

## Motives and Contexts of Identity Change: A Case for Network Effects\*

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*In this paper we interrelate different theories of identity and describe how various social contexts and cognitive motives influence the process of identity change. We consider two competing theories about the linkage of contexts with motives for identity change: the effect of category traits, based on social identity theory, and the effect of social networks, based on identity theory. To explore these relations, we use data collected on more than 6,000 adolescents at six high schools in two consecutive school years. Multilevel logit models reveal a strong relationship between contexts and perceived identity imbalances, and a strong effect of identity imbalance on identity change. More important than category traits are the social network characteristics of prominence, homogeneity, and bridging; these form social contexts that affect perceptions of identity imbalance, and the perceptions in turn lead to a heightened incidence of identity change.*

We attempt here to interrelate various theories of identity<sup>1</sup> and to describe how various social contexts and cognitive motives influence the process of identity change. Although many strands of literature describe identity dynamics, two are considered primary: identity theory (Stryker 1980; Stryker and Serpe 1982) and social identity theory (Tajfel 1981; Tajfel and Turner 1986; Turner et al. 1987). Recent literature has tried to combine these two paradigms by comparing the dis-

tinct contexts and motives that each theory proposes (Deaux and Martin 2003; Hogg and Ridgeway 2003; Hogg, Terry, and White 1995; Stets and Burke 2000). Two views of social context emerge: category and network. Both are alluded to in theory but lack clear operationalization and empirical study. Similarly, two views on motives emerge: internal standards of self-efficacy and external standards of self-verification. Both of these are related to identity dynamics but left somewhat unconnected to social contexts (Elliot 1986).

We develop a novel way to operationalize category and network contexts in order to link contexts to motives, and we argue that they jointly influence processes of identity change. We establish these links by analyzing unique data on thousands of students in a natural setting, namely the high school. These students report nearly complete information on their social networks, identity perceptions, and crowd affiliations over time (Brown 1990). Using these data, we develop formal tests which establish a macro-to-micro-level argument that particular network and category contexts are associated with motives of self-efficacy and self-verification, and thereby influence the process of identity transformation.

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<sup>1</sup> By *identity* we mean the social category, role, or membership to which an actor ascribes. This differs from personal identity and self-concept (Harter 1990; Snow and Anderson 1987). We focus on how actors identify with social identities salient to their social worlds and how their ascription to those social identities changes over time.

Our analyses reveal a surprising finding: network relations play a major role in adolescent identity development, but identity dynamics play only a minor role in adolescent network change. Thus, in most instances, social relations change and various perceptions of identity imbalance follow; this process in turn motivates youths to change their identity over time. The reverse does not hold, however: characteristics of categories and identity motives do not lead adolescents to change their networks over time. Therefore the contexts of immediate social networks are found to be primary in identity formation during adolescence.

#### MOTIVES AND CONTEXTS OF IDENTITY CHANGE

Identity change has been discussed widely in the framework of identity theory (IT) (Burke 1991; Serpe 1987; Serpe and Stryker 1987; Stryker 1980; Stryker and Serpe 1982) and social identity theory (SIT) (Tajfel 1981; Tajfel and Turner 1986). Both theories allude to motivational processes and social contexts wherein identities develop. SIT describes categories as contexts and suggests that category traits can influence actors' personal motives and identity selections over time. Through in- and out-category comparisons, actors learn which categories are more or less desirable. The actors' desire for positive affiliation and self-efficacy motivates them to exit unfulfilling memberships for more desired ones. Once a person is attached to a category, however, he or she tends to view that category as better than the alternatives. Thus, category comparisons and in-group biases give rise to personal motives for identity change.

In contrast, IT describes immediate social networks as contexts and contends that relational configurations influence actors' social motives for identity change. According to IT, the self consists of a collection of "role identities." Persons switch role identities depending on the salience of those identities to the context. According to Stryker and Burke (2000), network contexts create a hierarchy of salience among the various identities that constitute the self, and lead the actor to invoke the same role or to alter performances over time. Therefore the feedback

from a relational context defines identity salience, and this in turn gives rise to motives for identity change.

In our analysis we focus on the links between these contexts and motives, and develop an empirical test in which both are considered. We argue that internal motives are key factors in identity development and that contexts determine the rise of such motives. Below, we elaborate the specific motives and contexts involved in identity formation, and we hypothesize their expected patterns of interrelation.

#### *Motives for Identity Consistency*

Although we recognize a variety of motivational factors influencing identity formation, we focus on a key motivation whereby actors seek to form consistent or balanced identities.<sup>2</sup> The drive to establish identity consistency occurs when an actor believes that his or her identity fails to live up to some standard. Theories of identity differ as to the standard they apply (Burke 1991; Burke and Stets 1999; Epstein 1973; Stets 1997). In derivatives of SIT, the comparison is made across categories that the individual perceives as salient (Hogg et al. 1995; Tajfel and Turner 1979, 1986). Discrepancy theorists, for example, argue that actors compare their perceived self (how they categorize themselves) with their idealized self (what category they want to belong to); any inconsistency between the two will motivate the actor to change her or his identity over time (Baumeister 1998; Harter 1990:260–61; Higgins 1987, 1989; Higgins, Klein, and Strauman 1985; Higgins et al. 1986; Markus and Nurius 1986; Tangney et al. 1998). The general motive is one of self-efficacy, in which an actor seeks to approach his or her ideal.

In comparison, derivatives of IT, such as self-verification theory, maintain that the standard is less internal and personal than external and social (Stets and Burke 2000; Stryker and Burke 2000). Individuals seek external validation or mutuality between their conception of self and that which others

<sup>2</sup>Throughout this article, we use the terms *inconsistent*, *imbalanced*, and *misaligned* as synonyms.

hold of them (Erikson 1968; Harter 1990:377). Thus actors compare what they are with what others perceive them to be; if there exists a misalignment, they suffer discomfort and seek to change.

In both instances, actors seek memberships and interactions that verify the view of themselves that they hold. In the former, actors desire an ideal self; in the latter, actors desire the self that they believe others perceive. In both cases, the cognitive mechanism is *the actor's perception of an inconsistency* that leads her or him to change her self-conception. We examine how deep the motive for consistency runs (from external to internal) so as to influence identity change. Do adolescents change identities in search of internal and/or external consistency? We hypothesize that both external and internal identity imbalance govern identity transformation (hypotheses 1 and 2 in Table 1).

*Category and Network Contexts*

The perception of imbalance or identity inconsistency is shaped partly by actors' experiences in various social contexts. SIT and IT focus on different aspects of social contexts to characterize these experiences. SIT contends that category traits and their

comparison in intergroup relations act as contexts of motives for identity change (Stets and Burke 2000:226). In contrast, IT contends that network configurations or intra-group relations act as contexts of motives for identity change (Deaux and Martin 2003:106–107). Neither theory, however, has operationalized these contextual features consistently in empirical tests.

The context that SIT considers is defined by category traits. Categories are more than labels; they act as constitutive rules or representational systems of meaning that are recognized by wide segments of a society (Tajfel and Turner 1979). Categories establish expectations of and for behavior, and even suggest a narrative history of group membership (Deaux and Martin 2003:105). We extend the notion of category as context by elaborating a variety of meanings attributed to categories that should influence identity motives and dynamics.

Category labels can reflect notions of status, permanence, size, and other meanings that influence the actor's motive to improve his or her situation. For example, the comparison of categories entails an evaluative dimension whereby notions of better or worse are established and a hierarchy of cat-

Table 1. Research Hypotheses

	Internal Inconsistency (not in ideal crowd)	External Inconsistency (not as others see you)	Identity Change (crowd-change)
<b>Identity Consistency</b>			
Internal inconsistency (not in ideal crowd)	—	—	H1: pos
External inconsistency (not as others see you)	—	—	H2: pos
<b>Category Traits</b>			
Size (law of numbers)	Hc1a: neg	Hc1b: neg	Hc1c: neg
Status (evaluation effect)	Hc2a: neg	Hc2b: neg	Hc2c: neg
Racial (involuntary / visible)	Hc3a: pos	Hc3b: pos	Hc3c: neg
<b>Network Conditions</b>			
Cohesiveness (conformity effect)	Hn1a: neg	Hn1b: neg	Hn1c: neg
Homogeneity (conformity effect)	Hn2a: neg	Hn2b: neg	Hn2c: neg
Bridging (cross-pressure effect)	Hn3a: pos	Hn3b: pos	Hn3c: pos
Prominence (resource attraction)	Hn4a: neg	Hn4b: neg	Hn4c: neg

Note: "Neg" indicates a hypothesized negative relation; "pos" indicates a hypothesized positive relation.

egories arises. The resultant vertical differentiation among categories can influence actors' identity motives and induce stable or unstable identification over time (Deaux and Martin 2003:105; Ridgeway 2001) such that memberships are more fluid in low-status groups than in high-status groups. Categories also can entail assumptions of permanence that influence identity change (Abrams, Thomas, and Hogg 1990; Stets and Burke 2000:230). For instance, ascribed categories such as race and gender tend to lock in identities because it is difficult to differentiate one's self from the visible traits to which these categories refer, even if one wishes to do so. Finally, certain categories will influence identification dynamics merely by a *law of numbers*: membership in a large, abstract category is more likely than a membership in a smaller, concrete category. Thus actors will be more likely to select and reselect abstract rather than specific categories, and therefore will induce greater stability in identification over time.

