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Identity Cues: Evidence from and for Intra-Individual Perspectives on Stereotyping

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Running head: IDENTITY CUES

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Abstract

Stereotypes bias person perception, hampering advancement in organizations for targets—often women and members of ethnic minority groups. Traditional stereotyping research adopts an inter-group perspective: comparisons are made between the ways in which targets belonging to different social groups are stereotyped. We adopt an intra-individual perspective on stereotyping and examine how a single target, belonging to multiple social groups, is stereotyped differently based on identity cues common in organizations. Participants interacted with a partner, a research confederate, in a series of e-mail exchanges. The partner used one of three e-mail addresses that subtly cued either the partner's gender identity, the partner's ethnic identity, or neither identity. This subtle identity cue led participants to stereotype their partner in very different ways, biasing recall in directions consistent with the positive and negative stereotypes associated with the different identities cued. Applications of the findings to the problems which stereotypes create for individuals and organizations are discussed.

Identity Cues: Evidence from and for Intra-individual Perspectives on Stereotyping

Stereotypes greatly influence person perception, often biasing impression formation. Stereotypes are problematic for their targets because they influence key social phenomena such as decision making and interpersonal interactions. These biases, in turn, hamper the advancement of women and members of ethnic groups, both in organizations and in society (e.g. Kanter, 1977; Word, Zanna, & Cooper, 1974). For instance, token women often find themselves assigned to stereotypical roles and duties which limit their opportunities to demonstrate the full range of their talents and abilities (Kanter, 1977).

Stereotypes—schemas we carry in our heads about the traits and abilities of members of different groups—influence the perceptions we form of others, the inferences and decisions we make about them, and the interactions we have with them. The persistent social problems of discrimination and inequity across gender and ethnic groups result, in part, from stereotyping. For this reason, behavioral scientists conducting research with applications to current problems of society have been keenly interested in stereotypes. Two domains in which stereotypes are commonly studied, and to which findings from stereotyping research are commonly applied, are life in business and educational organizations.

In business organizations, researchers have documented the influence of stereotypes on perceptions of younger versus older workers (Brewer, Dull, & Lui, 1981), individuals with different sexual orientations (Jussim, Nelson, Manis, & Soffin, 1995), and individuals from different countries and regions (Stangor, Jonas, Stroebe, & Hewstone, 1996). Stereotypes about members of different occupational groups have also

been observed (Plaks & Higgins, 2000). Researchers have even found that, within organizations, stereotypes evolve for members of different business units and business functions (Northcraft, Polzer, Neale, & Kramer, 1995) and influence person perception and social interaction within the organization (Levy, 2001). Impressions based on stereotypes have important consequences in business organizations. For instance, stereotypes have an influence on the selection and placement of ethnic minorities and women and on the human resource management practices relating to them (Falkenberg, 1990). Stereotypes influence negotiation processes and outcomes within and between organizations (Bottom & Paese, 1997; Kray, Thompson, & Galinsky, 2001; Kray, Galinsky, & Thompson, 2002).

Stereotypes also influence dynamics within educational organizations. As early as Clark's (1961) study of urban classrooms, psychologists have researched the impact of ethnic and gender stereotypes in educational organizations. They found that stereotypes influence teachers' perceptions of students' personalities, behavior, motivation to learn, and classroom performance. Stereotypes also influence the academic expectations teachers have for some students as well as their assessments of student behavior (Chang & Sue, 2003). These expectations, in turn, have been found to influence academic performance outcomes consistent with the direction of the expectations (e.g. Rosenthal & Jacobson, 1968).

Stereotypes not only influence how members of gender and ethnic minority groups are perceived, but also influence the behavior of members of the target groups. Stereotypes are tightly tied to the identities of individuals who belong to stereotyped groups (see Shih, Pittinsky, & Ambady, 1999; Shih, Pittinsky, & Trahan, in press).

Stereotypes influence the behavior of the targets of the stereotypes in at least three ways: self-fulfilling prophecies (Merton, 1948; Darley & Fazio, 1980), stereotype threat processes (Steele, 1997), and stereotype susceptibility processes (Shih et al., 1999).

In the case of self-fulfilling prophecies (Merton, 1948; Darley & Fazio, 1980), the targets' stereotype-consistent behavior elicits reinforcing reactions from others. Individuals form stereotypical expectations of other people. They communicate those expectations with various social cues. People respond to these cues by adjusting their behavior to match the stereotypical expectations. As a result, an originally stereotypical expectation can become true (e.g. Rosenthal & Jacobson, 1968).

In the case of stereotype threat processes (Steele, 1997), the targets of negative stereotypes unconsciously conform to the predictions of those stereotypes. Stereotype threat is "the threat of being viewed through the lens of a negative stereotype, or the fear of doing something that would inadvertently confirm that stereotype" (Steele, 1999, p. 46). Members of stereotyped groups are wary of situations in which their behavior can confirm a negative stereotype about their group regarding a valued ability. This pressure interferes with performance. As with self-fulfilling prophecies, the behavior of the target of the stereotype is influenced.

