, giving to charity, and reading newspapers (Putnam, 1993; Uslaner & Brown, 2005). Political participation, like voting or associating with a political party, also increases (Uslaner & Brown, 2005), and political corruption is lower in areas with more social capital (Putnam, 1993). Social capital is associated with educational outcomes, such that students have higher test scores and are more likely to graduate in high-social-capital communities (Dika & Singh, 2002; Goddard, 2003; Sun, 1999). Violent crime is lower in areas with high social capital (Putnam, 2000; Sampson, Raudenbush, & Earls, 1997; Sampson & Groves, 1989). Social capital can also foster technological development; for example, research shows that it can facilitate development of community internet resources (Borgida et al., 2002; Sullivan et al., 2002a, 2002b). People who live in high-social-capital areas report more overall satisfaction with their lives (Putnam, 1993). To the extent that social capital promotes volunteering, it may reduce economic inequality by encouraging people to help disadvantaged community members (Wunthrow, 2004). In sum, understanding social capital has the potential to improve life in all of these areas, so it is no surprise that the concept is receiving ample attention from researchers.

Despite its recent popularity among other social sciences, social capital has not yet made many inroads into psychology (with a few exceptions, e.g., Borgida et al., 2002; DeSteno, 2009). However, social psychologists generally focus on the impact of the social situation on the individual. The characteristics of a person's communities should have a strong impact on such environmental influences; as such, considering

social capital as it defines and shapes the nature of a community is consistent with the broader goals of social psychology.

Social Capital at the Individual and Community Levels

Although social capital is a concept that could be compatible with a psychological analysis, it poses a prototypical level-of-analysis problem in that it can be considered at various levels of specificity (a common dilemma in the political psychology field). Social capital can be a quality of communities, in which one examines the aggregate levels of trust and associations in a social network. Communities obviously differ in their overall levels of social capital, with different ramifications for their members. But social capital can also be construed as the extent to which an individual has trusting ties to people in the community, as well as that person's subjective beliefs about the extent to which that is the case. At the individual level, it is possible to consider *perceived* social capital by focusing on these subjective beliefs. Even within the same community, one person may perceive and possess more social capital than another, which could lead to different ramifications for those individuals. In order to be most useful for psychologists, social capital may need to be considered at the level of the individual rather than (or in addition to) that of the community.

From a theoretical standpoint, it is important to consider these individual differences. An individual's construal of a situation can have more important psychological consequences than the "objective" reality of the situation, as we teach our introductory students from the very first day of their social psychology classes. Community-level social capital may be perfectly appropriate for disciplines such as

political science and sociology that focus on aggregate-level outcomes (e.g., Coleman, 1988; Putnam, 2000; Uslaner & Brown, 2005). For individual-level outcomes of interest to psychologists, however, it may be more appropriate to match the level of conceptualization and consider social capital as a factor that individuals can possess to varying degrees (e.g., Brehm & Rahn, 1997; Sullivan et al., 2002a, 2002b). As a hypothetical case, sociologists could look to the difference in social capital between two cities to explain why their school districts have different average test scores. However, one could draw a more nuanced picture of this relationship with information about individual students' levels of social capital networks within their cities or schools. For example, regardless of the social capital level of their school district, some students may not believe that they have access to a trustworthy social network. These students may be at risk academically, but could be overlooked if one focused only on the district-level social capital. This is just one example to illustrate the point that conceiving of social capital at an individual level will allow for more intricate and nuanced psychological theory development, as political psychologists have realized (e.g., Anderson, 2010; Brehm & Rahn, 1997; DeSteno, 2009).

In parallel with this theoretical divide, different disciplines have developed corresponding measurement options. Some researchers have measured social capital at the level of the individual (e.g., Sullivan et al., 2002a, 2002b; Onyx & Bullen, 2000; Lin, Fu & Hsung, 2001; Brehm & Rahn, 1997), and others have measured it at the community level (e.g., Putnam, 1993, 2000; Uslaner & Brown, 2005), yet no clear consensus has emerged regarding a standardized way to measure social capital. Some have used social trust as a proxy for social capital (e.g., Uslaner & Brown, 2005), others

have mapped participants' social networks (e.g., Granovetter, 1970; Lin, Fu & Hsung, 2001), some have focused on organizational and associational memberships (e.g., Alesina & La Ferrara, 2000; Costa & Kahn, 2003), some assess a psychological sense of community (e.g., Anderson, 2010), and others have measured multiple factors simultaneously (e.g., Onyx & Bullen, 2000).

Given that social capital is theoretically defined in a multifaceted manner – including feelings of trust, beliefs about the norms of reciprocity in a community, and behaviorally engaging with other community members -- perhaps social capital is best measured by a combination of factors that tap into each of these dimensions. A multidimensional measure can capture behavioral tendencies (such as joining a group or doing a favor) as well as attitudes and emotions (such as feeling safe in the community, feeling valued by others, and of course, trust). Interdisciplinary research suggests that such integrative measures are most theoretically sound as well as most useful for applications to real-world social problems (Woolcock & Narayan, 2000). These measures do not overlook one aspect of the social capital concept at the expense of another, and they are also more able to bridge the divide between aggregate and individual levels. The present research relies on just this sort of multidimensional measure – a scale adapted from Onyx and Bullen (2000) and tested in the university community context (Fisher & Molina, 2009). I believe that paying attention to individuals' attitudes *and* behaviors is the best way of operationalizing social capital at the individual level because it will provide the most complete measure of a concept defined by both abstract beliefs and concrete actions. There are parallels to this strategy in social psychology already; for instance, attitudes are frequently defined in terms of

their affective, cognitive, and behavioral components (Eagly & Chaiken, 1995). By defining social capital in a multidimensional manner, focusing on how individuals perceive their communities and behave within them, the current research can present rich information about this concept.

Bonding and Bridging Dimensions of Social Capital

Another critical issue surrounding social capital relates to its subtypes. Putnam (2000; Putnam & Goss, 2004) proposes that there are two different types of social capital that differ mainly in the strength of the social ties among community members. *Bonding social capital* refers to ties among a rather homogenous group. These are often strong social ties, the kind one would look to for help in a tough situation (Leonard, 2004; Putnam, 2000; Putnam & Goss, 2004). These ties appear to have parallels to what social psychologists would call an ingroup because the community of interest is comprised of others who are mostly similar to the individual. In contrast, *bridging social capital* refers to heterogeneous social ties among a more diverse community. In social-psychological terms, there may be parallels to interactions with outgroups. Bridging social capital is characterized by weaker, looser ties among individuals, but these ties may allow a person access to opportunities in a wider range of contexts (Granovetter, 1970; Leonard, 2004; Putnam, 2000; Putnam & Goss, 2004). For instance, a person may rely on bonding ties when he or she needs help recovering from illness, but turn to bridging ties when he or she needs to find a new job (i.e., the two forms of ties can be used for goals related to "getting by" or "getting ahead;" de Souza Briggs, 1998). Once again, there is no clear consensus in the social capital literature on how to determine the boundaries of each.

In fact, it may very well be that they do not differ qualitatively, but rather in degree. Recent discussions of this distinction (e.g., Lin, 2001; Putnam, 2000; Putnam & Goss, 2004) often cite the pioneering work of Granovetter (1970), who investigated the functions of strong versus weak social networking ties for individuals and their communities. When mapping out social networks, Granovetter (1970) considered strong ties to be those within groups, and weak ties to be those that connected individuals from different groups (hence the term "bridging"). However, Granovetter did worry that his categorizations of social ties might lead to "an ambiguity caused by substitution, for convenience of exposition, of discrete values for an underlying continuous variable" (Granovetter, 1970, p. 1361) – a point that contemporary theorists frequently fail to give their full consideration. Even though the type of ties that characterize bridging and bonding social capital may not be categorically different from each other, the two are usually discussed theoretically as two separate dimensions. Moreover, this *theoretical* distinction is rarely reflected in *empirical* research (but see Larsen et al., 2004, for a community-level study[1], and Leonard, 2004, for a qualitative sociological study[2] that provide exceptions). Thus, a quantitative examination of bridging and bonding social capital is a necessary step for developing this line of research. One goal for the present

[1] Larsen et al. (2004) studied bonding social capital (i.e., levels of association and trust among neighbors in various Phoenix neighborhoods) and bridging social capital (i.e., taking collective action with the city on behalf of the neighborhood). They determine that bonding social capital is a necessary but not sufficient condition for bridging social capital, when the two types of social capital are defined as these community-level qualities and actions.

[2] Leonard (2004) examined social capital in an economically disadvantaged Catholic neighborhood of predominately Protestant Belfast, Northern Ireland. She defined bonding social capital as a person's connections to other Catholics within the neighborhood, and bridging social capital as a person's social network in greater Belfast. Her interviews suggested that neighborhood residents often supported each other through difficult times by bartering services with their neighbors – i.e., using their bonding social capital. Those who had more connections to Protestants seemed to have more economic opportunities and seemed to be more likely to be employed. Her results are consistent with Putnam's (2000) theoretical conception of bridging and bonding social capital, but more systematic attempts to study these concepts in a way that can generalize to communities beyond Belfast is still needed.

research is to empirically distinguish between bonding and bridging social capital. Another is to connect social capital research with more traditional psychological research on intergroup relations and to explore how general norms about trust and cooperation in a community translate to specific interactions among diverse community members. To better understand the connections between these broad theories, the next section turns to an examination of social capital and social identities.

Social Capital and Social Identities

The bridging and bonding distinction discussed above might be a key link between theories about social capital and intergroup processes. Social Identity Theory (Tajfel & Turner, 1979) and Self-Categorization Theory (Turner et al., 1987) provide one relevant perspective: an individual's identification with his or her social groups.[3] A social identity is an extension of the self-concept from the individual to the group level (Brewer, 1991; Tajfel & Turner, 1979). In contrast to a personal identity, wherein one focuses on the qualities of oneself that are unique or set one apart from others, a social identity focuses one's attention on the qualities that one shares with others. Once one has categorized oneself into a group, the personal identity becomes less salient and the focus shifts to oneself as an exemplar or prototype of that category (Hornsey, 2008; Turner et al., 1987). This social identity can then be a powerful way to connect people who share a social category or group membership.

The connection between the social identity approach and the two types of social capital emerges from an examination of the multiple social identities that people have due to their multiple social categories. After all, no one is "just" a woman or a Russian

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[3] SIT and SCT focus on different concepts but share many of the same assumptions. They are frequently considered together as the "social identity approach" (Hornsey, 2008).

or a lawyer: Individuals identify with many social groups at several levels of

categorization (e.g., Brewer, 1991; Turner et al., 1987). These social identities can be

salient at different times. A person considered to be an outgroup member may be an

ingroup member in another situation if a different social identity is salient.[4] The fact

that ingroup versus outgroup categorization can be malleable means that the group

distinctions are not unalterable. Similarly, it may well be that bonding and bridging

social capital differ more in degree than in kind, and could be similarly malleable. In

fact, these parallels suggest that social capital may be very closely related to qualities of

social identities. When a community is defined as a relatively homogenous group,

people tend to form the strong ties that are associated with bonding social capital

(Granovetter, 1970; Stolle, 1998). When the community in question is defined in a way

that encompasses a wider, more diverse group of people, then people form weaker ties

that represent bridging social capital (Stolle, 1998).[5] At both levels, social capital

incorporates the social norms regarding trust and reciprocity, but the difference lies in

who is included in the social network in question and the degree to which the network

members share social identities. When there is a sub-community within a community

(i.e., subgroups within a social category, Hornsey & Hogg, 2000), a person might feel

different about the social capital levels in each, which could give the illusion of two

distinct types. Considering bridging and bonding social capital with this framework

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[4] Brewer (1991) illustrates her theory of optimal distinctiveness with just such an example. When one level of categorization is salient, she can be a social psychologist who differs from other types of psychologists in the department. When another level of categorization is salient, she can be a psychologist who has much in common with other areas of psychology but differs from other departments in the university. A parallel example could also illustrate how drawing the boundaries of a community affects the type of social capital that characterizes it.

[5] For a related argument in the psychological literature, see Roccas & Brewer's (2002) discussion of self-concept complexity. They note that social identities can be based on close interpersonal bonds or on more symbolic identities, depending on the size of the group.

emphasizes the importance of precision when defining the communities of interest in social capital research, and also conveys different contexts for thinking about the nature of intergroup relations in different communities. Defining bridging and bonding social capital in parallel with the psychological categorization of ingroups and outgroups also sets up a crucial connection between social capital and intergroup relations theories. The next section elaborates on this connection by exploring social capital and diversity.

Social Capital and Diversity

If bridging and bonding social capital are distinguished in part by the boundaries of one's social identities, it is possible that one's levels of social capital in a community align with one's attitudes about community members who share those social identities. This connection sets up a critical question about the relationship between social capital and intergroup attitudes – one that has not yet been resolved, and that is the main focus of this thesis. To better understand this question, one must first examine the "dark side" of social capital and its complicated relationship with diversity. Some theorists (e.g., Hero, 2003; Leonard, 2004; Putnam & Goss, 2004; Wuthnow, 2004) worry that promoting social capital may come at a cost for those who do not have access to the social ties in that community, and that high degrees of social capital may be more likely to arise in communities that are less tolerant of differences within them. In a very large and extensive survey, Putnam (2007) reports a negative correlation between the racial diversity of a community and the average levels of generalized social trust in that community (for a similar finding from General Social Survey data, see Costa & Kahn, 2003; for a European replication of Putnam's 2007 survey, see Lancee & Dronkers, 2008). It seems that people who live among greater diversity (in terms of the racial

heterogeneity of their neighborhoods) have a tendency to "hunker down" and distrust their neighbors.[6] Others report similar effects; for instance, negative correlations between U.S. states' racial and socioeconomic diversity and their citizens' participation in groups and associations[7] (Alesina & La Ferrara, 2000; Costa & Kahn, 2003).

Putnam (2007) posits that this finding is compatible with realistic conflict theory (e.g., Jackson, 1993; Sherif, Harvey, White, Hood & Sherif, 1961), the idea that groups that must compete over limited resources tend to have negative attitudes about each other. However, he all but glosses over contact theory, citing no research more recent than Allport (1954) and explaining that:

> …the contact theory is alluring, but I think it is fair to say that most (though not all) empirical studies have tended instead to support the so-called 'conflict theory', which suggests that, for various reasons –but above all, contention over limited resources – diversity fosters out-group distrust and in-group solidarity (Putnam, 2007, p 142).

Given the wealth of support for contact theory over the past 60 years (see Pettigrew, 1998; Pettigrew & Tropp, 2006) which Putnam (2007) does not discuss, his characterization of contact versus conflict theory comes across as unfairly one-sided. A critical omission on Putnam's part is a failure to mention any of the conditions that facilitate contact's positive effects on attitudes about outgroups. In the aggregate,

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[6] Of course, correlational data cannot resolve questions of causality, but Putnam does make a conceptual argument for the implausibility of the reverse path. To explain the same correlation with generalized social trust as the antecedent of living in a diverse neighborhood, those people who are the *least* trusting of racial outgroups would have to be the ones seeking out *more* diverse neighborhoods in which to live. Although that scenario would not be impossible, it should strike most people as highly unlikely.

[7] As another interesting example of diversity's negative relationship with civic engagement, Costa & Kahn (2003) examined historical data from Union Army companies fighting in the Civil War. The more homogenous a unit was in terms of the soldiers' birthplaces, the less likely a soldier was to desert.

diversity and outgroup attitudes may have weak or negative correlations in Putnam's

(2007) Social Capital Benchmark Survey, but none of the evidence that he presents

includes controls for quality of contact. A positive relationship between a community's

diversity and its members' attitudes about ethnic outgroups is entirely plausible when

intergroup interactions occur under conditions of equal status, shared goals, and so on.

In fact, Pettigrew (1997) assessed neighborhood diversity and did not find a significant

correlation between diversity and racial attitudes. Indicators of quality interracial

contact were better predictors of attitudes in this study than was the racial heterogeneity

of one's neighborhood. Moreover, Lancee and Dronkers (2008) replicated a negative

correlation between neighborhood diversity and generalized trust, but reported that

neighborhood diversity did not relate to inter-ethnic trust (a concept more closely

related to interracial attitudes).

The irony of brushing contact theory aside is clearer when one returns the focus

to the bridging and bonding dimensions of social capital. Within a community defined

primarily by bonding social capital, an individual is unlikely to come into contact with

diverse others. However, within a community that is primarily characterized by

bridging social capital, community members must have contact with diverse others

almost by definition. Some research supports this distinction. For example, when people

join an association that has strong ties (i.e., bonding social capital), their trust in the

other group members increases but their generalized trust does not. In contrast, when

people join organizations with weak ties (i.e., bridging social capital), their generalized

trust in other people increases (Stolle, 1998). Furthermore, it seems that the relationship

between racial diversity and trust is itself moderated by race: Rudolph and Popp (2010)

examined both racial concentration (homogeneity of a city) and racial empowerment (economic equality between racial groups). They found that racial concentration was weakly and negatively related to attitudes about ethnic outgroups, and the effect was moderated by racial contact in the form of cross-group friendships. Racial empowerment was negatively associated with ethnic outgroup attitudes for white majority group members, but was positively associated with ethnic outgroup attitudes for members of minority groups (Rudolph & Popp, 2010). This research illustrates the importance of paying attention to the type of social capital present in a community as well as the type of intergroup contact when determining what kinds of effects diversity might have on attitudes about outgroups.

Moreover, this bridging versus bonding distinction also highlights the problems with defining either type of social capital only at the community level. Even in a diverse community, some people may believe that there is a high degree of bridging social capital and others may determine that there is a low degree of bridging social capital. Perhaps those who see plenty of social capital around them are also those who are likely to interact with the diverse members of their communities, whereas those who believe there is a lack of social capital are those who do not seek out and interact with others. Or, each of these people may have equal amounts of contact with racial outgroup members (in terms of frequency), but differ in the type of contact that they have (in terms of its quality). Bridging social capital, with its high degrees of trust and norms of reciprocity in a heterogeneous social network, may be likely to bring about higher quality intergroup contact. Thus, people who perceive high social capital may be having more positive contact with outgroup members of their communities and thus

experiencing the benefits of prejudice reduction that go along with intergroup contact. At the same time, an overall negative relationship between diverse communities and intergroup attitudes is possible if most individuals see these communities as being low in bridging social capital and experience intergroup contact only under less than the ideal conditions.

In addition to contact, psychological mechanisms that have been tested in other theoretical contexts play a critical role in the overall theory that is being developed in this thesis. As noted above, there is extensive support for the idea that social categorization can function as a mediator of the relationship between positive contact and intergroup attitudes. When people have interracial contact that meets the criteria proposed by contact theory (Allport, 1954; Pettigrew, 1998; Pettigrew & Tropp, 2006), they are more likely to see those of other races as part of a common ingroup (Gaertner & Dovidio, 2000). There is also some evidence that trust (a core component of social capital) and group identity are related: When a minimal group identity is salient, people make more cooperative choices during a prisoners' dilemma game (Dawes, van de Kragt, & Orbell, 1988). Perceptions of social capital may be an antecedent of this process. In addition to promoting quality intergroup contact, perceptions of a high degree of bridging social capital may also be associated with a tendency to use a common ingroup categorization. For instance, people high in bridging social capital may be more able to identify with their diverse communities as a superordinate group. This would allow them to recategorize an ethnic outgroup member as part of their own social network. The recategorization processes specified by the Common Ingroup

Identity Model (Gaertner & Dovidio, 2000) could therefore be a mechanism that allows

perceptions of social capital to predict attitudes about outgroup members.

Developing Social Capital in a Psychological Context

Although these ideas have not yet been tested, there is some evidence that

supports the claims involved to suggest that they may be correct. Fisher and Molina

(2009) collected data on perceptions of social capital and attitudes about racial groups

as part of a broader line of research.[8] Because the measures developed in their study are

useful for the two studies conducted in the present research, this section briefly

describes the survey. It then presents the results of a correlational analysis that indicates

that bridging and bonding dimensions of social capital do relate to attitudes about racial

ingroups and outgroups.

The survey was administered to students during the fall semester of 2008 at both

University of Minnesota (N = 244) and University of Kansas (N = 206). The combined

sample was sufficiently diverse to allow for comparisons between ethnic majority and

minority students. These participants completed a battery of questionnaires, most of

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[8] This project was designed to investigate social capital in a university context as a factor contributing to racial gaps in academic performance. Research in other contexts suggests that social capital is positively associated with educational achievement (Dika & Singh, 2002; Goddard, 2003; Sun, 1999). Fisher and Molina (2009) looked to research documenting that personal identification with the university is a key predictor of academic success in college (Bennett & Okinaka, 1990; Brewer, von Hippel, & Gooden, 1999), and then investigated characteristics of the social context that could influence how strongly an individual develops this particular social identity. Simultaneously, we were developing an interest in social capital and the ways that it can improve or limit outcomes for members of a community. The study's core hypothesis predicted an interaction between social capital and procedural fairness, such that social capital would be more strongly related to university identification for those who thought that their ethnic group was treated fairly than for those who thought their group was treated unfairly. As predicted, bonding social capital interacts with procedural fairness to predict university identification, and it does so differently for minority and majority students. Among minority students, but not majority students, procedural fairness and bonding social capital interact, such that when procedural fairness is high, bonding social capital is strongly and positively related to university identification. When procedural fairness is low, bonding social capital is negatively related to university identification. Among majority students, both procedural fairness and bonding social capital have positive main effects on university identification, but do not interact.

which were readily available in previously published literature. The measures of

bonding and bridging social capital were adapted and pilot-tested specifically for this

context.

First, to measure bonding social capital within ethnic ingroups, participants used

an open-ended item to specify the ethnic group with which they most strongly

identified. They considered that ethnic group for a series of questions designed to

measure their social capital among other students of their ethnicity at their university.

Items were adapted from those used by Onyx and Bullen (2000), whose

multidimensional questionnaire incorporated beliefs and feelings about a community as

well as reports of behaviors within the community. Reference groups were changed to

"other students of your ethnicity," and the context of some items was revised to better

reflect a university rather than a neighborhood context.[9] A second, longer set of items

was adapted from those used by Onyx and Bullen (2000) to measure participants'

bridging social capital at the level of their university. In these items, the reference group

was "other students at your university," with no references to specific ethnicities.[10]

These scales' psychometric properties correspond well with those that Onyx and Bullen

(2000) reported, suggesting that the adaptations to make the scale more relevant to a

new community context did not reduce the measure's validity.

Because both studies conducted herein rely on these multidimensional

questionnaires (adapted to suit the communities in question), it is important to see that

social capital can be reliably measured in this way. From a measurement perspective,

Fisher and Molina's (2009) scales have two features that are especially valuable for

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[9] A full list of these adapted items can be found in Appendix A.
[10] A full list of these items is provided in Appendix B.

such research. First, the items tap into several components of social capital: trust, participating in social networks, engaging with other community members, etc. In this way, the measure is a more complete assessment of social capital than proxy measures such as general trust are. Also, the same general items work with different reference groups. Although they were originally developed for use in a residential neighborhood, minor changes to the groups in the items let the scales measure social capital at a university and within an ethnic group just as well.   Thus, changing the reference group in this series of items can be a good way of measuring the different dimensions of social capital. Moreover, this study demonstrated that measures of social capital do predict and interact with psychological variables. In addition to these methodological developments, Fisher and Molina's (2009) research provided support for the theoretical conceptualization of social capital as a multidimensional construct encompassing people's attitudes and behaviors with regards to the community in question.

Fisher and Molina (2009) focused on social capital and academic outcomes for various ethnic groups, but their survey also included some supplemental measures that are relevant to the research questions about social capital and interracial attitudes developed throughout this thesis. Specifically, the survey included feeling thermometer measures of attitudes about various racial groups on campus (whites, blacks/African Americans, Hispanic/Latinos, Asians, and Native Americans). Thus, it was possible to investigate how the two factors of social capital could differentially relate to attitudes about racial ingroups and outgroups. For white students, bridging (i.e., university-level) social capital was positively and significantly correlated with feeling thermometer scores for all five racial categories. Bonding social capital (i.e., among other white

students) was positively correlated with feelings about white students ($r = .23, p < .001$)

and weakly correlated with feelings about black students ($r = .112, p = .045$). Bonding

social capital was uncorrelated with feelings about any other ethnic groups. For

minority students, bridging social capital was also significantly and positively

correlated with feelings about all five racial groups. However, bonding social capital

was negatively associated with feelings about white students ($r = -.25, p = .03$).[11]

Of course, such correlational evidence is not conclusive, but it does highlight the

importance of investigating how social capital among different levels of groups can

affect intergroup attitudes and relations. Although sociological data have demonstrated

a negative correlation between the diversity of a community and generalized trust

among members of that community (Putnam, 2007), more nuanced individual-level data

(such as the above supplemental analyses using Fisher and Molina's (2009) data)

reveals that positive correlations are possible within such a diverse community (see also

Pettigrew, 1997). Further examination of the bridging and bonding dimensions of

social capital could clarify the nature of the diversity – trust relationship. A focus on

bonding social capital might lead one to conclude that social capital and racial prejudice

are related, but a focus on bridging social capital could lead one to the opposite

conclusion. Teasing apart the different effects of bridging and bonding social capital is

a goal for the present research. The next section provides a more detailed overview of

how this might be done.

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[11] Due to power considerations, all analysis based on race used a dichotomous variable indicating majority or minority. For minorities, bonding social capital was uncorrelated with attitudes about any racial group other than whites. However, this is difficult to interpret due to the fact that the minority group contains people from several different races. Unfortunately, there is not enough power here to properly investigate how each racial group feels about each other minority outgroup.

Developing Theoretical Links between Social Capital and Intergroup Attitudes

The data that Fisher and Molina (2009) collected strongly suggest that social capital and intergroup attitudes should be related, but their study was not designed to test research questions of this nature. Throughout the literature, empirical research on these concepts is sparse (but see Alesina & La Ferrara, 2000; Putnam, 2007). Thus, there is a need for basic research to provide more solid support for these relationships and to test the psychological mechanisms involved.