Specifically, we hypothesize that the increased size and status of a category makes perceived identity imbalance and identity change less likely (Hypotheses Hc1 and Hc2; see Table 1). In contrast, we expect racial categories to be associated with identity imbalance on the one hand, and identity stability, on the other, because racial identities are somewhat involuntary (i.e., inducing imbalance) and entail visible traits that actors find it difficult to differentiate from their self (Hypothesis Hc3).

IT proposes a theory that competes with SIT's category effects, and describes personal, day-to-day relationships as an immediate context defining the salience of particular roles. According to IT, personal relations affect the hierarchy of salience, and in turn influence identity dynamics. Recent work in IT alludes vaguely to particular social network concepts, and argues that various network contexts can guide actors' perceptions of identity salience (Deaux and Martin 2003; Stryker and Burke 2000). The concepts we see in this literature refer to network properties of density, homogeneity, and competing memberships and prominence (Scott 2000).

The most straightforward concept is that of density. Identity theorists argue that dense

reinforcing ties are more likely to make a given identity salient to actors involved in those ties (Stryker and Burke 2000:289). By contrast, the concept of homogeneity is only implied by expressions such as "the depth of the ties to others through an identity" (Stets and Burke 2000:230; Stryker and Serpe 1982, 1994) and "level of network support" (Deaux and Martin 2003:106–107), which require further interpretation. The general argument of homogeneity is one of conformity: the more friends you have with the same identity, the more likely you will be to adopt that identity as your own (Cohen 1977; Kandel 1978; McPherson, Smith-Lovin, and Cook 2001). In particular, we hypothesize that actors with cohesive ties and homogeneous friends will be more likely to believe that their identity is consistent with internal and external standards; therefore their identity is more stable over time (Hypotheses Hn1, Hn2).

Another network concept considered in IT makes a vague reference to competing memberships and how they may lead to problems or confusion about identity salience (Stryker and Burke 2000:290). The notion of competing memberships implies that actors encounter competing group demands. Therefore, these individuals occupy a particular social position of brokerage or bridging (Feld 1981; Freeman 1979; Gould 1989; Granovetter 1973). Actors who bridge networks may have more unstable identities because they span homogeneous enclaves of densely interwoven actors. Brokering individuals have non-overlapping memberships that entail different sets of relations with distinct experiences and social cross-pressures (Burt 1992). As a result, individuals who bridge different social worlds are likely to experience identity inconsistency and variable identities over time (Hypothesis Hn3). Actors who are not situated between different sets of actors are likely to encounter more consistent norms and demands, and therefore possess a more stable identity over time than those in bridging positions.

Finally, prominent network positions also influence identity formation. As individuals become more central and more popular, they exert greater influence and control over their peers (Krackhardt 1992). Moreover, their status confers upon them certain

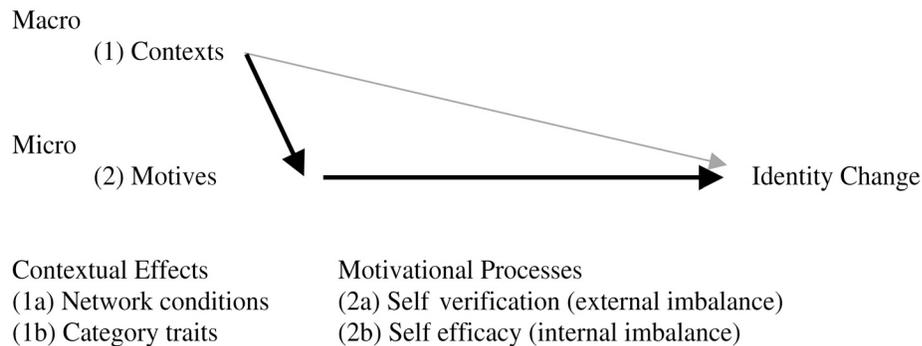


Figure 1. Hypothesized Effects of Contexts and Motives on Identity Change

rewards and heightened expectations of competence (Berger, Rosenholtz, and Zelditch 1980; Ridgeway and Diekema 1989). This situation in turn should lead to heightened self-esteem and a sense of self-enhancement that is reflected in identity consistency and, in turn, in identity reinforcement over time (Hypothesis Hn4).

Therefore, although identity theorists recognize that categories and networks matter for identity dynamics (White 1992), neither SIT nor IT branches offer a clear conceptualization of these effects. Moreover, no empirical studies to date directly examine the effect of categories and networks on identity dynamics. We believe that social contexts entail certain predictable experiences for their members and thereby directly influence actors' motives for identifying with various groups. These motives, in turn, are fundamental to the process of identity change.

Figure 1 summarizes the macro-to-micro relationship between contexts, identity consistency, and identity development (Coleman 1986). Both direct and indirect links between contexts and identity change are conceivable. Yet, we expect contexts to exert strong indirect effects on identity development as environments that affect perceived identity imbalance, and cause actors, through such cognitive pressures, to change their identity. Through analyses of these various relations, we make a case for network effects: we find that network configurations and self-verification motives reflecting sociologists' identity theory (IT) are more fundamental to the process of identity development in adoles-

cence than are category traits and motives of self-efficacy that reflect psychologists' social identity theory (SIT).

### EMPIRICAL STUDY

#### Method

The data we employ include information on both friendship networks and identity selections in high schools. It is a relatively straightforward task to measure network positions and relations<sup>3</sup> using friendship data. Identities, however, are more difficult to operationalize because almost any category or referent can be an identity. We use the literature on adolescent crowds (Brown 1990) to help us establish a pool of social identities salient to the peer world of high schools. Crowds are defined as reputational groups with which actors are identified (Brown, Eicher, and Petrie 1986; Brown and Lohr 1987; Brown, Mory, and Kinney 1994; Brown et al. 1993; Coleman 1961; Cotterell 1996; Crosnoe 1999; Cusick 1973; Eckert 1989; Herman 1998; Kinney 1993; Steinberg, Brown and Dornbusch 1996; Stone and Brown 1999). Therefore, crowd designations are defined by others and influence individuals by framing their subsequent behavior.

In contrast to the crowd literature, we focus on how actors select these affiliations as reflecting their self, and therefore use crowd labels in ways that enable us to

<sup>3</sup> Network relations are the ties extending to and from individuals; positions are locations in networks that are defined by all relations, not merely those connected to individuals (Burt 1980).

explore issues of identification suggested by IT and SIT. Crowds as actor-selected identities are consistent with SIT's discussion of categories and IT's discussion of roles. Therefore, they are suitable for analyzing the effects of contexts and motivational processes on identity development.

We draw information from a study of nearly 6,000 students in six California high schools in the San Francisco-San Jose metropolitan area.<sup>4</sup> These students participated in schoolwide surveys administered during the 1987–1988 and 1988–1989 school years (Crosnoe 1999, 2001; Fletcher et al. 1995; Herman 1998; Stanton-Salazar and Dornbusch 1995: 120–21; Steinberg et al. 1996). All six schools are in middle- to high-income areas with diverse racial populations. Within each school, the percentage of non-Latino whites ranges from 35 to 55 percent. The data are not a representative sample of the nation, but nearly represent northern California's urban population.

Because this is an almost fully enumerated sample of students in six schools,<sup>5</sup> we can use it to acquire reliable network measures on students' interpersonal relations. The combination of usable network and identity (crowd selection) data is not found in any other large-scale studies of adolescents or adults; therefore it represents a unique and valuable data set for studying the interrelation of social contexts with identity.

Crowds carry a variety of labels, such as Brains, Nerds, Normals, Jocks, Populars, Partyers, Burnouts, Mexicans, and Asians. All are category designations recognized within each school, and often are recognized across schools. Crowd labels were acquired from these six schools using a series of informant interviews that developed a list of labels which respondents would recognize at each

site (for discussion of methods, see Brown et al. 1986). Thus, the category designations were defined by students, not by researchers.

Respondents were presented with a list of these crowd labels and then were asked to identify their crowd affiliation from various perspectives:

- (1) Ideal: "If you could belong to any crowd, which one would you most want to be part of?" (If none, write "none")
- (2) Actual: "Which crowd would you personally say that you belong to?" (If you don't think you belong to any of the crowds on the list, write "none")
- (3) Public: "Write the name of the one crowd that your classmates would say you belong to."