In the case of stereotype susceptibility processes (Shih et al., 1999), targets have been found to perform in stereotype-consistent ways, but the direction of the influence is bidirectional: performance enhancements may result from the salience of positive stereotypes and performance decrements may result from the salience of negative stereotypes.

Because stereotypes have the power to affect both target behavior and perceiver perceptions, the effects of stereotypes on person perception and impression formation have been of special interest to social psychology researchers interested in research with applications to current problems of society.

Inter-group and Intra-individual Approaches to Stereotyping

The research findings reviewed above reflect a particular approach to stereotyping research, one which has dominated the social psychology and organizational psychology literatures to date: the *inter-group perspective*. In research conducted in this tradition, the stereotypes applied to members of one social category are compared to the stereotypes applied to members of a second social category; the comparisons are made across different targets. But a second, equally important approach, which we term the *intra-individual perspective,* is emerging. The intra-individual perspective extends existing theory and research by examining how stereotyping along different dimensions of identity unfolds for a single target, rather than how stereotyping unfolds across different targets. The comparisons in this perspective are made for a single target under conditions when different social identities of this target are made salient. For person perception, this perspective helps illuminate how the different social categories to which any one individual belongs are processed to create an impression of the person.

The inter-group perspective primarily asks: "What different stereotypes do we apply to the members of different social groups?" The intra-individual perspective primarily asks: "What stereotypes do we apply to any one individual, who belongs to many different social groups, at any given time?" The former perspective focuses on just one of an individual's social identities and its associated stereotypes at a time. Only in

the latter perspective do researchers consider how multiple identities, and their associated stereotypes, co-reside within an individual and affect that person across a variety of contexts.

Stereotyping research from an inter-group perspective might explore how we stereotype Asians relative to Caucasians (e.g. Ryan, Judd, & Park, 1996) or how we stereotype women relative to men (e.g. Banaji & Hardin, 1996). Research from the intra-individual perspective, in contrast, would explore how we stereotype an Asian-American woman. Under what conditions is her ethnicity salient? Under what conditions is her gender salient? To what extent will the salience of one social identity rather than another influence perception?

Stereotyping research in the inter-group perspective might explore the conditions under which we are likely to stereotype a target person. For example, researchers have examined the role of cognitive busyness in the activation and application of a stereotype (Gilbert & Hixon, 1991). In contrast, research from the intra-individual perspective would explore the conditions under which different stereotypes will be applied to a target person.

Clearly, research from both perspectives is critical to our understanding of stereotypes and the problems they trigger for women and members of minority ethnic groups. To date, however, the majority of empirical stereotyping research has been conducted from the inter-group perspective, with the notable exceptions discussed below.

Distinct research paradigms follow from each perspective. One key difference is whether or not new information is introduced across experimental conditions. In the inter-group perspective, new information is presented across experimental conditions. For

example, when comparing how high socio-economic status (high SES) targets are stereotyped relative to low socio-economic status (low SES) targets (e.g. Darley & Gross, 1983), participants in one condition learn that the target is low SES while participants in the second experimental condition learn something different, that the target is high SES. In the intra-individual perspective, such as the study reported here, no new or different information about the target is presented across experimental conditions. The same information about the target is presented across conditions and the perceiver is simply reminded of facts about the target which she or he already knows.

Multiple Identities and Stereotyping: The Need for the Intra-individual Approach

Many intriguing but unanswered questions about stereotypes and person perception relate to the fact that individuals simultaneously belong to many different social categories. Are certain identities always salient and always a trigger for stereotyping? How malleable is person perception in response to cues that remind a perceiver of the different identities of a target? Will stereotyping dynamics significantly change based on the salience of one or another of a target's different social identities? These questions call for intra-individual approaches.

Social psychologists interested in social cognition processes have begun to address the cognitive dynamics that underpin these questions, such as how perceptual categorization of a target unfolds when there are multiple possible bases for categorizing the target (see, for example, Macrae, Bodenhausen, & Milne, 1995; Pendry & Macrae, 1996; Smith & Zarate, 1992; Stangor, Lynch, Duan, & Glas, 1992; Zarate & Smith, 1990).

The question that has received the most attention has been which of several competing categorizations will come to dominate a perceiver's evaluation of another (see, for example, Bargh, Bond, Lombardi, & Tota, 1986; Brewer, 1988; Devine, 1989; Hamilton & Sherman, 1996). Researchers have considered several factors that might influence categorization, including information-processing goals (Pendry & Macrae, 1996), momentary accessibility of a feature (Higgins, King, & Mavin, 1982), the chronic relative salience or uniqueness of a feature in a context (Fiske, 1980; McGuire, McGuire, Child, & Fujioka, 1978), and the affective or motivational importance of a feature to a perceiver (Erber & Fiske, 1984; Hansen & Hansen, 1988). Higgins, King, and Mavin (1982) found individual differences in construct accessibility in subjective impressions and recall of others. Quinn, Hugenberg, and Bodenhausen (2004) found, consistent with the literature, that focusing on a subset of trait information about a target leads to the inhibition of other trait information about the target. Sinclair and Kunda (1999) found that it is important to consider the perceiver's motivation in order to understand which of several competing categorizations and stereotypes will dominate his or her evaluation of another. For example, people observing an African-American physician will apply racial and professional stereotypes to the target differentially, depending on whether or not they are motivated to view the physician positively (Sinclair & Kunda, 1999).

