

Intergroup Contact, Traditional and Social Media Use, and Attitudes Toward Chinese People in COVID-19: U.S. College Students' Perspective

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Guided by cultivation theory and intergroup contact theory, we examined how U.S. college students' traditional media use and social media use for information about COVID-19, and direct contact with Chinese were associated with their behavioral attitudes toward Chinese people in this survey study. Findings indicated that contact quality was positively associated with attitudes toward Chinese people. Moderation analyses indicated that traditional media use negatively predicted behavioral attitudes toward Chinese people for those with no Chinese friends and was a nonsignificant predictor for those with one or more Chinese friends. Furthermore, results indicated that social media use was positively associated with attitudes toward Chinese people for those who had high contact quality with Chinese but was a nonsignificant predictor for those who had low contact quality. Overall findings ruminate the critical role of intergroup contact quality and friendship in reducing intergroup prejudice in COVID-19.

Keywords: traditional media, social media, cultivation theory, intergroup contact quality, friendship, COVID-19, intergroup anxiety, attitudes toward Chinese people

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Since the novel coronavirus, or COVID-19, outbreak in early 2020 in Wuhan, China, the United States has been the number-one-ranked country in confirmed cases and in number of total deaths, with more than 1 million COVID-deaths reported in May 2022 (World Health Organization [WHO], 2022). The COVID-19 pandemic is not only a health and economic crisis, but also a political and cultural crisis in intergroup relations. Terms such as "Wuhan Virus," "Chinese Virus," "China Virus," "Asian Virus," or "Kung Flu" became media buzzwords around the world, including in the United States, especially in the early stage of COVID-19 in 2020. These stigmatizing media frames display, feed, and cultivate nationalism and ethnic prejudice, leading to surging reports of Asians being harassed, yelled at, spat on, threatened, or even physically attacked on the street (Anti-Defamation League, 2020). In this ongoing pandemic, racism and hate crimes coupled with hostile media are likely to increase without intervention. Thus, exploring the dynamic interplay between media exposure and intergroup contact is imperative in reducing intergroup biases and improving intergroup attitudes toward Asians and Asian Americans.

Along with many parts of the world, colleges and universities across the United States were closed, in-person classes were cancelled, and social distancing mandates were issued in mid-March 2020. During COVID-19, a time of crisis, American college students, like anybody else, tend to rely on various news resources including traditional media (e.g., TV, newspapers, and radio) and social media (e.g., Twitter, Facebook, TikTok, Instagram, Reddit), to seek information and cope with social isolation and anxiety caused by COVID-19 (Jones, 2020). College students as an age group are mostly in their early 20s (e.g., 18 to 24). To be specific and to not fall into overgeneralization, the current study focuses on the perspective of traditional American college students who are typically in their early adulthood. This group of young adults are also referred to as digital natives, Pivotal, or Generation Z, and are characterized by a high level of acceptance of diversity and racial equity, social and political engagement, and activism (Swartz, Huff, & Harper, 2017).

The college years for students with an age range from 18 to 24 or even beyond have been identified as a pivotal period for developing personal and social identities, emotionality, prosocial behaviors, and empathic attitudes as they adapt to various individual, relational, social, and contextual transitions (Eisenberg, Morris, McDaniel, & Spinrad, 2009). Prior research indicates that positive youth development, such as engagement in empathic and prosocial behaviors during adolescence and early adulthood has foundational influence for the development of social responsibility and citizenship across the life span (Allemand, Steiger, & Fend, 2015). Specifically, empirical evidence indicates a strong association between greater development of youth empathy or prosocial/civic responding and lower prejudice (Nesdale, Griffith, Durkin, & Maass, 2005). Additionally, research shows that various personal and contextual dynamics including media use, influence the promotion of positive youth development (Vossen & Valkenburg, 2016).

According to Hopkins, Stark, Zinoviev, Tousignant, and Fireman (2022), students are motivated to attend universities and colleges to develop a sense of belonging to a community, expand social connections, and strengthen their identity. Undoubtedly, the COVID-19 pandemic is a historical, foundational, and identity-defining global event, "causing massive changes" for youth in early adulthood, such as college students (Hopkins et al., 2022, p. 2). Examining college students' media use in seeking information related to COVID-19 and their direct contact with Chinese people in explicating intergroup attitudes toward Chinese is thus timely research, providing insight into our understanding of college students' social psychology, media use, development, and generational identities.

National mainstream media and news in general have provided the major sources of information, to some extent “an overabundance of information” about COVID-19 for Americans (Jones, 2020, para.1). The information overload, much of which carries negative sentiments against China, significantly influences college students’ attitudes toward Chinese people in tandem with their adaptation to the new learning environment during the onset of the COVID-19 pandemic. Empirical studies have differentiated the effects of social media from traditional media in cultivating ethnic prejudice (Tsai, Phua, Pan, & Yang, 2020). While consuming traditional media for COVID-related news is positively associated with intergroup prejudice, news consumption on social media resulted in mixed intergroup consequences toward Chinese and/or the Asian immigrant community as an outgroup depending on network characteristics, media and social trust, and discussion heterogeneity (Ahmed, Chen, & Chib, 2021; Croucher, Nguyen, & Rahmani, 2020). These studies indicate that similar news stories can be presented differently through traditional media and social media; the variety and accessibility of stories vary between these two media sources with traditional media having more limitations (e.g., lack of user agency and interconnections of users). From the perspective of cultivation theory (Gerbner, 1990; Gerbner & Gross, 1976), we first examine the influences of traditional media use and social media use for information related to COVID-19 on willingness to have future intercultural experiences (i.e., behavioral attitudes) with Chinese people among a large group of U.S. college students.

