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OK, Boomer: Activating Intergroup Perceptions to Facilitate Intergenerational Contact in Social Media

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Individuals across social groups use social media every day. However, it remains unclear whether social media helps build relationships or reinforces prejudice across social groups. This study tests this issue by focusing on the effects of social cues (quantity, intensity, and salience) and anonymity within the context of intergenerational contact. An experiment exposed Generation Z participants (N = 241) to an older individual's profile on a fictitious social medium, Bitmor. Participants imagined interacting with the older individual and then responded to a questionnaire that measured anonymity, intergroup perceptions, outgroup attraction, and ageism. Results indicated that the intensity of social cues about the social group increased younger individuals' own intergroup perceptions, which influenced their attraction to the older generational group. Findings illustrate that cue intensity and imagined contact influence how individuals perceive others on social media and perhaps lower outgroup prejudice and increase interpersonal attraction across social groups.

Keywords: interpersonal–intergroup perception, dual-process model, mediated imagined contact, social media, intergenerational contact, ageism

Social media have been concurrently lauded as spaces where individuals can interact and reduce prejudice across social groups (Imperato, Schneider, Caricati, Amichai-Hamburger, & Mancini, 2021) and also criticized for further polarizing and increasing prejudice among disparate social groups (Croucher, Nguyen, & Rahmani, 2020). Whether communicators perceive each other as unique individuals (interpersonal) or through social category stereotypes (intergroup) can impact how individuals from disparate social groups interact (Walther, 2018). As social media become an increasingly dominant means of mediated interaction across social groups, a critical question remains: When are interactions within social

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media guided by interpersonal communicative processes, and when are they guided by intergroup communicative processes?

Applying the contact hypothesis, scholars have attempted to answer similar questions by focusing on reducing intergroup prejudice through interpersonal interactions on social media (see Imperato et al., 2021). However, this does not explain when/how the shift between interpersonal and intergroup interactions occurs within mediated contexts in situ. Recently, Hinck and Carr (2021) proposed a dual-process model that explains the degree to which a social media user initially perceives others along the interpersonal-intergroup continuum. The present work tests this model by focusing on two social groups that frequently interact within social media spaces: young and older adults in intergenerational contact.

Since age is a readily apparent and salient social category, *ageism*—negative attitudes toward individuals based on their age—is evident in both younger generations' views of older adults and vice versa (Butler, 1969). Herein, we specifically consider the stereotyping of *older adults* (ages 50+) by *younger adults* (ages 18–29). Social media usage continues to expand across all age cohorts: 72% of U.S. adults (ages 18+) report using at least one platform, including 73% of adults aged 50–64 and 45% of adults aged 65 and older (Pew Research Center, 2021). Consequently, younger and older individuals readily engage in intergenerational contact via social media (Jung, Walden, Johnson, & Sundar, 2017). This contact can occur in many ways, ranging from direct interaction with known interactants (e.g., grandparents and grandchildren) and unplanned initial interactions that foster intergenerational friendships, to vicarious observation of intergenerational contact among others (e.g., McDarby, Ju, & Carpenter, 2021). Intergenerational contact within social media is thus an appropriate context to apply and test this model.

The present work pursues two goals relative to the dual-process model. First, it serves as an initial test of specific propositions and theorems within the dual-process model. Second, it demonstrates the use of the model to better understand the antecedents and outcomes of the interpersonal–intergroup continuum within an intergenerational contact context in social media spaces. By experimentally testing these antecedents within the contact hypothesis framework to reduce intergenerational prejudice, this work enhances our understanding of how initial perceptions—shaped by channel- and individual-level processes—influence social media communication, including psychological outcomes.

The Dual-Process Model: Activating Interpersonal–Intergroup Communication

It can be challenging to predict when interpersonal or intergroup perceptions occur and guide interactions online, where identity and social cues can be made available or suppressed (Carr, Varney, & Blesse, 2016; Walther, 2018). For example, when you view your grandmother's social media account, at what point do you perceive her as your grandma, Wanda (i.e., interpersonal), rather than just another elderly adult (a stereotypical "Boomer"; i.e., intergroup)? How an interactant is perceived along the interpersonal–intergroup continuum (Tajfel & Turner, 1979) has substantive bearing on the subsequent perceptions of and interactions with that social actor; however, this is a function of system, social, and personal factors that can vary even within the same social medium.

The dual-process model of interpersonal–intergroup communication (Hinck & Carr, 2021) conceptualizes and predicts when initial interactions online would be guided by personal or group processes. The model accounts "for the role of communication—both as an antecedent and an effect—in guiding initial interactions along the interpersonal–intergroup continuum" (Hinck & Carr, 2021, p. 813), partly by explaining how even similar cue sets within a social medium can lead to disparate perceptions across interactions. The model proposes three channel processes (social cues, identity goals, and platform goals) and two individual processes (interactivity and anonymity) that guide communicators' perceptions of interaction between partners along the interpersonal–intergroup continuum. Moreover, it derives four theorems about interactions among the antecedents (see Hinck & Carr, 2021 for the full model). Though a heuristically promising model, empirical work is needed to test each theorem. The present study focuses on the first theorem, which relates to two antecedent processes in the dual-process model: social cues and anonymity (see Figure 1).