We focus on two forms of perceived identity imbalance. On the one hand, actors may believe that their actual membership is not their ideal one. The inconsistency between ideal and actual crowd affiliations captures the actor's perception of an internal identity imbalance or self-discrepancy.<sup>6</sup> On the other hand, actors may believe that they are in a crowd in which others do not see them; this suggests that the actor perceives an external identity inconsistency or lack of self-verification. We construct these measures as simple dummy variables for mismatch in crowd selections:<sup>7</sup>

*Internal identity imbalance:*

Actual self  $\neq$  Ideal self

*External identity imbalance:*

Actual self  $\neq$  Public self

Both internal and external inconsistencies of membership affiliation are interesting dependent variables because they are proxies for personal nonfulfillment and social

<sup>4</sup> The original study was conducted in nine schools. We use the six for which social network and social identity data are available. One of the six is in San Jose; the rest are located on the San Francisco peninsula.

<sup>5</sup> Every student in the six schools who was present in school on a particular day was asked to complete the questionnaire. The questionnaires were administered during one long class period, usually in their English (or social studies) class. The proportion of completed questionnaires was greater than 85 percent of the total registration of the six schools.

<sup>6</sup> We omitted students who left identity items blank, selected "Don't Know," or remarked that they were uncertain. We performed Heckman's sample selection test to determine whether omission of these respondents biased our models of the dependent variables. No significant effect ( $p < .05$ ) was found for the Mills ratio (Heckman 1979). Thus the omission of these uncertain respondents had no significant effect on the models of identity misalignment.

<sup>7</sup> See Appendix Table A1 for sample descriptive statistics for all variables used.

anomie. Moreover, they reveal the depth at which contexts can influence actors' perceptions of themselves and their crowd position. Primarily, however, we focus on the process of identity change. We hypothesize that contexts, and especially network conditions, exert strong indirect effects on identity change via perceptions of internal and external identity imbalance. To test these hypotheses, we construct a measure for social identity change as the mismatch in crowd affiliations over time (Actual crowd  $t_1 \neq$  Actual crowd  $t_2$ ). Thus, if a respondent said that his or her actual identity was "Popular" at time 1 and "Druggie" at time 2, it was recorded as a change in social identity.<sup>8</sup>

At the end of our analyses, we perform additional tests to see whether social network change is influenced by the same mechanisms as identity change. The variable for social network change is constructed by first identifying the number of friendships from wave 1 surveys that are not reported again in wave 2 surveys. We then divide the number of dropped ties by the total number of ties listed in wave 1.<sup>9</sup> We hypothesize that the mechanisms associated with identity change will be the same for network change.

### *Independent Variables*

We cluster the independent variables into three sets: control variables (background characteristics and school memberships), category or crowd traits, and network conditions (our hypothesized effects).

*Control variables.* We use various control variables to account for the effects of stu-

dent's background (see Appendix Table A1). We control for student's background using variables of gender, ego's racial salience in school, age, and family characteristics (as well as school dummy variables). Gender is included in the models because some research finds that male adolescents desire greater autonomy than female adolescents and are less closely allied with peer groups (Canaan 1990; Corsaro and Eder 1990; Cotterell 1996; Harter 1990:379–81).

We measure racial salience as the percentage of students in the school who are of the same race as the respondent.<sup>10</sup> We argue that race influences perceptions of identity inconsistency and identity change when the individual students belong to a numerical racial minority in their school (Abrams et al. 1990; Moody 2001; Simmel 1950). Students who are more racially dissimilar from their peers are hypothesized to have heightened perceptions of internal and external identity imbalance (Berger et al. 1980; Ridgeway and Berger 1986; Stets and Burke 2000:230).

Student's age is included because identity inconsistency and change are associated with adolescent development (Erikson 1968; Gordon 1976; Harter 1990; Rosenberg 1979; Steinberg et al. 1996). The general developmental shift is away from external attributions toward internal attributions—that is, from socially controlled to autonomous claims of identity (Cotterell 1996; Jenkins 1996). Because of maturation, we expect older students to be more internally balanced (more satisfied with who they are) than their younger counter-parts, less externally balanced (more independent of friends), and less prone to fluctuations in social identity over time. We measure student's age in terms of years (e.g., 14–18).

<sup>8</sup> A good deal of attrition occurred in wave 2 because of graduations, students moving, and non-responses. We performed a Heckman sample selection test to determine whether the respondents in the longitudinal sample differed significantly from the fuller sample studied in wave 1 (Heckman 1979). In almost every run, we found no significant effect for the Mills ratio with regard to change in identity. All models, however, include the Mills ratio as a control variable so that we could perform any necessary corrections that might arise.

<sup>9</sup> We constructed this variable in several formats: number of stable ties, proportion of stable ties, number of new ties, and others. All the models produced essentially the same results. In the end we used proportion of network change because it was conceptually similar to identity imbalance and change.

<sup>10</sup> Early models used racial categories as independent variables and found that members of minorities experienced more identity imbalance than their counterparts. We tested whether the size of these minority groups explained such an effect because numerical minorities may experience a sense of misfit. We found this to be the case and discovered that the variable was collinear with the racial dummy variables; therefore we omitted one variable for the other. Even so, we control for racial crowds, using a dummy variable at level 2 (see below).

Family traits also are relevant to social identity dynamics. We use family structure and mean parents' education as proxies for the availability of parental attention, monitoring, household resources, and socioeconomic status. Intact families and educated parents are found to create greater stability at home and to move less often (Crosnoe 2001). Thus we hypothesize that this situation in turn induces stability and consistency in membership affiliations for the adolescent. Family structure is measured as a dummy variable for traditional, dual-parent households. Parents' education is measured on an eight-point scale from low to high levels (1 = some grade school . . . 8 = graduate degree). We use the mean of both parents' educations.

To capture the effects of multiple group affiliations (Gottfredson and Hirschi 1990), we use track level and number of extracurricular involvements as control variables. Track involvement conveys certain status characteristics upon an individual (Oakes, Gamoran, and Page 1992), so we expect this variable to be associated with identity stability and consistency. Track level is measured on a four-point scale from low to high ability (e.g., special education, remedial-vocational, general-business, and college preparatory). For involvement in extracurricular activities we expect a different effect: as students enter more such activities, they find themselves involved in a larger array of memberships that may lead them to feel as if they are members of multiple groups and different from any particular set of friends (Feld 1981; McNeal 1995, 1998; Mead 1934; Simmel 1955). We measure extracurricular involvement as a simple sum of the respondent's extracurricular memberships.

*Category traits.* We hypothesize that crowd size, status, and visibility affect the likelihood of perceived identity imbalance and identity change. All crowd characteristics are measured at the school level to approximate each school's social context. Crowd size is measured as a continuous variable, the number of respondents in the school claiming a certain crowd label. To test the hypothesis about category popularity, we created a dummy variable for "Populars," "Nice Populars," and "Jocks" because the literature on adolescents consistently claims that these

crowds have the highest status (Brown et al. 1986; Brown and Lohr 1987; Eckert 1989). By using this dummy variable we can discern whether being well-liked (see network prominence below) or belonging to a leading crowd causes an adolescent to develop consistent and stable crowd affiliations (Coleman 1961).

Our last three identity characteristics refer to categorical affiliations that are distinct from the others listed (see Table 2 below). First, we include a dichotomous indicator for racial crowd to test the hypotheses about the difficulty of denying a visible category marker (Harter 1990:381; McGuire et al. 1978). Membership in a racial crowd may create the seemingly counterintuitive effect of increasing stable identification over time, even while it increases a sense of internal and external identity imbalance (because many persons believe they cannot avoid this membership even if they wish to do so).

In addition, we control for two types of alternative category memberships. The first concerns students who claim they are not part of any crowd: "Loners," a "noncategory" category. These individuals may be some of the more autonomous individuals, who are internally balanced but externally inconsistent (e.g., different from their friends as Loners; see Brown 1990:184). The second type consists of students who adopt the abstract categorical affiliation "Average" or "Normal." This affiliation is somewhat different from the others in that it represents a residual category. These students may not yet belong to their ideal crowd, may have friends who are different from them, and may be most prone to identity change should such an opportunity arise.

*Network conditions.* A central claim of this paper is that network conditions influence perceptions of identity inconsistency; this, in turn, strongly influences social identity change. All network variables are developed from reports in which students named their five closest friends. Our measure of friendship cohesion is calculated as the percentage of an ego's friendships that are reciprocated. As an individual's friendships become more mutual, we expect that person to experience greater closure, reinforcement, and social control (Coleman 1991), and

Table 2. Actual Crowd Affiliations and Identity Inconsistencies, by School (Frequencies and Percentages)

	Willow Glen	Los Altos	Menlo- Atherton	Capu- chino	Milpitas	Aragon	Total
Actual Crowd							
Loner	154	454	156	108	241	196	1,309
Jock	58	42	26	45	36	48	255
Popular	28	169	47	53	45	55	397
Popular-nice	67				36	2	105
Partier	4	55	77	82	75	75	368
Druggie	19	15	21	24	35	20	134
Rocker	18	7	2	3	1	2	33
ROTC					38		38
Average/Normal	324	11	392	311	387	572	1,997
Brain	13	40	19	5	21	30	128
Nerd	3	2	4	3	3	5	20
Punker	4	20	7	1	24		56
Skater	3	13	4	4	34	2	60
Performer					17		17
Black	12	15	35	6	58	13	139
Hispanic			33	2		2	37
Mexican	69	18	5	14	50	31	187
Asian	1	34	9	20	1	49	114
Chinese	3				15		18
Pacific Islander		11	8	4	75		98
Vietnamese	13	10			38		61
Mixed ethnicity		6					6
Other miscellaneous <sup>a</sup>	5	9	7	3	10	4	38
Total <i>N</i>	798	931	852	688	1,240	1,106	5,615
Perceived Identity inconsistency (percentages) <sup>b</sup>							
Internal (ideal ≠ actual)	41	33	43	42	45	40	41
External (actual ≠ public)	28	27	29	28	36	28	30

Source: Six schools data on Nine Schools.