The global COVID-19 pandemic also provides a context in which contact opportunities and experience between groups (e.g., U.S. college students and Chinese sojourners) may promote or exacerbate intergroup relations (Tsai et al., 2020). With more than 1 million international students in the United States, colleges and universities have become major places for intercultural interactions between U.S. American and international students. Chinese students accounted for 33.7% of all international students in the 2018–2019 academic year, ranking number one in the nation (Institute of International Education, 2020). Based on intergroup contact theory (Pettigrew, 1998), we argue that direct contact with outgroup members enhances prejudice reduction. Hence, we also considered the participants’ direct intergroup contact (i.e., contact quality with Chinese and the number of Chinese friends) in explicating attitudes toward Chinese people during a global pandemic.

Traditional Media Use and Intergroup Attitudes

Traditional media use is operationalized as consuming information about COVID-19 through cable media outlets such as traditional broadcast networks (e.g., Fox News, CNN), newspaper, and radio in this study. During the COVID-19 pandemic, traditional media have become major sources of information for Americans, especially in the chaotic stage of the pandemic in early 2020. A survey conducted by the Pew Research Center (Shearer, 2020) shows that around 61% of Americans rely on national and local media outlets to gather information about COVID-19. According to cultivation theory, a heuristic media effects theory, media use affects the audience’s construction of reality (Gerbner & Gross, 1976; Gerbner, Gross, Signorielli, & Morgan, 1980).

In the 1960s, Gerbner started a project called “cultural indicators” with a goal to study television policies, programs, and effects (Gerbner et al., 1980). At the early stages, cultivation research examined violent acts depicted on television and their effects on teenagers’ perceptions of the real world (Gerbner, 1990; Gerbner & Gross, 1976). Since then, cultivation theory has spawned numerous studies examining the influence of repeated exposure to media content on viewers’ perceptions of the real world (Busselle & van den Bulck, 2020), values (Zhang & Harwood, 2002), and attitudes (Mastro, Behm-Morawitz, & Ortiz, 2007).

In the area of media and intergroup relations, research has examined the association between media exposure and intergroup perceptions and attitudes in various contexts, such as ethnicity (Mastro et al., 2007; Ramasubramanian, 2011). Traditional media, such as television, often underrepresent or stereotypically and negatively represent ethnic minorities (Mastro et al., 2007). The lack of coverage and/or distorted/negative coverage of certain racial and ethnic groups affect the majority groups, such as White Americans' perceptions and attitudes toward minorities (Mastro et al., 2007).

In an international context, topics or stories featuring China in the U.S. media are often negative (e.g., economic and trade conflict, threat, ethnic clashes, Tibet issue). In the ongoing COVID-19 pandemic, U.S. media have frequently faulted China with various conjectures, including ineffective handling of coronavirus outbreak, fabricating numbers of confirmed cases and death, and false reporting (Silver, Devlin, & Huang, 2020). As such, in line with cultivation theory, most recent literature indicates that traditional-media news consumption is positively associated with intergroup prejudice toward Asians during COVID-19 (Tsai et al., 2020). We argue that the more college students use traditional media to seek COVID-19-related information, the more likely they are exposed to negative coverage about China, leading to more negative attitudes toward Chinese people. Hence, we propose the following hypothesis.

H1: U.S. American college students' traditional media use for information related to COVID-19 is negatively associated with their willingness for future intergroup contact with Chinese people (behavioral attitudes).

Social Media Use and Intergroup Attitudes

The rise of communication technologies has increased the utilization of social media platforms and the consumption of digital news. Essentially, social media are interactive online communication channels or platforms that allow users to "create a profile, articulate a list of connections, and navigate these connections" (Barnidge, 2020, p. 1101). Social media usage encompasses a wide range of behaviors based on these affordances and modalities of the platforms (Barnidge, 2020). For example, users consume news and stories, seek information about COVID-19 through social networking sites (e.g., Facebook), photo- (Instagram) and video-sharing platforms (e.g., YouTube or TikTok), microblogging sites (e.g., Twitter), or online message boards (e.g., Reddit). We operationalize social media use as the engagement of various platforms in seeking COVID-19 information.

During times of crisis and exigencies such as COVID-19, social media have become indispensable for users to obtain and disseminate information about the pandemic. Supporting this view, Brooks and D'Agostino (2020) found that Twitter "reached a maximum volume" of posts and conversations (i.e., 548,152,410; p. 2) related to the pandemic in one day. TalkWalker (2020) also tracked social media data and reported that COVID-19 has been "referenced on social media 40.2 million times between May 12th to May 18th, 2020" (p. 2). A Pew Research Center study (Shearer & Mitchell, 2021) found that the user base for social media as a regular source of news during 2020 was relatively young. Thus, American college students, more than ever, browse on social media to seek information on COVID-19 to reduce risk and engage in necessary precautionary actions. In 2021, the most popular social media platforms for news consumption for young adults between 18 to 29 years old were TikTok and Snapchat (Walker & Matsa, 2021).