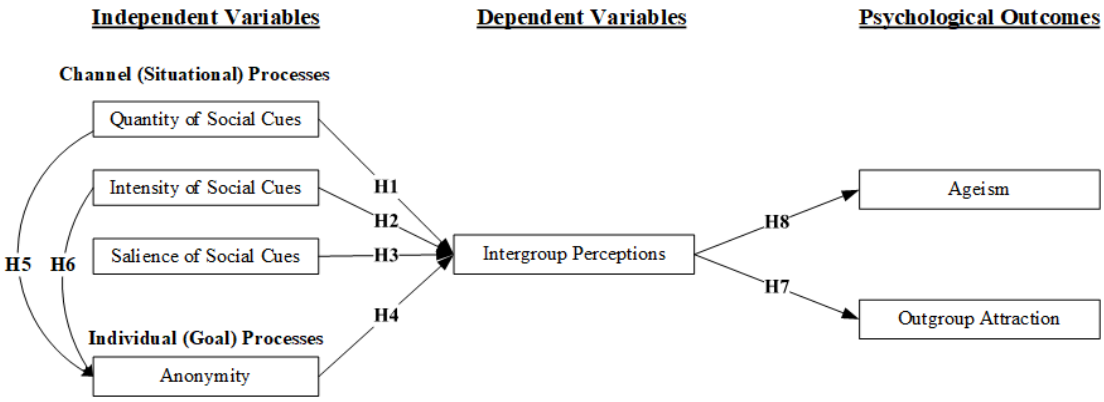

Figure 1. Conceptual model and hypotheses.

Social Cues in the Dual-Process Model

Social cues refer to the "verbal and nonverbal indicators of one's social identity" (Hinck & Carr, 2021, p. 804). Social cues are common in social media because users construct profiles that can provide varying bits of data about their social categories: Profile photos can contain artifacts of one's social group, profile elements can acknowledge social categories, and user-generated content can relate to group membership (see Carr et al., 2016). The strength of these social cues can vary in both their quantity and intensity. *Quantity* of social cues refers to the number of cues indicating one's social category and can vary from only a single cue to multiple, concurrent cues (Carr, Vitak, & McLaughlin, 2013). Alternately, the *intensity* of a social cue refers to the degree to which a cue denotes that the individual conforms to and is stereotypical of a social category (Carr et al., 2013). More intense cues more strongly indicate that the individual is a member of that group. For example, listing a favorite band in one's profile is easy and thus low-intensity but posting a photo of oneself attending the band's concert is more difficult and thus a stronger cue of fandom. The dual-process model proposes that both the *quantity* and *intensity* of *social cues* within a social medium activate intergroup (over interpersonal) communication processes and effects.

Social cues can be made more or less salient within a particular context, regardless of quantity or intensity. The *salience* of a social cue refers to how germane a social category is to a given context. More salient social cues are more relevant to a particular interaction. Cue salience can activate that social cue so that social identity guides the subsequent interaction (e.g., Keblusek, Giles, Maass, & Gardikiotis, 2018). For example, the "Chelsea football club supporter" social category denoted by wearing a Chelsea FC scarf may not be salient—nor activated to guide behaviors—while at the library. However, the same fan attire may activate the fandom social category when worn in London during a Premier League match, prompting the wearer to yell at (rival club) Arsenal fans. Notably, while the quantity and intensity of a social cue are both properties of the cue itself, the salience of a cue is often determined by external factors, such as the context of the communicative episode (Mlicki & Ellemers, 1996). Per the dual-process model (Hinck & Carr, 2021), when the social category is relevant to the interaction, cues to that social group would more strongly guide interactions.

Anonymity in the Dual-Process Model

Anonymity refers to "the degree to which a communicator perceives the message source as unknown or unspecified" (Anonymous, 1998, p. 387). The dual-process model implicitly focuses on receiver-anonymity, or the degree to which a receiver can discern and individuate a message's source (Rains & Scott, 2007). Both *physical anonymity* (the lack of optic cues to a sender's physical presence) and *discursive anonymity* (the inability to connect specific statements to a given sender) can obfuscate the connection between a sender and their message, leaving receivers unable to individuate unique senders. Receivers subsequently fill in missing perceptions with available social cues (Rains & Scott, 2007; Reicher, Spears, & Postmes, 1995), guided by intergroup (rather than interpersonal) processes. As identifying disclosures are common in social media (Lampe, Ellison, & Steinfield, 2007), the dual-process model (Hinck & Carr, 2021)—and the present work—considers both physical and discursive forms of anonymity, but more critically recognizes that identifying information in either form should lead to personalization (Lee, 2004).

Many social media users personalize themselves online by providing social cues and presenting their identities as an amalgam of their social categories (Carr et al., 2016). Discursively, social media users may use social cues as a means of identifiability (or pseudonymity), creating a username related to a social group (e.g., Trekkie@aol.com, @TennisGirl) rather than their individuating name (Heisler & Crabill, 2006). Though individuals are identifiable, identifiability is achieved through social cues. A theorem of the dual-process model thus connects social cues and identity, expecting that social cues reduce a social media user's identifiability by activating the social identity of the user, encouraging group-based perceptions.

Activating Intergroup Perceptions

Taken together, these expectations guide several relationships proffered by the dual-process model about whether a communication partner is perceived as an individual (i.e., interpersonally) or a group member (i.e., intergroup) in an initial interaction. For the present work, we focus on the perception of a target interactant at an intergroup level (which is expected to be inversely related)—as a member of a particular social category—as the outcome of interest and propose several hypotheses:

H1: Individuals have stronger perceptions of a partner's intergroup membership when more cues to the partner's social identity are present.

H2: Individuals have stronger perceptions of a partner's intergroup membership when cues to the partner's social identity are more intense.

H3: Individuals have stronger perceptions of a partner's intergroup membership when cues to the partner's social identity are salient to the communicative context.

H4: Individuals perceive a communication partner based more on intergroup characteristics when communicators are anonymous (rather than identifiable).

Two corollary hypotheses about the effect of number and intensity of social cues on anonymity are also advanced, consistent with Hinck and Carr's (2021) model:

H5: Individuals perceive a communication partner as more identifiable when more cues to the partner's social identity are present.

H6: Individuals perceive a communication partner as more identifiable when cues to the partner's social identity are more intense.