Theories of intergroup attitudes propose that some type of contact with outgroup members is needed to reduce prejudice. As noted above, various mechanisms have been considered to explain contact's effects on prejudice (Pettigrew, 1998). Decategorization (e.g., Miller & Brewer, 1984; Miller, Brewer, & Edwards, 1985) occurs when contact with an outgroup member leads an individual to stop seeing that person as a member of the outgroup category, and instead to see the target as a separate individual. This process can lead to more positive attitudes about the target and the target's group. But, some have questioned whether this strategy will lead to generalized improved attitudes about the outgroup (e.g., Brown & Turner, 1981). Some have proposed that decategorization may just lead to subtyping except under certain conditions, such as when the group member is typical of the outgroup (Johnston & Hewstone, 1992). Theories of recategorization, such as the Common Ingroup Identity Model (Gaertner & Dovidio, 2000), maintain that intergroup contact under certain circumstances allows people to see an outgroup target as an ingroup member at a superordinate level of categorization. That is, by focusing attention on a different dimension of

categorization, former outgroup members may have to be regarded as (and treated as) ingroup members: They will be viewed more favorably, and treated more equally.

Although decategorization and recategorization can work together to improve attitudes (Pettigrew, 1998) it is the recategorization process that seems most likely to be relevant in a social capital domain. Note that there are many parallels between the mechanisms of recategorization and the different dimensions of social capital. A community characterized by high bonding social capital will be relatively homogenous by definition. Any social ties that an individual has with other members of the community will be among ingroup members. However, a community that is high in bridging social capital asks its members to consider diverse groups of people to be part of the same community. The community could function as a superordinate group identity, leading individuals to pay less attention to group distinctions and more attention to the fact that all individuals are members of the same community. In such an environment, a target who might be an outgroup member in reference to a more narrowly defined community could be recategorized as an ingroup member when the community is defined in a more inclusive way. For these reasons, it seems plausible that bridging social capital could encourage people to be more inclusive in their social categorizations. In other words, perceived bridging social capital might relate to increased use of a common ingroup identity – a question that has not yet been empirically studied, but that the present research investigates.

Of course, other mechanisms may play a role in connecting social capital and intergroup attitudes as well. For instance, social capital could influence the quality of contact that people have with outgroup members. People who think their communities

are characterized more by bridging than bonding social capital may be those people who have more positive contact with members of other social groups. The direction of causality for this relationship is difficult to predict, as there are theoretical justifications for each variable to influence the other. On the one hand, positive contact is likely to increase trust in the outgroup members, which is a key component of social capital. On the other hand, a high degree of social capital may encourage interactions between members of the community. Just as contact and prejudice each have effects on the other over time (Binder et al., 2009), it is likely that the causal arrow could point both ways for contact and social capital. However, a high degree of bridging social capital seems especially likely to bring about the conditions of positive contact: The community's norms would support intergroup contact, the members could have shared goals to work together to improve their communities, and so on. Moreover, a recent review of social capital research in other domains (e.g., education, migration patterns, juvenile delinquency, and the labor market) finds greater support for social capital as the antecedent, rather than consequent, variable (Mouw, 2006). Based on this evidence, it seems likely that social capital will emerge as the stronger predictor of contact quality, rather than the reverse direction.

In short, extant theories and research described throughout this chapter support the notion that beliefs about social capital in one's communities might be a psychological precursor to racial attitudes and experiences. Because perceiving a high level of social capital means that one trusts other community members, an individual with this perception might be better prepared to have positive interactions with members of the community and more inclined to see them as part of one's ingroup than

one who is not inclined to see much social capital present in the community. When the focus is on bridging social capital rather than bonding social capital, these other community members will be more diverse and may be outgroup members on dimensions other than the community membership. Ample research supports the claim that positive contact with outgroups and recategorizing to a common ingroup can reduce racial prejudice. Therefore, if social capital can influence interracial contact and social categorization, it should logically be able to influence racial attitudes as well. Although these predictions sound plausible, they have yet to be tested empirically. Doing so is a major goal of the present research.

Outline of the Empirical Investigations

The chapters that follow describe two studies that investigate the connections among social capital, contact theory, and social categorization. Cross-sectional and longitudinal surveys provide data to examine several research questions. The main topic of inquiry is how social capital can contribute to theories that explain racial attitudes. As outlined above, one's beliefs about social capital in one's community, and in particular *bridging* social capital, may be an antecedent of the quality of one's interracial contact and the inclusiveness of the categories one uses to describe the community. This research also considers the different effects of bonding and bridging social capital in interracial contexts. Although a high degree of bonding with a relatively homogenous group may not have large effects on outgroup attitudes, bridging social capital in a more heterogeneous group should be more strongly associated with positive interracial attitudes via the processes of contact and recategorization.

In Study 1, I conduct a survey of undergraduate students at a large university. The intent behind this survey is to empirically examine the connections between social capital and the intergroup variables discussed throughout this chapter. Study 1 tests a model that places social capital as an antecedent of racial attitudes via processes of intergroup contact and common ingroup categorization. In addition, it provides data on bridging social capital (in the broad university community) and bonding social capital (in the narrower communities of students who share an ethnicity). Study 1 tests the different effects of these two types of social capital, specifically examining the hypothesis that bonding social capital and ingroup attitudes go together whereas bridging social capital and outgroup attitudes relate to one another. As a secondary goal, Study 1 attempts to rule out rival hypotheses that some might suggest could contribute to the predicted relationships. Because the novel contribution of social capital as an antecedent of racial attitudes will be most interesting if it explains something unique, it is important to explore its relationships with variables that could provide alternative explanations. Therefore, Study 1 examines a variety of individual difference variables that are known to play a role in intergroup attitudes. Chapter 2 provides much more information about this first study.

Chapter 3 introduces a second study. Study 2 expands on the research questions to test the relationships among social capital, racial attitudes, interracial contact and common ingroup categorization over time. Here, the research questions shift from describing basic relationships to exploring causal connections. The study explores whether social capital is truly the antecedent, as the theory developed in this thesis suggests, or whether the reverse might be true (i.e., that social capital is instead a

consequence of contact and categorization). To explore these possibilities, Study 2 is a longitudinal study of people joining a new community and adapting to its norms. First-year university students respond to a survey at the beginning of the school year, and again during their second semester. The design allows for analysis of how their attitudes, beliefs and experiences change over time, and how the variables relate to one another to predict these changes.

Finally, Chapter 4 provides a discussion that integrates results from the two empirical studies. It includes implications of the analyses for application and theory development, and addresses aspects of the research design that limit the conclusions one can draw from the results. Questions that remain for future research are highlighted, including research that directly follows from the studies proposed here and research that would make broader connections with new developments in the intergroup relations literature. The case is made in this chapter for why the results of this thesis will make a generative contribution to understanding intergroup attitudes, especially racial attitudes, in the social context.

Chapter 2: Surveying Attitudes and Beliefs in the University Community (Study 1)

Introduction

Background for Main Hypotheses

Chapter 1 outlines the existing research on intergroup contact, social categorization, and social capital, and draws parallels between bridging social capital and the use of a superordinate social categorization. It explains why bridging social capital should promote more positive interracial contact, more inclusive social categorization, and more positive attitudes about other races, and why bonding social capital may not have these positive effects. However, these ideas have not yet been tested. Given the plausible theoretical links between these concepts, it is important to obtain empirical data to support these claims and to answer questions about the exact nature of their relationships. In this study, a survey measures social capital, intergroup attitudes, and various potential mediators and other constructs to test the hypotheses outlined below.

Bonding and bridging social capital are distinguished by their degrees of homogeneity and the strength of ties among people in these communities. To draw connections with social identity approaches, as discussed in Chapter 1, one might argue that bonding social capital must occur among people who share an ingroup identity, whereas bridging social capital must occur among people who have more cross-cutting social identities. Thus, one can infer the following predictions:

Hypothesis 1: Bonding social capital will be positively related to attitudes about the ingroup, but unrelated to attitudes about outgroups.

Hypothesis 2: Bridging social capital will be positively related to attitudes about outgroups, but unrelated to attitudes about the ingroup.

Bridging social capital is based in trusting norms among a diverse social network or community. In such a community, one would expect that trust could enhance positive contact among community members. Moreover, having a sense of bridging social capital in the community could also promote inclusive categorizations. In such a community, people could be more willing to see other community members as part of that common ingroup even though they may be outgroup members on other dimensions. Thus, one might expect the contact and categorization processes to mediate the relationship between bridging social capital and racial attitudes. Specifically, one can predict:

Hypothesis 3: The relationship between bridging social capital and outgroup attitudes will be mediated by perceptions of group categorization. People who experience more bridging social capital will be more likely to categorize their community with a common group representation, which will improve their attitudes about racial outgroup members. Conversely, people who experience less bridging social capital will rely more on separate-groups categorizations to represent their community, which will lead to more negative attitudes about outgroup members.

Hypothesis 4: The relationship between social capital and group categorizations will also be mediated by the quality of conditions for contact. A high degree of bridging social capital should increase the degree to which the positive contact conditions are met, which will increase the likelihood of using a one group categorization. That is,

there will be a two-step mediation process to explain the relationship between bridging social capital and attitudes about outgroups.

Individual Difference Variables

Another goal of this study is to demonstrate that theory and research on social capital adds something unique to the psychological literature. If social capital has effects even when controlling for such potent individual difference variables, its psychological importance will be even clearer. Therefore, I also measure several constructs that have well-documented effects on intergroup attitudes and which might serve as competing explanations.

The first is authoritarianism: a tendency to conform to social conventions and submit to traditional authorities (Altemeyer, 1998). Research suggests that people who are high in authoritarianism tend to feel threatened by outgroups and may hold prejudicial attitudes about them, especially when they think social norms support such negativity (Duckitt & Sibley, 2009; Hetherington & Wheeler, 2009; Oyamot, Borgida, & Fisher, 2006). The second construct is the need for closure, which drives people to seek a quick resolution to uncertainty (Webster & Kruglanski, 1994). In the intergroup context, people high in the need for closure tend to have a stronger preference for their ingroup over outgroups (Federico, Hunt & Fisher, in press; Kruglanski, Pierro, Mannetti, & DeGrada, 2006). A third construct is social dominance orientation, or a preference for a hierarchical structure of groups within society (Pratto et al., 1994). People who prefer that some groups rank higher than others also tend to hold negative attitudes about the groups that are not at the top (Pratto et al., 1994; Sidanius et al.,

2008). Each of these constructs should predict attitudes about racial outgroups in this study, but should not eliminate the effects of social capital.

Another set of psychological variables included in the survey are the Big Five personality traits. There is some evidence that Agreeableness and Openness to Experience negatively relate to prejudiced attitudes (Sibley & Duckitt, 2008). I speculate that personality might relate to other variables in this theoretical model as well. It seems plausible, for example, that people who are more extraverted might spend more time socializing and joining groups (a key component of social capital), or that people who are more open to experience might be more inclined to have contact with diverse groups. In order to focus on the novel contributions of perceived social capital in this research, controlling for such personality differences and ruling out alternative explanations of racial attitudes is necessary.

Development of Social Capital Scales

In many ways, the ongoing debates about defining and measuring social capital provide some flexibility for researchers who wish to operationalize it in their work. For this research, a multidimensional measure – one that captures trust, expectations of reciprocity, and social interactions in a single scale — was desirable. Another requirement was a measure that could assess individuals' personal experiences and beliefs with social capital in their communities, rather than an aggregate-level measure of social capital components.

One extant scale matched all these criteria. Onyx and Bullen (2000) developed a survey to measure individuals' sense of social capital in their communities. After extensive pilot tests with a large battery of potential items in a variety of Australian

towns and neighborhoods, they selected 31 items for their questionnaire. Factor analysis clearly revealed a strong general factor, indicating the underlying social capital concept, as well as seven orthogonal factors: Participation in the Local Community (e.g., "Do you help out a local group as a volunteer?"), Social Agency or Proactivity (e.g., "If you have a dispute with your neighbors (e.g., over fences or dogs) are you willing to seek mediation?"), Feelings of Trust and Safety (e.g., "Do you feel safe walking down your street after dark?"), Neighborhood Connections (e.g., "Have you visited a neighbor in the past week?"), Family and Friends Connections (e.g., "How many people did you talk to yesterday?"), Tolerance of Diversity (e.g., "Do you enjoy living among people of different lifestyles?"), and Value of Life (e.g., "Do you feel valued by society?"). Using this scale, each component can be assessed individually, or all items can be combined for a general measure of social capital.

Onyx and Bullen's (2000) measure had high potential as a flexible way to measure social capital. However, its usefulness was limited by the items' focus on residential neighborhoods. Could it be adapted to assess social capital in other types of communities? Fisher and Molina (2009) began the process of adapting the scale for use among university communities. They changed the wording of these items so that they asked about similar situations on a university campus rather than a neighborhood. For example, "Do you feel safe walking down your street after dark?" became "Do you feel safe walking around your campus after dark?" and "When you go shopping in your local area are you likely to run into friends and acquaintances?" became "When you're walking around campus between classes, are you likely to run into friends and acquaintances?" A few items did not need any adaptation for the new context (e.g., "Do

you agree that most people can be trusted?"). A few others could not be reasonably adapted without redundancy (e.g., Onyx and Bullen (2000) included both "Can you get help from friends when you need it?" and "Would your neighbors help you if you needed it?" whereas the adapted scale had a single item asking "Can you get help from fellow students when you need it?"). Fisher and Molina's (2009) final scale included 27 items based on Onyx and Bullen's (2000); these are available in Appendix B.

Fisher and Molina (2009) also wished to measure social capital among ethnic groups on campus. Doing so allowed for a direct comparison of relatively more or less bonding and bridging forms of social capital. By definition, students who share an ethnicity are a more homogenous group than students as a whole, so this category was used as an example of bonding social capital. University students as a whole, in contrast, are a more heterogeneous group and were selected to represent bridging social capital ties. Many of the items from Onyx and Bullen's (2000) social capital scale discussed above could be easily adapted for the ethnic group context as well. For example, "Are you an active member of a local organization or club?" became "Are you an active member of any ethnic-based student groups?" and "Do you agree that most people can be trusted?" became "How much can you trust other students of your ethnicity?" To avoid overlap on the ethnic and university social capital scales, only items that could be adapted to refer specifically to fellow students with whom one shares an ethnicity were included. Twelve items were adapted for inclusion in this scale (see Appendix A). A small pilot study showed that our adapted items formed two reliable scales assessing social capital among one's ethnic group and at the university overall. Further research (Fisher & Molina, 2009, 2011) shows that they are useful for

predicting other psychological variables. These adapted scales are used again in this study to test the new set of hypotheses presented above.

Method

Participants

The participants in this study were 456 students at a large Midwestern public university who reported attending this university for an average of 3 semesters at the time of participation. All students were enrolled in a psychology course that offered extra credit through the department's Research Experience Program (REP), and participants earned one point towards their course grade in return for their involvement. The racial composition of the sample was predominately white, with 361 participants (79.2%) reporting that racial background, but also included 60 Asian students (13.2%), 15 black students (3.3%), 15 Hispanic/Latino students (3.3%), 8 Native American students (1.8%), and 18 students who wrote in other races or ethnicities (e.g., Indian, Brazilian, 3.9%).[12] The sample skewed female (73% female, 25% male, 2% did not report gender), and the average age was 20.1 years ($SD = 3.02$).

Procedure

Participants were recruited through the Psychology Department's REP website. The website includes a section in which students can search for research opportunities. A description of this study, along with a link to the online survey (hosted by www.surveymonkey.com) was active on the REP website from September through November 2009. The survey began with instructions requesting that participants set aside approximately 20 minutes to complete the survey in an environment free of

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[12] Participants were encouraged to select more than one racial category when applicable, so percentages do not add up to one hundred.

distractions. After reading these instructions and indicating their consent to participate, students completed the measures in the order described below.

Measures

 Ethnic Identification. First, participants used an open-ended item to specify the ethnic group with which they most strongly identified, and were asked to consider that ethnic group for the subsequent questions. Ethnic identification was measured with a four-item scale ("How strongly do you identify with other members of your ethnic group?" "How important is your ethnicity to your identity?" "How often do you think of yourself as a member of your ethnic group?" and "How close do you feel to other members of your ethnic group?"). Responses were provided on a seven-point Likert scale (1 = not at all, 7 = very strongly). The four items were averaged together and formed a reliable scale (α = .83).

 Bonding Social Capital. Bonding social capital was assessed with 12 questions designed to measure perceptions of social capital among other students of one's own ethnicity at the university. These items were adapted from those used by Onyx and Bullen (2000; see also Fisher & Molina, 2009); reference groups were changed to "other students of your ethnicity," and the context of some items was changed to better reflect a university rather than a neighborhood context. Sample items include: "When walking around campus, are you likely to spontaneously run into friends and acquaintances who are members of your ethnic group?" and "Have you ever joined a group to address a problem specific to students of your ethnicity?" (See Appendix A for the full scale.) Responses to these items were provided with a 4-point Likert-type scale

(1= not at all, 4 = yes, definitely or yes, frequently). The items formed a reliable scale

(α = .73).

A factor analysis of the 12-item ethnic social capital scale revealed three factors

with eigenvalues greater than one. These three factors together explained 61.6% of total

variance. Items 1-5 loaded onto Factor 1, which is labeled here as *Socializing*. The

items all relate to having friends and spontaneously engaging with members of one's

ethnicity and correspond with items from Onyx and Bullen's (2000) *Neighborhood

Connections* and *Family/Friend Connections* factors. Items 6 and 7, which both relate to

trusting others of one's ethnicity, load on Factor 3: *Trust*. Factors 1 and 3 correlate with

each other, *r* = .20. Finally, items 8-12 load onto Factor 2, here labeled *Groups*. These

items all relate to organizations or groups centered on one's ethnicity and pair with

items from Onyx and Bullen's (2000) *Participation in the Local Community* factor.

University Identification. A series of four items measured participants'

identification with their overall university communities (items are parallel to the ethnic

identification items above: e.g., "How important is being a student at <U of X> to your

identity?"). Responses were provided on a seven-point Likert scale (1 = not at all

important, 7 = very important). The four items were averaged and formed a reliable

scale (α = .87).

Bridging Social Capital. A second, longer set of 27 items was adapted from

those used by Onyx and Bullen (2000; see also Fisher & Molina, 2009) to measure

participants' social capital at the level of their university overall. In these items, the

reference group was "other students at your university," with no references to specific

ethnicities. Example items include "Have you ever joined a student group to address a

specific problem on campus?" "Do you think that other students at your university can be trusted?" and "Does your campus feel like home?" (See Appendix B for the complete scale.) These items were also measured with a 4-point scale (1= not at all, 4 = yes, definitely or yes, frequently). Again, the overall scale was quite reliable (α= .87).

Factor analyzing the 27-item university social capital scale produced a six factor solution. The six factors whose eigenvalues were greater than one explain 47.7% of total variance, and the factors corresponded well with the dimensions reported during the original scale's development (Onyx & Bullen, 2000). Items 1-6 loaded onto Factor 1, or *Participation in the Community*. Items 7-11, 20-21, and 24 loaded onto Factor 2. These items were adapted from the *Neighborhood Connections* and *Family and Friend Connections* items in the Onyx and Bullen (2000) scale; as with the ethnic social capital scale, they are here labeled *Socializing*. Factor 3 consisted of items 15, 16 and 18: *Trust and Safety*. Items 12-14 and 17 loaded onto Factor 4, which corresponds with the *Social Agency/Proactivity* factor. Items 19, 22-23, and 25 loaded together onto the *Value of Life* factor. Finally, items 26-27 loaded together onto a *Tolerance of Diversity* factor.

Group Categorization. A set of four items assessed students' categorizations of ethnic groups in their university community. The items were adapted from those that Gaertner et al. (1994) used for survey research (e.g., "Despite the different groups at my university, there is frequently the sense that we are all one group"). Each of the items asked about one of four categorizations and represented the degree to which students perceive their university to be one common group, separate groups, separate individuals without group identities, or a dual identity categorization (i.e., subgroups within one

superordinate group). These items were not scaled, but rather included as single-item measures of the different categorization styles.

Contact Conditions. To measure the quality of interracial contact, Green, Adams and Turner (1988) developed a scale assessing Allport's (1954) conditions of contact in an educational setting (e.g., "This is a school in which everyone is encouraged to be friends," "Some students at this school get more opportunities to do things than others because of their race" – reverse coded). This 40-item scale was included in the survey with minor adjustments to ensure that it was appropriate for the university context (e.g., substituting "professor" for "teacher" or "administration" for "principal"). Participants expressed their agreement or disagreement with the statements using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale can be used two ways: all of the items can be averaged to form a measure of general contact quality, or it can be broken down into four subscales to represent Equal Status, Interdependence, Personalized Interactions, and Institutional Norms. For the present sample, the four subscales formed reliable scales with alphas between .80 and .89; the full set of items had alpha of .92. In the analyses that follow, the scale is used both ways.

Intergroup Attitudes. Attitudes about racial groups were measured in several ways. First, participants completed feeling thermometers about a variety of social groups, including major racial categories (Federico, Hunt, & Fisher, in press). Participants rated how positively or negatively they feel about whites, blacks/African Americans, Hispanic/Latinos, Asians, and Native Americans (1 – very negatively to 7 – very positively). Each participant's rating of his or her own racial group was used as a

measure of ingroup attitudes. To create a variable indicating outgroup attitudes, the average of each participant's ratings of all racial outgroups was calculated.

Participants also completed items assessing their perceptions of group traits for these same racial groups (violent – not violent; unintelligent – intelligent; lazy – hard-working; and untrustworthy – trustworthy; friendly - unfriendly; each on a similar 7 point scale). These trait ratings typically form a single scale that represents favorability or unfavorability toward the group (Federico et al., in press). However, that was not the case in this study. Factor analysis revealed that these ratings formed two factors for each of the racial target groups, so the items were scaled to form two measures for each group: Warmth (the friendly and trustworthy items) and Competence (the violence, intelligence and laziness items; see Cuddy, Fiske & Glick, 2008, for an overview of the Stereotype Content Model, which differentiates group stereotypes into these two dimensions). As above, each participant's ratings of his or her own racial group were retained to form the variables Ingroup Warmth and Ingroup Competence. Because ratings of racial outgroups were so highly correlated (all r's > .5), the warmth and competence measures for each participant's racial outgroups were averaged to form single measures of Outgroup Warmth and Outgroup Competence.

Big Five Personality Traits. To assess differences in personality, participants completed the Mini-IPIP, a 20-item measure of their Big 5 personality traits (Donellan et al., 2006). Participants indicated "how well does each of the following items describe you" on a scale from 1 (not at all) to 5 (very well). Items were reverse-coded where necessary and averaged to form measures of Extraversion (α = .81), Agreeableness (α =

.74), Conscientiousness (α = .73), Neuroticism (α = .67), and Openness to

Experience/Intellect (α = .71).

Right-Wing Authoritarianism. Participants completed a short form of the RWA

scale (Zakrisson, 2005) that had been adapted from Altemeyer's (1988) longer version.

Participants indicated their agreement with 15 items using a scale from 1 (strongly

disagree) to 7 (strongly agree). Items were reverse coded as needed and averaged

(α = .83).

Social Dominance Orientation. Participants completed a short four-item version

of the SDO scale (Pratto et al., 1994). Responses were provided using a scale from 1

(strongly disagree) to 7 (strongly agree), and items were averaged to form a score

(α = .68).

Need for Closure. A short form of the need for closure scale was included

(Pierro & Kruglanski, 2006). Participants rated 14 items using a scale from 1 (strongly

disagree) to 7 (strongly agree), and the items were then averaged to create a score

(α = .84).

Demographics. Participants completed the survey by providing their gender,

age, and race (checking all that apply, and writing in others if needed). They indicated

how long they had been attending the university, and selected a descriptor for the

hometown in which they spent most time while growing up (e.g., large city, suburb,

rural). Finally they indicated their political ideologies with two items that assessed their

preferences for social and economic issues using a scale of 1 (very liberal) to 7 (very

conservative).

Results

This study has four main hypotheses. They are tested in this section using multiple regression and structural equation modeling techniques. These analyses indicate some support for all four hypotheses. Other analyses examine alternative accounts for the data and demonstrate that social capital effects are independent of the effects found in other psychological theories of racial attitudes. Before describing the details of these results, however, it is necessary to examine the discriminant validity of the two social capital scales in a confirmatory factor analysis.

Factor Analysis of All Social Capital Items

Because both the ethnic and university social capital scales were adapted from the same set of Onyx and Bullen's (2000) items, it is worth considering whether they in fact measure distinct concepts. To address this question, a confirmatory factor analysis was conducted.[13] The 12 ethnic social capital items were set to load onto one latent factor, and the 27 university social capital items loaded onto a second latent factor. To account for the method covariance inherent in using similarly worded items, the error terms for parallel items across scales were allowed to covary (e.g., the "Are you an active member of any ethnic-based student group?" item from the ethnic social capital scale could covary with the "Are you a member of any student groups or campus organizations?" item from the university social capital scale, because both were developed to reflect the same construct in different communities). This model was a good fit for the data, CFI = .93, RMSEA = .04, SRMR = .07. All items loaded

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[13] This CFA was conducted with Mplus software. The raw data were input to the program and an ML estimator (with the H1 option to allow for missing data) was used.

significantly onto their corresponding latent factor.[14] Thus, the CFA provides evidence

supporting the distinction between the ethnic social capital and university social capital

scales.