Given the interactive nature of and interconnections of users on social media, individuals are more likely to encounter a more diverse virtual environment than their in-person social environment (Hermann, Eisend, & Bayón, 2020). This insight is uniquely true for college students who tend to endorse diversity and equality at high levels (Swartz et al., 2017). Supporting this view, Vossen and Volkenburg's study (2016) indicated that compared to adolescents not using social media, adolescents who used social media had an improved ability to empathize with others (Vossen & Volkenburg, 2016), leading to the reduction of prejudice (Nesdale et al., 2005). As digital natives, college students' interactions with diverse users representing different social groups and their extended exposure to diverse message content on social networking sites may bring about more positive attitudes toward social groups and foster diverse perceptions (Hermann et al., 2020).

Exposure to diverse viewpoints on social media benefits prejudice reduction. Amid some strong anti-Chinese voices and anti-Asian sentiments spreading via social media during the COVID-19 pandemic outbreak, many social media users expressed support for Chinese and Asian communities. U.S. lawmakers' Facebook and Twitter posts sharing concerns about violence, discrimination, or racism against Asian Americans have also drastically increased starting in early 2020 (Shah, Widjaya, & Smith, 2021). Many victims of racist attacks and their supporters and advocates resort to social media for a conversation about racism and violence, leading to thousands of empathic and sympathetic responses (Associated Press, 2020). American college students who are technology-savvy and use social media as their primary news source for COVID-19 may be more likely to observe more diverse depictions of China and Chinese people and voice their support of the community than other age groups.

Yet empirical studies have reported mixed findings about the effects of social media use on attitude toward outgroups. Hermann et al. (2020) revealed that heavy social media users' exposure to diverse message content and mediated contact with ethnic minorities on Facebook resulted in positive attitudes toward ethnic outgroups. With respect to the COVID-19 pandemic and attitudes toward immigrants, Adam-Troian and Bagci (2021) found that perceived COVID threat was related to a more positive view of outgroups and prosocial tendencies toward immigrants, highlighting the potential unifying effect of the pandemic through an emerging shared identity and sense of common fate. On the other hand, research found that users who extensively relied on partisan news sources such as social media to get political news reported more negative attitudes toward the minority group (Cho, Li, Cannon, Lopez, & Song, 2021). Likewise, Croucher et al. (2020) investigated social media use and COVID-19 related prejudice. They found that perceived threat reflected in social media content was associated with higher levels of prejudice toward the outgroup who was viewed as responsible for spreading the virus. Furthermore, Ahmed et al.'s (2021) research indicated that social media use for news purposes was associated with higher levels of prejudice against the Chinese immigrant community. Methodological differences, variables measured, and/or participants' characteristics (e.g., age and media use behaviors of the participants) may explain some of the inconsistent research findings. The current study focuses on the perspective of American college students who are digital natives integrating the use of media and online communication technologies such as social media platforms into their daily lives (Liu, Liu, Yoganathan, & Osburg, 2021). While social media platforms have important differences in user affordances, rules, and norms, they share important commonalities in that they "haven't created 'filter bubbles' of like-minded content" (Barnidge, 2020, p. 1101). In the current study, we focus on the aggregated effects of multi-platform social media news use in

explicating intergroup attitudes toward Chinese people during COVID-19. Given the inconsistency of previous literature, we propose the following research question.

RQ1: How is U.S. American college students' social media use associated with their behavioral attitudes toward Chinese people in COVID-19?

American College Students' Direct Contact With Chinese People

With more than three hundred thousand Chinese international students pursuing their education in the United States (Institute of International Education, 2020), American college students have more opportunities to have direct contact or face-to-face communication with Chinese students at colleges and universities than other age groups such as older adults. Hence, attitudes toward Chinese may be affected by their direct contact with Chinese people. Prior studies support intergroup contact theory and indicate that people who have outgroup contact, especially when the contact is positive, show lower prejudice toward the target outgroup (Pettigrew, 1998; Shim, Zhang, & Harwood, 2012), as intergroup contact enhances learning about the outgroup and increases chances of establishing affective ties with the outgroup (Zhang, Paik, Xing, & Harwood, 2018). A meta-analysis conducted by Pettigrew and Tropp (2006) indicated that "contact typically reduces intergroup prejudice and these contact effects typically generalize to the entire outgroup" (p. 751). More specifically, prior research indicated that "communication quality plays a stronger role than communication frequency" in predicting positive attitudes (Zhang, Li, & Harwood, 2021, p. 2997). Consistent findings about the positive role of contact quality have been reported in the context of American host nationals and international students in the United States (Imamura, Zhang, & Harwood, 2011; Terigele, Zhang, & Jiang, 2022), British people and Japanese international students in England (Greenland & Brown, 1999), and Mexicans and Americans in Mexico (Stephan, Diaz-Loving, & Duran, 2000).