Although the dual-process model's propositions end at the perceptions of a communicator as either a social category or an individuated individual, Hinck and Carr (2021) proffered that being able to distinguish when communicators perceive each other as group members or distinct individuals can have further implications for communicative processes. One such opportunity is to strategically manage antecedents to activate interpersonally guided perceptions as a means of reducing intergroup stereotypes (i.e., the contact hypothesis). Using that initial application, the present work considers how the activation of interpersonal–intergroup perceptions can influence (and potentially reduce) intergroup animosity, specifically within the contact of intergenerational contact.

Applying the Dual-Process Model of IPC-IGC to Intergenerational Contact

The (Mediated Imagined) Contact Hypothesis

The contact hypothesis predicts that positive or desirable interactions with a member of an outgroup (i.e., a social category different from one's own; Brewer, 1999) result in more positive attitudes toward both the target and the individual's social group (Allport, 1979), and this has garnered substantive empirical support (see Pettigrew & Tropp, 2000). Originally, it was presumed that for the contact hypothesis to function (Hewstone & Brown, 1986), communicators must remain aware of each other's social categories while engaging in direct, intimate, interpersonal interaction. Through interpersonal contact with a member of an outgroup, an individual can learn about the other person and modify beliefs about the individual and, by association, the broader outgroup. Recent work has become increasingly interested in the contact hypothesis online to explain and reduce intergroup prejudice. Scholars have

found that interacting online can make it easier and safer for members of disparate groups to find and interact with each other, reduce the anxiety of face-to-face intergroup contact, suppress social identities, and equalize status among interactants (Amichai-Hamburger & McKenna, 2006). The contact hypothesis is, therefore, a useful method for reducing intergroup prejudice within mediated contexts (Banas, Bessarabova, & Massey, 2020).

Of particular interest within social media is mediated intergroup contact, which occurs when individuals directly or indirectly encounter outgroup members within mediated contexts. Mediated intergroup contact proposes that exposure to an outgroup member through mediated spaces (i.e., newspapers, media, social media, computer-operated avatars, etc.)—whether by observation of a static image or quasi-interaction—is sufficient to elicit reductions in intergroup prejudice (Park, 2012; Wojcieszak, Kim, & Igartua, 2020). Recent theorizing by Wojcieszak et al. (2020) further noted that imagined contact—in which a communicator intrapersonally envisions a positive interaction with a target outgroup member—can be an important paradigm for online perceptions, particularly as the mental simulation of a member of the outgroup is an important and common precursor to actual online interaction. Although mediated and imagined contact may have weaker effects than face-to-face interaction, mediated and imagined contact with outgroup members might be more likely and feasible than actual contact in many situations, such as social media (Crisp & Turner, 2009; Wojcieszak et al., 2020). Therefore, in mediated environments where direct interaction among actors may not always be expected (e.g., browsing social media profiles), mediated imagined intergroup contact can ameliorate prejudice among social groups. Thus, this study considers how channel and individual processes can be structured to foster favorable perceptions—specifically, intergenerational attitudes—with the expected outcome of reducing prejudice.

Intergenerational Contact

Intergenerational communication is a challenging phenomenon that entails communication among members of different age cohorts, each with disparate sociocultural references, values, problems, and predispositions (Barker, Giles, & Harwood, 2004). Intergenerational communication can be problematic, even among related communicators (e.g., grandchild-grandparent interactions), as interactions are often driven by age-based stereotypes as much as they are driven by dyadic factors unique to that individual relationship (Anderson, Harwood, & Hummert, 2005). *Ageism*—discrimination or negative attitudes and stereotypes toward another due to their age or appearance of age (Whittington, Kunkel, & Medeiros, 2021)—is common, particularly among college students who often stereotype older adults (i.e., age 65+) as "cranky, dependent, lonely, senile, and sickly" (Lytle, Macdonald, Apriceno, & Levy, 2021, p. 1165).

Intergenerational contact can ameliorate ageism and age-related biases in young adults (Bringle & Kremer, 1993), resulting in beneficial communicative outcomes as well. Because face-to-face intergenerational interaction makes myriad cues unavoidably available to interlocutors (e.g., physical appearance, clothing, vocalics), which activate and enhance age-related stereotypes (Palmore, 2015), mediated communication has been proposed to facilitate intergenerational interaction beyond generational social categories (Harwood, 2000). Mediated communicators can leverage media features and affordances

to selectively omit or deemphasize cues that may activate age-related identities, making the dual-process model particularly germane for testing how mediated interaction can be configured to facilitate positive intergroup contact across age categories. However, such effects are predicated on partners interacting at the interpersonal, rather than intergroup, level.

Specific predictions about the outcome of mediated imagined interaction can be proffered, depending on whether interactants do so based on personal or group identities. First, the more communicators perceive they are individuated and personalized (i.e., perceived interpersonally), mediated imagined intergroup contact research suggests that imagined interactions should lead to greater interpersonal attraction among communicators, reduce animosity toward each other's respective social groups, and increase attraction to the social outgroup (Crisp & Turner, 2009; Park, 2012). Inversely, when interactants emphasize their age-related social identity (i.e., as outgroup members), attraction toward the other interactant and their outgroup decreases. We expect similar outcomes within intergenerational contact:

H7: Individuals perceiving an intergenerational communication partner based more on intergroup characteristics report decreased outgroup attraction to other social categories following an initial interaction.

Second, individuals engaged in intergenerational contact based on interpersonal dynamics should experience lower ageist perceptions, while individuals engaged in intergenerational contact based on intergroup dynamics should experience higher ageist perceptions. Direct interaction with older adults has been shown to significantly reduce ageism (Lytle, Nowacek, & Levy, 2020), as the intergenerational contact changes the prototypical associations younger adults have about older adults, which are then parlayed to the larger social category. To wit, a meta-analysis has identified intergenerational contact interventions as a significant means of substantially improving attitudes toward older adults (d_0 = .33; Burnes et al., 2019). We, therefore, predict that the manner by which a communicator identifies a target affects the resultant perceptions of the target's social category. Specifically, perceiving an older adult target as an individual (rather than a group member) should foster the conditions necessary for imagined intergroup contact, thereby reducing the communicator's ageism:

H8: Individuals perceiving an intergenerational communication partner based more on intergroup characteristics report increased ageism following an initial interaction.