Testing Main Study 1 Hypotheses

   Hypothesis 1: Bonding social capital will be positively related to attitudes about

the ingroup, but unrelated to attitudes about the outgroup. To test Hypothesis 1, the

feeling thermometer ratings of the ingroup (FT- Ingroup) was regressed on bonding

social capital, bridging social capital, and the feeling thermometer ratings of racial

outgroups (FT – Outgroups). The regression model captured a significant amount of

variance, R^2 = .382 $F(3, 426)$ = 86.97, $p < .001$. Bonding social capital was a

significant predictor of FT – Ingroup (B = .364, $S.E.$ = .130, p = .005). However,

bridging social capital was not significantly related when controlling for bonding social

capital and FT-Outgroup (B = .070, $S.E.$ = .129, p = .59). The data appear to support

Hypothesis 1.

   Hypothesis 2: Bridging social capital will be positively related to attitudes about

outgroups, but unrelated to attitudes about the ingroup. To test Hypothesis 2, FT -

Outgroup was regressed on Bonding Social Capital, Bridging Social Capital, and FT -

Ingroup. The regression model captured a significant amount of variance, R^2 = .375,

$F(3, 426)$ = 84.29, $p < .001$. Bridging Social Capital was a significant predictor of FT –

Outgroup (B = .296, $S.E.$ = .128, p = .02). However, Bonding Social Capital was not

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[14] There was one exception: the item "Have you ever joined a group to address a problem specific to students of your ethnicity on campus?" did not load onto the ethnic social capital latent factor (B = .06, S. E. = .27). However, the item was retained in the scale because it loaded highly in a factor analysis using just the 12 ethnic social capital items (see Method section). Factor loading estimates were significant for all remaining items.

significantly related when controlling for the bonding social capital and FT-Ingroup (B = -.100, S.E. = .130, p = .44).[15] Together, these two regression models support Hypotheses 1 and 2.

Hypotheses 3 and 4: These hypotheses were tested with a path analysis. The predicted model was constructed using Mplus structural equation modeling software.[16] Overall fit statistics as well as path coefficients were examined for evidence of the predicted patterns.

The first tested model matched the predictions presented at the outset of this chapter. As hypothesized, bridging social capital should predict each of the four conditions of positive contact, which in turn should be positively associated with one-group or same-team categorizations and negatively associated with separate groups or individuals categorizations. The inclusive social categorizations should be associated with more positive attitudes about racial outgroups.

The results of this path model are generally supportive of the predictions (see Figure 2-1). Bridging social capital positively and significantly predicts all four contact conditions. Each of the four positive interracial contact conditions significantly and positively predict increased tendencies to categorize other university students as part of the one group (except for the personalized interactions subscale, which did not reach

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[15] Similar sets of analyses were performed to test Hypotheses 1 and 2 using warmth and competency variables as dependent measures. These analyses did not support the hypotheses. All of the regression models were significant, but neither social capital measure was a significant predictor of ingroup or outgroup warmth or competence. Instead, outgroup warmth was the only significant predictor of ingroup warmth, and vice versa. Similarly, outgroup competency was a significant predictor of ingroup competency, and vice versa. Although the two social capital dimensions work as hypothesized to predict feeling thermometer ratings of ingroups and outgroups, it appears that they do not have the same effects on the endorsement of stereotypical traits about ingroups and outgroups.

[16] All structural equation models described in this chapter were tested with Mplus software. The raw data were input to the program and an ML estimator (with the H1 option to allow for missing data) was used.

significance). Moreover, all paths from these four contact conditions to either the separate groups or separate individuals categorizations were predicted to be negative (as indicated by the dashed lines in Figure 2-1); analysis indicated they were all either negative or nonsignificant. Finally, one-group representations positively predicted FT-Outgroups (average feeling thermometer ratings for each participant's outgroups). Although not shown on Figure 2-1 for clarity of presentation, covariances among error terms were also included in the model where appropriate. Specifically, error terms among the four contact conditions were allowed to covary, as were the error terms among the categorization items.

However, the model fit statistics indicated that this model's specification was less than ideal. Focusing again on the model using FT-Outgroups as the dependent variable, none of the fit statistics reached typical cutoff points in the SEM literature (Iacobucci, 2010), CFI = .91, RMSEA = .16, SRMR = .07. In other words, it appeared that there was room for improvement in the model. Therefore, an alternative model was tested that made several adjustments to promote parsimony in a theoretically justifiable manner. First, the categorizations layer was simplified. Only two categorization variables were retained – the one-groups representation, to represent an inclusive style of categorization, and the separate-groups representation, to include an exclusive style of social categorization. The separate-individuals item did not correlate significantly with any of the study's critical variables, so it was dropped in order to allow more of a focus on the two more theoretically relevant items (i.e., those that represent relatively more inclusive or exclusive group-based categorizations). In this way, the crucial theoretical elements of the categorization variables remain in place, yet the model's

parameters are reduced by eliminating some variables that did not add much unique

explanatory power. Similarly, the contact layer was simplified from four separate

conditions to a single general measure. As noted earlier, the four contact conditions

were highly intercorrelated in this sample (all r's > .55) and factor analysis confirmed

that each item loaded onto a general factor as well as onto its subscale, so these four

variables were replaced with the single index of contact quality. Finally, the new model

allows for some additional theoretically-relevant direct effects. A path between contact

and FT-Outgroups was added to account for effects of contact on racial attitudes that are

not explained by recategorization. Contact can have effects through other mechanisms

(e.g., by reducing intergroup anxiety; Stephan & Stephan, 1985) so a direct effect here

is justified. Another path was added to allow a direct effect of bridging social capital on

one-group categorization. Those who perceive their communities to have ample

bridging social capital might tend to view community members as part of a single

ingroup, regardless of what kind of interpersonal contact the perceiver has had with

them. Therefore, bridging social capital may have a direct effect on one-group

categorization in addition to its indirect effect via contact.

With these revisions in mind, another path model was tested (see Figure 2-2).

This model is an excellent fit to the data, CFI = .98, RMSEA = .075, SRMR = .03. In

the superior model, we see that bridging social capital predicts contact quality, $B = .200$,

$\beta = .231$, $p < .05$, and also predicts the use of a one-group social categorization, $B =$

$.610$, $\beta = .249$, $p < .05$. Contact quality independently increases the likelihood of a one-

group social categorization, $B = .862$, $\beta = .303$, $p < .05$, and decreases the use of a

many-groups social categorization, $B = -.493$, $\beta = -.174$, $p < .05$. Contact quality also

predicts FT-Outgroups, $B = .505$, $\beta = .141$, $p < .05$. Finally, one-group social

categorization predicts more positive attitudes about racial outgroups, $B = .196$, $\beta = $

$.155$, $p < .05$. These results indicate that contact quality partially mediates the

relationship between bridging social capital and inclusivity of social categorizations,

which in turn partially mediate the relationship between contact quality and racial

attitudes. See Table 2-1 for all calculated indirect effects and their corresponding Sobel

tests for significance of mediation.[17]

To replicate these findings, alternative dependent measures were tested. A

similar model, depicted in Figure 2-3, examined ratings of racial outgroup warmth and

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[17] This model was also tested with latent variables for social capital and contact instead of the observed variables. In this case, the measurement model used scores on each of the subscales (i.e., the six bridging social capital subscales and the four contact subscales, as described…) as indicators for the latent variables. The path model was consistent with Figure 2-2: social capital was allowed to predict contact and the two categorization items, contact could predict the two categorization items and racial outgroup thermometer ratings, and categorization items could predict thermometer ratings. Error terms for the two categorization items were allowed to covary, as were the error terms for item clusters taken from the same scale. This model produced a fairly good fit, CFI = .89, RMSEA = .08, SRMR = .06.

 The measurement model for the two latent variables was acceptable: all item clusters loaded significantly onto their latent variable. For the social capital variable, the loading for the participation subscale was set to be 1.00. All of the other subscales (socializing, $B = 1.55$, $\beta = .432$, $p < .05$; trust and safety, $B = 1.12$, $\beta = .314$, $p < .05$; agency/proactivity, $B = .907$, $\beta = .253$, $p < .05$; value of life, $B = 1.72$, $\beta = .480$, $p < .05$; valuing diversity, $B = 3.52$, $\beta = .980$, $p < .05$) significantly contributed to the latent variable. For the contact latent variable, the loading for the interdependence subscale was set equal to 1.0. All three other subscales (supportive norms, $B = .807$, $\beta = .330$, $p < .05$; association, $B = .968$, $\beta = .397$, $p < .05$; equal status, B = .958, $\beta = .392$, $p < .05$) loaded onto the contact latent variable.

 Turning the focus to the path model, social capital significantly predicts contact, $B = .537$, $\beta = .366$, and many-groups categorization, $B = -.312$, $\beta = -.087$, $p < .05$. The path from social capital to one-group categorization, $B = .165$, $\beta = .128$, is not significant at the .05 level. However, contact predicts both one-group ($B = 1.30$, $\beta = .531$, $p < .05$) and many-groups ($B = -1.08$, $\beta = -.440$, $p < .05$) categorization. The path from one-group categorization to thermometer ratings of racial outgroups ($B = .118$, $\beta = .088$) does not reach significance at the .05 level, but there are significant paths from many-groups categorization ($B = -.125$, $\beta = -.130$, $p < .05$) and contact ($B = 2.16$, $\beta = .886$, $p < .05$) to racial outgroup thermometer ratings.

 Overall, the latent and observed variable models have much in common. In terms of the path model, one discrepancy between the two is the lack of a significant path from one-group categorization to feeling thermometer ratings in the latent model, and the presence of a significant path from many-group categorization. Another is that social capital predicts many-groups categorization (and not one-group categorization) in the latent model, whereas the reverse was true for the observed variable model. However, both models confirm relationships between social capital and contact, between contact and the categorization variables, and between these variables and attitudes about racial outgroups.

competence in place of the feeling thermometer ratings. Results were nearly identical to the model described above. The model fit the data well, CFI = .99, RMSEA = .022, SRMR = .017. Bridging social capital has direct effects on contact and one-group categorization. Contact predicts one-group and many-group categorization. One-group categorization has a direct effect on endorsement of outgroup warmth stereotypes ($B =$ .166, $\beta = .127$, $p < .05$), and both one-group categorization ($B = .184$, $\beta = .210$, $p < .05$) and contact ($B = .216$, $\beta = .087$, $p < .05$) have direct effects on outgroup competency stereotypes. Thus, the predicted patterns hold for a variety of racial attitude measures.

Social Capital Subscales

As discussed above, the social capital scales can be broken down into separate components. To investigate potential differences in the patterns of prediction for each of the six bridging social capital subscales, a model in which these measures replaced the single social capital measure was tested (see Figure 2-4). The model replicated the paths depicted in Figure 2-2, but with each subcomponent of bridging social capital allowed to predict contact quality and one-group categorization. Path estimates suggested that the Tolerance of Diversity and Trust and Safety factors were the most closely related to contact, and the Value of Life and Participation factors were most closely related to one-group categorization. However, this model did not reach conventional standards for fit, CFI = .83, RMSEA = .14, and therefore we cannot be certain how the bridging social capital components differentially relate to intergroup contact and attitudes.

Additional Analysis

The survey included additional variables that are known to be important factors in intergroup attitudes, and those that might be expected to associate with perceptions of

social capital, contact quality, or other theoretical constructs in this research. Table 2-2 shows the correlations among all variables in the study. These variables were included to (1) control for individual differences among participants and (2) demonstrate that social capital is related to racial attitudes over and above the effects of individual differences in psychological traits.

A series of hierarchical multiple regressions addresses point (2) above. Each examines steps of the mediation model in Figures 2-2, but adds additional variables as predictors. These individual difference variables are likely to relate to perceptions of social capital and interracial attitudes. But if the theory presented in this thesis is correct, adding social capital in a second step should improve the regression model.

For the first model in the series (see Table 2-3), contact quality is regressed on the Big 5 personality traits, NFC, RWA, and SDO, $R^2 = .106$, $F(8, 415) = 3.44$, $p = .001$. In this step, many factors predict contact quality: SDO (B = -.049, $p = .01$), NFC (B = .072, $p = .01$), Extraversion (B = .038, $p = .05$), and Neuroticism (B = -.056, $p = .02$). Step two adds ethnic identification, university identification, ethnic social capital and university social capital to the regression model. The model explains significantly more variance, $R^2 \Delta = .053$, $F \Delta (4, 427) = 6.49$, $p < .001$. Both SDO (B = -.048, $p = .01$), and NFC (B = .069, $p = .01$) remain significant predictors. In addition, university identification (B = .034, $p = .03$) and university social capital (B = .104, $p = .04$) are significant predictors, whereas ethnic social capital (B = .085, $p = .05$) is marginally significant. Importantly, perceptions of university social capital predict contact quality over and above the effects of all these other variables.

In the next set of regressions (see Table 2-4), the first step regresses one-group representations on the same variables in step one above, which led to a significant model, $R^2 = .071$, $F(8, 415) = 4.12$, $p < .001$. Only Extraversion (B = .168, $p = .002$) and Agreeableness (B = .158, $p = .04$) predict one-group representations, though Neuroticism (B = -.120, $p = .06$) is marginally and negatively related. The second step added university identification, ethnic identification, ethnic social capital, and university social capital for a model that improved prediction, $R^2 \varDelta = .102$, $F \varDelta (4,427) = 13.21$, $p < .001$. In this step, the above variables drop out of significance, but Openness becomes significant, B = .144, $p = .03$. Of the new variables, university identification (B = .179, $p < .001$) and university social capital (B = .458, $p = .001$) predict categorization. The third step adds contact to the model, which once again increases the amount of variance explained, $R^2 \Delta = .085$, $F \Delta (1,426) = 48.57$, $p < .001$. Openness, university identification and bridging social capital remain significant in the third step, and contact also predicts one-group categorization, B = .887, $p < .001$. Once again, the results are parallel to the structural equation model results reported above.

The final model adds racial outgroup attitudes as the criterion variable (see Table 2-5). In step 1, feeling thermometer ratings of racial outgroups were regressed on the Big 5 personality traits, NFC, RWA, SDO, and FT-Ingroups. The model was significant, $R^2 = .474$, $F(9, 414) = 41.49$, $p < .001$. The regression coefficients suggest that ratings of one's ingroup (B = .578, $p < .001$), and SDO (B = -.305, $p < .001$) significantly predict feeling thermometer ratings of outgroups. Agreeableness (B = .128, $p = .09$) marginally relates to thermometer ratings. The second step added university identification, ethnic identification, ethnic social capital, and university social capital.

This group of variables significantly increases the explained variance, $R^2 \Delta = .015$, $F \Delta$ (4,410) = 3.07, $p = .02$. SDO, FT-ingroups, and agreeableness retain their significance, and ethnic identification also emerges as a significant predictor (B = -.117, $p = .003$). Step three adds contact to the model, $R^2 \Delta = .008$, $F \Delta$ (1,409) = 6.38, $p = .01$, which is a significant predictor (B = .344, $p = .01$) along with those mentioned above. In the final step, one-group categorization and many-groups categorization are added, $R^2 \Delta = .011$, $F \Delta$ (2, 407) = 4.68, $p = .01$. In this stage, SDO is still a significant predictor (B = -.261, $p < .001$), along with ethnic identification (B = -.101, $p = .01$) and feeling thermometer ratings of racial ingroups (B = .601, $p < .001$). Agreeableness is marginally significant, B = .137, $p = .07$. Although one-group categorization was not significant, another categorization variable was: many-groups categorizations predict feeling thermometer ratings of outgroups, B = -.102, $p = .05$.

In sum, personality and individual difference variables matter to perceptions of contact, group categorization and feelings about racial outgroups (which is not surprising, given the extensive literature documenting these effects). However, the variables in this theoretical model, including social capital, have significant effects on one another even when accounting for these other sources of variance.

Discussion

These results generally support the hypotheses. With only minor changes to the model that was predicted, the model that best fit the data demonstrated connections among perceived social capital, contact, categorizations, and attitudes about racial outgroups. Consistent with prior research, the study shows that interracial contact quality predicts attitudes about racial outgroups, and that increased use of a one-group

categorization is a mechanism of this effect. This study adds a novel layer by demonstrating that perceived bridging social capital relates to contact quality and common ingroup identification. As predicted, bridging social capital can be a positive influence on racial attitudes through its association with social recategorization and contact. Moreover, bridging social capital makes a unique contribution even when accounting for a variety of personality traits and predispositions. This study provides a conceptual replication of research supporting the Common Ingroup Identity Model (Gaertner et al., 1994), and it demonstrates that beliefs about social capital in the university community relate to one's experiences with other-race community members.

The adjustments made between the predicted model and the best-fitting model reveal two interesting points about social capital, categorization, and intergroup contact. First, they are relevant to the issue of whether the several conditions of contact should be considered separately or together. Many researchers consider them to have separate influences on other outcomes, and have measured them accordingly (e.g., Gaertner et al., 1994; Green et al., 1988; Molina & Wittig, 2006). Because such research suggests that different conditions can have different effects on prejudicial attitudes, it would have been of interest to learn that social capital could have different effects on each of these conditions. However, the data indicated that these four conditions did not have different effects on categorization and were best considered as a single construct. These results mean that the current work conceptually replicates prior models (Gaertner & Dovidio, 2000) but that the conditions of quality contact were less distinct from one another here than they have been in other research. These results fall more in line with researchers

who suggest that the contact conditions should be considered as part of one overall package rather than separately (e.g., Pettigrew & Tropp, 2006).

Second, social capital has both direct and indirect effects on other variables in the model. A theory that suggests it has effects on racial attitudes only through the two steps of contact and categorization is too rigid; instead, a model that adds paths from social capital to one-group categorization, and from contact to attitudes, to allow for indirect effects provides a more accurate depiction of the manner in which these variables influence one another. These paths actually create an improved theory by allowing for alternative mechanisms for the effect of contact on racial attitudes aside from recategorization. In addition, this model suggests that bridging social capital influences racial attitudes through two mechanisms: contact quality and a common ingroup identity.

Another lesson from the results here is that the social capital subscales do not make independent contributions to contact or categorization. Because social capital is defined and measured in a multifaceted way, it seemed plausible that the various components (e.g., Trust and Safety, Participation) might have different effects. Instead, it seems that they are all important to the overall concept of social capital and must be considered together to predict interracial attitudes and experiences.

The results of Study 1 address many important issues about social capital and intergroup attitudes; however, the study leaves some unanswered questions. Its correlational design is one major limitation; although the design allowed for the testing of a variety of hypotheses, it is not possible to infer causality from any of the analyses. In fact, reverse models, in which SEM was used to predict perceptions of social capital

from contact (and so on), fit the data equally well. Just as contact and prejudice influence each other reciprocally (Binder et al., 2009), beliefs about bridging social capital and interracial contact may affect each other. Thus further research, discussed in the next chapter, is needed to clarify the issue of causality.

Another goal of the study was to better measure and define bridging and bonding components of social capital; however, the answer to that issue is still somewhat ambiguous. In this study, as in prior work (Fisher & Molina, 2009), similar scale items were used to assess social capital in university communities and ethnic subgroups within the communities, with the assumption that the smaller subgroup would represent more bonding social capital. There is some evidence that this is the case; social capital within one's ethnic group is more strongly related to attitudes about one's racial ingroup than to those about racial outgroups, and social capital at the university level is more strongly related to attitudes about racial outgroups. More importantly, the confirmatory factor analysis indicates that the two sets of items load onto the predicted latent factors. But, other evidence points to overlap between the concepts: both are positively and significantly related to attitudes about racial ingroups and outgroups when one considers their zero-order correlations, when theory would not predict a relationship between bonding social capital and racial outgroup attitudes. Thus, more research will be needed to better elucidate the bonding and bridging distinction – another goal to be addressed in Study 2.

Despite these limitations, this study makes an important new contribution to knowledge about these topics. Students at a university vary in their beliefs about social capital within their college community; this perceived social capital relates to their

experiences with students of other races at the university, the way they categorize others into a common group or separate groups, and their favorability toward other racial groups. These relationships are present even when social capital is measured in a way that makes no explicit mention of race. In short, Study 1 finds some interesting and novel connections between concepts that are rarely explored together. Study 2, discussed in the next chapter, will address some of its limitations and further the examination of this theory.

Chapter 3: A Longitudinal Investigation (Study 2)

Introduction

Study 1, discussed in Chapter 2, surveyed students to gain insights into how social capital, contact quality, social categorization and racial attitudes relate to one another as well as how bonding and bridging social capital differentially relate to attitudes about ingroups and outgroups. The results indicated that bridging social capital predicts both contact quality and common ingroup categorization. Moreover, these constructs mediate a path from bridging social capital to attitudes about racial outgroups, as predicted. Whereas bridging social capital correlates with racial outgroup attitudes, bonding social capital (within ethnic groups) more strongly relates to attitudes about one's racial ingroup. This study provided the first empirical investigation into the nature of these relationships, so it is valuable to the intergroup relations literature. However, the study left some unanswered questions. Some of these questions will be addressed in Study 2, which will test related but new hypotheses and deepen our understanding of the role that social capital can play for individuals' attitudes about others in their communities.

First, Study 1 is limited in the conclusions that can be drawn from it because it relies on a cross-sectional sample. Such a method can be quite informative, but it does not allow for strong claims of causality. Although the data show that social capital predicts attitudes about outgroups, a reverse model in which attitudes about outgroups predict social capital also fit the data. The theory developed in this thesis places social capital as the antecedent, but perhaps holding a positive attitude about an outgroup leads people to believe that their communities are higher in social capital. To better evaluate

these alternatives, Study 2 employs a longitudinal methodology that can more accurately compare these causal paths. For practical reasons, it was not possible to complete an extensive longitudinal study, so Study 2 tracked changes in attitudes over the course of one semester. To maximize the amount of change that could occur over this relatively short time period, the study focuses on individuals who are just joining a new community – specifically, the study follows first-year university students living in campus residence halls. Thus, the participants were learning and adapting to the social norms at their new university as well as those within their residence hall.

As in Study 1, this study will focus on the university community and several subgroups within it. Thus, when conceiving of bridging social capital, the focus will be on the university as a whole and all the diverse people who make up that community. When thinking about bonding social capital, the focus will be on the student's residence hall and the social ties that he or she has with its members for both waves of the survey. In addition, the second wave of the survey measures social capital among students who share an ethnicity, as in Study 1. Thus, this study assesses two types of bonding social capital – within ethnic groups and within residence halls – in order to replicate the Study 1 findings and to extend the social capital and interracial attitudes connection with alternative definitions of community.

An important question for this study is whether people can undergo attitude change over the relatively short time span between the initial and final surveys. Symbolically based attitudes such as those about social groups tend to be stable over time (e.g., Krosnick, 1991). However, there was reason to believe that this particular population would undergo attitude change over the course of the study. As first-year

students, the majority of participants are young adults around age 18-20. Research has shown that early adulthood, approximately ages 18-25, is an impressionable time during which people in American culture are prone to have weaker and therefore less stable attitudes compared to later adulthood (Krosnick & Alwin, 1989; Sears, 1986). A college community can serve as an important reference group for a student, and people can undergo significant attitude changes to match the norms set by their personally important reference groups (as the women of Bennington College demonstrated in a classic study of political ideology; Newcomb, 1943). During this impressionable period in which students are undergoing rapid shifts in their daily experiences and relevant reference groups, even traditionally stable attitudes like those about social groups may undergo some change. With regard to attitudes about social capital in this study, it was expected that a process of attitude formation will actually be more relevant than a process of attitude change. Students in the sample will be not have much prior experience with the university or their academic groups at the time of the first survey and thus will not have much information or personal experience on which to base their beliefs about their university community. By the next semester, their direct experiences will have allowed them to develop a much stronger attitude about the levels of social capital present in the university community. As shown below, this sample undergoes significant change in perceptions of social capital (as well as other important study variables) over the relatively short study period.

The design of this study will allow for a new understanding of how changes in perceptions of the community influence attitudes about other community members. As the student participants spend more time in their university communities, they will

become more familiar with the group's social norms and have more experience interacting with others in the community. As their experience at the university gets richer and more fully developed, their perceptions of social capital within these communities should change. Some may find that they have less social capital than they may have hoped for, while others may find that getting to know their community better increases their awareness of the social capital available to them. As the variables change over time, a variety of hypotheses can be tested.

First, because direct experience with the university communities should strengthen attitudes about them (Petty & Krosnick, 1994), and because social capital, by definition, is related to how interconnected community members are, we can predict the following:

Hypothesis 1: On average, participants' perceptions of both bridging and bonding social capital should increase between Time 1 and Time 2, as they become more integrated into these communities.

Second, some theoretical predictions suggest that bridging social capital might need to be built on a base of bonding social capital (Granovetter, 1970; Putnam, 2000; Larsen et al., 2004). In other words, having trusting social ties within a subcommunity could make it easier to build these trusting social ties with a broader community. If these claims are true, one would expect that:

Hypothesis 2: Bonding and bridging social capital will be positively correlated.

Study 1 found that attitudes about racial ingroups and outgroups were more closely correlated with social capital in the level of community that best matched the level of group inclusiveness. That is, bonding social capital within one's ethnic group

correlated with attitudes about one's ethnic ingroup, and bridging social capital in a multiracial university community correlated with attitudes about racial outgroups. In replication of this effect, one can predict that:

Hypothesis 3: Bonding social capital will predict attitudes about the ingroup, but not attitudes about any outgroups.

Hypothesis 4: Changes in bridging social capital perceptions should predict changes in attitudes about outgroup members; specifically, people who perceive higher levels of bridging social capital at Time 2 than at Time 1 should also have more favorable attitudes about ethnic outgroups at Time 2.

Hypothesis 5: Changes in bridging social capital perceptions should predict changes in the two proposed mediating variables. Those who have higher levels of bridging social capital at Time 2 than at Time 1 should also have more positive contact with outgroup members and be more likely to use a superordinate group categorization at Time 2 than at Time 1. In other words, changes in contact quality and one-group categorization should mediate the relationship between change in bridging social capital and racial attitudes, and their indirect effects should be significant.