More importantly, intergroup friendship developed out of intergroup contact has been considered as an important factor for the reduction of intergroup biases. In accentuating the importance of intergroup friendship in reducing intergroup biases, Pettigrew (1998) argued "the contact situation must provide the participants with the opportunity to become friends" (p. 76). Literature has demonstrated the important role played by friendship in reducing prejudice in intergroup contexts (Pettigrew, 1997). Pettigrew (1997) found that compared to having outgroup coworkers and neighbors, having outgroup friends was a stronger negative predictor of outgroup prejudice. Similar findings were reported in the high school setting (Christian & Lapinski, 2003).

Recent studies examining intergroup contact and intergroup prejudice in COVID-19 have focused on contact frequency (Croucher et al., 2020; Tsai et al., 2020) during COVID-19. Tsai et al. (2020) found that intergroup contact frequency was a positive predictor of prejudice toward Asians during COVID-19. Additionally, Croucher and colleagues (2020) found that intergroup contact frequency positively predicted perceived symbolic threat but negatively predicted intergroup anxiety. These studies have enhanced our knowledge about the perplexing role played by intergroup contact frequency at a time of a global pandemic in that it may not be adequate to enhance positive intergroup attitudes, but actually may exacerbate intergroup prejudice. Extending prior literature, this project examines the associations between American college students' contact quality with Chinese and the number of Chinese friends they have and their

attitudes toward Chinese people in an extreme situation like the COVID-19 pandemic. This study proposes the following hypotheses:

- H2: U.S. American college students' contact quality with Chinese is positively associated with their behavioral attitudes toward Chinese people.*
- H3: The number of Chinese friends that American participants have is a positive predictor of behavioral attitudes toward Chinese people.*

Media Use and Intergroup Attitudes: Direct Contact as a Moderator

In line with intergroup contact theory, previous research expanded face-to-face contact effects to mediated contact, showing that more exposure to positive mediated contact with outgroup members can also reduce prejudice toward the target outgroup and increase positive intergroup attitudes (Ortiz & Harwood, 2007). On the contrary, negative mediated contact may further perpetuate negative stereotypes, prejudice, and negative attitudes toward the target outgroup (Ramasubramanian, 2011).

The effect of mediated contact on attitudes toward the target outgroup as a whole is also influenced by individuals' personal knowledge about the target outgroup learned from direct contact experiences with outgroup members. Specifically, the mainstreaming cultivation effect predicts that individuals are more affected by media content when their personal experiences are limited (e.g., have no outgroup friend; Gerbner et al., 1980). In a similar vein, previous intergroup contact research indicates that negative mediated contact is more likely to result in negative intergroup attitudes when personal contact with the outgroup is limited (Fujioka, 1999; Fuochi et al., 2019; Shim et al., 2012). In line with prior literature, the following hypothesis is proposed.

- H4: Direct contact variables, contact quality, and the number of Chinese friends participants have, moderate the association between U.S. American college students' traditional media use and behavioral attitudes toward Chinese people.*

Social media function to reduce the boundaries of group memberships, which results in high levels of permeability of subgroups; thus, social media such as Facebook may further promote direct or vicarious contact (Carr, Varney, & Blesse, 2016). Pennington (2021) found that social media use during COVID-19 involves relational connections with both strong and weak ties. Therefore, users are likely to maintain communication with friends on social media and browse nonfriends' posts to encounter news or content from public figures and news sources. Thus, those with Chinese friends or connections may immerse in exploring "insider information" and search for information related to COVID through their friends. Research has pointed out that contact through Facebook has a positive association with outgroup attitudes (Schwab, Sagioglou, & Greitemeyer, 2019). However, little research has explored how direct intergroup contact affects the relationship between social media use and outgroup attitudes during COVID-19. Hence, we propose the following research question:

- RQ2: Do direct contact variables, contact quality, and the number of Chinese friends participants have, moderate the association between U.S. American college students' social media use and behavioral attitudes toward Chinese people during COVID-19?*

Method

Participants and Procedures

Participants were U.S. college students ($N = 504$; 249 females, 250 males, 3 non-binary individuals, and 2 did not answer; M age = 20.66, $SD = 1.95$; age range 18 to 25), and they were recruited through CloudResearch in May and June 2020. The survey was about 12 to 15 minutes long, and each participant was paid \$1.20 upon completion of the survey. Of the participants, 320 (63.5%) were White/Caucasian Americans, 66 (13.1%) were African Americans, 48 (9.5%) were Hispanic/Latinos, 45 (8.9%) were Asian Americans/Pacific Islanders, 7 (1.4%) were Biracial/Multiracial, 12 were Native Americans (2.4%), and 6 (1.2%) were unspecified. Asian Americans were not included in the main analyses in the current study. Participants reported an average of 14.33 years of education ($SD = 2.33$). Participants also answered a 7-point semantic differential question containing a bipolar pair of adjectives (Conservative–Liberal) to indicate the degree to which they were Conservative–Liberal ($M = 4.15$, $SD = 1.63$).¹ After the demographic and background questions, participants responded to a series of questions assessing the following major variables.