<sup>a</sup> “Other Miscellaneous” denotes identity claims that included fewer than 10 total selections (not clustered in a school) and that referred to noncrowd entities, such as “several crowds” or “miscellaneous.”

<sup>b</sup> *Ideal* = actor’s ideal crowd affiliation; *actual* = actor’s self-attributed crowd identity; *public* = the crowd identity that the actor believes others attribute to him/her.

therefore to hold more balanced identity perceptions and to have more stable crowd affiliations over time.

In contrast to network relations, egocentric positions are defined by all relations in the school, not only those selected by an ego (Burt 1980). Two conceptions of network position are believed to be associated with misaligned categorical affiliations: prominence and bridging (Freeman 1979; Friedkin 1990). An individual student’s prominence is defined by the number of friendship selections he or she receives from others (i.e., in-degree centrality). We expect prominent students not only to hold more consistent identity perceptions, but also to have more stable identifications over time.

Actors also can broker or bridge different cohesive regions of social networks. We

use the measure of betweenness to capture the degree to which an actor bridges different groups (Freeman 1979). Let  $b_{jk}$  be the proportion of all shortest paths (i.e., geodesics) linking actors  $j$  and  $k$  that pass through actor  $i$ . The betweenness of actor  $i$  is the sum of all  $b_{jk}$ . Betweenness therefore is a measure of the number of times an actor occurs on a geodesic path (Borgatti, Everett, and Freeman 1999).<sup>11</sup> As an actor is positioned more between other actors (and net of dense relations and power positioning), she or he is exposed to more distinct cliques and crowds. Students in bridge positions therefore are

<sup>11</sup> The measure of betweenness used here assumes relational symmetry (see Borgatti et al 1999, UCINET V). We divide the value of betweenness by 10,000 for scaling reasons.

expected to possess categorical affiliations that differ from those of their friends and to have more unstable identities over time because they are not in relations that reinforce the same crowd membership as their friends'.

Another network context hypothesized to influence identity balance and identity change is peer group homogeneity. This context is measured as the proportion of ego-selected friends who hold the same crowd identity as ego (i.e., actual crowd). As more of a student's friends adopt the same crowd as ego, we expect to find greater social control over social identifications. Thus a homogeneous peer group should inhibit identity inconsistency and identity instability over time, net of density alone. (See Appendix Table A1 for sample descriptive statistics.)

In addition to cohesion, prominence, bridging, and peer group homogeneity (our main hypotheses), we develop a measure of "friend location" to determine whether the institutional location of friendships matters for students' sense of identity consistency and identity change. We measure friend location as the proportion of a respondent's friends who are not in the school. This variable is introduced to account for biases in network measures that exist because students sometimes select friends who did not complete a survey and for the effect of having friends outside school, revealing a student's lesser commitment to persons in the school. We expect the increased presence of out-of-school friends to induce identity inconsistency because students may view their actual crowd affiliation in the school as distinct from their ideal and that of their friends. We also expect this increase to raise the incidence of identity change because of this sense of inconsistency.

*Model.* In this paper we adopt a multi-level framework to model the occurrence of perceived identity imbalance and identity change because students are clustered in categories, or reputational crowds (Brown et al. 1994; Cotterell 1996). Moreover, every category exerts a uniform effect on participants; therefore it is logical that they should be higher-level constructs. An individual-level logistic regression would result in biased parameter estimates because error terms are

correlated for students in the same crowd (Allison 1999; Singer 1998). Thus, to overcome aggregation bias and misestimation of standard errors, we employ a two-level random-intercepts model that incorporates the effects of school-specific crowds (Frank 1998). In our models, we report the estimated effects of crowd characteristics (specific to each school) on the likelihood of identity inconsistency and identity change (Guo and Zhao 2000).<sup>12</sup>

For the two-level model, we represent students (level 1) within school-specific crowds (level 2). In cross-sectional models, we observe  $y_{ij}$ , the identity inconsistency that is reported by student  $i$  in school crowd  $j$ . We also include various explanatory variables at the student ( $x_{ij}$ ) and school-crowd level ( $x_j$ ). The probability that identity inconsistency is equal to 1 is  $p_{ij} = \Pr(y_{ij} = 1)$ , where  $p_{ij}$  is modeled with a logit link function (Guo and Zhao 2000:446). Therefore, the two-level model is as follows:

$$\text{Log}[p_{ij}/(1-p_{ij})] = \beta_{0j} + \beta_1 x_{ij} \quad (1)$$

$$\beta_{0j} = \gamma + \gamma_{0j}(\text{school-crowd characteristic}) + \dots + \gamma_{0k} \quad (2)$$

We employ the same model for longitudinal analyses, but use a different dependent variable (identity change) and employ lagged independent variables from wave 1 responses.

## RESULTS

Six tables of results are presented below. Table 2 presents descriptive statistics of actual crowd affiliations within each of the schools and displays the extent to which internal and external perceptions of self are consistent. Tables 3 and 4 report tests of the

<sup>12</sup> We used the SAS GLIMMIX procedure to generate these models. The syntax is as follows:

```
%INCLUDE 'glimm800.sas' /nosource;
%GLIMMIX(DATA=dataname,procopt=-covtest,STMTS=%STR(
CLASS crowd school;
MODEL misalignment=x1+x2+...x /solution;
RANDOM INTERCEPT/SUB=crowd*school;),
ERROR=BINOMIAL,LINK=LOGIT);RUN;
```

effects of category and network contexts on perceived self-inconsistencies. Table 5 reveals how contexts and inconsistency-motives influence identity change. Table 6 shows the summary of the results for the hypotheses tested here. Table 7 illustrates whether the mechanisms examined above generate change in adolescents' friendship networks.

Frequencies presented in Table 2 illustrate the variation of student-selected crowd memberships. For the sake of simplicity, we label these "actual" crowd identities because they reflect the actor's selection. In our sample, certain categories are selected more frequently than others, particularly Loner and Normal, so size is clearly a factor. Loner is the most common category at Los Altos. Normal is most common at the other schools. Other commonly selected crowds are Jocks, Populars, Popular-Nice, Partyers, Druggies, Brains, Blacks, Mexicans, Asians, and Pacific Islanders. Interesting distinctions also are found at each school. The ROTC (Reserve Office Training Corps) crowd occurs only at Milpitas, and Populars and Popular-Nice are distinct groups at Willow Glen and Milpitas. None of the schools show students with every possible crowd label; and some category designations contain so few students as to suggest that no such crowd exists. We err toward the conservative side with a definition of crowds which assumes that all members will recognize and use the same labels. Therefore we do not collapse similar labels, and we regard any confusion between Nerd and Brain or Asian and Vietnamese to suggest that the crowd is poorly defined as a reputational group.

The last rows in Table 2 present the percentages of students reporting internal and external self-consistency by school. About 60 percent of all the students report consistent internal identity affiliations, while 40 percent report that they are not in their ideal crowd. External self-consistency is more common: only 28 percent report that their identity is not confirmed by others. The substantial occurrence of these identity imbalances is in accord with arguments about the volatility of adolescent identities (Erikson 1968). We must reiterate, however, that the majority of youths perceive their identity to be both internally and externally consistent. One

school, Los Altos, seems to differ slightly from the others, but the frequent selection of the Loner category at Los Altos helps explain that divergence. As shown by results in Tables 3 and 4, Loners report their social identity as internally consistent but externally inconsistent.

#### *Factors Associated with Identity Inconsistency*

What causes actors to perceive their identities as internally or externally inconsistent? In Table 3 we identify variables that are associated with internal identity inconsistency—factors that lead students to report that they are not in their ideal crowd. In Table 4 we identify variables that are associated with external identity inconsistency—factors that lead students to report that their categorical affiliation is different than perceived by others. In each table we introduce variables in sets so as to assess which contexts exert the strongest effects (comparing scaled deviance scores; for method, see Allison 1999:206–12).