For a more conservative test of these longitudinal effects, the analysis will also consider some predictions in terms of a series of cross-lagged models. This is a stricter test because the Time 1 variables in this study – all of which are beliefs about and experiences with the university community – might not be well developed at the time of measurement (less than a month after joining the new community). However, claims regarding the position of social capital as an antecedent of racial experiences and

attitudes will be stronger when supported with evidence that demonstrates this causal

sequence over time. Therefore, the following hypotheses will also be tested:

Hypothesis 6: Bridging social capital at Time 1 should predict attitudes about

outgroups at Time 2, and this path should be stronger than the path from attitudes about

outgroups at Time 1 to bridging social capital at Time 2.

Hypothesis 7: Bridging social capital at Time 1 should predict both contact with

outgroups at Time 2 and group categorizations at Time 2. Paths in this direction should

be stronger than those from these proposed mediators at Time 1 to bridging social

capital at Time 2.

<div align="center">

Method

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Procedure

   Study 2 consisted of two waves of surveys. For the first wave, potential

participants were contacted by email with a message from the Office of Housing and

Residential Life (OHRL).[18] This message introduced the survey as a study of students'

"experiences with the community in [their] residence hall and in the university

community overall, and [their] attitudes about social groups on campus," explained the

procedure for participating, and noted that participants would be able to enter a lottery

for a chance to win a $25 gift card (See Appendix C for the full text of the email). This

email went to all first-year students who were living in university residence halls in

September 2009. Interested students clicked a link to begin the online survey. After

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[18] Meetings with the OHRL director took place while the study was in development to ensure that the institution was willing to cooperate. Throughout this section, I will highlight a few changes that were made between Study 1 and Study 2 at the recommendation of OHRL to make the survey instrument more consistent with their institutional goals of promoting inclusivity for all residents. Ultimately, OHRL approved all measures on the survey and provided the initial contact with participants.

completing the series of questionnaires (see Measures, below), students provided an

email address so that they could be contacted if they won the lottery and when they

should complete the second wave. Most participants completed the survey in 10-15

minutes.

In late January 2010, Wave 1 participants were contacted again and asked to

participate in Wave 2. This time, the email came directly from the researcher, and

reminded students of their agreement to be re-contacted. Once again, students clicked a

link in the email to begin the online survey, which was identical to the Wave 1

measures with one exception (see below). After completing the questionnaires,

participants had an opportunity to enter a lottery for another chance to win a gift card.

Four days after Wave 2 began, participants who had not yet completed it received a

reminder email. Up to four reminder emails were sent over a three-week period. After

this point, 81% of the original participants had completed at least some of the second

wave of the survey.

Participants

Wave 1. In September 2009, 568 students started the survey and completed at

least some measures; 491 students completed all of the survey measures *and* provided

an email address so that they could be contacted for the second wave. All of these

participants were first-year students living in a residence hall on campus. The sample

was predominately white (79%) but also included Asian (11%), Black (2%) and

Hispanic (3%) students. More women (65%) than men (35%) participated.

Wave 2. In January – February 2010, 397 of these participants took part in the

second wave. Because some of these participants did not complete all of the measures

in the second survey, and some did not provide information that would allow their responses to be matched to their first survey,[19] only 338 participants' data can be used in the panel analysis. For more detail on the demographics of the final sample, see the Attrition Analysis section below.

Wave 1 Measures

Bonding Social Capital. Bonding social capital was assessed with 12 questions designed to measure perceptions of social capital among other students in their residence hall. These items were adapted from those used in Study 1. Reference groups were changed to "other students in your residence hall," and the context of some items was changed to better reflect a residence hall rather than an ethnic group context. Sample items include: "Have you spent time socializing with other students who live in your residence hall??" and "Can you trust other students who live in your residence hall??" (See Appendix D for the full scale.) Responses to these items were provided on a 4-point Likert-type scale (1= not at all, 4 = yes, definitely or yes, frequently). The items formed a reliable scale ($\alpha = 77$).

University Identification. As in Study 1, a series of four items measured participants' identification with their overall university communities. Responses were provided on a seven-point Likert scale (1 = not at all important, 7 = very important). The four items were averaged and formed a reliable scale ($\alpha = .86$).

[19] Participants' email addresses were used to match their surveys across time points and to enter the lottery. Of the participants whose responses could not be matched, most appeared to have provided two different email addresses. As many discrepancies as possible were resolved by searching directories and other public information for the email addresses. For instance, in many cases I could pair an address like "emilyfisher@somewebsite.com" with "fish###@umn.edu" and thus get useable time series data for that participant. However, participants who provided less easily identifiable email addresses (something like "iheartpuppies@somewebsite.com") often could not be paired without a more serious invasion of the participant's privacy. After matching responses over the two time points, the email addresses were removed from the data file to better ensure confidentiality.

Bridging Social Capital. Bridging social capital was once again measured at the level of the university. The 27-item scale from Study 1 was used here. (See Appendix B for the complete scale.) These items were also measured with a 4-point scale (1= not at all, 4 = yes, definitely or yes, frequently). Again, the overall scale was quite reliable (α= .87).

Group Categorization. A set of four items assessed students' categorizations of ethnic groups in their university community. The items were adapted from those that Gaertner et al. (1994) used for survey research (e.g., "Despite the different groups at my university, there is frequently the sense that we are all one group"). Each of the items asked about one of four categorizations and represented the degree to which students perceive their university to be one common group, separate groups, separate individuals without group identities, or a dual identity categorization (i.e., subgroups within one superordinate group). These items were not scaled, but rather included as single-item measures of the different categorization styles.

Contact. A shortened, adapted version of Green, Adams, and Turner's (1988) School Interracial Climate scale was included.[20] A subset of the full 40-item scale was selected, based on a factor analysis of the Study 1 data for this measure. The measure assesses each of Allport's (1954) four contact conditions on separate factors; the three

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[20] This change was made in the interest of keeping the full survey short. OHRL wanted to make sure that the survey would not burden students, most of whom would not receive compensation for their time. Shorter measures were also likely to encourage completion among a population who (unlike in Study 1, when participants were completing measures for course credit and expected to spend a full 30 minutes on the survey) were not directly being compensated for their time. Thus, wherever possible, questionnaires were shortened from their full versions. In the case of the School Interracial Climate Scale, other researchers have used shortened versions with success (Wittig & Molina, 2000) so this construct was considered eligible for a shorter measure.

items that loaded highest onto each factor were retained for use in Study 2 to create a

12-item scale (see Appendix E). The overall scale was reliable (α= .84).

Interracial Attitudes. To measure intergroup attitudes, participants responded to

a page of items asking them to consider how close they felt to a series of social

groups.[21] They used a scale of 1 (not at all close) to 7 (very close) to respond. Major

racial groups were embedded in the list, along with gender, class, and political groups.

The measure of ingroup attitudes was the closeness rating for the racial group(s) with

which the participant identified in the demographics section. Ratings for racial groups

with which the participant did not self-identify were averaged together to form a scale

of racial outgroup attitudes.

Other constructs. As in Study 1, several constructs that relate to group attitudes

were included. The Mini-IPIP (Donellan et al., 2006) measured Big 5 personality traits.

Items were reverse-coded where necessary and averaged to form measures of

Extraversion (α = .84), Agreeableness (α = .71), Conscientiousness (α = .66),

Neuroticism (α = .67), and Openness to Experience/Intellect (α = .75). Participants also

completed the shortened RWA scale (Zakrisson, 2005; α = .81) and the SDO scale

(Pratto et al., 1994; α = .66).

Demographics. Participants first reported several characteristics of their

university life, including which residence hall they lived in, whether they were a

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[21] This is another change made at the recommendation of OHRL. In Study 1, racial attitudes were measured with feeling thermometers and group trait ratings. The OHRL director expressed strong concern that such measures could offend minority students, especially as the survey appeared to come from OHRL and they did not want anyone to mistakenly believe that the institution endorsed such stereotypes. The trait measures were appropriate for a sample of psychology students, who learn that prejudice is a valid topic of study, but might be more disturbing to students who have not yet had exposure to the social sciences. Thus, Study 2 shifts to a more "neutral" attitude measure. This change has the added benefit of conceptually replicating the theory with an additional dependent measure.

member of a Life Learning Community,[22] whether they were a member of a fraternity or sorority, whether they were an NCAA student athlete, and whether they were an international student. All of these were single, yes-or-no items, except that students selected their residence hall from a menu. Participants completed the survey by providing their gender, age, and race (checking all that apply, and writing in others if needed). They selected a descriptor for the hometown that they spent most time in growing up (e.g., large city, suburb, rural). Finally they indicated their political ideologies on a scale of 1 (very liberal) to 7 (very conservative), with separate items for social and economic attitudes. See Table 3-1 for full sample demographics.

Wave 2 Measures

All of the Wave 1 measures were repeated during Wave 2. Items and response scales were identical. For scale reliabilities at Time 2, see Table 3-2.

Two new scales were added to the survey for Wave 2:[23] a measure of Ethnic Social Capital, which was identical to the Bonding Social Capital scale used in Study 1, and the measure of Ethnic Identification (also from Study 1). Participants completed

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[22] A Life Learning Community is a group of students based on a shared interest who live near each other in one wing or floor of a residence hall. For example, the Biology House groups students interested in a life sciences major; the Hmong House groups those who want to explore the Hmong culture, and the Substance Free Houses groups students who want to avoid alcohol and tobacco. Students apply to a specific LLC when they apply for university housing. The LLCs vary greatly in terms of the type and amount of scheduled programming around their theme, requirements for entry, and other factors. Although more than 100 students in the sample reported living in an LLC, a follow-up item revealed that they were spread among almost 20 different LLC programs. Thus, there is not enough power to examine differences between specific LLCs in this study.

[23] Originally, I had hoped to include these items in both times, with the idea that the survey could examine bonding social capital within two different types of subgroups within the university community. Because of OHRL's length considerations, these scales were dropped from Wave 1. The residence-hall scale was retained so that the studies in this thesis would focus on different sub-communities to better generalize the theory. However, when preliminary analysis of Wave 1 data indicated that participants took approximately 10 minutes on average to complete the survey, it became possible to add a measure while remaining under OHRL's recommended 15 minute time limit. I added these ethnicity-related scales to allow for replication and comparison with Study 1.

these scales after the residence hall social capital measure and before the university

social capital scale.

<div align="center">*Results*</div>

This section examines evidence for all seven of the study hypotheses described

above. However, before using the data to test hypotheses, it is necessary to check some

assumptions. Most importantly, in any longitudinal study, one must examine the

attrition for patterns that could influence the results or affect the interpretations one

could draw from them. Thus, this section begins with an attrition analysis. After

establishing that attrition is not a major cause for concern in this sample, the study

hypotheses can be tested to examine how the variables relate to one another and change

over time.

Attrition Analysis

Of the original 491 participants from Time 1, 397 responded to the Time 2

survey for a response rate of 81%. However, some of these participants did not

complete all the measures, and some did not provide information that would allow their

responses to be paired with their earlier responses (see Footnote 19 above). Ultimately,

338 participants provided complete and useable data for both time points, for an

effective response rate of 68.7%. In any longitudinal study, it is crucial to establish that

attrition does not relate to any of the important theoretical or demographic variables.

First, one can examine response rates by demographics. The Time 1 sample

contained 398 white participants, 71.1% of whom completed the Time 2 measures.

Another 94 racial minority participants (60 Asian, 13 black, 16 Hispanic, and 5 Native

American) completed Time 1 measures. Because of the small numbers of some racial

groups, it is not possible to reliably examine response rates for each group individually. However, across all minority groups, 58.5% of participants responded to the second set of measures. Thus, minorities were less likely to remain in the sample than white participants were, $X^2 = 5.61$, $p = .02$. Gender did not relate to retention, as 65.9% of male and 70.2% of female participants completed both waves, $X^2 = 0.96$, $p = .33$.

To test whether any of the measured variables relate to sample attrition, a logistic regression analysis was conducted. First, a dummy variable indicating whether or not a Time 1 participant had completed the survey at Time 2 was created. This was regressed on all of the variables measured at Time 1: social capital at the university and dorm level, contact quality, one-group categorization, many-groups categorization, racial ingroup attitudes, racial outgroup attitudes, university identification, RWA, SDO, and each of the Big 5 traits. The model was only marginally significant, $X^2 = 22.74$, $p = .09$ (See Table 3-3). Examining the predictors reveals that only Extraversion ($B = -.31$, $p = .015$) predicts Time 2 completion, such that more introverted people were slightly more likely to complete the second survey.

This conclusion is also confirmed by a series of t-tests comparing the mean scores on each Time 1 measure for those who completed or did not complete the measures at Time 2 (see Table 3-4). Once again, Extraversion relates to study completion; mean levels of extraversion are lower for those who complete the second set of measures than for those who do not. This analysis strategy also reveals slight differences in categorization that relate to completion: the mean level of One-Group Categorization is higher for those who completed both waves than for those who did not ($M = 3.19$ vs 2.99, $t = 1.97$, $p = .05$), and the mean level of Many-Groups

Categorization is marginally lower for the study completers compared to non-completers ($M = 2.93$ vs 3.10, $t = 1.76$, $p = .08$).

Finally, to check for causal homogeneity -- whether or not patterns of prediction varied by groups (Kessler & Greenberg, 1981) -- Time 1 variables were modeled to match the results of Study 1 for both completers and non-completers (see Figure 3-1).[24] Each path model included all of the hypothesized relationships (bridging social capital predicts contact and one-group categorization, contact predicts one-group and many-groups categorization as well as racial outgroup attitudes, and one-group categorization predicts racial outgroup attitudes). Different patterns of correlation among the variables for completers versus non-completers is a problem for longitudinal studies; it indicates that the constructs do not relate in the same ways for all people and that these differences correspond with study attrition. Hence, in these analyses, we wish to see that the same variables predict each other in the same way for both groups. This is generally the case: although the relationships unsurprisingly differ in magnitude in some places, the relative strength is the same across the two models. In no case is a variable significantly predictive of another for one group but not the other.

As a whole, these analyses show that attrition in this study should not heavily affect the results. With only minor exceptions, the variables used in the theoretical models do not affect study attrition rates, nor are there non-homogenous patterns of causality in the two groups. Care will need to be taken when generalizing the results to racial minorities. However, the type of analysis required for this study may be less affected by this lower response rate: "even with relatively high attrition, respondents

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[24] All structural equation models in this chapter were tested with Mplus software. The raw data were input to the program and an ML estimator (with the H1 option to allow for missing data) was used.

who remain over time in panels [provide] relatively accurate estimates of bivariate and multivariate relationships, but measures of prevalence and frequency of behavior [are] biased" (Menard, 2002, p 39).

Mean Changes in Key Variables over Time

To investigate Hypothesis 1, change scores were created for each major construct in the study. Participants' scores at Time 1 were subtracted from their scores at Time 2, revealing any increases or decreases in the variable between the measurement points. Table 3-5 provides the mean change scores for the sample, and their difference from zero as determined by a *t*-test.

As predicted, both bonding and bridging social capital increased on average. The difference scores between Times 1 and 2 for bonding ($M = .075$, $t = 3.52$, $p < .001$) and bridging ($M = .047$, $t = 2.60$, $p < .05$) were both positive and significantly different from zero. As participants spent time in their new communities, most of them perceived a higher amount of social capital at the end of the study than they did at the beginning. However, there was notable variation among individuals: the high standard deviations ($SD = .39$ and .33 for bonding and bridging, respectively) indicate that a substantial minority of participants also perceived a decrease in social capital over time.

These data also reveal a significant *decrease* in contact quality, one-group categorization and racial outgroup attitudes. On average, participants reported more interracial contact, more closeness with other races and a greater tendency to view their university as a unified group at the *beginning* of the study.

Correlations among Variables

Table 3-6 provides correlations among the variables at Time 1 and Time 2 separately, and Table 3-7 presents the correlations among the difference scores. A few notable patterns emerge from these correlations. As predicted by Hypothesis 2, bridging and bonding social capital are positively correlated throughout the study. In fact, whether bonding social capital is defined in terms of the residence hall community or other students of one's ethnicity, bridging social capital is positively correlated with it. Thus, Hypothesis 2 is supported.

Hypothesis 3 predicts that bonding social capital should be more strongly related to attitudes about racial ingroups than racial outgroups. The evidence for this hypothesis varies by whether bonding social capital is defined within residence halls or within ethnicity. By examining the correlations among variables at Time 2 (the only time at which the ethnic social capital data were available), we see that ethnic social capital correlates strongly with racial ingroup attitudes ($r = .32$, $p < .001$), but not with racial outgroup attitudes ($r = .07$, $p > .10$). Bonding social capital within residence halls correlates about equally with racial ingroup ($r = .23$) and outgroup ($r = .26$) attitudes. So, evidence for Hypothesis 3 is mixed and appears to depend heavily on the context in which bonding social capital is defined.

Modeling Changes

As predicted by Hypothesis 4, changes in bridging social capital perceptions should predict changes in attitudes about outgroup members; specifically, people who perceive higher levels of bridging social capital at Time 2 than at Time 1 should also have more favorable attitudes about ethnic outgroups at Time 2. Moreover, Hypothesis 5 predicts that changes in bridging social capital perceptions should predict changes in

the two proposed mediating variables. Those who have higher levels of bridging social capital at Time 2 than at Time 1 should also have more positive contact with outgroup members and be more likely to use a superordinate group categorization at Time 2 than at Time 1. These two hypotheses were tested in a structural equation model that examines these predicted mediations.

To assess change in each of the constructs over time, difference scores were calculated. Time 1 scores were subtracted from Time 2 scores and the resulting change scores constituted the input for a structural equation model (see Figure 3-2). This model was designed to replicate and extend the results of Study 1; thus, this model conceptually replicates the model depicted in Figure 2-2 but uses difference scores rather than measures from a single time point. The model sets up a series of mediations in which changes in bridging social capital predict changes in contact quality and one-group categorization; change in contact quality predicts changes in one-group and many-groups categorization, and change in categorization predicts change in attitudes about racial outgroups. This model supports the predictions outlined above in Hypotheses 4 and 5, and is a very good fit for the data, CFI = .996; SRMR = .02; RMSEA = .02; $X^2(3) = 3.49$, $p = .32$. Sobel tests on all calculated indirect effects (see Table 3-8) indicated significant mediation. Most important, contact mediated the association between bridging social capital and one-group categorization (Sobel = 3.08, $p < .001$), and one-group categorization mediated the relation between contact and racial outgroup attitudes (Sobel = 2.80, $p < .001$). In support of Hypothesis 4, difference scores for bridging social capital and racial outgroup attitudes were related ($r = .17$); the path model and calculated indirect effects provide support for Hypothesis 5 and its

suggestion that changes in contact quality and one-group categorization mediate this effect.

Cross-Lagged Panel Analysis

To investigate the data from another angle, several cross-lagged panel analyses were conducted.[25] The general goal of this strategy was to examine whether the paths from social capital to other variables were stronger than the paths from other variables to social capital, as well as how these paths compared to the stability effects for each variable. According to the theoretical predictions, social capital at Time 1 should affect contact at Time 2, more so than contact affects social capital over these times. Bridging social capital should have particularly strong effects compared to bonding social capital. Moreover, the same should be true with regard to categorization and racial attitudes (although, with their more distal positions in the proposed causal sequence, direct effects of social capital might be weaker).

The first model (see Figure 3-3) included bonding and bridging social capital, and contact quality. The model was specified so that Time 1 variables were allowed to have effects on Time 2 variables.[26] Error terms for the three variables at each time were

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[25] For clarity and ease of presentation, the structural equation models in this section use observed variables to represent social capital and contact: mean scores on these scales were used to calculate the covariance matrix for these analyses. This strategy allows for readable figures and briefer text descriptions of the models. However, many of these models were also replicated using a subscales of items as latent indicators to increase the degrees of freedom. Overall, the latent and observed variable models revealed corresponding results. A full description of the latent models is available in Appendix F for interested readers.

[26] For purposes of model identification and calculating fit statistics, it is not possible to estimate all possible cross-lagged effects. Because my theory does not predict that any of the contact, categorization or racial attitude variables should affect bonding social capital, these paths were not included in the models. To justify these assumptions, I also tested saturated models that allowed for all possible cross-lagged effects. These models were identical to those in Figures 3-3, 3-4, and 3-5 except that the paths from Time 1 variables to bonding social capital at Time 2 were included. In no case did any path from another variable at Time 1 to bonding social capital at Time 2 reach significance (aside from the stability

allowed to correlate to account for measurement variance at each time point. The model

was an acceptable fit, CFI = .991; SRMR = .028; RMSEA = .138; $X^2(1) = 8.94$, $p =$

.002. All the variables had large and significant stability effects: $B = .423$, $\beta = .415$, $p <$

.05,   for contact, $B = .383$, $\beta = .219$, $p < .05$, for bridging social capital, and $B = 1.18$, β

$= .727$, $p < .05$, for bonding social capital. The path from bridging social capital to

contact ($B = .243$, $\beta = .187$, $p < .05$) was not greater than either variable's stability

effect, but as predicted it was stronger than the path from contact to bridging social

capital ($B = .025$, $\beta = .018$, $n.s.$). This model also confirms that the path from bonding to

bridging social capital ($B = .520$, $\beta = .467$, $p < .05$) was much stronger than the path

from bridging to bonding social capital ($B = .088$, $\beta = .035$, $n\ s.$), and that bridging

social capital had a positive effect on contact.[27]

Another model tested the cross-lagged paths among social capital and one-group

categorization (see Figure 3-4). This model was an excellent fit to the data, CFI = .998;

SRMR = .012; RMSEA = .061; $X^2(1) = 2.56$, $p = .11$. Here, we find strong evidence

that the path from bridging social capital at Time 1 to one-group categorizations at Time

2 ($B = .466$, $\beta = .264$, $p < .05$) was much stronger than the opposite path from one-group

categorizations at Time 1 to bridging social capital at Time 2 ($B = -.020$, $\beta = -.020$, $n.$

$s.$). In fact, the path from bridging social capital to categorization was comparable to the

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effects of bonding social capital at Time 1). Thus, these paths were dropped from the cross-lagged
analyses presented here so that model fit could be assessed.
[27] To more formally test the relative strength of the bridging social capital → contact versus contact →
bridging social capital paths, a model in which these two paths were constrained to equality was tested.
The chi-square difference test was significant, $X^2(1) = 6.059$, $p = .02$, indicating that the model in which
the social capital to contact path is larger fits the data better than the constrained model.

stability effects for each variable ($B = .398$, $\beta = .228$, $p < .05$ for bridging social capital; $B = .282$, $\beta = .291$, $p < .05$, for categorization).[28]

Finally, a model tested the relationships among social capital and racial attitudes over time (see Figure 3-5). This model also fit the data well, CFI = .999; SRMR = .003; RMSEA = .001; $X^2(1) = 0.132$, $p = .72$. Although it appeared that the path from bridging social capital to racial attitudes ($B = .112$, $\beta = .050$) was slightly larger than the path from attitudes to bridging social capital ($B = .062$, $\beta = .035$), neither path was significant at the .05 level.[29] Moreover, the stability effects for racial attitudes ($B = .565$, $\beta = .480$, $p < .05$) and bridging social capital ($B = .375$, $\beta = .215$, $p < .05$) in this model were much larger than either cross-lagged effect.

The novel hypotheses tested in this study relate to the role of bridging social capital in predicting contact quality, categorization and attitudes about racial outgroups. Evidence from Study 1, and from the tests of Hypothesis 4 and 5 described above, suggest that contact quality and one-group categorization mediate the relationship between social capital and racial attitudes. Moreover, considerable theory and research suggests that contact quality should influence categorization and attitudes, and that one-group categorization leads to more positive attitudes about members of other races (Allport, 1954; Gaertner & Dovidio, 2000; Pettigrew & Tropp, 2006). To replicate these

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[28] Once again, a constrained model was tested that fixed bridging social capital → one-group categorization equal to categorization → bridging social capital. As above, the chi-square difference test for the nested models was significant, $X^2(1) = 16.684$, $p < .001$. The model described in the text above is a better fit for the data than the constrained model.

[29] A final chi-square difference test compared this model with one in which the bridging social capital → racial attitudes path was constrained to equality with the racial attitudes → bridging social capital path. In this case, the test was not significant, $X^2(1) = .135$, $p = .71$. Thus, these variables' effects on each other are approximately equal. However, it is important to note that social capital is hypothesized to have indirect effects on racial attitudes through contact quality and categorization, so its lack of a direct effect here is not inconsistent with predictions.

effects and fully test the predicted sequence of effects, I conducted three additional

cross-lagged tests to examine contact's effects on racial outgroup attitudes and one-

group categorization, and categorization's effects on racial outgroup attitudes.[30]

The first model compared contact quality's effects on racial outgroup attitudes

over time to the effects of racial outgroup attitudes on contact quality (see Figure 3-6).

This cross-lagged model controlled for attitudes about the racial ingroup because both

types of racial attitudes were highly correlated in this sample. The path from racial

outgroup attitudes at Time 1 to racial ingroup attitudes at Time 2 was not of theoretical

interest, so it was dropped for model identification purposes. The model in Figure 3-6

was a good fit for the data, CFI = .999; SRMR = .002; RMSEA < .001; $X^2(1) = 0.057$,

$p = .81$. Importantly, contact quality at Time 1 had a significant effect on attitudes about

racial outgroups at Time 2 ($B = .295$, $\beta = .168$, $p < .05$), and this effect was slightly

larger than the path from racial attitudes at Time 1 to contact quality at Time 2 ($B =$

.070, $\beta = .101$, $p < .05$). These findings are in line with recent research on the reciprocal

effects of contact and prejudice (e.g., Binder et al., 2009); that is, both variables affect

one another but contact has a slightly larger effect on prejudice than vice versa.