Materials

Traditional Media Use²

Participants answered our questions related to how often they used specific cable media outlets for information related to COVID-19 (1 = *not frequently at all*, 7 = *very frequently*) on a daily basis during the lockdown which started in mid-March 2020. The outlets included CNN, MSNBC, Fox News, and other traditional broadcast networks such as ABC, NBC, CBS, newspapers, and radio (radio news such as NPR and talk show radio programs). Participants used these traditional media outlets moderately frequently ($M = 3.73$, $SD = 1.53$, $\alpha = .87$). Higher numbers indicated more traditional media use.

Social Media Use

For social media use, participants answered our questions measuring how often they used specific Internet sites for information about COVID-19 (1 = *not frequently at all*, 7 = *very frequently*; $M = 4.29$, $SD = 1.54$, $\alpha = .79$) on a daily basis during the lockdown that started in mid-March 2020. The sites included

¹ Out of all the demographic and participant background variables, political ideology was the only significant predictor of attitudes toward Chinese. Participants who were more liberal had more positive attitudes toward Chinese than those who were more conservative, $\beta = .11$, $t = 2.35$, $p < .05$.

² The traditional and social media use variables were factor analyzed using exploratory factor analysis (EFA) and Bartlett's Test of Sphericity was significant ($\chi^2(55) = 2562.10$, $N = 504$, $p < .001$), which indicated a clear and meaningful two factor solution—traditional media use (explaining 32.41% of the variance) and social media use (explaining additional 27.01% of the variance). Hence, we used an aggregated approach (traditional versus social media use) in this study.

photo (Instagram) and video sharing sites (YouTube, TikTok, or Vimeo), social networking sites (Facebook or LinkedIn), microblogging (Twitter or Tumblr), and online message boards (Reddit or Digg). These five typologies of social media use were based on Barnidge's (2020) six-item measure of social media news use. This study did not include the sixth item ("mobile messaging websites or apps" such as Snapchat or WhatsApp) used in Barnidge (2020, p. 1106). Higher numbers indicated more social media use.

Contact Quality With Chinese

Three items adapted from Shim et al. (2012) measured contact quality with Chinese ($M = 3.36$, $SD = 1.64$, $\alpha = .89$). ("My contact with Chinese in general is pleasant"; 1 = *strongly disagree*, 7 = *strongly agree*, 1 = *not frequently at all*, 7 = *very frequently*). Higher scores indicated contact that was more positive.

Number of Chinese Friends

In prior intergroup contact literature, scholars asked a direct question about the number of outgroup friends participants had (e.g., "how many friends do you have at university who are Asian?"; Turner, Hewstone, Voci, & Vonofakou, 2008, p. 846). Pettigrew (1997) and Shim and colleagues (2012) also used a similar item to measure the number of outgroup friends. In this study, participants were asked to list the number of Chinese nationals they considered as friends ($M = 2.17$, $SD = 3.73$, range 0 to 15). This variable was highly skewed (i.e., skewness = 5.03) as 191 participants (i.e., 37.9%) reported having zero Chinese friend. A log transformation reduced, but failed to correct the skewness completely, thus this variable was coded into a categorical variable (0 = no friend, and 1 = having at least one Chinese friend).

Behavioral Attitudes Toward Chinese People

Behavioral attitudes are participants' willingness to engage in diverse activities with Chinese people, which were measured using five items (e.g., "I am willing to work with international students from China on group projects in my class." 1 = *strongly disagree*, 7 = *strongly agree*; $M = 5.12$, $SD = 1.47$; $\alpha = .92$) adapted from Cooke's (1978) seven-item scale. Two items (i.e., "I am willing to accept Chinese nationals as visitors to my country.") were dropped because of repetition. Higher scores indicated more positive behavioral attitudes.

Results

Hierarchical regression analyses with three models were conducted using SPSS version 25 (see Table 1) to examine our hypotheses and questions. Most of the variance inflation tolerance (VIF) scores of the predictor variables were around 1.0 and no VIF scores of any predictors were above 3, indicating that there was no multicollinearity problem.

Upon testing H1 (traditional media use and attitudes), H2 (contact quality with Chinese and attitudes), and H3 (the number of Chinese friends and attitudes) and answering RQ1 (social media use and attitudes), the unique predictive associations between the predictor variables and attitudes were examined (i.e., model 3 statistics were used). To examine the moderator effects (H4 and RQ2) of the contact variables, the interactions between the two contact variables and media use variables were examined. Significant interactions were further decomposed using simple slope analyses. Specifically, regression based bootstrap

analyses with 5,000 iterations (which enhances power) were conducted using PROCESS for SPSS (Model 1, version 3.5, Hayes, 2018). Model 1 was used as it focuses on testing the conditional effect of the focal predictor at different levels of the moderator while controlling for all other covariates and reports the simple slope analyses and the required data for visualizing the conditional effect of the focal predictor.

Supporting H1 and H2, results (Table 1) indicated that traditional media use was a negative predictor ($b = -.43, t = -4.89, p < .001$; explaining 5% of the unique variance in attitudes) and contact quality with Chinese was a positive predictor ($b = .37, t = 6.52, p < .001$; explaining 2% of the unique variance in attitudes) of attitudes toward Chinese. Unlike what was predicted, the number of Chinese friends participants had was a nonsignificant predictor of attitudes, $b = .06, t = 1.04, p = .29$. Hence, H3 was not supported. As for RQ1, results indicated that social media use was a significant predictor of attitudes toward Chinese ($b = .19, t = 2.14, p < .05$; explaining 8% of the unique variance in attitudes).