Table 3 reveals several significant relationships. First, a comparison of Models 3 and 5 shows that network contexts improve the fit of our model more than do category traits (change in scaled deviance for networks = 56; and for category, 15). In fact, the best-fitting model (Model 5) excludes category variables. Even if we calculated the change in scaled deviance of Model 3 in comparison with an unconditional model (i.e., including background and membership effects), this would not improve the model's fit more than do network contexts.

Nevertheless, we find certain significant effects for background, category, and network contexts. Most notably, students in racial groups that are numerical minorities tend to report a sense of internal identity imbalance more than those in majority racial groups. Model 6 shows that when a youth belongs to a minority group that is one standard deviation smaller than the average (See Appendix Table A1, where mean = .38, sd = .18), that youth is 9 percent more likely to report internal imbalance. In concrete terms this means that youths in minority groups which constitute 20 percent of the school population are 9 percent more likely than aver-

Table 3. Multilevel Logit Model Predicting Internal Identity Inconsistency (Ideal  $\neq$  Actual)

Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	—**	—**	—**	—**	—***	—**
Background Effects						
Female	-.03	-.03	-.03	-.03	-.01	-.01
Percent same race in school	-.11***	-.10***	-.10***	-.10***	-.09**	-.09**
Age	-.08**	-.07**	-.07**	-.08**	-.09***	-.09**
Both parents in family	.00	.00	.00	.00	.00	.00
Parents' education	-.05	-.04	-.04	-.04	-.04	-.04
Membership Effects						
Track level	-.02	-.02	-.02	-.01	-.01	-.01
Extracurricular involvement	-.04	-.04	-.04	-.03	-.03	-.03
Category Effects (Level 2)						
In popular crowd		.02	.03			.02
Not in crowd (Loner)		-.15***	-.12*			-.13**
Average crowd (Normals)		.07	.15†			.31†
Race Crowd		.06	.05			.17
Crowd size/100			-.08			-.02
Network effects						
Prominence (in-degree)				-.08*	-.08*	-.08*
Bridging (betweenness)				.03	.04	.05
Cohesion (% mutual ties)				.01	.05	.05
Location (% outside school)				.05†	.04	.04
Homogeneity (% of friends in same crowd)					-.15***	-.16***
Test of Model Improvement (With Model 1)						
Scaled deviance	7,314	7,304	7,300	7,298	7,259	7,259
Change in deviance (chi-square)	—	11**	15***	16***	56***	56***
Change in df	—	4	5	4	5	10

Source: Six schools from data on Nine Schools (level 1 valid  $N = 5,615$ , level 2 valid  $N = 106$ ).

Note: Standardized coefficients are presented;  $b = \exp(B \times s) - 1$ ; unstandardized coefficients are available on request.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-sided tests)

age to report internal imbalance; those in even smaller racial groups constituting only 2 percent of the school populations, are 18 percent more likely than average to do so. Minority youths do not always belong to their ideal crowd because they may have limited access to racial crowds of their choosing. In fact, the number of students reporting themselves to belong to each type of minority crowd (Table 2) is less than the actual proportion of students with those racial attributes (Appendix Table A1).

Younger students also are more likely to report that they are not in their ideal crowd. According to Model 6, 14-year-olds are 9 percent more likely than 15-year-olds to sense imbalance. In contrast, 17-year-olds are 9 percent less likely than 15-year-olds to do so (mean age = 15.59,  $sd = 1.26$ ). Two factors can explain this relationship to age. First, younger students may be more prone to identity crises due to their developmental stage when they search for improved memberships (Erikson 1968).

Second, because younger adolescents often occupy lower-status positions in high school, they may see more desirable memberships elsewhere, such as those occupied by older students who are established in the adolescent society.

Characteristics of crowds also are related significantly to internal perceptions of identity imbalance. Loners are more likely to report that they are in their ideal category, while Normals are more likely to report that they are not. The former case is as we expect: Loners are more autonomous than other youths and more satisfied with their nonmembership in reputational crowds. In the case of the Normals, the result suggests that persons report membership in a residual group which is not their ideal membership but merely an acceptable categorical designation. Thus the selection of an ill-defined crowd or category may reflect the actor's lack of self-definition, and therefore his or her desire to change identities over time. None of our hypothesized expectations about

category traits are confirmed: claiming a popular category membership or belonging to a large or a racial crowd does not increase the likelihood of identity consistency (Hypotheses Hc1a, Hc2a, and Hc3a).

Net of all other variables, network conditions show a significant relationship with perceptions of internal identity imbalance (Model 6). As expected, prominent individuals are less likely to report identity imbalance (Hypothesis Hn4a). Students selected by more than four friends are 8 percent more likely to report that they are in their ideal crowd than those selected by only two or three friends (prominence mean = 2.63, sd = 2.01). Those selected by one friend or none are 8 percent more likely to report that they are not in their ideal crowd. A similar result is found for peer group homogeneity (Hypothesis Hn2a): shift of one standard deviation in peer homogeneity (from 23% of friends in the same crowd to 50%) results in a 16 percent increase in the likelihood of actually belonging to one's ideal crowd. Friends with

consistent crowd affiliations tend to reinforce the actors' internal perception of their own crowd affiliation. As shown by this result, social reinforcement and peer group homogeneity therefore generate greater internal identity balance.

It is somewhat surprising that some network conditions (prominence and peer homogeneity) are related significantly to internal identity imbalance. As we have constructed it, internal inconsistency arises when an actor reports not being a member of a crowd that he or she idealizes. Therefore, it is a psychological construct that reflects a personal preference or decision more strongly than a social pressure. The fact that network conditions influence internal perceptions of identity balance suggests that network contexts penetrate deeper into psychological processes than suggested by prior literature (Deaux and Martin 2003).

The results displayed in Table 4 provide a straightforward finding: social contexts, especially networks, exert large, dominant effects

Table 4. Multilevel Logit Model Predicting External Identity Inconsistency (Actual ≠ Public)

Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	—	—	—	—	—	—
Background Effects						
Female	-.08**	-.08**	-.08**	-.08**	-.06*	-.07*
Percent same race in school	-.13***	-.14***	-.14***	-.13***	-.12***	-.13***
Age	.01	.01	.01	.01	.00	.00
Both parents in family	.02	.02	.02	.03	.02	.02
Parents' education	.00	-.01	.00	.00	.00	.00
Membership Effects						
Track level	-.05†	-.05†	-.05	-.05	-.05	-.05
Extracurricular involvement	.16***	.16***	.16***	.16***	.16***	.16***
Category Effects (Level 2)						
In popular crowd		-.13*	-.11†			-.11*
Not in crowd (Loner)		.19***	.35***			.32***
Average crowd (Normals)		.01	.27**			.25**
Race Crowd		-.13†	-.14†			-.12
Crowd size/100			-.26**			-.21**
Network effects						
Prominence (in-degree)				-.05	-.05	-.05
Bridging (betweenness)				.10**	.13***	.13***
Cohesion (% mutual ties)				.02	.08*	.08*
Location (% outside school)				.07*	.05	.05
Homogeneity (% of friends in same crowd)					-.21***	-.21***
Test of Model Improvement (With Model 1)						
Scaled deviance	6,626	6,613	6,602	6,613	6,565	6,546
Change in deviance (chi-square)	—	13**	24***	13***	61***	80***
Change in df	—	4	5	4	5	10

Source: Six schools from data on Nine Schools (level 1 valid N = 5,615; level 2 valid N = 106).

Note: Standardized coefficients are presented:  $b = \exp(B \times s_x) - 1$ ; unstandardized coefficients are available on request.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-sided tests)

on perceptions of external identity imbalance.

In each model in Table 4 we find significant results for males, numerical minorities, and persons highly involved in extracurricular pursuits. All are more likely than their counterparts to think that their peers see them as members of different crowds than those to which they actually belong. Boys are more likely than girls to report this difference, perhaps because they are expected to be autonomous and readily differentiated from others (Harter 1990:379–80). By contrast, girls are expected to be connected and intimate; thus the external confirmation of their identity is easier.<sup>13</sup>

Members of numerical minorities are more likely than their counterparts to report external identity inconsistency, probably because their racial identity is perceived as setting them apart regardless of their behaviors and club affiliations. Students in a racial group that represents 20 percent of the school are 13 percent more likely than average to feel that others will not confirm their actual identity. Students in a group that represents 68 percent of the school are 26 percent more likely to believe that others view them as members of their actual crowd. Thus a school's racial composition establishes a context that defines the salience of an identity, and it influences the actor's perception of how accurately others will categorize him or her.

Students who are involved in extracurricular activities also are likely to perceive external identity inconsistency because they cross social circles and categorical groups (Mead 1934). On the basis of our model, a

one-standard-deviation increase in club affiliations (from 1.5 to three club memberships) results in a 16 percent greater likelihood of external imbalance. Students with affiliations of nearly five clubs are 32 percent more likely to report external misperceptions of their identity. Racial composition and involvement in activities greatly improve the model's fit; these are key factors in shaping adolescents' perception that their selves are (or are not) verified by peers.