The next model (see Figure 3-7) examined the cross-lagged effects of contact

quality and categorization over time. Both one-group and many-groups categorizations

were included in the model; for the purposes of model identification the path from

many-groups categorization at Time 1 to contact quality at Time 2 was dropped from

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[30] This analytic strategy is not ideal for these research questions. There are problems inherent in measuring mediators at the same time as their outcome variables (Maxwell & Cole, 2007). To more accurately investigate the two-step mediation model predicted here, conducting surveys at four time points in the longitudinal survey would have been preferable. Future research should take this into consideration, but the wealth of support for contact theory and the common ingroup identity model (which would make the same predictions about these variables) should assuage some of these concerns.

the model. The model was a good fit for the data, CFI = .999; SRMR = .006; RMSEA <

.001; $X^2(1) = 0.384$, $p= .53$. Here, the path from contact quality at Time 1 to one-group

categorization at Time 2 ($B = .182$, $\beta = .131$, $p < .05$) was significant, but the path from

one-group categorization at Time 1 to contact quality at Time 2 ($B = .058$, $\beta = .080$, $n.$

$s.$) was not. Contact also had a negative effect on many-groups categorization over time,

($B = -.446$, $\beta = -.263$, $p < .05$).

The final model (see Figure 3-8) examined categorization and racial attitudes at

the two time points. In this model, both one-group and many-groups categorizations

could predict attitudes about racial outgroups. As in the prior racial attitudes model,

attitudes about racial ingroups were included as a control. The path from many-groups

categorization to attitudes about racial ingroups was the least theoretically interesting in

this case, so it was not included for model identification purposes. This model fit the

data well (CFI = .999; SRMR = .009; RMSEA = .03; $X^2(1) = 1.36$, $p = .24$), but it

provided less clear support for the predicted relationships. Categorizations at Time 1

should predict attitudes about racial outgroups at Time 2; here, we see that many-groups

categorization did so ($B = -.126$, $\beta = -.097$, $p < .05$), but one-group categorization did

not ($B = -.062$, $\beta = -.050$, $n. s.$) Neither was there any evidence that attitudes about racial

outgroups at Time 1 predicted one-group ($B = .048$, $\beta = .051$, $n. s.$) or many-groups ($B =$

$-.103$, $\beta = -.091$, $n. s.$) categorizations at Time 2. Overall the stability effects for each

variable dwarfed any cross-lagged effects.

In sum, these models generally provided support for the claim that bridging

social capital is an antecedent of contact and inclusive categorization, rather than a

consequence of these factors. They provided weaker support for the claim that bridging

social capital is a direct antecedent of attitudes about racial outgroups. However, the overall theory suggests that contact and categorization should mediate this relationship. In line with prior theory, the cross-lagged analysis also provided support for contact quality as an antecedent of categorization and interracial attitudes. In other words, the data did not disconfirm the causal sequence of variables that I propose in my theoretical model.

Discussion

The data are consistent with predictions that those who had the largest increases in their perceptions of social capital at their universities were also those who had larger increases in their interracial contact with others, in their tendency to see their universities as a single ingroup rather than as several fragmented groups, and in the positivity of their attitudes about other racial groups. The study demonstrated that the degree of change in these variables over time correlated in a way that suggests bridging social capital is an antecedent of contact quality, group categorization, and racial attitudes, as predicted. These claims were further supported by a more rigorous cross-lagged panel analysis, which indicates that social capital had a stronger effect on other variables than these variables had on social capital. Overall, this study provided important evidence for considering perceptions of social capital as a causal influence on interracial attitudes and experiences.

In most respects, the data supported this study's hypotheses. Social capital increased between the two measurements, and bridging and bonding social capital correlated positively with each other. Bridging social capital was more closely related to attitudes about racial outgroups than either type of bonding social capital was;

meanwhile, bonding social capital within one's ethnic group was more closely related to attitudes about one's racial ingroup. The study replicates findings from classic literature by demonstrating that both interracial contact and a common ingroup categorization affect racial attitudes, and it supports Study 1's claims that bridging social capital is an antecedent of these processes.

By supporting these hypotheses, the study expands on both extant research and the results presented in Study 1. The most important contribution in this study was an examination of the dynamic processes of social capital development and attitude change over time. Study 2's longitudinal design was uniquely tailored to assess causal pathways over time, and to investigate the effects of increases or decreases in the study variables. As hypothesized, bridging social capital increased on average over time, and such increases were associated with corresponding increases in interracial contact quality and common ingroup categorization, and more positive attitudes about racial outgroups. Moreover, the cross-lagged analysis revealed some reciprocal causal influence between social capital and contact or categorization, but generally indicated that social capital was a stronger predictor of those variables than they were of social capital. Thus, the study demonstrates the dynamic role of these constructs among people joining a new community and provides a new understanding of how beliefs about these communities influence interracial experiences.

The data also revealed a few trends that had not been predicted. Although social capital was the hypothesized antecedent of all the other variables in these models, the cross-lagged panel analysis for social capital and racial outgroup attitudes showed only a slightly stronger effect of social capital on attitudes as compared to racial attitudes on

social capital – one that is not significant, as determined by the chi-square difference test. Most important, neither path reached statistical significance, compared to the strong and significant stability effects for these variables. So, the data do not support the claim that social capital has direct causal effects on interracial attitudes over time. However, recall that social capital was predicted to have its effects on racial attitudes through processes of intergroup contact and recategorization. The fact that it does have effects on these variables over time means that the lack of a direct effect is not problematic. Because contact and common ingroup categorization do have effects on racial attitudes (Gaertner & Dovidio, 2000; Pettigrew & Tropp, 2006), the data suggest that perceptions of social capital simply work indirectly through these mediating processes.

Other unanticipated results were the mean decreases in contact quality, one-group categorization and racial outgroup attitudes. These findings are contrary to others in the literature. For example, Sidanius, Levin, van Laar, and Sears (2008) report that university students on average have more of a common ingroup identity and less racial prejudice at the end of college than they do at the beginning. Also, a study of high school students finds that contact quality increased marginally over the course of their school year (Brown, Eller, Leeds, & Stace, 2007). It is not clear why these variables decreased rather than increased, but perhaps the discrepancy is due to the different lengths of time in these studies. Sidanius et al. (2008) followed their participants over four years. Perhaps the greatest changes in categorization and racial attitudes occur after more than just a few months in the university setting. Another difference may be the base rates of different racial groups in the study samples: overall, the University of

Minnesota is more racially homogenous than the University of California – Los Angeles (where Sidanius et al., 2008, collected data). These differences might influence the structure of contact opportunities. Alternatively, the transition to college can be a very stressful time. It is plausible that the first-year students in this study were experiencing anxiety about their lives in general; perhaps this anxiety also made it more difficult to relate to members of other races (e.g., their anxiety about their new college life could manifest as interracial anxiety, affecting their attitudes). Such speculations will call for future research.

The data also provided mixed support for predictions about bonding social capital. Hypothesis 3, which suggested that bonding social capital should relate more strongly to ingroup than outgroup attitudes, held up only for bonding social capital as defined within one's ethnic group. Bonding social capital among students who share a residence hall had equally strong relationships with racial ingroup and outgroup attitudes. Thus, Hypothesis 3 in its strong form is not supported. Rather than disconfirming the theory, however, these results suggest that a more contextual, domain-specific form of the hypothesis is needed. Bonding social capital may need to be measured specifically within the intra- and intergroup relations context in which social attitudes will be assessed. By matching the level of specificity, more accurate prediction is possible. Moreover, these results can be interpreted as good news for racial harmony in university communities. Most likely, the residence halls are multiethnic communities already, so bonding social capital within them should lead to positive attitudes about these group members. Building social capital both narrowly within residence halls and widely through the university as a whole could both promote more

positive attitudes about people of other races. From a practical standpoint, it might be easier to build social capital in a residence hall setting where students can get to know one another and "bond" than it would be to intervene at all levels of the institution.

Another limitation to consider is the generalizability of the results to other age groups. In many ways, a college student sample was good for this study because it optimized the chances of finding attitude changes over a short time period (Krosnick & Alwin, 1989; Newcomb, 1943; Sears, 1986). However, this advantage inherently raises the question of whether the results would be similar among a population of older adults whose attitudes were more crystallized. The students in this study were also joining a community that was quite different from the one they had left: As first-year students living on campus, most of whom had presumably lived with their parents prior to college, they had many adjustments to make. Such radical life changes are perhaps less common than more minor shifts in one's relevant community, such as a move from one house or apartment building to another. Future research should examine whether joining a community more similar to those with which one has prior experience could have the same effects.

In sum, this study was not flawless, but it makes a valuable new contribution to knowledge of social capital and intergroup relations. Its contributions are even greater when considered in conjunction with Study 1; an integration of their findings appears in the general discussion below.

Chapter 4: General Discussion

The current research developed from the idea that understanding people's beliefs about social capital could provide an explanation for when intergroup contact leads to social recategorization and positive intergroup attitudes. The contention is that psychological theories of intergroup contact and categorization could be more nuanced and precise with greater attention to aspects of the broader social context in which intergroup interactions take place. A person who engages with a trusting, cooperative community in general is likely to let those norms color his or her experiences with community members of other races. This thesis presented two studies designed to test specific hypotheses derived from this general claim.

This chapter begins with a brief overview of the two studies and their results. Like all research, however, these studies were not perfect. Therefore, the second section of the chapter discusses some limitations to the research and some boundaries to the conclusions that can be drawn from it, integrated with some suggestions for overcoming these limitations in future research. The rest of the chapter returns the focus to the contributions that these studies make. A third section addresses several ways in which the current research could apply to social issues and real-world problems. The final section takes a broader perspective and provides some speculation about how this research might connect to other contemporary psychological theories about intergroup relations.

Overview of the Present Research

Overall, the two studies supported most of the hypotheses that they were designed to test. Based on cross-sectional and longitudinal analyses of data from two

samples, there is evidence that perceptions of bridging social capital in university communities relate to experiences with quality interracial contact, to tendencies to categorize others into a common ingroup as opposed to a collection of separate groups, and to attitudes about people of different races than one's own. People who score high on one of these measures tend to score high on the others, and an increase in one of these variables over time corresponds with increases in the others. Moreover, the cross-lagged panel analysis in Study 2 indicates that bridging social capital is likely the antecedent, rather than the consequence, of quality intergroup contact and common ingroup categorization. In short, both studies reported above support the central claim of this project that bridging social capital should positively relate to attitudes about racial outgroups through processes of contact and social recategorization.

Other hypotheses were also supported. Comparisons with relatively more bonding types of social capital reveal that bridging social capital is indeed more strongly related to attitudes about outgroups, whereas bonding social capital relates more strongly to attitudes about the ingroup. Study 2 provides more information about bonding social capital with evidence that it might predict attitudes about members of the ingroup that defines the homogenous community, but not those about a person's other social groups. Social capital among students of one's own ethnicity predicts attitudes about one's racial ingroup, but social capital among students in one's residence hall does not. In addition, both studies indicate that bonding social capital (in either subcommunity setting) is positively associated with bridging social capital. The two facets of social capital are not mutually exclusive, and in fact might reinforce one another.

Considering the two studies in conjunction allows for stronger claims about the social categorization processes at work in determining racial attitudes. The common ingroup identity model (Gaertner & Dovidio, 2000) suggests that people recategorize others into a shared ingroup after positive contact with them, and that attitude change results from the application of typical ingroup biases to these "new" ingroup members. In order to claim that this process is truly *re*-categorization (rather than decategorization, or another style of social categorization), a change in categorization must be demonstrated such that people shift from using categorical distinctions to including others into one shared category. Common ingroup identity model research has strong laboratory evidence of these changes (Gaertner et al., 1989; Nier et al., 2001). The present research expands this model by incorporating new insights about the social capital dynamic for intergroup relations outside the laboratory. Study 1 showed that those who perceived high bridging social capital and who had quality interracial contact were more likely to use a common ingroup categorization and less likely to use separate groups representations, even when accounting for alternative explanations such as individual differences in personality. Study 2 allows for even stronger claims: Its panel data suggest that people whose perceived bridging social capital and contact quality increased over time had corresponding *increases* in their common ingroup categorizations and *decreases* in their separate-groups categorizations. This is evidence that people did indeed *re*-categorize other groups into their shared ingroup category.

In sum, these two studies were successful overall and make a valuable contribution to knowledge about social capital and intergroup relations. Quality interracial contact is most likely to occur when people believe their communities have a

high degree of bridging social capital—that is, when they engage with their heterogeneous communities as trusting places where people have a norm of looking out for one another. Bridging social capital also promotes recategorization, such that people pay less attention to racial differences and more to the community ties that they share when categorizing others. Both quality contact and recategorization can reduce racial prejudice, and serve as mechanisms for bridging social capital to improve interracial attitudes. This research also provides an empirical distinction between bridging and bonding social capital and demonstrates differences in their effects. Bonding social capital, occurring in more homogenous communities, does not have the same power to influence intergroup attitudes and experiences as bridging social capital does. This research sheds new light on how people experience and define their ingroups and communities. Nevertheless, there are still some unanswered questions. The next section addresses limitations of the present research and ways to address these problems in future research.

Future Improvements upon the Present Research

Defining and Measuring Bonding and Bridging Social Capital

Despite all of the contributions that these studies make, there were some goals that were not fully accomplished with this research. One goal was to develop an empirical way to assess and distinguish between bonding and bridging dimensions of social capital. Fisher and Molina (2009) originally proposed the idea of measuring social capital in relatively more or less homogenous subgroups of a community, and the present work further developed those measures. From one perspective, this was a success. Analysis of Study 1 data closely examined the two scales. By factor analyzing

all 39 items from both the university level and the ethnic group level social capital scales, it was possible to examine their structure. A confirmatory factor analysis indicated that the two scales did indeed measure separate constructs, and the strong correlation between them indicated that those constructs were closely connected to each other. Data from Study 2 similarly show different patterns of relationships between bridging social capital and racial attitudes on the one hand, and between the two types of bonding social capital and racial attitudes on the other hand.

However, there are limitations to this approach, which could indicate that it is not the best way to distinguish between the concepts. In both studies, participants responded to the bonding social capital scale prior to the bridging social capital scale. They were provided with instructions to consider "your entire university community, and all the students and personnel who are a part of it" when responding to the bridging social capital scale; however, such instructions are no guarantee that participants necessarily did so. It's entirely possible that participants were mostly thinking of other students of their own ethnicity when responding to items about the university community in Study 1. In Study 2, it seems even more likely that they were thinking of other residents in their hall when responding to both the bridging and bonding scales (especially at Time 1, when they had had less of an opportunity to meet other university students and their hallmates may have been especially salient). One way that future research might be able to address this problem would be to measure these constructs between rather than within subjects, and test hypotheses about bridging and bonding social capital using separate data sets. Another improvement might be to examine social capital in communities that do not overlap rather than in subgroups of one community.

To become more useful measures, these scales will still need further validation and development despite the promising results described above.

Further Integration of Individual- and Community-Level Concepts

Chapter 1 argues for the measurement of social capital at an individual level to promote psychological theory development. In line with political psychologists who have treated the concept as an individual-level variable (e.g., Anderson, 2010; Brehm & Rahn, 1997; Sullivan et al., 2002a, 2002b), this research measured individuals' perceived levels of social capital within their communities. It found that people differ in the degree to which they believe social capital is available to them even within the same community, and that these individual differences explain important variance in interracial experiences and attitudes. Yet, the finding begs the question of *why* people vary. After all, beliefs about something do not arise out of nothing; one's subjective experience is often rooted in actual experiences. The wealth of research from other disciplines about social capital at the community level suggests that there are also real differences in the overall amounts of social capital that a community has. Given this, it might be most interesting and informative to examine social capital at *both* the community and individual level, in order to explore any interactive effects. For instance, how does an individual who perceives a low amount of social capital in a community that objectively seems to have low social capital levels differ from one who perceives low levels in a community that generally rates more highly in social capital?

The data in these studies do not allow for an examination of such questions, as all participants were part of the same university community. Therefore, there was no variation in the community-level social capital to compare and contrast with the

individual-level variation in perceived social capital.[31] Future research could sample

populations in different communities. For example, one could speculate that

community-level social capital would be higher at a small liberal arts college where

everyone lives on campus as compared to a large commuter college where the

university community might be less salient to students. Such aggregate differences

should influence the way that individual students perceive social capital at their

universities, but individual variation will still be present. It may be that the interactive

effects of community-level and individual-level social capital more powerfully explain

outcomes than either construct alone, so more research will be needed to explore these

ideas.

Expanding to Other Research Methodologies

The two studies presented here rely on cross-sectional and longitudinal data.

There certainly is value in using these methodologies. The cross-sectional study served

as an initial exploration of the relationships among social capital, interracial attitudes,

quality of contact and social categorization strategies – topics that had not yet been

empirically explored together. Study 1 suggested that social capital relates to racial

attitudes in a manner that is mediated by contact and common ingroup categorization.

Longitudinal Study 2 further confirmed these claims and bolstered them through cross-

lagged analysis, which indicated stronger support for bridging social capital as an

antecedent, rather than a consequence, of these other variables. However, these studies

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[31] It might have been possible to explore different levels of social capital in ethnic sub-communities, but participants were so spread among these groups that statistical power would be a concern. Residence halls did not differ in their mean levels of social capital, so that sub-community distinction would not provide fruitful information. Also, these sub-communities are not truly independent as they are nested within the university overall.

can only suggest – not confirm – a causal connection among the constructs. To truly establish causality, of course one must conduct an experiment. Thus, developing an experimental manipulation of social capital will be an important next step for this research.

There are several possible directions that such research could take. A natural quasi-experiment could be a preliminary step toward such an experimental design. If two communities are known to differ in social capital, we could study people who join these communities to see how they differ as they adapt to their new community's norms. A more rigorous experimental design might involve an intervention in the style of a social norms manipulation (e.g., Crandall, Eshleman, & O'Brien, 2002; Prentice & Miller, 1993; Sechrist & Stangor, 2001). With this strategy, people are provided with information about typical attitudes or behaviors in their community (frequently this information reveals that undesirable behaviors or attitudes are less common than people previously believed). Once provided with such information, conformity pressures often lead people to adjust their own thoughts and actions to be more in line with the group (see also Oyamot, Fisher, Deason & Borgida, 2011). A similar strategy might involve providing people with information that people in their communities are more or less trustworthy and involved in community matters. Basically, with a believable way to tell people that their communities are higher or lower in social capital, they may adjust their attitudes and behaviors to account for that information. Beliefs about prevailing social norms influence frequency of and intent to engage in interracial contact (Shelton & Richeson, 2005), so it is reasonable to expect that norms related to social capital specifically might also influence intergroup behaviors. Such a social norms strategy

may allow for the manipulation of beliefs about social capital to more precisely study its effects.

For certain types of communities, more direct interventions may be possible. When people are able to meet in person with researchers, it could be easier to develop social capital in their communities. In fact, my colleagues and I are currently developing such an intervention for a specific community: Minnesota woodlands owners (Andow, Borgida & Hurley, 2010). After some pilot research determining that it could be possible to increase a sense of community and social capital among this population, we are developing strategies to do so. These interventions will be based on meetings among woodlands owners from the same area of the state. Activities at the meetings will focus on building trust and developing a shared social identity as a community of woodland owners. These interventions will be tested over the next few years. If effective, they will provide a unique way to experimentally enhance social capital in some communities. However, it should be noted that this strategy will not be appropriate for all settings. When a community is too large (numerically or geographically) to make a meeting possible, other tactics will need to be pursued.

Potential Applications to Social Problems

Social Capital and Prejudice Reduction

The data from this research speak directly to intergroup relations issues in the real world. Much psychological research has been motivated by the desire to reduce prejudice and discrimination and to enhance equitable and just relations between social groups. Such efforts were a driving force behind the development of contact theory and the common ingroup identity model. Thanks to these theories and research conducted to

support them, we now have specific strategies for improving intergroup relations. For instance, contact theory research has led to jigsaw classroom teaching strategies (Aronson & Patnoe, 1997); social recategorization research has also led to practical interventions to promote more inclusive classrooms (Houlette et al., 2004). Similar progress emerged from research on other intergroup relations theoretical paradigms. For example, understanding that personalized interactions contribute to decategorization (Ensari & Miller, 2002, 2005) inspired a "fast friends" tactic that lets strangers get intimately aquainted and form friendships during a brief lab intervention (Mendoza-Denton & Page-Gould, 2008; Page-Gould, Mendoza-Denton & Tropp, 2008). Studying social capital has the potential to lead to similar new interventions for prejudice reduction. If the perception of a high level bridging social capital in one's community can promote more positive attitudes about other racial groups, interventions to increase bridging social capital should improve relations between racial groups. The two studies reported here focus on *measuring*, rather than *manipulating,* bridging social capital, so more research will be needed to determine how to design effective interventions. Nevertheless, the current findings suggest that research in that direction would be a fruitful endeavor.

Diversity and Tolerance

These data speak mainly to intergroup relations issues and to the connections between bridging social capital and racial attitudes, but they also have relevance to the debate about the nature of the social capital and diversity relationship. Putnam (2007) suggested a paradox in the effects of social capital: It is related to many positive outcomes for individuals in high social capital communities (e.g., higher educational

and economic outcomes), yet can also be associated with greater insularity in communities and less tolerance of diversity. To support this claim, he cites evidence that people who live in more racially heterogeneous communities report less trust in their neighbors (see also Alesina & La Ferrara, 2000; Costa & Kahn, 2003; Lancee & Dronkers, 2008). Similarly, Forbes (1997) argues that communities with more diversity and opportunities for interracial contact also have more racial prejudice. Based on these claims, one might assume that social capital and diversity are doomed to be mutually exclusive.[32]

However, the present research provides a counterpoint to such claims and suggests that the relationship is more nuanced than previously thought. Most importantly, the empirical distinction between bridging and bonding social capital is a major contribution to the resolution of this issue. Previous research has not distinguished between bridging and bonding when examining the social capital -- diversity association. The data presented in these two studies suggests that social capital and diversity are not doomed to mutual exclusivity, but that we must pay attention to the type of social capital and the heterogeneity of the community in which it's defined. Bonding social capital might relate to insularity among an ingroup, but bridging social capital could be the key to improving tolerance and diversity, as it indirectly promotes

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[32] It is important to note that other data counters these claims as well. For example, Pettigrew (1997) also measured racial attitudes and neighborhood diversity, and found that those in the most diverse neighborhoods actually had the most positive attitudes about other racial groups. This could also be construed as a reason to pursue the study of social capital in intergroup relations: inconsistencies in the relationships between variables, such as the two different directions that this correlation can take, suggests the presence of moderator variables. The degree of bridging social capital in a community could be the moderator that determines when its high racial heterogeneity promotes or reduces prejudice among community members via contact processes.

more positive racial attitudes. In other words, promoting social capital might be *most* important in racially heterogeneous communities.

Building Social Capital to Promote Prosocial Behavior

The research on building communities among woodlands owners described in the previous section (Andow, Borgida & Hurley, 2010) highlights another application that social capital research might have to solving a real world problem. We hope that enhancing social capital among woodland owners will encourage them to volunteer for an invasive species monitoring program, in which private landowners would monitor traps to look for invasive insects that pose an expensive threat to natural resources. Theoretically, landowners may be more likely to participate when they can trust that others are doing their part to monitor, and when they feel that the invasive insect species is a threat to their whole community of woodland owners as opposed to a threat just to them individually. This research will continue to investigate how social capital could promote prosocial behaviors while simultaneously detecting potential threats to Minnesota's woodlands. In conjunction with the two studies presented in this thesis, this work demonstrates the potential importance of studying social capital as an antecedent of social attitudes and behaviors. Because social capital has so many benefits for communities and their members in terms of civic and political engagement, public safety, education, and more, it makes sense to examine possible ways for people to benefit from perceiving a high social capital environment. Thus, promoting social capital could be considered an applied goal on its own.

Connecting the Current Research to Broader Psychological Perspectives

The findings and applications discussed above relate most directly to the theoretical claims tested in the two studies conducted for this thesis. However, it is important to consider theoretical perspectives beyond those examined here. The present research will be most informative when situated in the broader context of psychological theories and developments. Thus, in this section, I speculate on potential connections between the current work and other emerging perspectives on intergroup relations.

Varying Effects of Contact for Majority and Minority Groups

Contact theory has received overwhelming empirical support over the past decades. Recent new directions, however, suggest that contact effects may be more nuanced than previously believed. For example, not all contact is positive. When members of two groups have negative contact (i.e., conflict), their group categories become more salient and negative attitudes can generalize more easily (Paolini, Harwood & Rubin, 2010). Furthermore, there may be differences in contact effects based on whether an individual is a member of a majority or minority group. Most research on contact focuses on majority group members' attitudes about a minority group, and finds that the experience of contact generally improves these attitudes (especially when that contact occurs under facilitating conditions; Pettigrew & Tropp, 2006). However, recent research with participants from ethnic minority groups suggests that contact does not always have the same prejudice-reduction effects for everyone; in fact, contact sometimes leads to more *negative* attitudes about the majority group (Binder et al., 2009; Tropp & Pettigrew, 2005b). When two groups differ in status or power, the promotion of group harmony that underlies contact theory can be especially

harmful for the disadvantaged group. For example, members of more powerful groups prefer to steer interactions away from a focus on their advantage, preventing members of less powerful groups from addressing the disadvantages they face (Saguy, Dovidio & Pratto, 2008). Moreover, when members of disadvantaged groups are encouraged (through typical contact theory processes) to prefer their advantaged outgroup, they may be less inclined to see their disadvantage and less motivated to challenge it (Dixon, Tropp, Durrheim, & Tredoux, 2010; Saguy, Tausch, Dovidio & Pratto, 2009).

Although the present data cannot directly address this issue, it is worth considering whether an examination of social capital could contribute to explaining these asymmetrical contact effects. If majority and minority group members differ in their perceptions of social capital in the community that they share, their experiences within that community might differ in a corresponding way. As the studies presented here demonstrate, perceived bridging social capital does relate to evaluations of interracial contact quality. Perhaps majority and minority groups differ in how much social capital they believe is present in their communities, which could lead them to have different experiences with their cross-race contact within that community setting. If this is so, then perhaps higher levels of social capital could serve as a buffer for minority group members to enhance the positive qualities and reduce the negative qualities of their contact with majority group members. Such contact could then contribute to reduced, rather than increased, prejudice.