Results also indicated that the interaction between traditional media use and the number of Chinese friends participants had was significant, $b = .18, t = 2.33, p < .05$. The significant interaction was decomposed using simple slope analyses, of which the predictive associations between traditional media use and attitudes were examined for those without any Chinese friends and those with at least one Chinese friend while controlling for all the covariates. Supporting H4, results indicated that traditional media use was a significant negative predictor of attitudes toward Chinese for those having no Chinese friends, $b = -.36, 95\% \text{ CI} = [-0.51, -0.212], SE = 0.08, p < .001$, but was a nonsignificant predictor for those having one or more Chinese friends, $b = -.10, 95\% \text{ CI} = [0.234, -0.270], SE = 0.09, p = .23$. These findings seem to indicate the buffering role of intergroup friendship in mitigating the negative influence of traditional media use on attitudes toward Chinese (Figure 1).

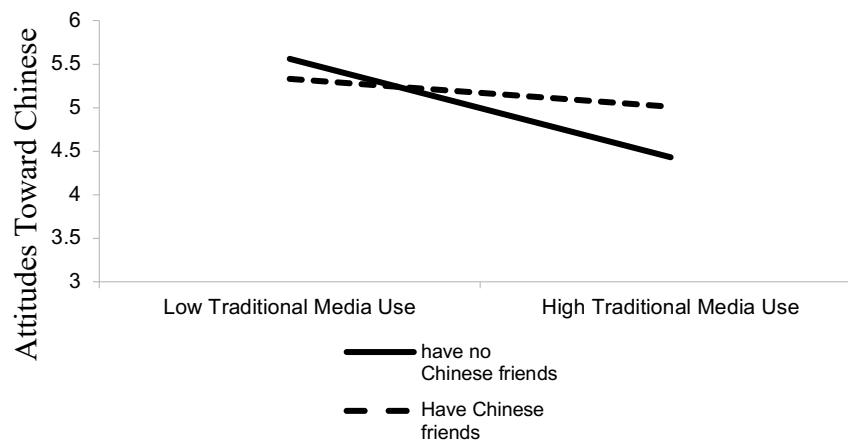


Figure 1. Decomposition of the interaction between traditional media use and the number of Chinese friends participants had.

Table 1. Relationships Between the Predictor Variables and Intergroup Attitudes Toward Chinese People.

	Intergroup Attitudes Toward Chinese People ^a		
	R^2 change	Standardized β	sr^2
1. Demographic and Background Variables	.06***		
Age		-0.05	.00
Sex		0.02	.00
Years of Education		0.09	.02
Ethnicity		0.07	.00
Political Ideology		-0.18***	.03
2. Major Predictor Variables	.13***		
Political Ideology		-0.13**	.01
Traditional Media Use		-0.25***	.04
Social media Use		0.14**	.02
Contact Quality		0.37***	.07
Number of Chinese Friends		0.06	.00
3. Interaction Scores	.03**		
Traditional Media Use (TMU)		-0.43***	.05
Social media Use (NMU)		0.19*	.02
Contact Quality (CQ)		0.36***	.08
Number of Chinese Friends (NCF)		0.06	.00
TMU \times CQ		-0.08	.00
TMU \times NCF		0.17*	.01
NMU \times CQ		0.22*	.01
NMU \times NCF		-0.05	.00

Note. Because of space limitations, we included only significant predictor variables in model 2 and model 3. ^aOverall $R^2 = .23$, $F(13, 401) = 8.87$, $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$.

In addition, the interaction between social media use and contact quality with Chinese was also significant (RQ2), $b = .21$, $t = 2.14$, $p < .05$. Simple slope analyses examined the predictive associations between social media use and attitudes were examined at lower ($-1 SD$), moderate (mean), and higher ($+1 SD$) levels of participants' contact quality with Chinese. Results indicated that social media use was a significant positive predictor of attitudes toward Chinese when participants' contact quality with Chinese was high, $b = .22$, 95% CI = [0.014, 0.416], $SE = 0.10$, $p < .05$. Social media use was a nonsignificant predictor when contact quality was moderate, $b = .11$, 95% CI = [-0.036, 0.250], $SE = 0.07$, $p = .14$, or low, $b = -.00$, 95% CI = [-0.134, 0.131], $SE = 0.07$, $p = .99$ (Figure 2).

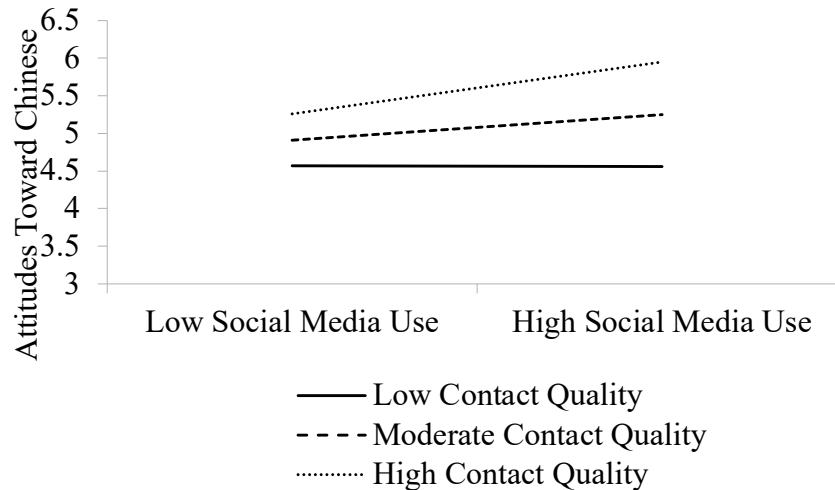


Figure 2. Decomposition of the interaction between social media use and contact quality with Chinese and attitudes toward Chinese people.