Category traits of crowds have a strong, significant relation to perceptions of self-verification (Stets and Burke 2000). Loner standing exerts the largest effect: Loners are 32 percent more likely than students in other groups to report belonging to a different categorical affiliation from their friends. Exploratory analyses find that Loners perceive themselves as distinct from their friends and from others. Only 16 percent of those who claim to be Loners say that their friends also are Loners, and more than 84 percent say that their friends belong to some other group.<sup>14</sup>

Similarly, students in the Normal crowd (net of crowd size) are more likely to report perceptions of external inconsistency. One explanation might be that Normals are not so much a reputational "group" as a residual category; therefore, they are more likely to state that others may see them in more definitive memberships than they themselves would claim.

Net of these two large categorical affiliations is the significant effect of crowd status and size. Jock, Popular, and Popular-Nice crowds (Brown 1990) generate greater identity consistency (Hypothesis Hc2b). The status and visibility of persons in these categories probably lead members to believe that others will characterize their affiliation more accurately. Similarly, members of larger crowds are more likely to believe that their peers will categorize them correctly (Hypothesis Hc1b). This result arises from simple probabilities: if actors belong to large crowds, the probability is higher that they will

<sup>13</sup> It appears that only a narrow range of possible explanations exists for the effect of gender because gender retains its influence net of many control variables. This effect is not due to the degree of club involvement (sum of extracurricular involvements would mediate), nor of non-overlapping memberships (betweenness would mediate). The gender difference may be explained in part by interaction styles (Cahill 2002; Canaan 1990; Eder 1995): on average, girls hold more intimate conversations and have deeper relationships than boys. This fact may make external inconsistencies less common. In contrast, boys adopt teasing maneuvers and do not share personal issues as much with their friends; thus external inconsistencies are more likely.

<sup>14</sup> It is likely that control variables capture most of the 16 percent who claim that their friends are Loners as well.

be viewed in the same way by themselves and by others. The use of crowd size as a control at least prevents such effects from biasing other results reflecting category effects.

Models 4 through 6 show that network conditions exert a consistently significant and strong effect on reports of external identity imbalance. Bridging actors are more likely to report inconsistently perceived identities (and net of being a Loner) (Hypothesis Hn3b). In fact, we find a 13 percent greater likelihood of reporting external imbalance for every one-standard-deviation increase in betweenness.<sup>15</sup> Actors with bridging ties span multiple groups and therefore are more likely to believe that peers misstate their crowd affiliation.

Peer homogeneity also exerts a strong effect on external identity perceptions (Hypothesis Hn2b). Actors who report that 50 percent of their five best friends are in the same crowd as themselves are 21 percent more likely to report having a socially verified identity than are actors with only 23 percent of their five best friends in the same crowd. Students with 100 percent of their friends in the same crowd are 63 percent more likely to believe that their selves are socially verified.

The effect of reciprocal or dense ties is positive, and the opposite of what was expected (Hypothesis Hn1b). This is the effect of belonging to a cohesive group that includes heterogeneous individuals, because it is net of homogeneity (i.e., a dense group of dissimilar individuals). Belonging to such a group increases the perception that one's identity is not validated externally because those who surround the individual possess different identities.

Contexts are relevant to both internal and external perceptions of identity imbalance. Categories play a substantial role in shaping actors' perceptions of self-consistency. In particular, racial contexts in schools seem to shape the salience of these categories and lead youths to believe that their selves are inconsistent (especially in the external sense). Similarly, adolescents' selection of

Loner status defines them as internally consistent but externally inconsistent: secure in who they are but insecure in how others see them. By contrast, students who select residual standing (Normals) are dissatisfied with who they are by both internal and external standards.

According to model fitness tests, network contexts are related especially closely to inconsistency motives, even net of all other variables. Network prominence and peer homogeneity lead actors to be more internally consistent or self-efficacious: that is, they believe they have their ideal identity. Dense networks of friends who are homogeneous also lead actors to believe that their identity is confirmed externally by peers. By contrast, students in bridging relationships are more likely to believe that others categorize them inaccurately. Thus different network configurations influence actors' perceptions of internal and external self-consistency.

In sum, the results reported in Tables 3 and 4 illustrate how categories and networks can influence core motivational processes of both identity theory and social identity theory. Certain network configurations can "run deep" and influence internal consistency motives of self-efficacy. Similarly, category traits can "run shallow" and influence external consistency motives of self-verification. Even so, network contexts appear to have a more robust relation to actors' perceptions of identity consistency than do category traits. Below we illustrate how perceptions of identity inconsistency are key mechanisms in identity change and therefore make clear the strong indirect influence of social contexts on the identity development process.

#### *Factors Associated with Identity Transformation*

Now that we understand how category traits and network conditions affect identity discrepancies, we can identify those factors which lead students to change their social identities over time. In particular, we wish to determine whether contexts and perceived identity imbalances result in identity change. Table 5 presents results of multilevel logit models that predict whether adolescents

<sup>15</sup> The mean and the standard deviation reported in Appendix Table A1 are low because they are divided by 10,000 for scaling purposes.

change their actual crowd affiliation in the course of two years.

The results reported in Table 5 show several important findings. First, control variables exert little or no effect on social identity change. Only the percentage of same-race individuals increases the likelihood of such change, and this is mediated by the dummy variable for racial crowds (Model 3) and inconsistency motives (Model 6). This finding suggests that if an actor belongs to a numerical minority of a visibly ascribed category, it is less likely that this actor will change identities over time. This point reflects the stability of minority youths' racial crowd affiliations in predominantly white schools. Members of majority populations are more inclined to view their race as less salient, and therefore to select other, less permanent or readily transitional identities for self.

Categories only mildly improve the fitness of our models (see chi-square tests). Normal crowds appear to stabilize actors' identity selection, but this situation is mediated by the crowd's size. Simple probabilities of choice explain most of the effect of that category. Selection of a racial crowd, however, has a significant relation to identity change: students selecting such racial crowds are 27 percent more likely than students in other crowds to select that identity across school years.

In addition, most network contexts lack a solid direct effect on identity change. Bridging positions and the lack of dense friendships appear to increase the likelihood of identity change (Model 4), but that relation only approaches significance. Peer homogeneity, however, significantly increases the likelihood of stable identification over time (see improvement in Model 5). If an additional 27 percent of one's friends share the same identity as oneself, the likelihood of changing one's crowd affiliation declines by 22 percent. If 100 percent of one's friends belong to the same crowd, the actor is 66 percent less likely to change her or his identity over time. Thus homogeneous friends seem to impose a degree of social control on crowd affiliations over time.

Perhaps the most significant result displayed in Table 5 arises from the inclusion of variables for perceived identity inconsistency

(see improvement in Model 6). Both the internal and the external form exert strong, consistent effects on identity change net of all other variables. Without exception, perceptions of internal and external identity imbalance lead students to alter their identity. Perceived membership inconsistencies clearly create a cognitive dissonance that leads actors to change their social identifications.

External identity imbalance exerts a larger influence on social identity change than does the perception of internal identity imbalance. Results reported in Models 6 through 8 show that if an actor believes that others categorize him or her inaccurately, that actor will be 36 percent more likely to change crowd affiliation over time. If the actor believes that she or he is not a member of the ideal crowd, the likelihood of social identity change is only 24 percent greater. Also interesting is the effect of variables for identity imbalance on other covariates in the model, notably the change in coefficient values for all the network conditions. Such shifts illustrate that identity imbalance mediates some of the effects of network conditions on identity change.

Network change is introduced as a final covariate in Model 8. The result suggests that network change coevolves with identity change. Adolescent networks in this sample are quite volatile over time, however: on average, 64 percent of ties change every year. The result therefore suggests that for a student with extremely volatile ties (82% change in friends) the likelihood of changing crowds will increase by only 15 percent. For a student with relatively stable friends, however (e.g., only a 12% change in friendships), the likelihood of changing crowds will decrease by more than 30 percent (mean for change in friends = .64,  $sd = .28$ ; Appendix Table A1). Therefore, drastic changes in networks result in mild identity shifts while stable networks result in significantly more stable selves.