From Common Identities to Dual Identities

This research focuses on the benefits of a common ingroup identity. However, emerging evidence suggests a common ingroup identity is not always the best strategy

for prejudice reduction. In some ethnically diverse settings, recategorization does not lead to reduced bias, whereas other mediators of the contact/prejudice connection, such as mutual acculturation, perform better (Molina, Wittig, & Giang, 2004; Wittig & Molina, 2000). As with intergroup contact, discussed above, recent research suggests that there may be different consequences for majority and minority group members. For someone whose subgroup is a majority in the superordinate group (such as a white person in American society), the common ingroup identity may be more closely aligned with other social identities. In contrast, someone who is a minority in the superordinate group (such as a black or Latino person in American society) might experience greater conflict between the two identities (Scroggins, Allen, & Sherman, 2010; Sidanius, Feshbach, Levin, & Pratto, 1997).[33] It might be harder for a minority group member to sustain a common ingroup representation under these circumstances. Moreover, minorities might feel threatened by the need to surrender part of their subgroup identity to identify with the superordinate group (Gonzalez & Brown, 2006; Hornsey & Hogg, 2000, 2002). Other research suggests that recategorizing into a common ingroup will only be an effective way to reduce prejudice when the superordinate identity promotes hierarchy-attenuating norms (Levin et al., 2009). If low-status minorities do recategorize and identify with the superordinate group, they may find that their new identity only masks the disadvantages they face rather than improving group disparities (Dixon et al., 2010; Saguy et al., 2009). Despite all of its positive consequences for

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[33] In support of this point, research using the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) demonstrates that most people can more easily associate white with American than they can associate other races with American (Devos & Banaji, 2005). In other words, most people implicitly assume that the prototypical American is white.

improving intergroup attitudes, common ingroup identification will not be a panacea for all situations.

For these reasons, a promising alternative to the common ingroup categorization strategy is the use of dual identities. It is possible for two social identities to be maintained simultaneously. So, when using a dual identity categorization strategy, people are aware of their similarities and differences. The categories take on the structure of a superordinate group composed of two or more subgroups, and membership in both groups is salient. The dual identity categorization can be less problematic for minority and low status group members, who get to retain their subgroup membership while sharing a group membership with others. Similarly, Brown and Hewstone (2005) theorize that contact is most effective when both interpersonal and intergroup qualities are salient during interactions, a framework that is similar to a dual identity perspective in that subgroups share a superordinate goal. For an experimental illustration of this concept, Gonzalez and Brown (2006) tested three categorization strategies (decategorization, recategorization and dual identities) among groups that varied in size and status. When they examined the effects that generalized beyond the contact situation, they found that recategorization and dual identities had lasting effects for majority group members but only the dual identities strategy had lasting effects for minority group members. A dual identity categorization might work because it allows minority group members to integrate rather than assimilate with the superordinate group, which may be less of an identity threat for these groups (Dovidio, Gaertner, & Kafati, 2000; Dovidio, et al., 2008).

An interesting future direction for research might be the parallels between bridging and bonding social capital, and the superordinate and supordinate groups salient in a dual identity categorization. The results of the present research suggest that perceived bridging social capital promotes a common ingroup identity that encompasses all the relevant racial groups. If a dual identity is one in which a subgroup and a common group are simultaneously salient, perhaps people who simultaneously perceive high levels of bonding and bridging social capital in the community (and who do not believe that the two forms of social capital are mutually exclusive) will be the most likely to use a dual identity categorization. To illustrate the example in terms of the current research, those students who believe that there is a lot of social capital at the university overall *and* among students of their own ethnicity might be the most likely to use a dual identity approach, whereas the common ingroup identity might be most likely for those who see plenty of bridging social capital at the university but *not* a lot of bonding social capital within their ethnic group. Neither study in this research included appropriate measures to determine whether and how people used a dual identity categorization, but future research should investigate this possibility.[34]

Affect

The research presented here draws heavily from knowledge about social cognition, especially research about categorization. In this way, it follows in a rich tradition of psychological inquiries into the cognitive determinants of attitudes.

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[34] This approach would also be consistent with a social identity complexity perspective (Brewer, 2008; Roccas & Brewer, 2002), which suggests that people who see their ingroups as more diverse and cross-cutting (as opposed to homogenous and overlapping) should be more positive about ethnic outgroups because it's easier for them to see other social identities that they might share. In fact, even without direct interracial contact, social identity complexity is associated with more positive ethnic attitudes (Brewer & Pierce, 2005).

However, attitudes are also heavily influenced by affect. In fact, affect is considered to be a major player in racial attitude prediction (Pettigrew, 1998; Tropp & Pettigrew, 2005a). Understanding how a person *feels* about a group is at least as important as knowing what a person *thinks* about that group when determining how that person will behave in interactions with those group members. Thus, a complete account of racial attitudes and prejudice will need to include both affect and cognition.

Following this logic, future research should incorporate the affective mechanisms for the relationship between racial attitudes and interracial contact. After all, cross-group friendships are an especially powerful factor in prejudice reduction (Page-Gould, Mendoza-Denton, & Tropp, 2008; Pettigrew, 1997, 1998; Tropp, 2008), substantially because of their affective dimensions (Tropp & Pettigrew, 2005a). For example, these friendships may reduce intergroup anxiety (Paolini, Hewstone, Cairns, & Voci, 2004). Anxiety is a well-documented mediator of the connection between contact and prejudice (Binder et al., 2009; Paolini et al., 2004; Stephan & Stephan, 1985; Voci & Hewstone, 2003), as is empathy (Finlay & Stephan, 2000). These are just a few examples of a burgeoning literature on the emotional aspects of contact and prejudice – topics that the current research, with its focus on cognitive mechanisms, did not address. Moreover, it may be worthwhile to investigate social capital and prejudice from both the affective and social cognition perspectives together. For example, the emotional experience of trust is closely tied to intergroup relations and attitudes (Tropp, 2008), and it is a critical component of social capital (Putnam, 2000). Perhaps the emotional experience of trust is an alternative mechanism for the relationship between bridging social capital and intergroup attitudes. It is possible that social capital could

influence racial attitudes through affective mechanisms as well as cognitive ones, so future research should look into these alternatives in order to develop a more complete theory.

Conclusions

Reducing prejudice has been a mission for psychologists for much of the past century. Thanks to dedicated researchers and theorists, we now have a good understanding of what cognitive, affective, behavioral and motivational factors predict prejudiced attitudes about members of groups that differ from our own. Several decades of research support the intergroup contact approach (Allport, 1954; Pettigrew & Tropp, 2006): the notion that interactions with members of other groups leads to improved attitudes. More research pursued an understanding of how this process works. A large tradition focused on the way that contact can change the way we categorize others into ingroup and outgroup members, including a recategorization process that lets us consider former outgroup members to become part of a shared ingroup (Gaertner & Dovidio, 2000). Nonetheless, psychology has not reached certain conclusions about the most effective ways to reduce prejudice throughout society, so further research into the matter is needed to fulfill such social goals (Paluck & Green, 2009).

The current research draws on interdisciplinary research and theorizing on social capital to bring a fresh perspective to contact theory and the Common Ingroup Identity Model. Social capital theories about bridging and bonding subtypes suggest that different types of social capital might have different influences on ingroup versus outgroup attitudes, but these parallels in the interdisciplinary literature had not been empirically tested until the present research. This thesis presents a theoretical model in

which a person's experiences with bridging social capital in a heterogeneous community influence the type of interactions they have, such that believing the community to have more social capital encourages one to have more trusting and higher quality contact with racial outgroups in that community. Such experiences with social capital also promote a tendency to see the community as a superordinate, common ingroup (regardless of the race of its members). Both of these processes promote more positive attitudes about racial outgroups.

The two studies conducted for this thesis provide support for these predictions. The present research presents a novel connection between individuals' perceptions of bridging social capital – a construct that does not inherently relate to race – and their racial experiences and attitudes. It contributes to social psychological theories of intergroup relations by presenting a new antecedent of prejudice reduction processes, specifically contact theory and social recategorization. These studies shed additional light on a paradox in the social capital research, namely whether or not social capital is incompatible with diversity. This research suggests that social capital can coincide with diversity, and even promote more tolerance and harmony, when the focus is on bridging rather than bonding within communities. Perhaps more important than the results presented here, however, are the questions – both theoretical and applied -- that these studies inspire for the future.

Table 2-1: Indirect Effects Calculated from Structural Equation Model in Figure 2-2

X	Y	M	Indirect Effect Coefficient	Sobel
Social Capital	One Group Categorization	Contact	0.172	4.06**
Social Capital	Many Groups Categorization	Contact	-.099	2.99**
Contact	Outgroup Attitudes	One Group Categorization	.169	2.66*
Contact	Outgroup Attitudes	Many-Groups Categorization	.034	1.10
Social Capital	Outgroup Attitudes	One Group Categorization	.120	2.61*
Social Capital	Outgroup Attitudes	Contact	.101	2.40*

$* p < .05, ** p < .001$

Table 2-2: Correlations among Study 1 Measures

	Bonding Social Capital	Bridging Social Capital	Contact	One-Group Categorization	Many-Groups Categorization	Racial Ingroup Feeling Therm.	Racial Outgroup Feeling Therm.	Racial Ingroup Warmth
Bridging Social Capital	.35**							
Contact	.16**	.23**						
One-group Categorization	.09*	.34**	.36**					
Many-Groups Categorization	.10*	-.10*	-.17**	-.41**				
Racial Ingroup Attitudes	.19**	.17**	.11*	.14**	.06			
Racial Outgroup Attitudes	.12*	.19**	.21*	.23**	-.15**	.61**		
Racial Ingroup Warmth	-.07	-.06	-.05	-.08	.04	.00	-.03	
Racial Outgroup Warmth	-.09	-.04	-.03	-.11*	.03	-.02	-.07	.92**
Racial Ingroup Competency	.13**	.16**	.15**	.14**	.06	.35**	.27**	.00
Racial Outgroup Competency	.10*	.14**	.16**	.23**	-.07	.29**	.55**	.01
University Identification	.22**	.51**	.20**	.32**	-.08	.27**	.14**	-.02
Ethnic Identification	.36**	.09	.01	.06	.20**	.30**	.03	-.09
RWA	.15**	.02	-.07	-.07	.09	.08	-.10*	.01
SDO	.04	-.07	-.14**	-.11*	.15**	-.05	-.33**	-.06
NFC	.19**	-.03	.05	-.08	.23**	.07	-.13**	.00
Openness	-.06	.06	.01	.14**	-.02	-.04	.11*	-.05
Conscientiousness	.10*	.13**	-.02	.00	.04	.16**	.10*	-.04
Extraversion	.17**	.35**	.11*	.20**	-.02	.14**	.11*	-.05
Agreeableness	.01	.15**	.11*	.16**	-.06	.15**	.27**	.02
Neuroticism	-.06	-.25**	-.10*	-.11*	.09	-.06	-.10*	.06

Table 2-2 continued

	Racial Outgroup Warmth	Racial Ingroup Competency	Racial Outgroup Competency	University Identification	Ethnic Identification	RWA	SDO	NFC	O	C	E	A
…												
Racial Ingroup Competency	.02											
Racial Outgroup Competency	-.01	.61**										
University Identification	-.03	.14**	.10*									
Ethnic Identification	-.11*	.13**	.02	.25**								
RWA	-.01	-.02	-.13**	.04	.27**							
SDO	-.05	-.11*	-.31**	.06	.15**	.31**						
NFC	.01	.07	-.13**	.07	.20**	.33**	.32**					
Openness	.03	.06	.12*	-.11*	-.14**	-.27**	-.26**	-.29**				
Conscientiousness	-.07	.15**	.09	.08	.14**	.16**	-.02	.11*	-.12*			
Extraversion	-.04	.06	.02	.24**	.13**	-.02	-.03	-.06	.16**	.01		
Agreeableness	.02	.16**	.25**	.10*	.05	-.16**	-.41**	-.25**	.27**	.10*	.13**	
Neuroticism	.06	-.09	-.12*	-.15**	-.02	-.06	.01	.21**	-.03	-.09	-.16**	.01

*$p < .05$, ** $p < .001$

Table 2-3: Predicting Contact Quality from Individual Difference Variables and Social Capital

Predictor	Model 1		Model 2	
	B	**SE**	**B**	**SE**
Extraversion	.038*	.019	.010	.020
Agreeableness	.045[+]	.027	.029	.027
Neuroticism	-.057**	.023	-.036	.023
Openness	-.026	.024	-.018	.024
Conscientiousness	-.023	.021	-.030	.020
RWA	-.034	.022	-.032	.022
SDO	-.049**	.018	-.048*	.018
NFC	.083**	.027	.069*	.027
Ethnic Identification			-.011	.014
University Identification	--	--	.034*	.016
Ethnic Social Capital			.085[+]	.044
University Social Capital			.104*	.051
Constant	3.13**	.204	2.65**	.222
F (degrees of freedom)	3.87 (8, 431) **		4.87 (12, 427) **	
R^2	.259		.347	

$* p < .05, ** p < .001, {}^{+}p < .10$

Table 2-4: Predicting One-Group Categorization from Individual Difference Variables, Social Capital and Contact

Predictor	Model 1 B	Model 1 SE	Model 2 B	Model 2 SE	Model 3 B	Model 3 SE
Extraversion	.168*	.054	.047	.055	.038	.052
Agreeableness	.158*	.077	.077	.074	.051	.070
Neuroticism	-.120+	.065	-.035	.062	-.002	.059
Openness	.094	.069	.144*	.066	.159*	.063
Conscientiousness	-.016	.059	-.044	.056	-.018	.054
RWA	-.029	.063	-.020	.061	.008	.058
SDO	-.040	.052	-.051	.050	-.008	.048
NFC	.020	.077	-.015	.075	-.076	.071
Ethnic Identification			.009	.038	.019	..036
University Identification	--	--	.179**	.043	.149**	.041
Ethnic Social Capital			-.039	.122	-.115	.117
University Social Capital			.458**	.142	.366*	.135
Contact	--	--	--	--	.887**	.127
Constant	1.97**	.582	2.49**	.572	-1.935*	.675
F (degrees of freedom)	4.12 (8, 431) **		7.46 (12, 427) **		11.39 (13, 426) **	
R^2	.071		.173		.258	

* $p < .05$, ** $p < .001$, +$p < .10$

Table 2-5: Predicting FT-Outgroups from Individual Difference Variables, Social Capital, Contact, and Categorization

Predictor	Model 1 B	Model 1 SE	Model 2 B	Model 2 SE	Model 3 B	Model 3 SE	Model 4 B	Model 4 SE
Extraversion	.011	.053	.016	.055	.012	.055	.011	.054
Agreeableness	.128[+]	.075	.150*	.075	.065[+]	.075	.137[+]	.074
Neuroticism	-.101	.063	-.094	.064	-.081	.064	-.076	.063
Openness	-.054	.066	-.072	.066	-.068	.066	-.072	.067
Conscientiousness	-.005	.058	-.007	.058	.005	.057	.014	.057
RWA	-.097	.061	-.075	.062	-.065	.061	-.067	.061
SDO	-.305**	.051	-.285**	.050	-.271**	.051	-.261**	.050
NFC	-.092	.077	-.073	.077	-.093	.077	-.063	.078
FT-Ingroups	.578**	.037	.605**	.038	.601**	.038	.601**	.038
Ethnic Identification			-.117*	.040	-.112*	.040	-.101*	.040
University Identification			-.042	.044	-.054	.044	-.072	.045
Ethnic Social Capital			.145	.128	.120	.127	.150	.127
University Social Capital			.156	.143	.122	.143	.077	.143
Contact					.344*	.136	.221	.142
One-Group Categorization	--	--	--	--	--	--	.078	.055
Many-Groups Categorization							-.102*	.051
Constant	3.07**	.575	2.69**	.602	2.68**	.598	2.54**	.603
F (degrees of freedom)	41.49 (9, 414) **		30.25 (13, 410)**		28.91 (14, 409) **		26.34 (16, 407) **	
R^2	.474		.490		.497		.509	

* $p < .05$, ** $p < .001$, [+]$p < .10$

Table 3-1: Demographic Characteristics of the Study 2 Sample

Item	Category	N
Gender	Female	224
	Male	113
	Other	2
Race	Asian	37
	Black	5
	Hispanic	14
	Native American	2
	White	299
	Other	10
International Students		14
Student Athletes		10
Greek-affiliated Students		16
LLC member		108
Hometown	Large City	29
	Medium City	61
	Small City	38
	Suburb	141
	Town	35
	Rural	36
Age		M = 18.6, SD = 2.5
Political Ideology – Social		M = 3.24, SD = 1.54
Political Ideology – Economic		M = 3.99, SD = 1.45

Table 3-2: Reliabilities for Questionnaires in Wave 2

Scale	α
Bonding Social Capital (within dorms)	.85
University Identification	.89
Bridging Social Capital (university)	.89
Contact	.88
Ethnic Social Capital	.77
Ethnic Identification	.82
Neuroticism	.71
Extraversion	.84
Conscientiousness	.73
Agreeableness	.80
RWA	.86
SDO	.73

Table 3-3: Logistic Regression Analysis of Study Attrition

Predictor	B	S.E.
Bonding Social Capital	.261	.325
Bridging Social Capital	-.393	.443
University Identification	.013	.111
Contact	-.027	.226
One-Group Categorization	.180	.122
Many-Groups Categorization	-.193	.113
Racial Ingroup Attitudes	.112	.085
Racial Outgroup Attitudes	.064	.096
RWA	-.099	.128
SDO	-.118	.111
Openness	-.003	.194
Conscientiousness	.184	.134
Neuroticism	.011	.135
Agreeableness	-.200	.173
Extraversion	-.310*	.127
-2 Log likelihood chi square	563.93	
Model chi-square ($df = 15$)	22.74[+]	

$+ p = .09$, $* p < .05$

Table 3-4: Mean Time 1 Variable Scores by Time 2 Completion

	Time 2 Complete		Time 2 Non-complete		
	Mean	**SD**	**Mean**	**SD**	***t***
Bonding Social Capital	2.36	0.45	2.36	0.42	0.026
Bridging Social Capital	2.69	0.40	2.70	0.41	0.229
University Identification	4.90	1.21	4.88	1.27	0.243
Contact	3.98	0.58	3.91	0.59	1.14
Racial Ingroup Attitudes	5.89	1.18	5.79	1.40	0.850
Racial Outgroup Attitudes	4.10	1.16	3.99	1.32	0.937
One-Group Categorization	3.19	1.01	2.99	1.12	1.97*
Many-Groups Categorization	2.93	0.94	3.10	1.10	1.76[+]
Extraversion	3.06	0.98	3.30	0.98	2.65*
Agreeableness	4.04	0.72	4.09	0.69	0.825
Neuroticism	2.50	0.80	2.51	0.80	0.185
Openness	3.39	0.56	3.43	0.58	0.615
Conscientiousness					1.17
RWA	3.24	0.86	3.32	0.87	0.952
SDO	2.32	1.04	2.49	1.07	1.61

+ $p < .10$, * $p < .05$, ** $p < .001$

Table 3-5: Mean Difference Scores Between Times for Study Variables

Variable	Mean (SD)	t
Bonding Social Capital	.075 (.39)	3.52**
Bridging Social Capital	.047 (.33)	2.60*
University Identification	.100 (1.01)	1.82
Contact	-.070 (.50)	2.55*
One-Group Categorization	-.20 (1.16)	3.14**
Many-Groups Categorization	.044 (1.07)	.758
Racial Ingroup Attitudes	.036 (1.19)	.552
Racial Outgroup Attitudes	-.141 (1.11)	2.32*

*$p < .05$; **$p < .001$

**Table 3-6: Correlations at Time 1 and Time 2**

	Bonding Social Capital	Bridging Social Capital	Contact	One-Group Categorization	Many-Groups Categorization	Racial Ingroup Attitudes	Racial Outgroup Attitudes
Bonding Social Capital		.69**	.32**	.31**	-.07	.24**	.28**
Bridging Social Capital	.72**		.46**	.45**	-.15**	.25**	.29**
Contact	.24**	.37**		.41**	-.20**	.16**	.39**
Onegroup Categorization	.31**	.47**	.43**		-.36**	.11*	.22**
Many-Groups Categorization	-.15**	-.23**	-.32**	-.50**		.02	-.11*
Racial Ingroup Attitudes	.23**	.30**	.19**	.17**	-.16**		.19**
Racial Outgroup Attitudes	.26**	.26**	.36**	.26**	-.19**	.19**	
Ethnic Social Capital	.32**	.36**	.13*	.25**	-.09	.32**	.07

Time 1 correlations are above the diagonal, Time 2 correlations are below it. Ethnic social capital was only available at Time 2. *$p <$ .05; **$p <$ .001

Table 3-7: Correlations among Changes in Variables

	Bonding Social Capital	Bridging Social Capital	Contact	One-Group Categorization	Many-Groups Categorization	Racial Ingroup Attitudes
Bonding Social Capital						
Bridging Social Capital	.55**					
Contact	.21**	.25**				
Onegroup Categorization	.14*	.33**	.28**			
Many-Groups Categorization	.06	-.07	-.13*	-.34**		
Racial Ingroup Attitudes	.13*	.21**	.09	.12*	-.03	
Racial Outgroup Attitudes	.13*	.17**	.09	.20**	-.05	.30**

*$p < .05$; **$p < .001$

Table 3-8: Indirect Effects Calculated from the Structural Equation Model in Figure 3-2

| X	Y	M	Indirect Effect Coefficient	Sobel
Social Capital	One Group Categorization	Contact	0.183	3.08**
Social Capital	Separate Groups Categorization	Contact	-0.103	2.15*
Contact	Outgroup Attitudes	One Group Categorization	0.098	2.80**
Social Capital	Outgroup Attitudes	One Group Categorization	0.181	3.08**

Figure 2-1: Hypothesized Model of Study 1 Data
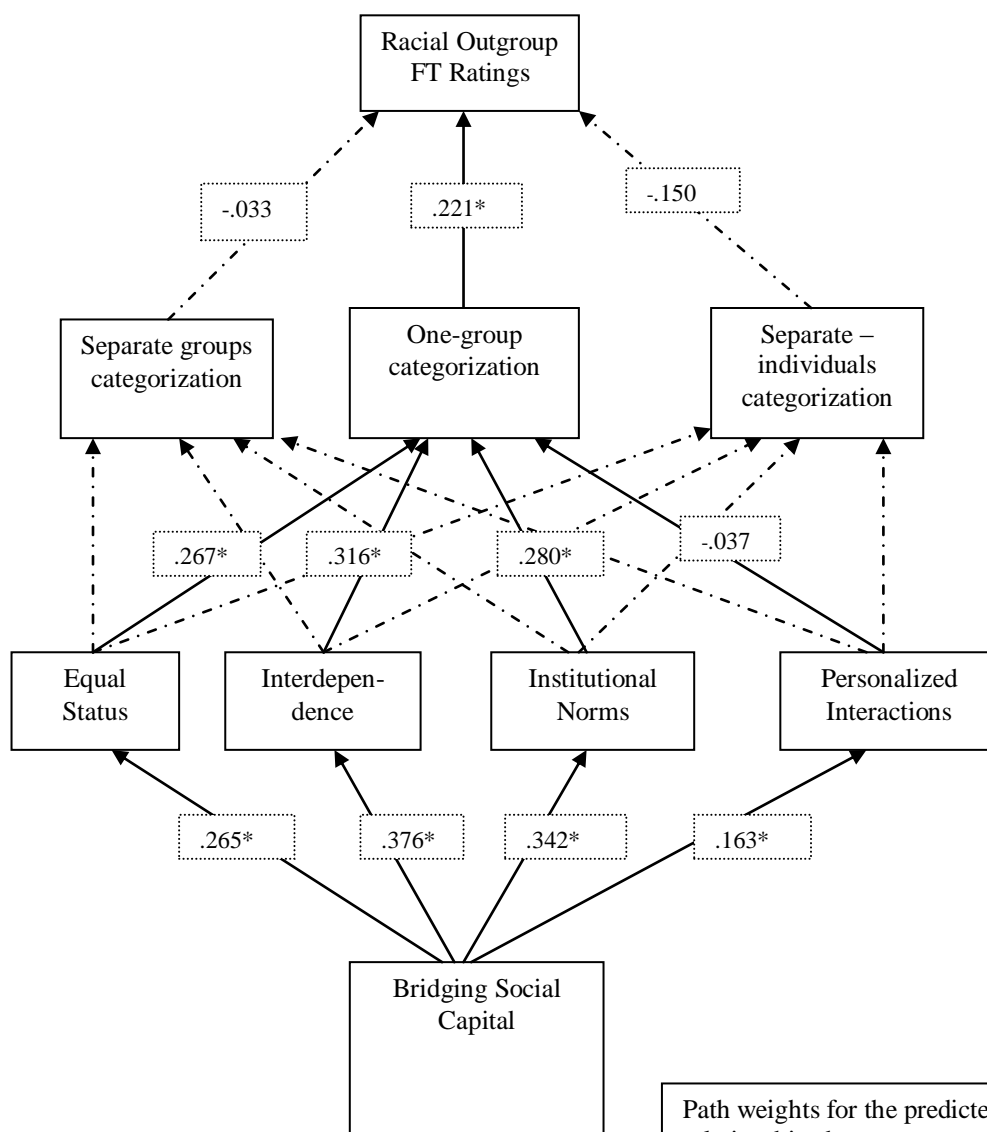
* *p* < .05

Solid lines indicate that a
positive relationship was
predicted; dashed lines
indicate that a negative
relationship was predicted.