Discussion

Results from the current study indicated that contact quality with Chinese was a positive predictor of attitudes toward Chinese people. In addition, traditional media use for information related to COVID-19 was a negative predictor of American college students' willingness for future intergroup contact with Chinese. Moderation analysis revealed that this negative association was significant only for those participants with no Chinese friends. Furthermore, social media use was a positive predictor of attitudes toward Chinese people. Moderation analysis revealed that the positive association was significant only for those whose contact quality with Chinese was high. The predictor variables included in our study explained 23% of the variations in attitudes toward Chinese people. This is *nonnegligible* given that "Asian Americans [are] the fastest-growing major racial or ethnic group in the United States" and 24% of the Asian population (more than 20 million) residing in the U.S. identity within the Chinese origin group (Budiman, Cilluffo, & Ruiz, 2019, para 3). Overall, our study highlights the critical role played by positive intergroup contact in mitigating media influences. These findings are meaningful theoretically and practically.

First, this study expands on research examining the intersection of cultivation theory and intergroup contact theory by focusing on the effect of media use and direct outgroup contact on American college students' attitudes toward Chinese people. This study indicates distinct patterns of traditional media and social media influence, which is sensitive to college students' quality and level of direct contact with Chinese people. As the findings suggest, traditional media use negatively influences behavioral attitudes toward Chinese people for those American college students who did not have any Chinese friends. The more they depended on traditional media for information about COVID-19, the more negative attitudes they had toward Chinese people. This finding resonates with past research in that the mass media effects are more

salient when direct contact with other races is lacking (Fujioka, 1999; Shim et al., 2012). Compared to social media, traditional media (e.g., TV) communicate more homogeneous messages about China and Chinese people and thus a more consistent value system to a mass audience in a primarily one-way process. Hence, for those who are heavy users of traditional media and have limited direct contact experience with Chinese, they tend to have less positive attitudes toward Chinese people. This result is likely because of a lack of diverse voices and interactive user agency present in traditional media to buffer the negative impacts of the stereotypical and negative coverage about China and Chinese people for those who had limited direct contact. As such, findings in the current study about traditional media use and intergroup attitudes support mainstreaming cultivation effects (Gerbner, 1990).

Second, for those who have more positive contact with Chinese, findings in the present study indicate that social media use for information about COVID-19 is positively associated with attitudes toward Chinese people. In other words, the more American college students used social media and the more positive contact they had with Chinese, the more willing they were to engage Chinese people in various activities in the future. In the era of the global village, the rapid development of communication technologies makes mediated contact with outgroup members possible via social media. The messages conveyed in various media then play an important role in influencing the information processing of media consumers. Our findings indicate that more user agency and more emotional engagement in social media consumption may enable those who have more positive contact with Chinese to seek and consume more diverse or positive social media diets about Chinese/China (Gerbner, 1990). Hence, selective exposure may serve as a buffer to the negative influence of biased social media content about China.

The positive association between social media consumption and favorable outgroup attitudes for those who have more positive contact with Chinese people in general can also be interpreted as a unique outcome of college students' social media use characteristics. Although misinformation and disinformation increased on social media during COVID-19 (Liu et al., 2021), young adults may be more able to identify fake news in comparison to other age cohorts. An ability to recognize and identify false content contributes to attitudinal shifts. For example, Wright and Duong (2021) found that "inability to identify COVID-19 fake news was associated with increased prejudicial attitudes toward Asian Americans" (p. 5). Thus, it is possible that those who have more contact with Chinese people have more skepticism of anti-China messages on social media. Ahmed and colleagues' (2021) study indicated that prejudicial attitudes can be weakened if users engage in diverse discussion. The heterogeneous views and extended social media network can break away young adults' social media echo chamber, leading to a lower level of stereotypes and prejudices toward varying risk-perception groups. Thus, future research on social media influence should further investigate characteristics of college students' social media engagement such as diversity of social media platform use, frequency, and valence (how positive or negative) of social media expression about a particular outgroup.

Third, direct and mediated contact effects examined in this study contributes to intergroup contact theory. The findings in this study highlighted the importance of having more personal and positive contact with outgroups, especially marginalized and stigmatized outgroups. The pandemic exemplifies the power of direct contact in cross-group relationships, in that the more positive direct contact American students had with Chinese was associated with better intergroup attitudes. Knowledge about outgroups and outgroup affective ties built through direct contact helps individuals make less biased judgments when processing

racist and negative media messages and thus mitigate the negative cultivation effect. Adopting the common ingroup identity approach, Adam-Troian and Bagci (2021) explained that the pandemic has the potential to unify allies between Turkish and Syrian refugees through a newly emergent-shared identity when forming a group of "COVID-19 victims" (p. 7). Participants whose contact with Chinese is more positive may be more likely to view the virus as a common threat for human beings and thus can form allies with Chinese. As such, our findings contribute to the discussion of direct and mediated contact and their mutual influences on each other in terms of generating prosociality even in a turbulent environment in which xenophobic attitudes are prevalent.