One possibility is that one identity will always dominate categorization and perception regardless of social context. The strong form of this possibility—that one identity will determine perception—can be ruled out, however, on several grounds, using ethnic and racial identities as an example. First, while some research has argued for the preeminence of race as an organizing principle (e.g. Hewstone, 1991), other research has

argued for the preeminence of gender, raising the necessary question of how gender and ethnicity interact as two potentially salient social identity categories, often with distinct associated stereotypes. Second, much of the research on ethnicity has been on one ethnic pairing—African Americans and Caucasians (e.g. Brief, Dietz, Cohen, Pugh, & Vaslow, 2000), at a single historical moment—the late twentieth century, and often in a single cultural setting—the United States. For this reason, the preeminence of ethnicity in stereotyping cannot be presumed. The third and perhaps most compelling reason is that many different dimensions of social identity, from age to job function to sexual orientation, have been observed to affect person perception. Thus, any one stereotype, while chronic and pervasive, cannot be deterministic. Person perception is far more variable, shifting in response to the salience of different identities rather than simply being determined by the presence or absence of a particular ethnic or gender identity. Recognizing the underaddressed questions mentioned above, researchers are increasingly working to further our understanding of how people are categorized when multiple categorizations are available (Macrae, Bodenhausen, & Milne, 1995).

Context can play a significant role in determining which of one's many social identities will come to the forefront in a given situation. In particular, environmental cues can make social categories and stereotypes salient (Billings, 1999). Yet little experimental attention has been given to the role of identity cues—features of the natural environment that may explicitly or implicitly draw a perceiver's attention to one of a target's many social categories and, in doing so, impact the particular stereotypes a perceiver applies to a target (Pittinsky et al., 2000b).

Salience is a term researchers apply to external objects that capture a perceiver's attention (McArthur, 1981; Taylor & Fiske, 1978). Social categories create constraints, but salience increases the activation associated with any one particular input stereotype (Kunda & Thagard, 1996). Subtle cues in different organizational and social contexts can play a crucial role in determining which of many identities will become salient. For instance, clothing may cue gender, ethnicity, socioeconomic class, and/or religion, making one or another of these identities particularly salient. Organizational norms about how individuals are addressed can call attention to a person's occupational identity. In a hospital, for example, the use of the title "Dr." for addressing physicians cues occupational identity. In contrast, if medical care teams were to use first names, this would make occupational identity less salient.

Given that individuals carry multiple social identities and that cues in their environment can call attention to different identities, there is a clear need for research that explores the relationships between an individual's multiple identities and investigates which identities are salient in which contexts. Work and educational organizations provide especially compelling contexts for this research. These environments offer a wealth of category cues, such as organizational dress, occupational titles, and office locations. Moreover, because of the centrality of work and education in people's lives, the behavioral and perceptual effects of identity salience and associated stereotypes in these contexts have particularly strong impacts. Research has begun to examine the effect that category cues can have on person perception in organizations. The focus has been on cues that individuals in organizations can actively manage, such as dress. Researchers have observed that people manipulate identity cues in practice, suggesting that they have

implicit theories about the power of cues. Organizational members may choose clothing to cue their membership in particular groups (Rafaeli & Pratt, 1993) or to promote an impression of competence (Rafaeli, Dutton, Harquail, & Mackie-Lewis, 1997). At times, nurses use their dress to express complex information about their social identities (Pratt & Rafaeli, 1997).

In this research, we sought to explicitly test the power of identity cues to impact person perception.

The Present Study

The present study adopts an intra-individual perspective on stereotyping and examines whether perception unfolds differently based on identity cues that do not alter the social category to which a target is believed to belong—the more traditional approach—but instead simply remind a perceiver of information she or he already knows. We predict that cues as subtle as an e-mail username can lead perceivers to stereotype the same target in different ways and to exhibit significantly different recall for a single target. If this prediction is confirmed, the importance of intra-individual perspectives on stereotyping will be illustrated and compelling cases will be made for research on (a) the ability of different cues to influence perception of a single target and (b) intra-individual perspectives on stereotyping more generally.

Two additional areas of interest informed the design of the current study: computer-mediated interaction and positive stereotypes.

Computer-mediated interaction is an emerging realm of human interaction that is occurring with increasing frequency. With so much business interaction carried out via e-mail, it is of great importance for researchers to understand the impact of stereotypes over

the Internet and the extent to which stereotypes may influence perception and impression formation in computer-mediated interactions. As more and more human interaction occurs in computer-mediated environments, the general problem minorities face—stereotype-derived bias which hinders their advancement in organizations and society—may also occur in computer-mediated interaction. Organizational psychologists must conduct research in these environments to begin to understand whether and how stereotypes influence computer-mediated interaction and communication, as they have been found to influence face-to-face interactions and written communication (e.g. Bertrand & Mullainathan, 2004). Status differences, for example, have been found to influence social relations in computer-mediated environments as well as in face-to-face interactions (Weisband, Schneider, & Connolly, 1995). Bushman and Bonacci (2004) found that when an e-mail purportedly intended for an Arab recipient was misdirected to a prejudiced person, the person was unlikely to redirect the e-mail unless it contained bad news. These early findings suggest that stereotyping dynamics may be at play in computer-mediated communication. For this reason, we designed the study to examine the presence of stereotyping in Internet interactions. In particular, we designed it to examine the possibility that e-mail addresses—which often contain clues to gender, ethnicity, and status—may cue specific social identities and significantly alter perception and impression formation in computer-mediated interactions.