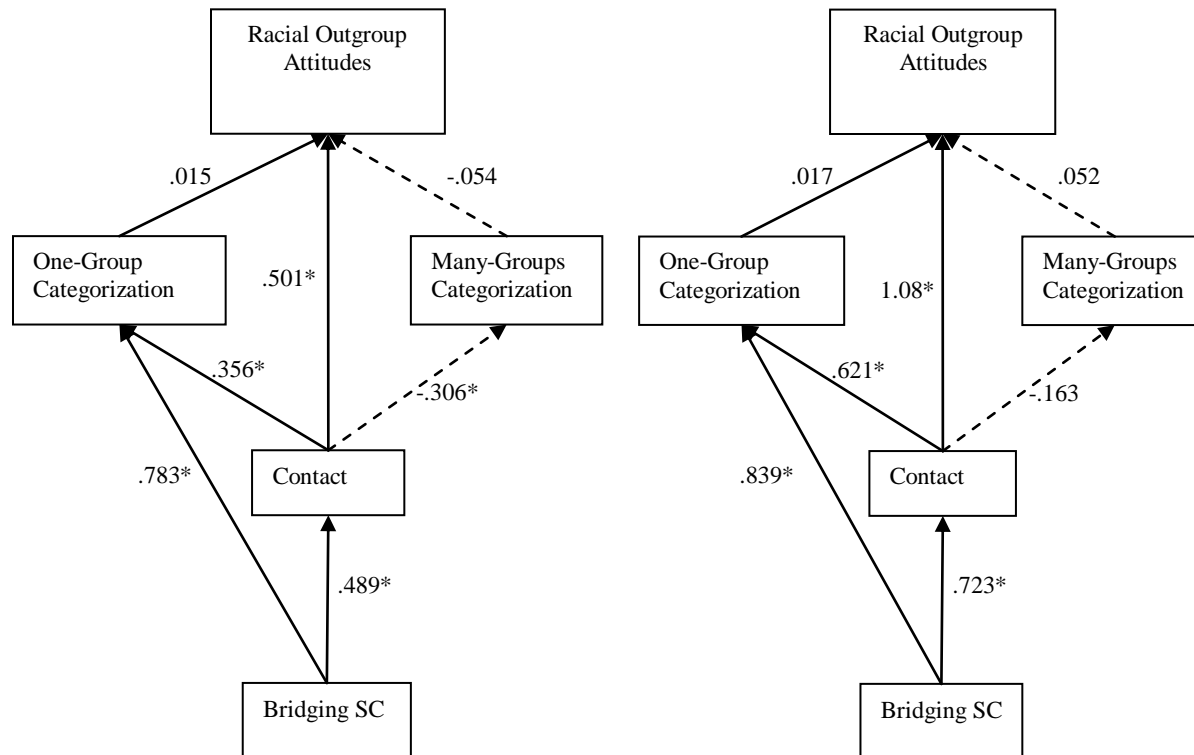Not shown: correlations were
allowed between error terms
for the contact conditions and
the categorization variables.

Path weights for the predicted negative
relationships between contact conditions
and separate categorization styles
(presented here for greater figure
readability):
Separate Groups   ON
   Interdependence   -0.183
   Institutional Norms   -0.126
  Personal Interactions   -0.170*
   Status   -0.143*
 Separate Individuals ON
   Interdependence   -0.061
   Institutional Norms   -0.072
   Personal Interactions   -0.270*
   Status   0.026

Figure 2-2: Adjusted Model for Study 1 Data: Feeling Thermometer Ratings
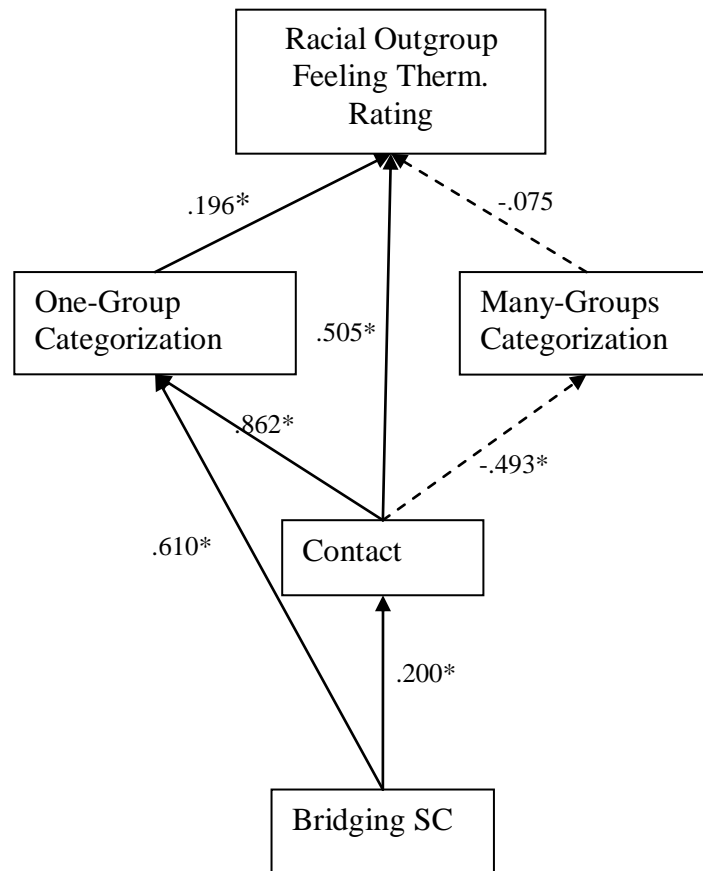
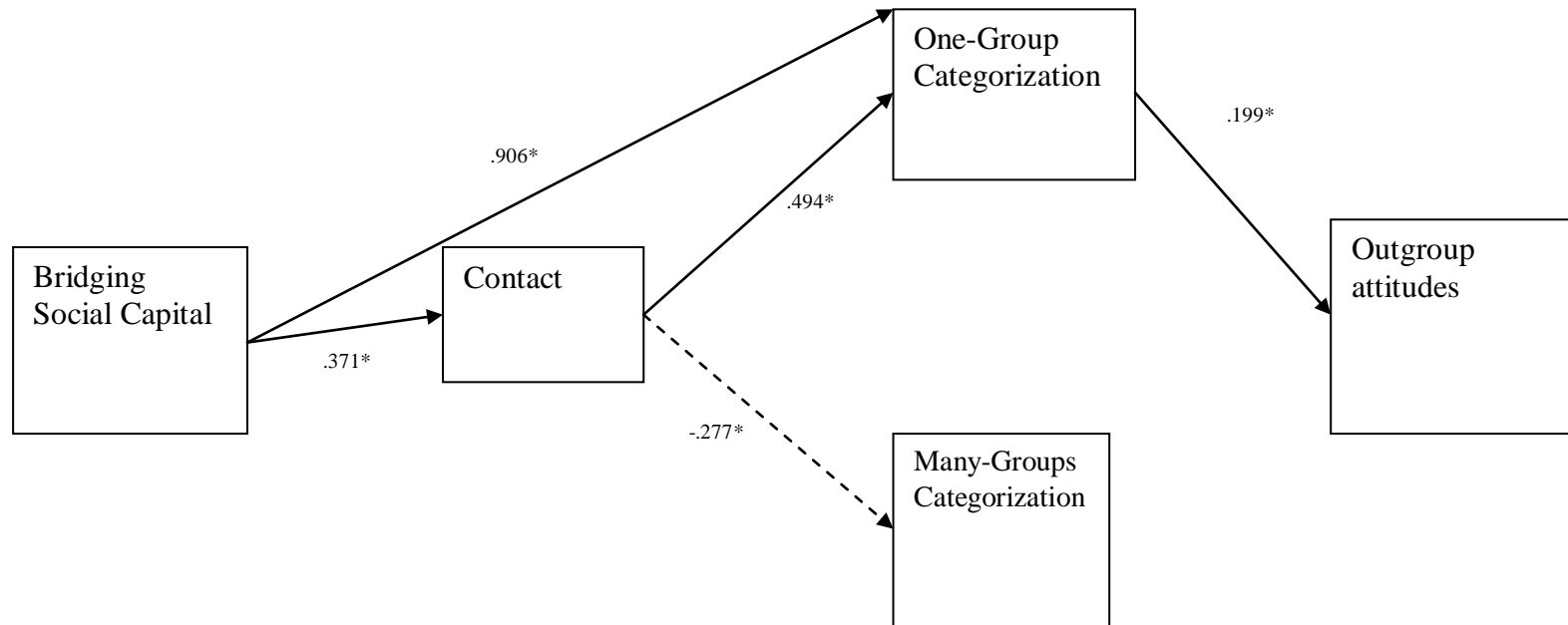* *p* < .05.

Not shown: error terms for the two categorization variables were allowed to correlate.

Solid lines indicate that a positive relationship was predicted; dashed lines indicate that a negative relationship was predicted.

Figure 2-3: Stereotype Endorsements as Alternative Measures of Racial Attitudes
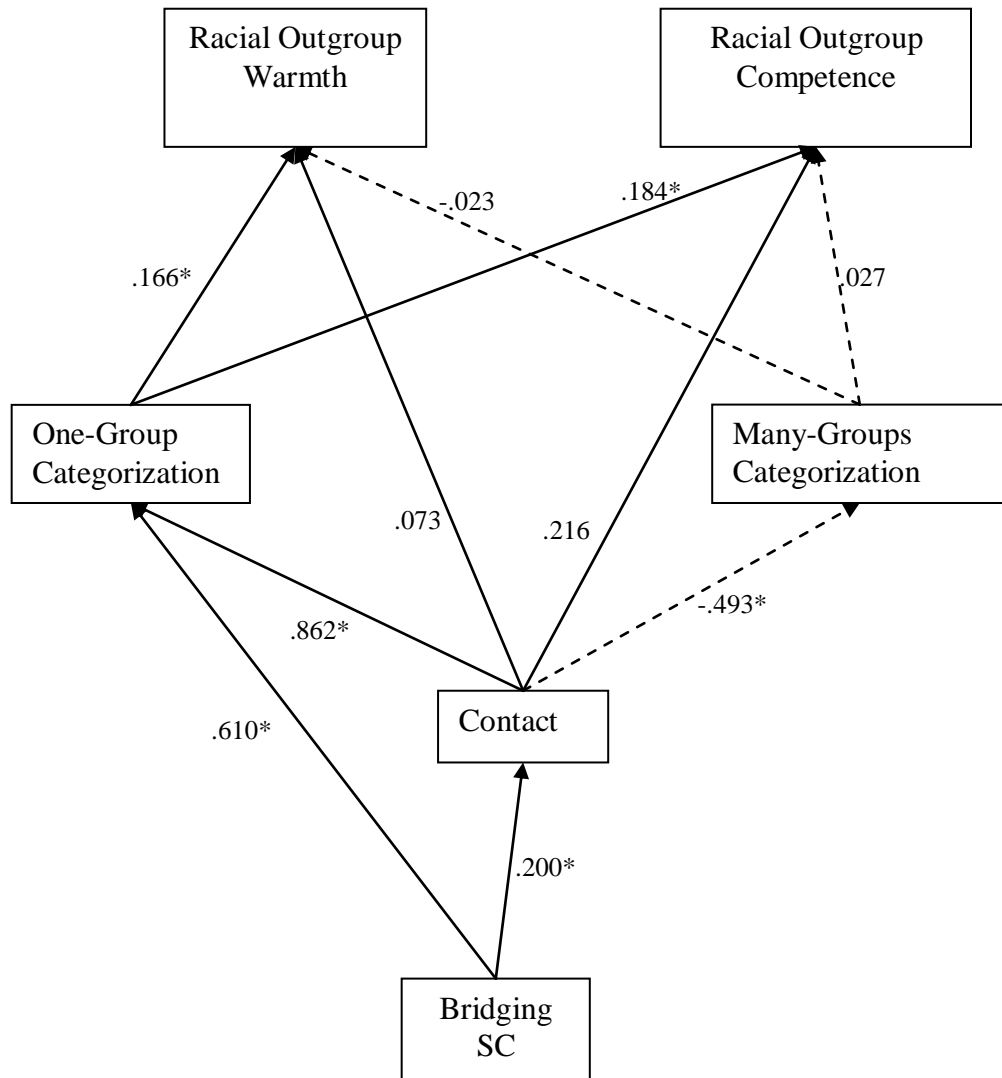
* *p* < .05.

Solid lines indicate that a positive relationship was predicted; dashed lines indicate that a negative relationship was predicted.

Not shown: correlations were allowed between error terms for the two stereotype trait clusters and the two categorization variables.

Figure 2-4: Bridging Social Capital Subscales as Predictors of Contact Quality, Categorization and Racial Attitudes
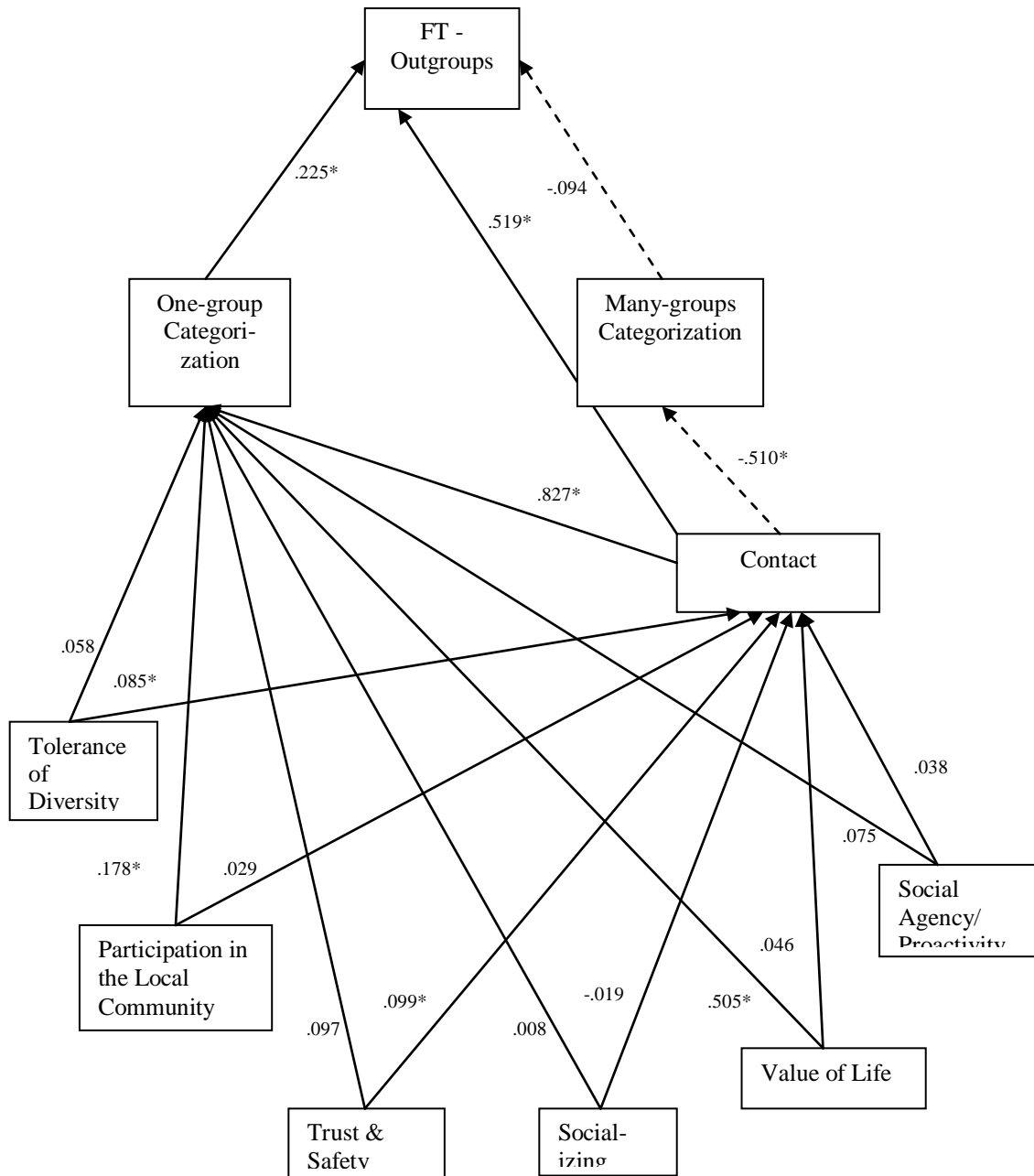
* $p < .05$. Not shown: error terms for the six social capital subscales and the two categorization variables were allowed to correlate. Dashed lines indicate a predicted negative relationship.

Figure 3-1: Predictive Relationships among Time 1 Measures for Time 2 Completers (a) and Non-completers (b).

p < .05.

Not shown: error terms for the two categorization variables in each model were allowed to correlate.

Solid lines indicate that a positive relationship was predicted; dashed lines indicate that a negative relationship was predicted.

Figure 3-2: Model of Difference Scores

* *p* < .05.

Not shown: error terms for the two categorization variables in each model were allowed to correlate.

Solid lines indicate that a positive relationship was predicted; dashed lines indicate that a negative relationship was predicted.

Figure 3-3: Cross-lagged Panel Analysis of Bridging Social Capital and Contact, Controlling for Bonding Social Capital
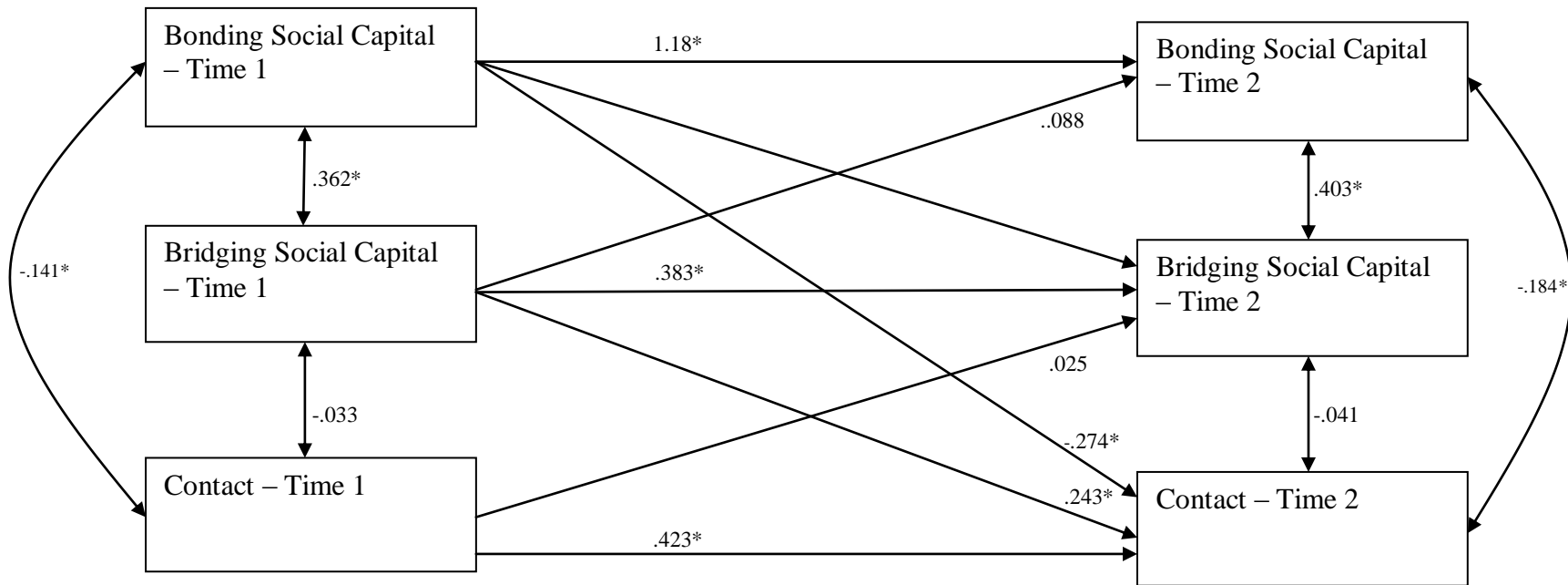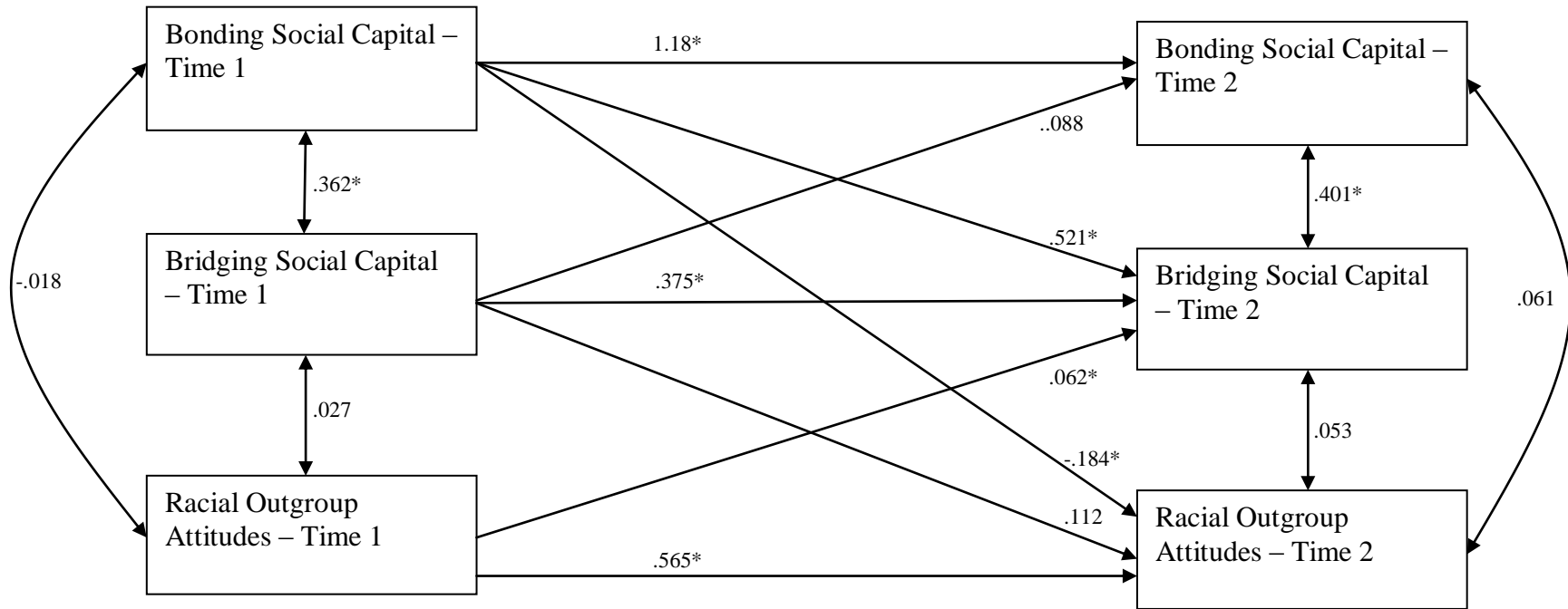