## DISCUSSION

In general, our results indicate that identity development is influenced more strongly by network conditions and identity inconsistencies (external) than by category traits,

Table 5. Multilevel Logistic Regression for Change in Actual Identity (Actual  $t_1 \neq$  Actual  $t_2$ )

Explanatory Variables	Model 1†	Model 2†	Model 3	Model 4	Model 5	Model 6†	Model 7†	Model 8
Intercept	—**	—	—	—*	—	—*	—	—†
Background Effects								
Female	0.09	0.1	0.1	0.17*	0.1	0.04	0.04	0.04
Percent same race in school	0.15*	0.12†	0.12†	0.22**	0.16*	0.12†	0.08	0.08
Age	0.06	0.06	0.06	0.07	0.06	0.08	0.08	0.08
Both parents in family	-0.04	-0.04	-0.04	-0.04	-0.04	-0.03	-0.03	-0.02
Parental education	-0.04	-0.04	-0.04	-0.05	-0.03	-0.01	-0.01	0
Membership Effects								
Track level	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05
Extracurricular involvement	0.02	0.01	0.01	0.01	0.02	0.01	0	0
Category Effects (Level 2)								
In popular crowd	—	0.01	0.01	—	—	—	-0.02	-0.01
Not in crowd (Loner)	—	-0.08	-0.01	—	—	—	-0.09	-0.09
Average crowd (Normals)	—	-0.22**	-0.1	—	—	—	-0.15	-0.15
Race crowd	—	-0.28**	-0.29**	—	—	—	-0.27**	-0.27**
Crowd size/100	—	—	-0.16	—	—	—	-0.1	-0.1
Network effects								
Prominence (in-degree)	—	—	—	0.03	0.04	—	0.01	0.03
Bridging (betweenness)	—	—	—	0.11†	0.09	—	0.05	0.03
Cohesion (% mutual ties)	—	—	—	-0.11†	-0.07	—	-0.03	-0.02
Location (% outside school)	—	—	—	-0.03	-0.04	—	-0.02	-0.04
Homogeneity (% of friends in same crowd)	—	—	—	—	-0.26***	—	-0.22***	-0.22***
Identity Inconsistency Effects								
Internal: ideal $\neq$ actual	—	—	—	—	—	0.25***	0.24***	0.24***
External: actual $\neq$ public	—	—	—	—	—	0.37***	0.36***	0.36***
Friendship Turnover	—	—	—	—	—	—	—	—
Percent change in friendship ties	—	—	—	—	—	—	—	—
Test of Model Improvement (with Model 1)	2,413	2,405	2,402	2,403	2,383	2,359	2,321	2,312
Scaled deviance	—	8†	11†	10*	30***	54***	92***	101***
Change in deviance (chi-square)	—	4	5	4	5	2	12	13
Change in df	—	4	5	4	5	2	12	13

Source: Six schools from data on nine schools ( $N = 1,873$  with 880 changes;  $N$  level 2 = 91)

Note: Standardized coefficients are presented:  $b = \exp(B \times s_x) - 1$ ; unstandardized coefficients are available upon request.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-sided tests)

background characteristics, and extracurricular involvements. The test results for our specific hypotheses are summarized in Table 6.<sup>16</sup> Network conditions exert their largest direct effect through peer group homogeneity: that effect reveals social conformity among friends as a primary mechanism of identity stabilization. We also find evidence, however, that network relations and positions influence identity change indirectly via perceptions of cognitive inconsistency. These relations and positions are strong predictors of perceived identity inconsistency, which in turn are strong predictors of identity change over time.

Do changes in social networks arise from the same mechanisms? In effect, can we find the same explanation or different stories for network change? To explore the relation of network to identity change more fully, we present a final table (see Table 7).

The results presented in Table 7 show that *network change and identity change are due to different mechanisms*. Gender, racial

composition, age, and category traits do not influence change in friendships. Rather, social ties are reinforced by factors such as parents' level of education and familial stability. Both of these exert mild but significant stabilizing effects on friendships. Such a result suggests that children of well-educated parents and those in traditional households find it easier to retain the same friendships over time, probably also because they encounter fewer familial problems, such as moving or dividing their time between multiple households and neighborhoods. That is, familial stability results in friendship stability.

In the findings shown in Table 7, lagged network conditions have the strongest association with network change. The results are relatively straightforward: prominent persons and those with highly reciprocated ties are less likely to change friends over time, while persons who bridge groups and who fraternize with persons outside the school are more likely to do so. Prominent persons already may gain much from their relations, so they have little to gain from changing them (and perhaps, in some cases, only something to lose). Cohesive friendships entail more trust and social control than do other relations; therefore, actors seem to continue

<sup>16</sup> Within each table, the comparison of model fitness due to the inclusion of variable sets further reinforces our claims that network contexts are more salient to perceptions of identity imbalance than are category traits.

Table 6. Test Results for Research Hypotheses (With Significant Coefficients From Multilevel Logit Models)

	Internal Inconsistency (not in ideal crowd)	External Inconsistency (not as others see you)	Identity Change (crowd change)
Self-Inconsistency			
Internal inconsistency (not in ideal crowd)	—	—	H1: .24
External inconsistency (not as others see you)	—	—	H2: .36
Category Traits			
Size (law of numbers)	Hc1a: failed	Hc1b: -.21	Hc1c: failed
Status (evaluation effect)	Hc2a: failed	Hc2b: -.11	Hc2c: failed
Racial (visibility effect)	Hc3a: failed	Hc3b: failed	Hc3c: -.27
Network Conditions			
Cohesiveness (conformity effect)	Hn1a: failed	Hn1b: failed	Hn1c: failed
Homogeneity (conformity effect)	Hn2a: -.16	Hn2b: -.21	Hn2c: -.22
Bridging (cross-pressure effect)	Hn3a: failed	Hn3b: .13	Hn3c: failed
Prominence (resource attraction)	Hn4a: -.08	Hn4b: failed	Hn4c: failed

Note: Ten of the 23 hypotheses are reinforced by statistically significant results ( $p < .05$ ).

Table 7. Multilevel Regression of Friendship Change (Percentage Change in Ties From  $t_1$  to  $t_2$ )

Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	—***	***	—***	—***	—***	—***	—***	—***
Background Effects								
Female	-0.02	-0.02	-0.01	-0.06	-0.02*	-0.04	-0.04	-0.03
Percent same race in school	-0.03	-0.02	-0.02	0.02	-0.02	0.02	0.02	0.01
Age	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Both parents in family	-0.08**	-0.08***	-0.08**	-0.06**	-0.08*	-0.07**	-0.07**	-0.06**
Parents' education	-0.06*	-0.06*	-0.06*	-0.07**	-0.06**	-0.06*	-0.06*	-0.06*
Membership Effects								
Track level	-0.04†	-0.04	-0.04	-0.03	-0.04	-0.03†	-0.03	-0.03
Extracurricular involvement	-0.05*	-0.05†	-0.05*	-0.03	-0.04	-0.03†	-0.03	-0.03
Category Effects (Level 2)								
In popular crowd		-0.02	-0.02				-0.02	-0.01
Not in crowd (loner)		-0.04†	-0.01				0	0
Average crowd (normals)		-0.04*	-0.01				-0.01	0
Race crowd		0.01	0.01				-0.01	0
Crowd size/100			-0.04				-0.04	-0.04
Network effects								
Prominence (in degree)				-0.14***	-0.14***		-0.15***	-0.15***
Bridging (betweenness)				0.04*	0.04		0.07†	0.07*
Cohesion (% mutual ties)				-0.14**	-0.14***		-0.1*	-0.09†
Location (% outside school)				0.11***	0.11***		0.11***	0.11***
Homogeneity (% of friends in same crowd)					-0.08*		-0.01	0.01
Identity Inconsistency Effects								
Internal: ideal ≠ actual						0.03	0.03	0.02
External: actual ≠ public						0.01	0	0
Crowd Change								0.06**
Change in ego-attributed crowd								
Test of Model Improvement (with Model 1)	548	571	569	497	498	568	536	526
-2 res log likelihood	—	-23	-21	51***	50***	-20	12	41***
Change in -2 res log (chi-square)	—	4	5	4	5	2	12	13
Change in df								

Source: six schools from data on nine schools ( $N = 1,870$ ,  $N$  level 2 = 86)

Note: Standardized coefficients are presented:  $b = B (s_i/s_j)$ ; unstandardized coefficients are available upon request.

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (two-sided tests)

their friendships so as to capitalize on their social benefits and to conform to the normative pressures defined by the wider group. In contrast, bridges will have less consistent ties over time because they are on the fringe of multiple groups and experience fewer consistent social pressures. Bridges therefore are able to alter their ties, perhaps in an instrumental fashion (Burt 1980). Even the location of friends matters for network change: persons with more nonschool friends will lack consistent settings (at least less consistent than the school) in which to see members of their group. Thus students with nonschool ties are more likely to change their friendships than are students with more school ties.

The introduction of a final covariate reveals mild evidence for the coevolution of networks and social identities. In Model 8 we include the variable for identity change. The coefficient suggests that students who change their crowd affiliation also experience a 6 percent change of friends over time. Nevertheless, the overwhelming evidence suggests that network conditions play a key role in the process of identification over time and that the reverse case—that social identity characteristics and imbalances play a key role in network change over time—does not hold. Instead we find network conditions to be key determinants of both social identity and network processes.

### CONCLUSION

In this paper we advance social psychological research by describing how social contexts directly and indirectly affect identity transformation. One of our contributions is the operationalizing of category and network contexts whose relation to identity change previously was discussed vaguely but left untested. We analyze how contexts, whether category or network, influence consistency motives and, in turn, how both context and motive influence identity development over time.