Using selected components of the dual-process model of interpersonal–intergroup communication (Figure 1) to identify the antecedents and perceived communication outcomes across generational social groups, support hypothesized relationships would better explain and predict when intergroup prejudice (in this study, ageism) and intergroup attraction occur within social media spaces.

Method

Participants

Participants were recruited from two universities in the United States, with a supplemental sample obtained via the Prolific (prolific.co) recruitment tool. Recruitment criteria included being between the ages of 18–26 (to ensure participants self-categorized as "Generation Z (Born 1997–2012)" when completing their profiles, activating that social category) and not residents of Montana (to ensure they did not perceive a shared social category with the target of the study, a Montanan). Individuals who did not meet both inclusion criteria were excluded from the data analysis. Student participants were compensated with course (extra) credit, and prolific participants were compensated US$2.50 for completing the 12-minute study. A total of $N = 241$[2] participants completed the study. Participants self-reported their current age ($M = 21.97$, $SD = 2.31$) and gender ($n_{male} = 92$; $n_{female} = 136$; $n_{transgender} = 3$; $n_{self\text{-}identified} = 10$).

Procedure

Participants took part in a study purportedly about user experience with the design and interface of a new social medium, Bitmor. After consenting, the participants were instructed to create a personal profile in the Bitmor prototype. Participants uploaded a profile photo of themselves and entered information about their age, geographic location, relationship status, and other demographic and psychographic details. Responses to these fields were piped into the next screen by the survey platform, which displayed the participant's profile page to review. After the profile review, participants were exposed to the profile page of a fictitious person, Remy Pappa (Figure 2). Remy was always an older adult, but specific fields were displayed, and Remy's responses were manipulated to reflect the study's design (detailed below).

[2] The present sample size exceeded the necessary requirement for assumed moderate-sized effects established in prior research (e.g., partial $\eta^2 \approx .20$; Wojcieszak et al., 2020). Eight experimental conditions in the present work and a priori power analysis (G*Power v. 3.0.10; Faul, Erdfelder, Lang, & Buchner, 2008) recommended a sample of at least 103 participants, assuming $1\text{-}\beta = .95$.

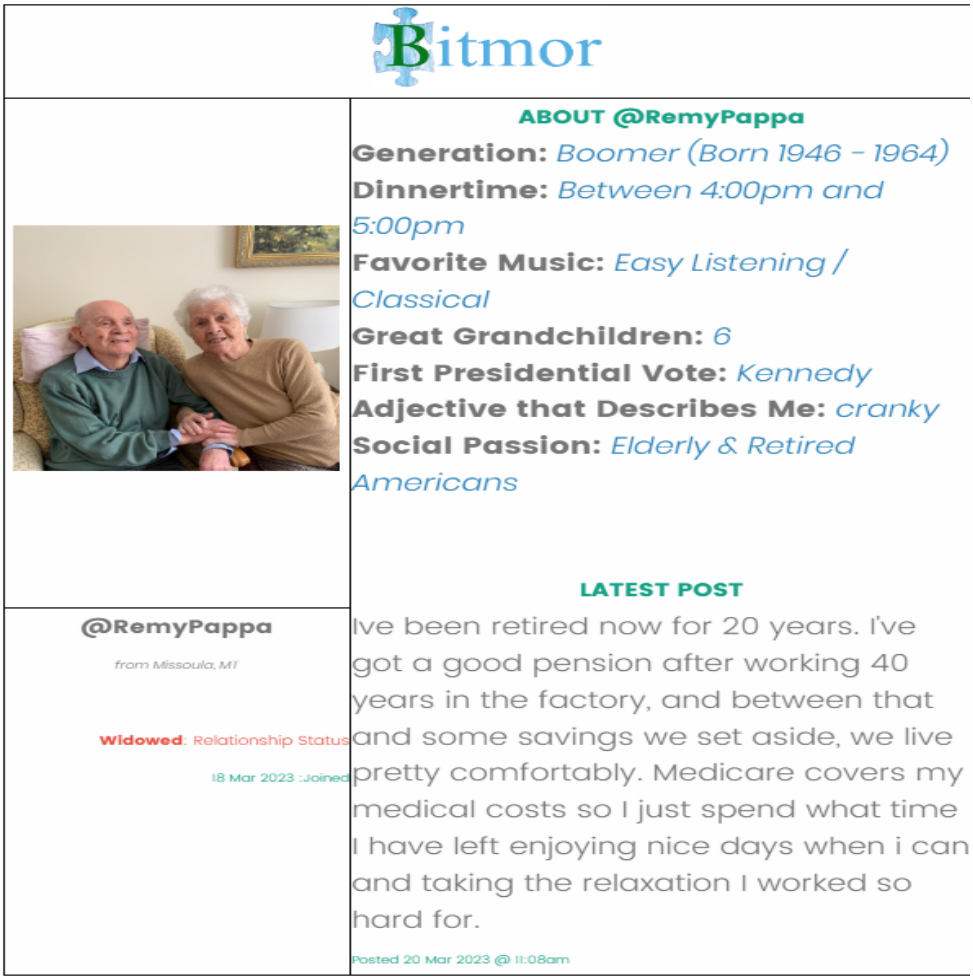

Figure 2. Sample stimulus depicting high-quantity and high-intensity cue conditions.