*p<.05

Figure 3-4: Cross-lagged Panel Analysis of Bridging Social Capital and One-Group Categorization, Controlling for Bonding Social Capital
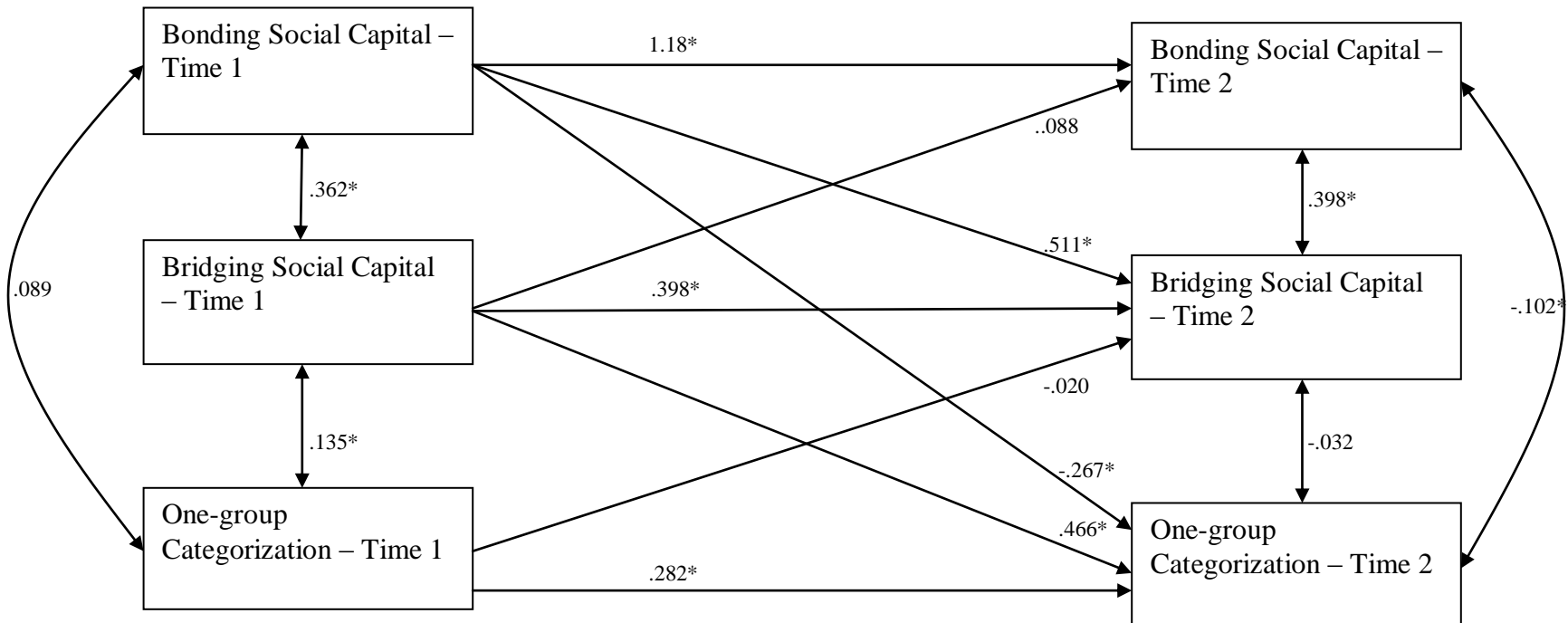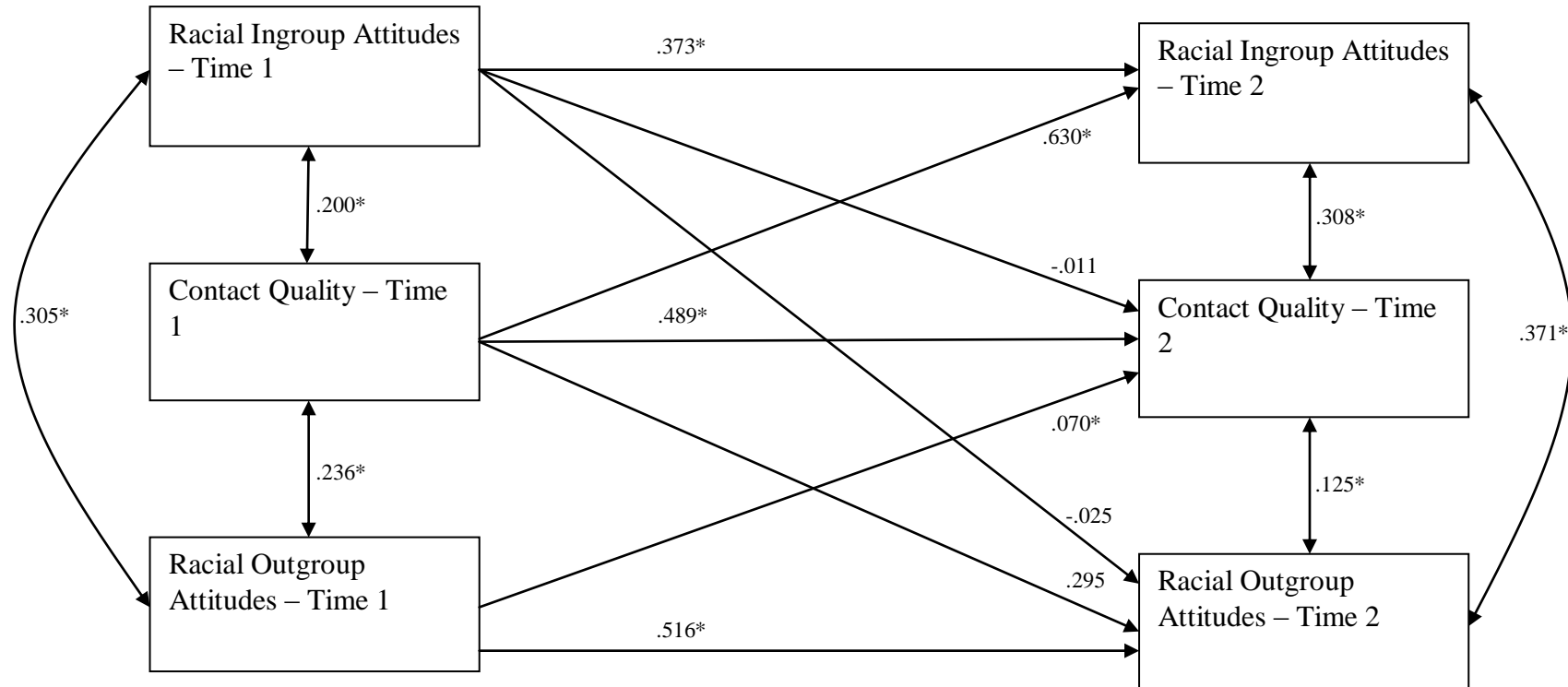

* $p < .05$

Figure 3-5: Cross-lagged Panel Analysis of Bridging Social Capital and Attitudes about Racial Outgroups, Controlling for Bonding Social Capital

* *p* < .05

Figure 3-6: Cross-lagged Panel Analysis of Contact Quality and Attitudes about Racial Outgroups, Controlling for Attitudes about Racial Ingroups

* *p* < .05

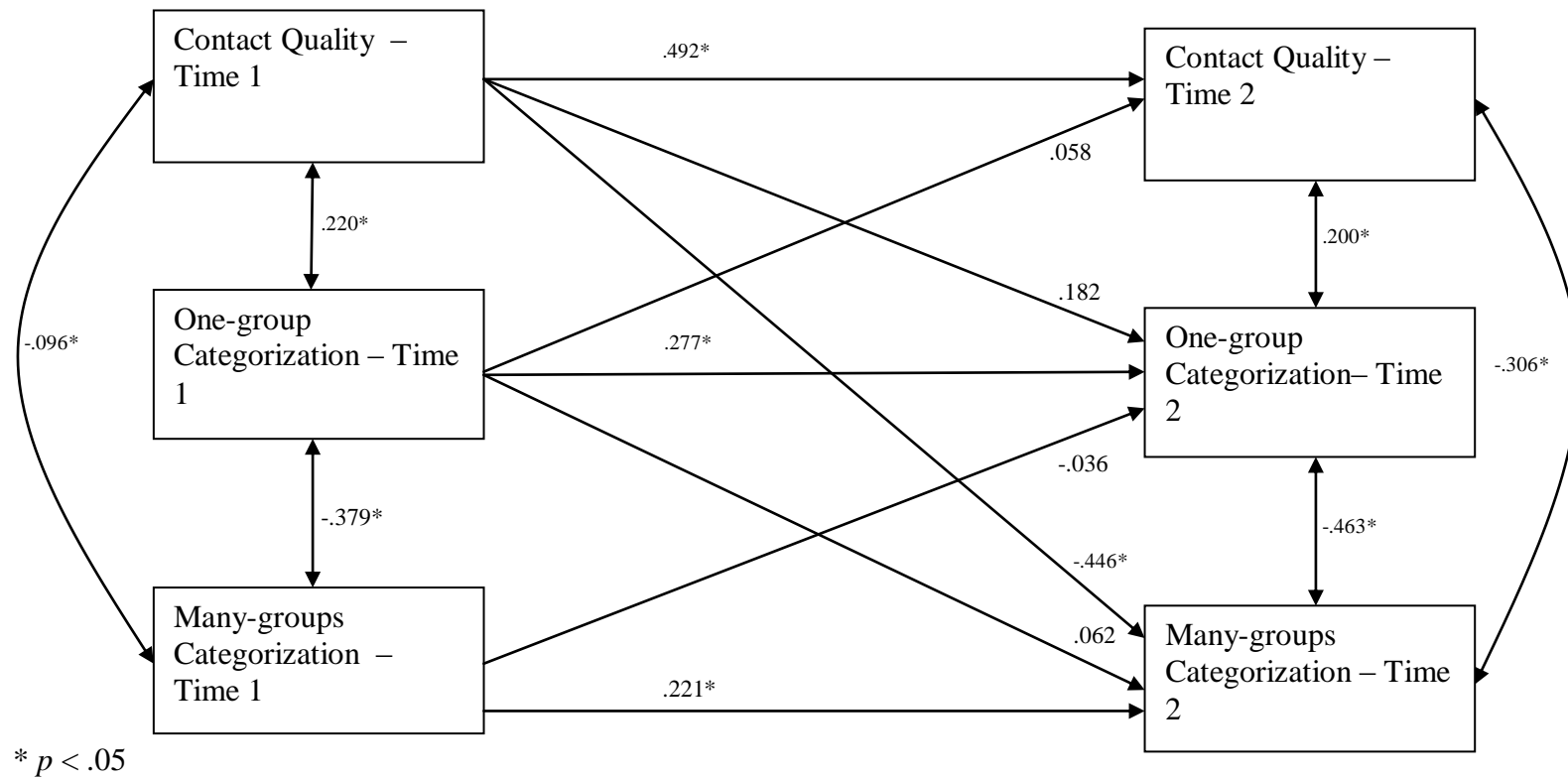**Figure 3-7: Cross-lagged Panel Analysis of Contact Quality and Social Categorization**


Contact Quality – Time 1

Contact Quality – Time 2

.492*

.058

.220*

.200*

One-group Categorization – Time 1

One-group Categorization– Time 2

.182

.277*

-.096*

-.306*

-.036

-.379*

-.463*

-.446*

Many-groups Categorization – Time 1

Many-groups Categorization – Time 2

.062

.221*

* *p* < .05

136

Figure 3-8: Cross-lagged Panel Analysis of Categorization and Racial Outgroup Attitudes, Controlling for Racial Ingroup Attitudes

* *p* < .05

137
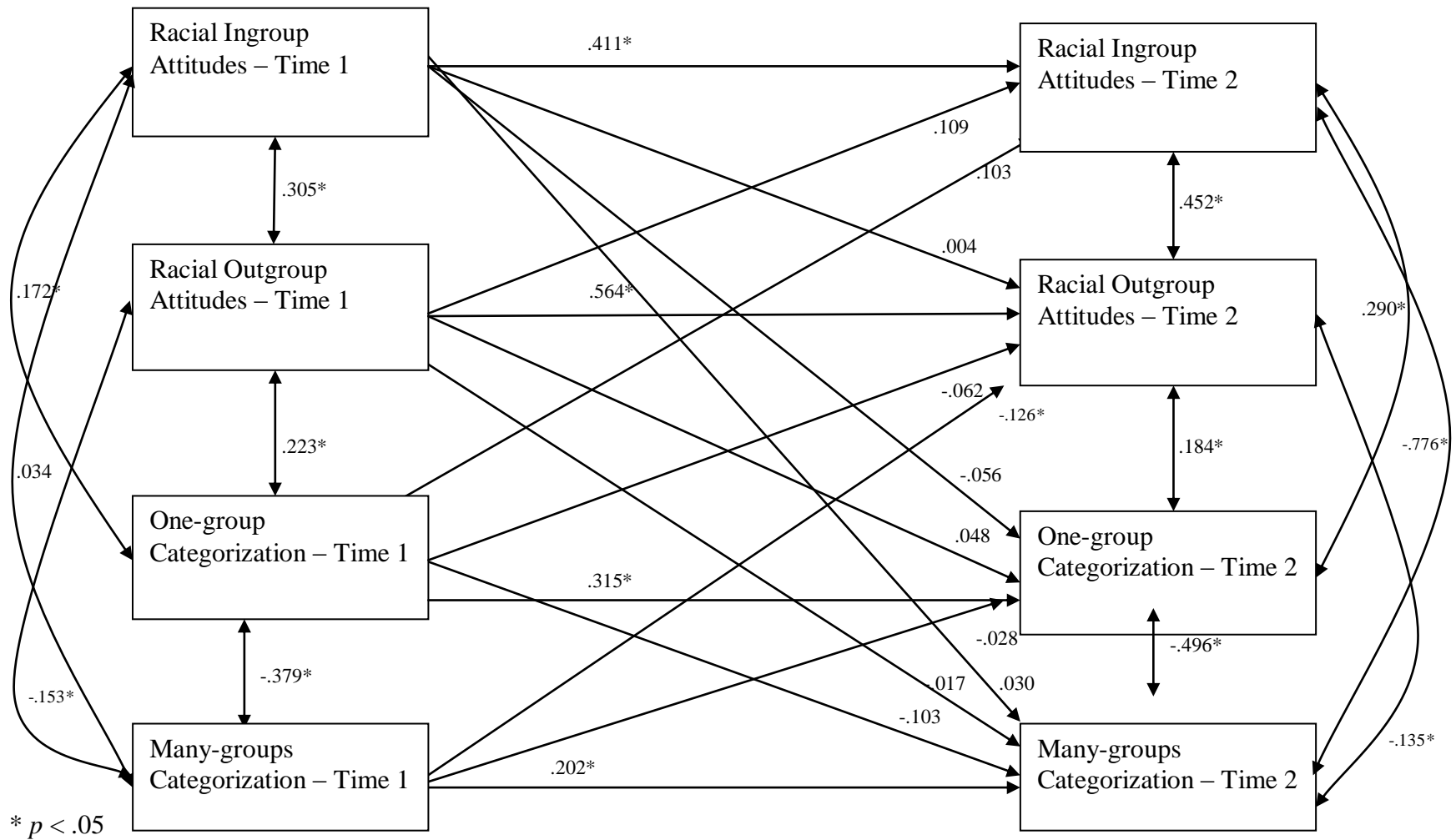
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Appendix A: Bonding Social Capital Scale

These items ask participants to consider the ethnic group with which they identify most strongly throughout the questionnaire.

1. Do your friends at school tend to be other members of your ethnic group?
2. When walking around campus, are you likely to spontaneously run into friends and acquaintances from your ethnic group?
3. Have you done a favor for another student of your ethnicity who needed help with something?
4. Have you spent time socializing with other students of your ethnicity?
5. Can you get help from other students of your ethnicity when you need it?
6. If you saw another student of your ethnicity (someone you do not know personally) having car trouble on campus, would you loan them your phone to call for help?
7. Can you trust other students of your ethnicity at <UX>?
8. Since you have been at <UX>, do you attend any campus events sponsored by or targeted toward students of your ethnicity?
9. Are you an active member of any ethnic-based student groups?
10. Do you have a leadership role in any ethnic-based student groups?
11. Have you ever been part of a project to organize a new service, activity, or group for students of your ethnicity at your campus?
12. Have you ever joined a group to address a problem specific to students of your ethnicity on campus?

Appendix B: Bridging Social Capital Items

1. Do you help out any student groups or organizations as a volunteer?
2. Are you an active member of a student organization or campus group?
3. Do you have a leadership role in any student groups or organizations, or are you a member of student government?
4. Since you've been a student at <UX>, have you ever joined a student organization or campus group to deal with an emergency or specific problem (e.g., crime on campus)?
5. Have you ever taken part in a university community project (e.g., campus beautification or cleanup projects)?
6. Have you ever been part of a project to organize a new service, group, or activity for students at your university?
7. Have you attended any campus events in the past 6 months (e.g. an athletic event, a concert or play, an activity at the union)?
8. In the past week at school, have you helped another student even though you weren't required to?
9. Have you spent time socializing with other students in the past week?
10. In the past 6 months, have you done a favor for another student who needed help?
11. Over the weekend do you have lunch/dinner with other people outside your household?
12. If you need information to make an important decision about your university life, do you know where to find that information?
13. If you disagree with what everyone else agreed on, would you feel free to speak out?
14. In your classes, do you take the initiative to do what the course requires even if no one reminds you to?
15. Do you feel safe walking around campus after dark?
16. Do you agree that most students can be trusted?
17. If you saw a stranger on campus who was having car trouble, would you let them use your phone to call for help?
18. Does your campus have a reputation for being a safe place?
19. Does your campus feel like home?
20. Can you get help from friends when you need it?
21. When walking around campus, are you likely to spontaneously run into friends and acquaintances?
22. Do you feel valued by your university community?
23. Do you feel part of the campus community where you attend school?
24. Are your fellow students also your friends?
25. Do you feel part of a team at school?
26. Do you think that multiculturalism makes life in your university better?
27. Do you enjoy attending a university that has students of different lifestyles?

Appendix C: Study 2 Recruitment Memo

Dear Students,

The Office of Housing & Residential Life is sending you this e-mail on behalf of Emily Fisher, a PhD candidate in the Department of Psychology at the University of Minnesota. Ms. Fisher is conducting a research study and is interested in having you participate in the study she's conducting.

The Department of Psychology and Ms. Fisher would like to know what you think about life in your residence hall and around campus. The survey includes questions about your experiences with the community in your residence hall and in the university community overall, and your attitudes about social groups on campus. Your responses can help her understand the diverse experiences of University of Minnesota students and work toward a more harmonious community. You will also play a valuable role in psychological research on how people of different groups interact with each other. Your opinions are very important!

This survey should take about 20 minutes to complete. To participate, please click here: [link]

After you finish the survey, you will be asked to provide your email address so that Ms. Fisher can contact you for a follow-up survey during spring semester. This will help her learn how students' attitudes change as they settle into life at the university.

As a token of appreciation for your participation, you may also choose to enter a raffle. In a random drawing, thirty-five (35) students per semester will win a $25.00 gift card to the U of M Bookstore!

If you have any questions, please contact Emily Fisher, at fishe277@umn.edu. Thanks so much for your help with this survey!

Appendix D: Bonding Social Capital 2 – Residence Halls Scale

1. Have you ever joined a group to address a problem within your residence hall?
2. Do your friends at school tend to be other residents of your residence hall?
3. Can you trust other students who live in your residence hall?
4. Does your residence hall feel like home?
5. Have you ever attended any events sponsored by or targeted toward students in your residence hall?
6. Are you a member of any student groups within your residence hall community?
7. When walking around campus, are you likely to spontaneously run into acquaintances from your residence hall?
8. Have you ever been part of a project to organize a new service, activity, or group for students in your residence hall?
9. Have you spent time socializing with other students who live in your residence hall?
10. Can you get help from other students in your residence hall when you need it?
11. Have you done a favor for another student from your residence hall?
12. Do you have a leadership role in any student groups in your residence hall community?

Appendix E: Shortened Version of Green et al.'s (1988) Contact Quality Scale

1. Students of different races at my school are all working together for the same things
2. Students at this school think it's good to get to know other students of different races.
3. Students of different races work together well in student activities.
4. Students here like to have friends of different races.
5. Professors and administrators encourage students to make friends with students of different races.
6. Professors here like for students of different races to understand each other.
7. This is a school in which everybody is encouraged to be friends.
8. I talk to students of other races only when I have to.
9. I often go through a whole school day and never say more than a few words to someone of another race.
10. People of different races just don't like being together.
11. Professors at this school are fair to students of all races.
12. All students at this school are treated equally.

Appendix F: Descriptions of Latent Variable Cross-Lagged Models

Defining Latent Models

This appendix describes an alternative series of cross-lagged analyses that replicate the models in Figures 3-3 through 3-5 using latent variables to represent social capital and contact (rather than observed variables). Each of these scales was divided into several clusters of items, which served as the latent variable indicators. The 27-item bridging social capital scale was divided into its six subscales (participation, socializing, trust/safety, value of life, tolerance of diversity, and proactivity/social agency, as described in Chapter 2 Methods section). The bonding social capital scale was divided into three subscales (socializing, trust/safety, and groups, as described in Chapter 2 Methods). Contact was divided into four subscales (association, interdependence, equal status, and supportive norms; Green et al., 1988). In models that use these two variables, latent variables were defined with these subsets of items at both time points, and error terms for identical items across time points were allowed to covary to account for measurement error (e.g., error terms for participation items at Time 1 and Time 2, etc).

The first model was a replication of the model depicted in Figure 3-3, including latent variables to represent contact and both types of social capital. This model first defined the latent variables as described above, and then let each Time 1 variable predict each Time 2 variable to compare the relative strength of predictive paths over time. This model had a poor fit, CFI = .67, RMSEA = .15, SRMR = .12. Examination of the data suggested the problems were due to the measurement model: there was too much overlap between item clusters from the bonding and bridging social capital scales. Modification indices suggested that bonding item clusters would better fit on the bridging latent variables, and vice versa. In retrospect, this is probably not surprising. Recall that bonding social capital in this study refers to social capital within a student's residence hall, compared to bridging social capital in the university overall. These data suggest that the first-year students who participated in this study do not perceive major differences in social capital within these two communities. (In contrast, Study 1 data suggested more of a distinction between university-level social capital and social capital

among one's own ethnic group.) To improve the measurement models, bonding social capital was dropped from the remaining analyses. Because the latent models include more degrees of freedom than the observed variable models, it is not necessary to use three variables to identify a model in a cross-lagged analysis with two time points. Thus, the following analyses focus only on relationships between the university-level social capital measure and other variables.

Social Capital and Contact Quality

The revised model first defined latent variables for bridging social capital and contact quality based on their subscales, and error terms for parallel item clusters were allowed to covary, as described above. Both time 1 variables were allowed to predict both time 2 variables. This model's fit statistics were close to generally accepted values (Iacobucci, 2010), CFI = .87, RMSEA = .09, SRMR = .10. The measurement model for the four latent variables was acceptable: all item clusters loaded significantly onto their latent variable. For the social capital at Time 1, the loading for the participation subscale was set to be 1.00. All of the other subscales (socializing, B = .707, β = .269, p < .05; trust and safety, B = 1.27, β = .484, p < .05; agency/proactivity, B = 1.06, β = .404, p < .05; value of life, B = 2.16, β = ..822, p < .05; valuing diversity, B = .824, β = .313, p < .05) significantly contributed to the latent variable. At Time 2, once again participation was fixed to 1.0 and all other subscales significantly loaded onto the latent variable (socializing, B = .542, β = .158, p < .05; trust and safety, B = .290, β = .129, p < .05; agency/proactivity, B = .203, β = .090, p < .05; value of life, B = .872, β = ..387, p < .05; valuing diversity, B = 2.21, β = .981, p < .05). For the contact latent variable at Time 1, the loading for the interdependence subscale was set equal to 1.0. All three other subscales (supportive norms, B = 2.49, β = .850, p < .05; association, B = 1.47, β = .502, p < .05; equal status, B = 2.10, β = .717, p < .05) loaded onto the contact latent variable. At Time 2, interdependence was again set to 1.0 and the three other subscales (supportive norms, B = 1.01, β = .633, p < .05; association, B = .898, β = .564, p < .05; equal status, B = .730, β = .458, p < .05) all loaded significantly onto the contact latent variable. In sum, the measurement model appeared to work well.

The path model was generally supportive of hypotheses. Both contact (B = 1.55, β = .846 , p < .05) and social capital (B = .878, β = .752, p < .05) had strong stability effects over time. However, the cross-lagged path from social capital to contact was significant, B = .444, β = .342, p < .05, whereas the cross-lagged path from contact to social capital was not, B = .096, β = .058.This latent variable model is generally consistent with the observed variable model reported in the main text.

Social Capital and Categorization

Another latent variable model was designed to examine social capital and categorization over time. This model first defined the social capital latent variables at each time point by their six subscales, and allowed error terms corresponding subscales to covary. The categorization variables were measured with single items, and cannot be used for latent variables. Then, the path model was constructed such that social capital, one-group categorization and many-groups categorization at Time 1 could all predict each other at Time 2. This model was a fairly good fit, CFI = .88, RMSEA = .08, SRMR = .06.

The measurement model suggested that all social capital subscales loaded onto their latent factors. For the social capital at Time 1, the loading for the participation subscale was set to be 1.00. All of the other subscales (socializing, B = .732, β = .280, p < .05; trust and safety, B = 1.30, β = .497, p < .05; agency/proactivity, B = 1.02, β = .389, p < .05; value of life, B = 2.12, β = .812, p < .05; valuing diversity, B = .840, β = .321, p < .05) significantly contributed to the latent variable. At Time 2, once again participation was fixed to 1.0 and all other subscales significantly loaded onto the latent variable (socializing, B = .530, β = .154, p < .05; trust and safety, B = .420, β = .170, p < .05; agency/proactivity, B = .304, β = .123, p < .05; value of life, B = 1.00, β = .404, p < .05; valuing diversity, B = 2.25, β = .909, p < .05).

Once again, the path model generally fits with expectations. All three variables have significant stability effects: social capital, B = 1.03, β = .971, p < .05, one-group categorization, B = .106, β = .106, p < .05, and many-groups categorization, B = .203, β = .203, p < .05. Social capital at Time 1 predicts one-group categorization at Time 2, B = 1.51, β = .577, p < .05, and also predicts many-groups categorization at Time 2, B = -

1.24, β = -.476, $p < .05$. However, one-group categorization at Time 1 also predicts social capital at Time 2, B = .073, β = .182, $p < .05$ (but many-groups categorization at Time 1 does not predict social capital at Time 2, B = .012, β = .029). Thus, this model is basically consistent with the observed variable model reported in the main text.

Social Capital and Racial Attitudes

A third latent variable model examined social capital, racial ingroup attitudes, and racial outgroup attitudes across time. First, the measurement model defined the latent social capital variable in the same manner as those above and allowed error terms corresponding subscales to covary.. The racial ingroup and outgroup attitude measures had been calculated based on each participant's reported race, and could not be recreated as latent variables. Then, the path model was constructed such that social capital, ingroup attitudes and outgroup attitudes at Time 1 could all predict each other at Time 2. This model was a fairly good fit, CFI = .84, RMSEA = .10, SRMR = .08.

The measurement model suggested that all social capital subscales loaded onto their latent facors. For the social capital at Time 1, the loading for the participation subscale was set to be 1.00. All of the other subscales (socializing, B = .652, β = .256, $p < .05$; trust and safety, B = 1.29, β = .508, $p < .05$; agency/proactivity, B = .854, β = .339, $p < .05$; value of life, B = 1.96, β = .771, $p < .05$; valuing diversity, B = .826, β = .324, $p < .05$) significantly contributed to the latent variable. At Time 2, once again participation was fixed to 1.0 and all other subscales significantly loaded onto the latent variable (socializing, B = .509, β = .148, $p < .05$; trust and safety, B = .296, β = .129, $p < .05$; agency/proactivity, B = .220, β = .096, $p < .05$; value of life, B = .846, β = .369, $p < .05$; valuing diversity, B = 2.30, β = .991, $p < .05$).

This path model was less consistent with expectations. Stability effects were once again strong (social capital, B = .952, β = .856, $p < .05$; racial ingroup attitudes, B = .460, β = .460, $p < .05$; racial outgroup attitudes, B = .612, β = .612, $p < .05$). Social capital at Time 1 does not significantly predict attitudes about racial outgroups at Time 2, B = .036, β = .014, but it does predict attitudes about racial ingroups at Time 2, B = 1.58, β = .620, $p < .05$. Attitudes about racial outgroups at Time 1 significantly predicts social capital at Time 2, B = .069, β = .158, $p < .05$. Neither this model nor the observed

model reported in the main text provides support for the hypothesis that social capital has cross-lagged effects on attitudes about racial outgroups, and this latent variable model suggests that causality is more likely in the opposite direction. If social capital influences racial attitudes, it is more likely to do so via the mediating processes of contact and recategorization than through a direct effect.