The impact of e-mail addresses on perception and impression formation has not yet been studied in the literature. E-mail addresses may cue a target's ethnic identity, as when the e-mail address contains an ethnic-sounding name. They may also signal a target's gender identity, as when the address contains a clear gender-signaling name.

When an organization assigns an e-mail address to a member, frequently without that member having any choice in the matter, the address is often based on the member's given name. Given names have been found to cue stereotypes in perceivers (Bertrand & Mullainathan, 2004).

Unlike dress, a category cue reviewed earlier, e-mail addresses often signal a person's identity or gender group membership in the absence of other supporting information. Organizational members may engage in e-mail interaction with people they never meet. Thus, the e-mail username may be the only available category cue. In face-to-face interactions, people who belong to stigmatized groups can downplay cues that might make salient their membership in the stigmatized group, while they emphasize category cues that signal their membership in other, more valued groups (Taylor & McKirnan, 1984). In e-mail interactions, members of stigmatized groups may not have this option in the same way.

In addition to computer-mediated interaction, the second area of interest informing our study of intra-individual stereotyping is the effect of positive as well as negative stereotypes on perception. To date, researchers have concerned themselves principally—almost exclusively—with the investigation of negative generalizations about other social groups. Will positive and negative stereotypes, when salient, influence perception in opposite directions? The study of positive stereotypes is important for practical and theoretical reasons. As Seligman and Csikszentmihalyi (2000) and others have noted, psychological research stands to gain much from shifts of research focus towards the study of positive traits and processes, in the hopes of understanding and fostering well being and excellence. Researchers have devoted little time to the

investigation of how stereotypes may facilitate performance. Recent research suggests that positive stereotypes such as “Asians have superior quantitative skills” can influence both stereotyping of others (Pittinsky et al., 2000b) and self-stereotyping (Shih et al., 1999). Thus, it is important to study positive stereotypes because they may, in certain situations, improve the performance of the stereotyped group. It is practically and theoretically relevant and interesting to study positive stereotypes for other reasons, too. Individuals may be highly motivated to challenge a negative stereotype when it is applied to them. They may have less incentive to challenge a positive stereotype. So positive stereotypes may go unchallenged more frequently than negative stereotypes. As a result, more mistakes in person perception may result from positive than from negative stereotypes. Finally, positive stereotypes are important to study because some research findings suggest that under certain situations, they may actually have deleterious effects on the their targets (Cheryan & Bodenhausen, 2000). Cheryan and Bodenhausen’s findings, provocative though not yet replicated or extended, support the study of positive stereotypes.

To examine the impact of medium of interaction and of positive stereotyping on intra-individual stereotyping, we built on the work of Pittinsky et al. (2000b), which examined whether subtle cues of one or another social category of a target will lead reviewers to markedly different recall when reading about a target. In that study, participants reviewed the college application of a female Asian American high school senior, which included her score on the quantitative Scholastic Aptitude Test (SAT). Of the applicant’s two social categories, gender and ethnicity, one was subtly cued for reviewers. Common cultural stereotypes hold that Asians have superior quantitative skills

compared to other ethnic groups and that women have inferior quantitative skills compared to men (Oyserman & Sakamoto, 1997; Shih et al., 1999). In a recall task, cues of the target's gender category resulted in participants recalling significantly lower math performance for the applicant, while cues of her ethnic category resulted in participants recalling significantly higher math performance, compared to a control condition for which neither category was cued (Pittinsky et al. 2000b). In the present study, we replicate the examination of whether subtle cues of one or another social category of a target will lead reviewers to markedly different recall, to provide additional empirical evidence of the impact of both identity cues and positive stereotypes on person perception. We extend the work by looking at the case of identity cues in computer-mediated interaction, to examine whether identity cues, in the form of e-mail addresses, impact person perception and impression formation in computer-mediated interactions and whether positive as well as negative stereotyping occurs in these interactions.

In this study, participants interact by e-mail with a research confederate they believe is a fellow student. In all conditions, participants are told that their partner (the confederate) is an Asian female. The confederate, however, uses one of three different e-mail addresses, in a between-subjects design. These e-mail addresses cue for participants either the confederate target's gender identity (female), her ethnic identity (Asian American), or neither. Thus, no new information about the target is provided in the different conditions; the manipulation is simply one which increases the salience of different social identity category memberships of which the perceiver is already aware. During the e-mail exchanges, the participant and confederate exchange information and details, including where they grew up, their current fields of study, their participation in

extracurricular activities on campus, and their academic credentials. This allows a great deal of individuating information to be exchanged. The confederate's scripted responses—the same for all participants—include her performance on the quantitative reasoning SAT and verbal reasoning SAT.