"[E]ncouraging people to mentally stimulate an intergroup encounter can open people up to a subsequent mediated contact, improving attitudes" (Wojcieszak et al., 2020, p. 72), and can ameliorate intergroup prejudice, consistent with the contact hypothesis. The present work implemented the imagined contact paradigm used in prior research (Miles & Crisp, 2014; Wojcieszak et al., 2020). As detail about the context of an imagined interaction can enhance effects (Miles & Crisp, 2014), participants spent two minutes observing Remy's profile (M = 2.88, SD = 1.92) as instructed:

> . . . you were to talk with this person about [retirement/town] via Bitmor. While imagining, think specifically of *who* would make the first contact (i.e., they would initiate communication with you or you would initiate communication with them), *when* (e.g., next week), and *in what way* (e.g., a timeline post, direct message, interacting on a mutual friend's page) that initial communication would occur. Imagine the interaction is

> positive, relaxed, and comfortable. It may be helpful to close your eyes after reviewing the profile and imaging the conversation.

Finally, participants completed several standardized scale items about their perceptions of ageism, older adults, the target profile (i.e., as either an individual person or a group member), and the anonymity of the channel.

Experimental Manipulations

Profiles were manipulated to reflect the study's 2 (cue quantity) × 2 (cue intensity) × 2 (cue saliency) experimental design. Participants were randomly assigned across these eight conditions, $\chi^2(7) = 6.80$, $p = .45$. Because two of these three variables (i.e., quantity and intensity of social cues) were expected to impact the perceived anonymity of interactions, anonymity was treated as a manifest variable.[3]

Quantity of Social Cues

Quantity of cues was operationalized as the number of social identity (i.e., age-related) cues evident in a profile. In the *low-quantity* conditions, three social identity cues were evident in the target's profile: a photograph, a relationship status, and an initial post. In the *high-quantity* conditions, 10 social identity cues were seen in the target's profile. The specific cues viewed were determined by other experimental manipulations.

Intensity of Social Cues

Intensity of cues was operationalized using the information or stereotypes younger adults may have about older adults (Barker et al., 2004; Lytle et al., 2020; Palmore, 2015), including media preferences and preferred mealtimes. Drawing from these studies, high- and low-intensity cues were generated to populate the target's profile. *High-intensity social cues* were highly stereotypical of older adults, identifying the target as a member of the "old adult" social category—including disclosing relationship status as "widow" and their *first* presidential vote—emphasizing their advanced age and highlighting differences with the young-adult participants. Conversely, *low intensity social cues*, including listing relationship status as "single" and mentioning their *most recent* presidential vote, provided more demure cues about the target's social category, and with which the younger participants could also identify.

Salience of Social Cues

Salience of social cues was manipulated by making age either relevant or irrelevant to the context of the mediated experience. Consistent with prior research into imagined contact hypothesis (Miles & Crisp, 2014; Wojcieszak et al., 2020), the salience of social cues was manipulated via instructions for the imagined interaction that would make age either a high- or low-salience social category. In the *age-relevant* condition,

[3] The data and stimuli underlying this article are available via OSF repository at: https://osf.io/sxp97/?view_only=38213e0461af4ba69a42cb523a4b09ab

participants were instructed to "think about a conversation you would have with the topic of retirement," which tended to be more germane to older adults than young adults (Hershfield et al., 2011). In the *age-irrelevant* condition, participants were instructed to "think about a conversation you would have with the topic of what they like about living in their current town."

Measures

The study variables were assessed post-exposure via 7-point Likert-type response scales.

Three independent variables (i.e., quantity, intensity, and salience of social cues) were experimentally manipulated, but anonymity varied freely among the participants. The dual-process model conceptualizes anonymity as the degree to which a message source is unknown or unspecified (Hinck & Carr, 2021) and thus is not functionally tied to specific cues (e.g., photographs, names, or usernames) and forms of anonymity (i.e., physical or discursive, respectively). A target's general *anonymity* was, therefore, operationalized using Rains' (2007) four-item other-anonymity scale. Participants indicated the extent to which the target in this study (i.e., Remy Pappa) was "identified" (reverse-coded), "anonymous," "unknown," and "unidentified." Higher values indicated greater anonymity (α = .85).

The dependent variable of the dual-process model is the degree to which a communicator is perceived along the interpersonal–intergroup continuum (see Tajfel & Turner, 1979). One limitation of the model thus far is that there is no extant scale to assess the degree to which a communication partner is understood as a unique dyadic communicator or a prototypical member of a social group. Hypotheses in the present research were thus derived to focus on intergroup perceptions as the dependent variable, presuming that the more an individual is perceived as a member of that social category, the less they would be perceived as a unique individual. *Intergroup perceptions* of participants' communication partner (i.e., Remy Pappa) were measured using the 3-item outgroup subscale of Doosje, Ellemers, and Spears's (1995) ingroup and outgroup identification scale, relative to their communication partner. Items included "I identify Remy Pappa as an old adult" and "Remy Pappa feels connected to old adults," (McDonald's omega [ω] = .68), and assessed how strongly the participant viewed Remy as a member of the "old adult" (i.e., the outgroup) social category.

Finally, two psychological outcomes were assessed: ageism and outgroup attraction. *Ageism* was operationalized using the 5-item identity factor subscale of North and Fiske's (2013) intergenerational ageism scale. Participants responded to items including "Older people shouldn't even try to act cool" and "Older people probably shouldn't use social media." Higher scores indicated greater ageism (α = .86). *Outgroup attraction*, the perception of social distance between an individual's own ingroup and another outgroup, was operationalized using the 3-item outgroup subscale of Doosje et al.'s (1995) ingroup and outgroup identification scale, relative to their own outgroup membership. Participants were asked how strongly they viewed themselves as members of the "old adult" social category, so that stronger perceptions of outgroup identification (indicating stronger attraction to the outgroup category) indicated greater outgroup attraction. Sample items included "I see myself as an old adult" and "I feel connected to old adults," (ω = .60). Although the reliability of both outgroup identification scales could be increased to more acceptable levels by omitting the "I feel connected to [outgroup]" item (α = .79 and α = .77, respectively), the gains in reliability were not deemed sufficient to justify modifying the established scale, nor was

subsequent hypothesis testing affected by using the reduced 2-item scale rather than the complete 3-item scale. All items were therefore retained and used in the analysis.