Categories predate their occupants and attribute meanings to members. Therefore actors react to meanings inherent in categories and maneuver across category labels as if they are contexts in their own right. In

particular, categories possess features that *constrain their selection and salience* (i.e., the law of numbers, or size, and inescapable visible traits such as race); that *differentiate them vertically*, thereby attracting or repelling members (i.e., status attraction and stigma revulsion); and that *differentiate them horizontally* so as to reflect a variety of specialized types, some of which even call for mixed identity motives (i.e., “Loners,” who by definition are internally consistent but externally inconsistent). Categories thus are cultural constructs that signal meanings somewhat independently of the relations and interactions in which they are embedded. They define situations for their members, and offer hypothetical situations to persons who consider joining them. Actors not only adapt to their category affiliation (external consistency drive) but also self-select into affiliations, or seek membership in more appealing, more suitable categories (internal consistency drive).

Similarly, contexts involving social networks define various interpersonal arrangements that can influence perceptions of self-verification and self-efficacy. Our findings suggest that others defer to actors in prominent network positions and follow their lead, thereby making interaction a personally rewarding and confirming experience for prominent individuals. Actors with densely connected, homogeneous friends find that their identity is recognized externally and affirmed by supportive peers. Yet, if an individual belongs to a dense clique and has a different identity from everyone else, that person experiences a strong sense of external inconsistency and pressure to conform.

In contrast to actors in the affirming positions of prominence and conforming relations of cohesion, some actors span groups and have only sparse interpersonal relations. Actors in bridging positions are likely to be free of conformity pressures or to experience cross-pressures, and therefore report a greater sense of external inconsistency. Actors with sparse ties and no prominence are perhaps pressured least by interpersonal relations, but they lack both an external sense of verification and an internal sense of efficacy. Thus relational configurations define different interpersonal contexts,

some of which are more internally or externally confirming. Such consistency greatly influences identity development over time.

Both category features and network configurations influence actors' perceptions of identity consistency, regardless of whether that perception follows an internal or an external standard. Early social psychological research suggested that actors are uncomfortable when they perceive their identity to be inconsistent with their ideal or with how others see them (Festinger 1957; Heider 1958; Higgins 1989; Stryker 1980). This discomfort then motivates them to change their identity over time.

Our work reveals that categories and networks are central to this process. Category memberships create cognitive strain when they signal low status, indicate involuntary membership, and fit identity-imbalanced individuals: that is, persons with identities in which imbalance is the norm, such as Loners and Normals. This strain is an indirect route to identity change. Some categories also can exert direct effects on identity development. For example, membership in racial crowds tends to be more stable and permanent because members may find it hard to deny or escape visible features.

Network configurations also create situations in which social strain is experienced. Those strains then are reflected back to the actor and to his or her perceptions of identity imbalance (see Figure 1). The external world of immediate social relations is thereby an integral part of the identification process (Bidwell 2000; Thomas 1923). In fact, our models suggest that network mechanisms cause the greatest improvement in our models of identity inconsistency and identity change, more so than category or background features. In particular, peer group homogeneity reinforces the actor's identity both personally and socially. At the very least, this study furthers structural arguments of identity development, and relates the formal properties of interpersonal relations more fully to individual mental life (Levine 1971).

Surprisingly, the same process does not hold for relational change. Neither identity imbalance nor category traits influence network dynamics. This finding, coupled with the greater salience of network effects on identi-

ty development, suggests that a relational "lead" exists in adolescent identity formation, and that cognitive mechanisms and identifications lag in relation to changes in the adolescent social structure. For these reasons, identity theory (IT), or at least some form of network identity theory (NIT), undergirds current social psychological conceptions of identity change and warrants further empirical research.

To test our hypotheses that categories and networks influence identity imbalance and identity change, we faced a challenge regarding data. We required information on both actors' social networks and their social identifications over time. Such information was very hard to obtain. The data that suited our purposes rendered social identities as crowd memberships, and we used actors' perceptions of those categorical designations to test our hypotheses. We limited our analysis to two forms of imbalance, which we termed internal and external. These closely resembled prior measures of internal self-categorization and external self-verification. However, we also tested other measures, such as the respondents' reported identity coupled with that which they believed others viewed their friends occupying. The mismatch between these two reports reflected a perception of imbalance between individual and group, and represents an even more external and more public standard of identity verification. Our analyses of this variable only reinforce the primacy of network effects and suggest that they become more relevant as imbalance becomes more socially based.

Because we construct our measures of identity inconsistency as perceived by ego, we privilege ego perceptions as a causal mechanism of identity change. Yet it need not be considered the primary mechanism in future research. It is possible that comparisons of actors identities with those which others see them as occupying would provide a more objective sense of identity consistency. The issue is whether the causal lever is the ego's perception of inconsistency or others' attributions of inconsistency (akin to what the crowd literature suggests; see Brown 1990). Such a comparison is beyond the reach of our current data but is important for future research.

The data set we use concerns adolescents rather than a broad age range of individuals. Therefore some of the results may be more relevant to the adolescent world and to the developmental stage that predisposes persons to identity transformation. We suspect that adults are more able than adolescents to maintain inconsistent identities, are governed more strongly by internal motives, and have a more stable sense of self (Gordon 1968; Harter 1990). We believe this for several reasons. First, adolescents have more temporary, volatile affiliations in clubs and courses than do adults in jobs. Second, most adolescent memberships exist in a single school setting; making inconsistent affiliation demands hard to maintain. In contrast, adults in today's society are able to enter and exit relatively discrete spheres of social life, and therefore can maintain bridging relations and multiple contradictory memberships (Simmel [1908] 1955). Third, adolescents are at a different developmental stage when identity crises arise (Erikson 1968), and they have a shorter history of self than adults. Accordingly, adolescents have fewer experiences to which to anchor their sense of self, and this situation leads to more frequent identity change.

Most of the likely differences between adolescents and adults will reflect the contextual factors these actors encounter, and is

unlikely to contradict the central process of identity change that we describe here. All the mechanisms should work in the same way, but they will vary in salience. Further research is needed to confirm these differences with an adult sample and to establish whether the mechanisms in fact work in the same fashion (with the same slopes but different intercepts) across populations.

Future work also must establish whether the adolescent identity crisis is explained to a great extent by certain network patterns that emerge during adolescence. Whether patterns of adolescent relations emerge as a reaction to school organization, to youths' maturation, or to the intersection of these phenomena, remains empirically unresolved. Future work should focus on the adolescent society, its structure, its pattern of crowd and category designations, and factors contributing to changes in different types of social identities (Coleman 1961). Such research would reveal larger patterns of relational/identity imbalance and change that arise at the community level of the school, and thereby would offer practical suggestions for school design. It also would bring the benefit of further elaborating the variety of category and network contexts and their connection to social psychological mechanisms of identity formation in general.

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## APPENDIX

Appendix Table A1. Variable Means and Standard Deviations

	Mean	SD <sup>a</sup>	Min	Max
Change in Actual Identity				
Change in actual crowd	.47	.50	.00	1.00
Friendship Change				
Friendship instability	.64	.28	.00	1.00
Perceived Identity Inconsistency				
Internal: ideal ≠ actual	.41	.49	.00	1.00
External: actual ≠ public	.30	.46	.00	1.00
Background Effects				
Female	.51	.50	.00	1.00
% ego's race in school	.38	.18	.06	.58
Race <sup>a</sup>				
Black	.09	.28	.00	1.00
Asian	.23	.42	.00	1.00
Latino	.16	.36	.00	1.00
School <sup>b</sup>				
Milpitas	.22	.41	.00	1.00
Willow Glen	.14	.35	.00	1.00
Los Altos	.16	.37	.00	1.00
Menlo-Atherton	.15	.36	.00	1.00
Capuchino	.12	.33	.00	1.00
Aragon	.20	.40	.00	1.00
Age	15.58	1.26	13.00	18.00
Both parents in family	.53	.50	.00	1.00
Parents' education	5.19	1.77	1.00	8.00
Membership Effects				
Track level	3.27	.89	1.00	4.00
Extracurricular involvement	1.56	1.66	.00	10.00
Category Effects (Level 2)				
In popular crowd	.14	.35	.00	1.00
Not in crowd (Loner)	.06	.23	.00	1.00
Average crowd (Normal)	.06	.23	.00	1.00
Racial crowd	.32	.47	.00	1.00
Crowd size/100	.54	1.00	.01	5.76
Network Effects				
Prominence (in-degree)	2.62	2.01	.00	16.00
Bridging (betweenness)	.67	1.23	.00	13.52
Cohesion (% mutual ties)	.23	.24	.00	1.00
Location (% outside school)	.05	.14	.00	1.00
Homogeneity (% in same crowd)	.23	.27	.00	1.00

Source: Six schools from data on nine schools.

Note: *N* level 1 = 5,652, *N* level 2 = 106.

<sup>a</sup> Standard deviations are not reported for dichotomous (0-1) variables.

<sup>b</sup> Racial dummy variables are not included in our models, but are reported here for descriptive purposes. Whites are a residual group that makes up about 53% of the sample.

<sup>c</sup> School dummy variables are included in models as fixed effects but are excluded from tables for parsimony.

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