As noted earlier, a common stereotype about Asian Americans is that they have superior quantitative skills compared to other ethnic groups and that women have inferior quantitative skills compared to men (Oyserman & Sakamoto, 1997; Shih et al., 1999). Previous research has demonstrated that the salience of the Asian American identity makes positive stereotypes about quantitative skills salient to the self and others, while the salience of the female gender identity makes negative stereotypes about quantitative performance salient to the self and others (Shih et al., 1999; Ambady et al., 2001; Pittinsky et al., 2000a; Pittinsky et al., 2000b). Thus, consistent with finding in the literature (Pittinsky et al., 2000b) perceivers for whom a target's Asian American identity is cued may be expected to recall higher quantitative reasoning SAT performance for the target than participants who had no identity made salient or participants for whom the target's gender identity was made salient.

An inverse pattern has been observed with respect to verbal reasoning performance. Previous research has demonstrated that the salience of the Asian American identity makes negative stereotypes about Asian Americans' verbal skills salient to the self and others, while the salience of the female gender identity makes positive stereotypes about verbal performance salient to the self and others (Ambady et al., 2001; Pittinsky et al., 2000b; Shih et al., in press). Thus, participants for whom the target's female gender identity was cued may be expected to recall higher verbal reasoning SAT

performance for the target than participants who had no identity made salient or who had the target's Asian American ethnic identity made salient.

Thus, participant recall for the partner's quantitative reasoning and verbal reasoning SAT scores are the dependent variables.

In sum, the hypotheses of this study are:

H1: Participants will recall higher verbal reasoning SAT scores for targets using a gender identity cue than for targets using an ethnic identity cue.

H2: Participants will recall higher quantitative reasoning SAT scores for targets using an ethnic identity cue than for targets using a gender identity cue.

Method

Participants

86 undergraduate students at Harvard University were recruited, receiving either monetary compensation or course credit to participate in the experiment. 59.8% of the participants were female and 40.2% of the participants were male. Participants had a mix of ethnic backgrounds. The experiment lasted 45 minutes.

Conditions

Participants were run in one of three experimental conditions. All participants conversed via e-mail with the same confederate, who introduced herself as "Amy Chen" in all conditions. In the Asian-identity salient condition ($n = 30$), the experimenter confederate conversed with the participant using the e-mail address chen@wjh.harvard.edu. In the female-identity salient condition ($n = 30$), the experimenter confederate conversed with the participant using the e-mail address

amy@wjh.harvard.edu. In the third condition, a no-identity salient (control) condition (n = 26), the confederate conversed with the participant using the e-mail address ac@wjh.harvard.edu (1) (2).

Procedure

Participants arrived and were greeted by an experimenter who explained the procedure to them. They were told that they would be getting to know a fellow student at the university over the Internet, then escorted to a computer terminal where they logged into their university-provided e-mail accounts. Participants were told that their partner was a fellow student located across campus, given a list of questions to ask their partner, and told that their partner also had a list of questions to ask. In this way, the content of the responses provided by the confederate partner was held constant while allowing for two-way interactions and avoiding an over-scripting of the interaction.

The experimenter instructed the participant to begin conversing once she or he received an initial e-mail from the partner. The experimenter then left the room and went to a second room. In the role of the participant's e-mail partner, the experimenter then sent an initial e-mail to the participant and began the interaction. In response to the set of questions asked by the participant, the experimenter, in the role of the participant's partner, responded with the scripted responses in time intervals that were held constant across conditions.

In the initial e-mail message, the confederate partner introduced herself to the participant: "Hi! My name is Amy Chen. I am your partner for the experiment." The experimenter also asked a question of the participant: "What's your name?" The participant answered the question and then asked the experimenter the first question from

the list: “What state did you grow up in?” The experimenter confederate answered the question, and posed the next one. The e-mail exchanges continued until the participant had reached the end of the list of questions.

During the exchange, the confederate revealed a number of personal details. These included her SAT scores (730 quantitative reasoning and 720 verbal reasoning), mentioned in response to a question about her preparation for college. The participant was provided the opportunity to share similar information.

After the interaction, participants were asked to complete a questionnaire about their partners. The dependent variables of interest were participants’ recall for their partners’ quantitative reasoning and verbal reasoning SAT scores. Three control questions were asked to assess participants’ knowledge of their partner’s gender and ethnic identity and of the research hypothesis (an open-ended question about the goals of the research).

Upon completing the questionnaire, participants were thanked and debriefed.

Results

Eighty-six participants were recruited and run. Three cases were dropped from the analysis because the questionnaire was left more than half incomplete; a fourth was dropped because the pattern of responses suggested that the participant had not paid attention to the experimental task (all responses were the same number). This left data from 82 participants for analysis. Thirty of the 82 participants were in the Asian-identity salient condition, 27 were in the female-identity salient condition, and 25 were in the control no-identity salient condition.

Control Variables

Knowledge of Partner's Social Identity Categories

In the post-interaction questionnaire, all 82 participants correctly identified the gender (female) and ethnicity (Asian American) of their interaction partner. This control variable confirms that all participants knew both the gender and ethnicity of the target and that the manipulation of e-mail name was one of relative salience of an identity (an intra-individual perspective on stereotyping) rather than knowledge of the target's gender or ethnicity (an inter-group perspective on stereotyping).