Results

Descriptives of the study variables are presented in Table 1. Hypothesis testing occurred in two stages.[4] First, contrast analyses and multivariate regression were used to test individual hypothesized relationships. Second, structural equation modeling was used to assess the holistic model.

Table 1. Descriptives and Correlations of Study Variables.

	M	*SD*	1	2	3	4	5	6
1. Quantity of Social Cues	.56	.50	–					
2. Intensity of Social Cues	.49	.50	-.01	-				
3. Salience of Social Cues	.49	.50	.08	.09	-			
4. Anonymity	2.61	1.20	.08	-.06	.01	-		
5. Intergroup Perceptions	6.09	.94	-.08	.18†	.12	-.14*	-	
6. Ageism	2.68	1.22	.06	-.03	.06	.11	-.12	-
7. Outgroup Attraction	2.38	1.00	.04	.01	-.12	.09	-.14*	.16*

Notes. *$p < .05$; †$p < .01$

Quantity of Social Cues, Intensity of Social Cues, and Salience of Social Cues were experimentally manipulated to be either high or low. These conditions were dummy-coded for analysis, assigning the "high" conditions a value of "1" and the "low" conditions a value of "0."

[4] Prior to hypothesis testing, we ensured heterophily of responses between the participant and target, ensuring resultant perceptions were not based on homophilous responses. Percentage of agreement in response categories between participants and the target were calculated for all conditions and ranged from 0 (no shared responses) to 1 (all responses identical). Participants provided disparate responses from their target across all conditions (M = .15, SD = .19). Response homophily did not differ among participants in the disparate quantity of social cues, $F(1, 250) = .11$, $p = .74$, or salience of social cues, $F(1, 250) = .21$, $p = .65$, conditions but did differ in the intensity of social cues condition so that participants' profiles were more similar to the target's in low-intensity conditions (m = .27, sd = .19) than in the high-intensity conditions (m = .02, sd = .07), $F(1, 250) = 184.73$, $p < .001$, $\eta_{partial}^2 = .42$. This nondifference may be expected, as social cues in the low-intensity condition were intentionally manipulated to reduce the social distance between participant and target. Thus, the manipulations appeared successful in creating heterophilous profiles between the participant and target among conditions, enabling analyses to draw conclusions based on the conditions rather than profile match.

Hypothesis Testing

The three hypotheses predict that individuals perceive a partner more on intergroup characteristics when (H1) *more cues* to the partner's social identity are present, (H2) cues to the partner's social identity are more *intense*, and (H3) cues to the partner's social identity are more *salient*. These three hypotheses were tested via a trio of independent group *t*-tests, contrasting the intergroup perceptions of participants' partner between the relevant low and high conditions. Participants did not differ in their intergroup perceptions of their partner when exposed to fewer social identity cues (n = 107, m = 6.17, sd = .85) than when exposed to a target with more social identity cues (n = 134, m = 6.02, sd = 1.00), $t(239) = 1.17$, p = .24, d = .15; therefore, H1 was not supported. Participants perceived their partner more on intergroup characteristics when the high-intensity identity cues were displayed (n = 117, m = 6.26, sd = .94) than when social identity cues were less intense (n = 124, m = 5.92, sd = .92), $t(239) = 2.77$, p = .006, d = .36, supporting H2. Finally, participants showed no difference in intergroup perceptions of their partner when their partner's social identity was not salient (n = 122, m = 5.98, sd = 1.05) compared with conditions where their partner's social identity was salient (n = 119, m = 6.20, sd = .80), $t(239) = 1.85$, p = .07, d = .24; thus, H3 was not supported.

The fourth hypothesis predicts that perceptions of anonymity positively predict perceptions of a partner's intergroup status. Because sender anonymity could freely vary in this study and was operationalized as a ratio-level variable, regression analysis was used to test the hypothesis, entering other-anonymity as the independent variable and intergroup perceptions as the dependent variable. The model was significant, but the effect contrasted with the direction predicted: Participants who believed their partner to be more discursively anonymous had weaker perceptions of Remy Pappa as a member of the outgroup, $F(1, 239) = 4.57$, p = .03, R = .14, R^2 = .02. Thus, H4 was not supported.

Hypotheses five and six predict that a communicator's anonymity is influenced both by the quantity of social cues available (H5) and the intensity of social cues available (H6). These hypotheses were tested together in a single univariate regression, including quantity and intensity of social cues as independent variables and anonymity as the dependent variable. The model was not significant, $F(2, 238) = 1.06$, p = .35, R = .09, R^2 = .01; neither quantity of cues (b^* = .08, p = .24) nor intensity of cues (b^* = -.06, p = .39) significantly predicted anonymity. Thus, neither H5 nor H6 were supported.

The two final hypotheses predict increased intergroup perceptions of a target (H7) decreased perceptions of the individual's identification with the outgroup and (H8) increased ageism. These hypotheses were tested in a multivariate regression, modeling intergroup perceptions as the independent variable and outgroup attraction and ageism as the dependent variables. The regression was significant: Wilks' λ = .97, $F(2, 238) = 3.64$, p = .03. Perceptions of a communication partner's outgroup categorization negatively affected perceptions of identification with the outgroup, $F(2, 239) = 4.82$, p = .02, supporting H7. However, the effect of perceptions of a communication partner's outgroup categorization on ageism did not rise to conventional levels of statistical significance: $F(2, 239) = 3.51$, p = .06.