Knowledge of Research Hypotheses

Qualitative analysis of participants' beliefs about the goals of the research revealed that all participants believed they were interacting with a second student and not a research confederate. Participant responses and debriefings further revealed that all participants believed the exercise was one of getting to know a fellow student over the Internet. Participants did not deduce that the e-mail username was a manipulation intended to cue an identity and possible stereotyping.

Identity Cues and Recall for Partner

Examination of the quantitative reasoning SAT score data and verbal reasoning SAT score data recalled by participants for their interaction partner supported the study hypotheses. To examine possible effects of participant sex, t-tests were conducted, comparing the mean SAT scores reported by male and female participants for the confederate interaction partner, known to participants as Amy Chen. Participant sex had no effect on quantitative reasoning SAT score recalled: $t < 1$. Similarly, participant sex

had no effect on verbal reasoning SAT recall: $t < 1$. For these reasons, participant sex is not discussed in further analyses.

Quantitative Reasoning SAT Score Recalled

A one-way ANOVA revealed a significant main effect of participant condition on participant recall of the target's quantitative reasoning SAT score, $F(2, 79) = 5.399$, $p < .01$. As hypothesized, participants for whom the target's gender category was cued recalled lower quantitative reasoning SAT scores ($M = 726$, Std Error = 1.92) relative to the participants for whom ethnic category ($M = 734$, Std Error = 1.92) or neither category ($M = 728$, Std Error = 2.06) was cued. Participants for whom the ethnic category of the applicant was cued recalled higher quantitative reasoning SAT scores relative to the participants for whom her gender category or neither category was cued (3). A contrast analysis, conducted to test this pattern of results, using lambda weights –1, 0, +1 for Female Cue, Control, and Asian Cue respectively, was highly significant: $t(79) = 3.41$, $r = .36$, $p < .001$.

Verbal Reasoning SAT Score Recalled

Consistent with the research hypotheses, the opposite pattern was found for participants' recall of their partner's verbal reasoning SAT scores. A one-way ANOVA revealed a marginally significant main effect of condition on recall of verbal reasoning scores, $F(2, 79) = 2.66$, $p < .08$.

As hypothesized, participants for whom the applicant's ethnic category was cued recalled lower verbal reasoning SAT scores ($M = 718$, Std Error = 2.92) relative to the participants for whom gender category ($M = 727$, Std Error = 2.92) or neither category ($M = 725$, Std Error = 3.14) was cued. Participants for whom the gender category of the

applicant was cued recalled higher verbal reasoning SAT scores relative to the participants for whom her ethnic category or neither category was cued. A contrast analysis, conducted to test the hypothesized pattern of results, using lambda weights –1, 0, +1 for Female Cue, Control, and Asian Cue respectively, was significant: $t(79) = 2.22$, $r = .24$, $p = .014$.

Summary of Results

The pattern of results provides evidence that perceiver recall for details about a target is influenced not only by perceiver knowledge about a target's social identity group memberships, an inter-group perspective on stereotyping, but also by the subtle salience of the different identity groups to which the target belongs, an intra-individual perspective on stereotyping. Depending on which identity was cued, significantly different recall for performance in two domains was observed. The spread across experimental conditions was a full 10 SAT points in the case of verbal reasoning SAT score and 8 SAT points in the case of quantitative reasoning SAT score.

While the focus of the study is the investigation of swings in recall in response to identity cues, it is interesting to examine recall in the three conditions relative to the actual SAT scores reported by Amy Chen: a verbal reasoning score of 720 and a quantitative reasoning score of 730. Recall of both scores in the control condition was not significantly different from the actual reported scores; for both quantitative reasoning and verbal reasoning SAT score recalled, $t < 1$. The accuracy of control condition participants in recalling the target's test scores focuses attention on how cues affect recall in relationship to an objective anchor (in this case, reported test scores). However, accuracy is not necessarily to be expected, nor is it necessary in order to validate an intra-

individual perspective on stereotyping. Person perception and recall are easily influenced by contextual information, even in conditions in which identities are not made particularly salient by environmental cues. For example, base rate information can influence our perception of others (Reeder & Coovert, 1986). Irrelevant information about a person may also influence perception of him or her. In this study, the target provided many personal details, such as her participation in sports, that could influence base recall across the conditions. Finally, as noted earlier, some stereotypes may be chronically salient and thus influence perception across conditions. Yet, even given the number of factors which may lead recall to be inaccurate, it is critical to explore how identity cues may influence recall, as the current findings illustrate.