Structural Equation Modeling

Finally, to test the holistic model of the proposed relations among constructs, a structural equation model of hypothesized paths (Figure 3) was tested with AMOS v.21.0.0, using maximum likelihood estimation. The three dichotomous exogenous variables (quantity, intensity, and salience of social cues) were entered as pseudo factors so that their path loading was set to 1 and error variance set to 0. Using Hu and Bentler's (1999) model fit criteria, the model fit was adequate: $\chi^2(13) = 17.21$, $p = .19$, RMSEA = .03, CFI = .81. The structural equation model generally supported hypotheses previously tested independently, although salience of social cues was no longer significant ($b^* = .11$, $p = .08$) when accounting for other paths. After removing nonsignificant paths, the fit remained adequate and similar: $\chi^2(6) = 9.18$, $p = .16$, RMSEA = .05, CFI = .83 (Figure 3).

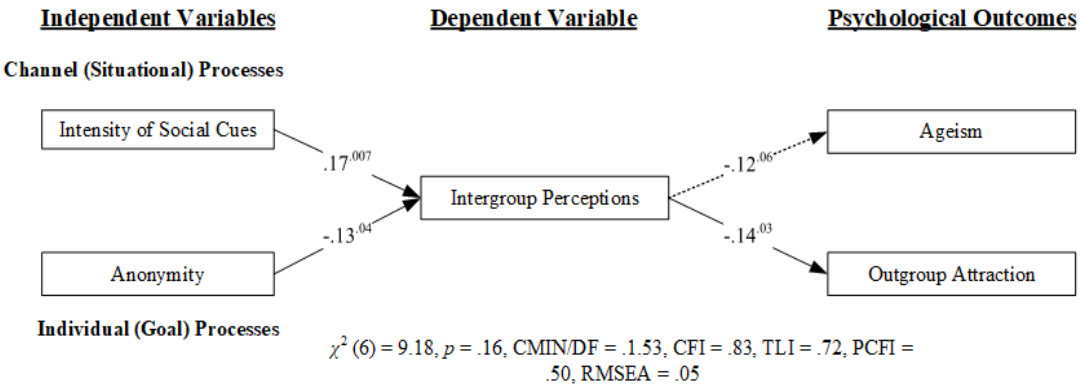

Figure 3. Structural equation model results (simplified).
Note. Presented coefficients are standardized. Superscripts are *p*-values.

Discussion

When and how do social media users perceive others as individuated, unique individuals rather than as members of social groups? Given the glut of both individuating and social cues available on social media, the dual-process model of interpersonal–intergroup communication (Hinck & Carr, 2021) suggests several antecedent factors and processes that govern subsequent perceptions of a communicative partner as either a unique individual or member of a social group. This research empirically tested several of the model's propositions about the antecedents of initial interactions along the interpersonal–intergroup continuum and extended the process by exploring perceptual outcomes driven by the degree to which that communication partner is perceived as a group member. The findings offer several important insights and contributions to both theoretical processes and applied behaviors.

Predictors of Intergroup Perceptions

An initial contribution of this work is empirically testing several of the propositions and theorems of Hinck and Carr's (2021) dual-process model of interpersonal–intergroup communication. The process from the model most clearly supported is the role of social cue intensity in driving intergroup perceptions.

As social cues to the target's (i.e., Remy Pappa) social category as an older adult became more intense, participants more strongly viewed Remy as being associated with the social category of "old adult": A Boomer. Whether Remy listed more or fewer stereotypical "Boomer" cues or whether age was germane to the imagined contact did not affect intergroup perceptions. Rather, the effect of cue intensity occurred independent of the quantity or salience of social cues, so that in conditions in which Remy's social media profile contained social cues emphasizing and exacerbating Remy's age disparity, participants perceived Remy as more stereotypical of the "old adult" social category.

Though the lack of support for the direct antecedent effects of quantity and salience of social cues is theoretically surprising, it is consistent with prior work that has noted that even small, discrete cues can activate intergroup perceptions and processes (e.g., Ellison, Heino, & Gibbs, 2006), even if not germane to a particular communicative context. Herein, small but intense social cues were enough to override the individuation afforded by a picture. A potential explanation is that, counter to early theorizing that photographs are sufficient to individuate a target and suppress intergroup processes (Reicher et al., 1995), profile photos—so common to social media—served as social cues themselves. Individuals can select either an isolated headshot for a profile photo (i.e., a personalizing cue) or of their favorite sport team's mascot (i.e., a social identity cue; Carr et al., 2013), and the use of a photo of an older adult may have been sufficient to activate intergroup perceptions and processes based on age. Thus, this study provides an important insight into how channel processes elicit intergroup positions: When social media platforms or user's decisions emphasize a particularly strong social cue, the intensity of that cue may override the user's individuating picture or the context of that interaction in favor of the depersonalized social identity (see Wang, Walther, & Hancock, 2009).

Unexpectedly, the quantity of social cues did not affect perceived anonymity. As the target, Remy, had greater and more intense cues to their age-related identity, the participants did not perceive Remy as any more or less identifiable. This finding may be somewhat explicable as social cues (both textual and visual) may not necessarily deanonymize. Knowing a partner's musical preferences, social passions, dinnertime, and descriptive adjectives may not be enough to deanonymize a user beyond their picture. Photographs may not stymie deindividuation, but instead ensure personalization (see Dai & Shi, 2022).

More challenging is the significant effect of the target's degree of anonymity and intergroup perceptions opposite the direction predicted. Counter to the dual-process model's proposition, increased anonymity reduced intergroup perceptions. One possible explanation is the nature of the study and its selected social categories: Operationalizations of identifiability may have signaled social rather than personal identity. Basic individuating information (e.g., name, hometown) was held constant across conditions, and variance in identifiability stemmed from social cues that reduced uncertainty about the target Remy Pappa. Uncertainty-identity theory (Hogg, 2007) asserts (in part) that in times of situational uncertainty, individuals may identify and rely on social categories for self-identity, thereby reducing uncertainty and helping to guide their behaviors and attitudes. Given the uncertainty of an otherwise zero-history interaction, participants may have sought to reduce uncertainty of the imagined interaction with Remy by extrapolating social categories from the available information. Thus, any information—from Remy's name to profile photo to dinnertime preference—was used to ascribe social categories and make relevant assumptions. This finding reinforces Westerman, Van Der Heide, Klein, and Walther's (2008) prior extension of the social identity

model of deindividuation effects (SIDE) into interpersonal domains, indicating that in zero-history interactions, social cues can be used to identify individuals and guide initial impressions based on social categories rather than individualized information. As such, social media profiles emphasizing social categories rather than unique information guiding the personalized impression of the user may unintentionally lead users to initial impressions based on social categories.