Discussion

This study examined the problematic stereotyping of women and members of ethnic minority groups in a new context: computer-mediated interaction. Although stereotype activation and identity salience were not directly measured, the study data suggest that e-mail addresses can activate stereotypes associated with salient identities. Statistically significant patterns of biased recall consistent with the identities and stereotypes cued were observed. Traditional inter-group approaches to stereotyping would focus on how females are stereotyped relative to males, or how Asians are stereotyped relative to Caucasians. We find that a single target is stereotyped very differently based on which of several social identities are subtly cued. Our data find that a single target may be stereotyped differently based on subtle environmental cues. In addition, we examined the impact of both positive and negative stereotypes. Further, the

data suggest that stereotyping, typically studied in the context of written or face-to-face interactions, also occurs in computer-mediated interactions. This study's primary contributions are the evidence it provides of how differently a single target may be perceived based on identity cues, and the evidence it presents that something as subtle as an e-mail name can act as an identity cue, triggering different stereotypes. In addition, the study data support the idea, slowly emerging in the literature, that positive as well as negative stereotypes bias perception and impression formation.

These data raise important considerations for research on the social problem of stereotyping. They further raise important practical issues regarding the management of identity cues in business and educational organizations in an age of increased computer-mediated interaction. And these data affect current theories and frameworks on stereotyping.

Our findings prompt an expansion of how we think about, and study, salience. The study of what makes certain identities of a target salient to a perceiver is underdeveloped. Salience has largely been studied at the level of salient individuals in contexts (e.g. Kanter, 1977). Less work has tackled the next level of granularity: how salient to perceivers are a target's different identities? More generally, for social psychologists studying stereotyping, these data support the importance of research from the intra-individual perspective adopted in this study. When women and members of certain ethnic groups were rare in many business and educational organizations, the most compelling perspective for stereotyping was the inter-group perspective. Stereotypes applied to women were compared to stereotypes applied to men to understand how these two groups fared relative to each other. As the numbers of women and ethnic minorities

in many work and educational organizations have changed, the research perspective from which stereotyping is studied must change as well.

As many business and educational organizations increasingly diversify, the inter-group perspective cannot address which of an individual's multiple identities will be salient at a given moment. At times, a woman's gender will be salient and gender stereotypes will be applied. At other times, other social identities will be equally or perhaps even more salient than her gender identity. Stereotyping research from an intra-individual perspective will foster an understanding of the contexts in which different identities are cued and the impact of salience on subsequent interactions. In this study, the effects of the manipulation of a single identity cue —simply an e-mail address—in a situation in which participants learned a host of individuating details about the target, suggests that the cues can be very subtle. In fact, they can be so subtle that we are unaware that they are changing our perception of others. Recall that in the participant debriefs, none of the participants identified the confederate's e-mail address as noteworthy or as a potential manipulation of the study. Such clues are clearly significant to our social relations.

Applied social psychologists concerned with contextualizing models of interpersonal processes have a unique opportunity to do research that will identify cues and illuminate when and how different types of identity cues will influence perception. Empirical and theoretical work prompted by this research might explore different categories of identity cues and their effects. For example, identity cues originating from the environment may produce different effects than those originating from an actor.

The exploration of positive stereotypes on person perception is another important contribution of the research. As discussed, positive stereotypes are often overlooked in empirical research. Stereotyping research emerged in the social sciences largely in response to detrimental and negative inter-group historical events. But restricting empirical studies to negative stereotypes will skew psychology's models and theoretical understanding of stereotyping processes. In this study, we find that the salience of identities associated with both positive and negative stereotypes influence recall. Although the fact that positive stereotypes do affect person perception does not mitigate the social problem of negative stereotyping, it does complicate our understanding of it. The social problem of stereotyping is not likely to be understood, nor remedies developed, until we examine both positive and negative stereotypes and gain a better understanding of holistic person perceptions. Continued research on positive stereotypes may have profound implications for remedying the social problem of stereotyping because, if positive stereotypes are overlooked in the applied psychology research agenda on stereotypes, only one half of the larger phenomenon of stereotyping is examined and full models will never be developed to explain how and why stereotyping occurs.

This study has practical implications, too, for individuals and for organizations. Understanding the role identity cues can play in impression formation can suggest ways individuals might better manage identity cues in order to minimize the problems they encounter from being stereotyped. This is particularly true in the case of women and members of ethnic minority groups. To avoid being stereotyped, individuals may sometimes have to actively manage how their identities are cued, both in general interactions and over the Internet. The data suggest that employees with a vested interest

in creating positive impressions might benefit from monitoring the ways in which their stereotyped identities may be cued for others. Cues that remind perceivers of their different identities will have impact, even when these identities are already known to the perceiver.

Organizations, as well, might better manage identity cues to minimize the social problem of stereotyping women and members of ethnic minority groups. Our data have relevance to a practical issue confronting organizations: ascribing virtual identities. In many business and educational organizations, e-mail addresses are assigned, the assigned addresses may carry cues of gender and/or ethnicity—that is, serve as identity cues, and individuals may be stereotyped as a result. In the current study, all participants believed that the confederate's e-mail address was assigned to her and therefore did not reflect the strength of her gender or ethnic identification. Yet even when the perceivers knew the e-mail address was assigned and knew both the gender and ethnic identity of the target, the subtle identity cue provided by the e-mail address influenced their perception. As future research continues to explore the influence of e-mail addresses on stereotyping and social interaction, accumulated findings may prompt organizations to reexamine the now common practice of assigning e-mail addresses. By ascribing e-mail addresses, organizations may be aggravating the problem of stereotyping, which inhibits the advancement of women and members of ethnic groups, as many of the e-mail addresses assigned may be leading to stereotyping. This is a particularly important concern because e-mail and other Internet-enabled communication technologies are increasingly employed in everyday activities in organizations (Morris, Nadler, Kurtzberg, & Thompson, 2002; Moore, Kurtzberg, Thompson, & Morris, 1999) and because Internet interaction lacks