Though the study hypotheses received mixed support, results reveal that communicators may perceive social targets or interactants as members of social groups when an identifiable user gives off intense cues to a social identity. As such, the findings respond to calls to understand the factors leading to intergroup versus interpersonal perceptions online (e.g., Keblusek et al., 2018), providing initial empirical evidence of parts of Hinck and Carr's (2021) model. Although many of the tested propositions and theorems are unsupported by these data, the overall model is significant (see Figure 3), suggesting that this approach to understanding intergroup/interpersonal perceptions in social media merits further pursuit. Demonstrating initial perceptions along the interpersonal–intergroup continuum can be affected by the intensity of social cues, and the identifiability of communicators advances our understanding of how we make sense of and initially interact with others, particularly in the information-rich environments of social media.

Effects of Intergroup Perceptions

Beyond understanding the antecedents of initial perceptions, this study also sought to understand the effects of viewing another social media user as an individual or member of a social group. Theoretically, the present study offers empirical support for Park's (2012) notion that intergroup contact across social groups can nudge more favorable intergroup perceptions, even in mediated spaces when the contact is imagined. When participants' perceptions were more driven by Remy's membership with the outgroup (older generation), participants viewed that outgroup as less attractive; however, when participants perceived Remy more interpersonally—as a fellow individual on Bitmor—they viewed themselves as less distal to the older adult outgroup. Given social media's ability to enable increased exposure to disparate social groups (even via passive usage or observation of others), the findings suggest that an emphasis on individuating cues (or a deemphasis on social category cues) may help individuals be exposed to members of disparate social categories as individuals rather than as stereotypes.

Findings also challenge the degree to which mediated imagined contact reduces intergroup prejudice. Though imagined interactions across social groups could affect how participants viewed individual users (Crisp & Turner, 2009), there was surprisingly no significant difference in ageism when participants perceived their partner (Remy) as an individual or a social group member. These findings counter previous research about mediated intergroup contact and intergenerational contact (Harwood, 2000; Park, 2012), which suggests that even when a social media user imagines a positive interaction with a "Boomer," ageist stereotypes may persist.

This result is potentially a mere type II error. Though our a priori effect size calculation suggested that we had sufficient power to detect effects, H8 was unsupported at $p = .06$ only at conventional heuristic standards (see Cohen, 1988). Even a slightly more relaxed interpretation of statistical significance would

interpret this path as statistically significant, supporting research on the role of mediated imagined intergroup contact in prejudice reduction.

Broader Implications

These findings have implications beyond intergenerational interaction, supporting mediated imagined intergroup contact research (Crisp & Turner, 2009; Wojcieszak et al., 2020). Whether prejudice is intergenerational or based on other salient social groups (e.g., religious views, sexual orientations, political attitudes), individuals' ability to merely observe nonreciprocally with others who are members of disparate social categories can help reduce intergroup prejudice. Social media may not fix group differences, but these data demonstrate that they can provide opportunities for reducing intergroup prejudice simply via imagined contact.

Findings also provide empirical evidence for the antecedent factors guiding interpersonal or intergroup processes in initial interactions. Initially perceiving and interacting with others interpersonally (rather than as group members) can be fostered by ensuring that social identity cues are muted in social media, helping to signal one's individuality foremost to potential interactants. For example, whereas profile pictures and frames can advocate political and social positions (e.g., climate change awareness, vaccine attitudes, LGBTQ+ allyship), they also seem to be used among homophilous networks (Rakocz, Ernala, Nir, Weinsberg, & Bahl, 2023), potentially because they guide intergroup perceptions over interpersonal ones. Particularly as online discourses seem to be increasingly polarized (e.g., Croucher et al., 2020), individuals seeking to span divides may best do so by minimizing cues emphasizing social categories.

Room to Grow

Though this work provides insights into the processes of the initial impression formation of a communicative partner guided by either interpersonal or intergroup processes, this area still has room to grow. The participants here drew on available cues to imagine a direct interaction with their target, a common scenario for social media (Wojcieszak et al., 2020). Future work can employ actual dyadic interactions, as would occur through messaging with or posting on the target's social media profile. This study prioritized experimental control over ecological validity; future research may shift these priorities to explore these effects on perceptions *in situ*. Relatedly, participants may have simply daydreamed instead of imagining a conversation with the target, resulting in the null effects of cue salience. Subsequent work employing direct interaction can overcome and resolve this potential artifact of the imagined interaction paradigm.

Additionally, the present research focuses only on a subset of the propositions and theorems of the dual-process model. Further scholarship should test other propositions and theorems to empirically assess the model holistically. Future work may begin by exploring the antecedent individual process of interactivity. Given recent interest in studying message-level constructs related to interactivity (e.g., Lew, Walther, Pang, & Shin, 2018), future work may explore how perceptions of interactive exchanges may generate personal and interpersonal knowledge.

Conclusion

As personal identity cues manifest alongside social identity cues on social media, how do users develop initial impressions of each other as either individuals or group members? This study begins to answer this question by laying an initial framework to resolve both theoretical and practical concerns. Knowing how impressions of others are framed can help guide future communication research and, if properly harnessed, can be strategically applied to enhance or ameliorate intergroup stigmas or alienation in online venues. As more individuals across generations join social media sites and provide opportunities for intergenerational interaction, continued research should explore the communicative and intergroup antecedents and outcomes.

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