many of the nonverbal cues common to face-to-face social interaction—such as tone of voice, posture, and facial expression—that might counter stereotypes. With a dearth of other cues available to perceivers in computer-mediated interactions, category cues embedded in e-mail names may take on heightened significance. This general problem may present a legal problem, too. If organizations assign e-mail names and bias towards individual employees occurs as a result of their e-mail names, the organizations might be liable for bias patterns suffered by those employees.

Finally, the current findings suggest valuable directions for future research. One compelling direction is the examination of the mechanisms through which positive stereotypes impact perception and impression formation. It will be interesting and important to uncover why the findings emerge. Is this effect principally driven by recall? Given the extensive information one learns about a target, the e-mail address may be a cue that helps perceivers recall a specific piece of information (e.g., ethnicity or gender). Specifying a mechanism, or a more likely mechanism, will be critical to understanding intra-individual stereotyping and connecting research from this perceptive to the larger stereotyping literature. In particular, future research could profitably examine whether the mechanisms by which positive stereotypes impact perception and impression formation are the same as those by which negative stereotypes impact perception and impression formation. Not only may positive and negative stereotypes influence perception in opposite directions, but they may do so by different mechanisms. There is little empirical data on which to hypothesize the mechanisms whereby positive stereotypes impact perception; research to date has focused on documenting their impact. Prior research on self-stereotyping has suggested that different mechanisms are responsible for positive and

negative self-stereotyping (Shih et al., in press; Shih, Ambady, Richeson, Fujita, & Gray, 2002). It is important to underscore, however, that self-stereotyping and the stereotyping of others are distinct processes, and that findings of distinct mechanisms for positive and negative self-stereotyping at best suggest that the possibility of distinct mechanisms for positive and negative stereotyping of others should be considered.

Another compelling direction is continued work on the power of subtle identity cues to alter person perception and, in particular, an exploration of the different categories of cues. For example, different effects may be found when an action of the target cues a particular identity of the target and when a feature of the environment cues a particular identity of the target.

Third, the exploration of identity cues and intra-individual stereotyping should expand to explore the host of identities being investigated in stereotyping research from the inter-group perspective. Perceptual variability was found in the current study for ethnicity and gender, which are both believed to be core categories for classifying others (Brewer & Lui, 1989; Hoffman & Hurst, 1990). It is likely, then, that even more variability may occur when identity cues and social identities that are less chronically salient, which more readily fade into the background for perceivers (Blanz, 1998), are investigated.

Performance domain is a fourth compelling and intriguing area for future research. This study addressed perceivers' assessments of a target's performance in two domains: quantitative reasoning and verbal reasoning. Both were studied in a situation in which specific referents—specific test scores—were provided. In many perceptual tasks, such as rating leadership aptitude, no such referent is available. Future research should

explore the effects of identity cues on perception of target performance in domains in which anchors are not known to the perceiver (for example, because test scores are not readily available), are highly subjective (as may be the case with leadership aptitude), or simply do not exist.

Much behavior in business and educational organizations is rooted in person perception and impression formation. Stereotypes are a major problem, often hindering the advancement of women and members of ethnic groups in business, education, and society in general. In business organizations, stereotypes can influence important decisions concerning whom to hire, promote, mentor, trust, or assign to a job. In educational organizations, stereotypes can influence decisions of whom to call on, assign tasks to, or recognize for awards. To date, our understanding of stereotyping has been invaluably enriched by stereotyping research done from the traditional inter-group perspective. Developing a second perspective, the intra-individual perspective, while expanding our inquiry to examine positive stereotypes in addition to negative ones and to examine stereotyping in emerging interaction contexts such as computer-mediated interactions, promises to further enrich our theoretical and practical understanding of social problems resulting from the influence of stereotypes on how we perceive—and too often misperceive—one another.

Footnotes

1. One can conceive of a fourth condition, in which both gender and ethnicity are cued in an e-mail name. This case falls beyond the scope and hypotheses of the present study, in which we investigate swings in recall that might occur in response to identity cues of different social identities.
2. The results are interpreted as resulting from stereotypes about women and people with Asian ethnicity, which the manipulation cues. One might hypothesize that any observed pattern of results might result instead from how participants perceive the target depending on whether she goes by her first name or last name, which also differs across the conditions. This interpretation seems unlikely for several reasons. First, all participants know the target's first and last names, as the confederate introduces herself as "Amy Chen." In addition and more critically, there is no research to suggest that there are stereotypes about individuals who prefer to be identified by their first names in general, and no research to suggest that there are specific stereotypes that individuals who prefer to be identified by their first names are more or less quantitatively skilled.
3. Several participants recalled SAT scores that were not divisible by ten. We included these scores in the analyses without rounding them. Rounding the scores to the nearest multiple of ten did not affect the results reported.

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