Furthermore, results of this study provide major practical implications for fostering intergroup dialogues both face-to-face and in the virtual world. Throughout the ongoing pandemic in the United States, people depend on multiple media sources for information related to COVID-19, especially after the lockdown starting mid-March 2020. Instigated by stigmatizing media frames and negative media coverage of China, Asians, and Chinese people are not only coping with the loss of lives, health and economic threats, and anxiety like everybody else, but are also fighting against intensified resentment, xenophobic attitudes, and discrimination. At the time of this pandemic, media politicizing of COVID-19 perpetuates intergroup bias and violence. Communication, the essential activity of humans, may influence our fundamental perceptions of and engagement with the world.

As such, our study calls for actions to voice diverse opinions and create a diversified media environment. Media portrayals of underprivileged, marginalized, and stigmatized groups are often inadequate or negative, which perpetuates negative stereotypes of those groups and leaves them even fewer social resources to combat prejudice and discrimination. This vicious cycle shows that systematic oppression only worsens if no intervention is enacted because it leaves little room for those who are oppressed to change the circumstance. New technologies increase users' engagement and create more possibilities for exchanging information and opinions. The Internet makes it relatively less challenging for underprivileged groups to voice themselves and rebut the harmful misinformation and biased depictions of their groups, and therefore, increases the possibility of breaking the vicious circle (Ramasubramanian, 2011). Millennials and generation Z have unique characteristics due to abundant mobile access and exposure to social media technology since childhood. Hence, health professionals and public figures can focus on disseminating more messages related to prejudice reduction and intergroup solidarity to cultivate favorable attitudes of digital natives toward outgroups.

The moderation effect of American college students' direct contact with Chinese on the relationship between their media use and attitudes toward Chinese during COVID-19 linked intergroup dialogues in the virtual world and real world. The findings point toward future interventions to increase intergroup contact and friendship in enhancing intergroup relations through both mediated and face-to-face contact. Such interventions are especially meaningful to college students as they have more chances to interact with international students from different cultural backgrounds, and they tend to be more active and savvy with Internet media use. The role of interpersonal direct contact cannot be overemphasized even though geographic barriers and cultural differences might hinder Americans and Chinese from intercultural contact. Previous studies have indicated that positive contact experiences with outgroup members improve intergroup attitudes (Pettigrew & Tropp, 2006). With so many Chinese students in the United States, colleges

and universities have become the very front for intercultural communication. Thus, intercultural dialogues should be encouraged between Americans and Chinese to get out of their comfort zone, obtain more firsthand knowledge about each other, and establish cross-group friendships.

Given the importance and contributions of the current study, it has several limitations. First, the current study examined only college-age U.S. young adults' media behaviors and attitudes toward Chinese people, a social group that is social media savvy and most likely to have direct contact with Chinese international students on campus. Therefore, generalization of the findings of the current study to other age groups, such as young adults in their 30s, middle-aged, or older adults, should be very cautious. Future research in a similar domain should include participants from other age groups.

Findings from the Pew Research Center indicate that different age groups have different preferences of social media platforms: U.S. adults between 18-29 use Snapchat, TikTok, Instagram, and Reddit the most, while those between 30-49 often use Reddit, LinkedIn, Facebook, and YouTube (Shearer & Mitchell, 2021). Social media use for COVID-19 news in the current study focused on five major typologies of social media platforms for video and photo sharing, social networking, online message boards, and microblogging (Barnidge, 2020), which is limiting in major ways. The current study unfortunately did not measure "mobile messaging websites or apps" such as "Snapchat or WhatsApp" specified in Barnidge (2020, p. 1106). College students obviously very frequently use Snapchat, and we acknowledge this omission as a limitation. Additionally, interactive online communication channels or platforms share some increasingly blended characteristics. A better way to measure participants' social media use in the future is to measure participants' use of each social media platform individually *without categorizing the platforms* in the data collection stage to avoid overemphasizing certain platforms (e.g., Facebook) that are not most typically used by college students or deemphasizing the most frequently used platform (e.g., TikTok and Snapchat). From this regard, scholars studying social media use should also be cognizant of the constantly changing nature of social media platforms and the participant group's characteristics of social media use.

Future research on cultivation effect should further investigate characteristics of different media (e.g., media network composite, content diversity, content valence, platform availability, social affordance) as well as user agency in consuming and interacting with those media (locus of control, participation, content creation, information spread, comments). The cultivation effects of traditional and social media types should be investigated further to determine which metanarratives or messages (positive or negative) about Chinese people are most prominently portrayed in each medium. Understanding the extent to which *specific* traditional media and social media might promote differing versions of reality may provide insight into differing worldviews between media consumers.

Third, friendship is a culturally specific concept that varies in terms of types and closeness. In measuring the number of intergroup friends, the current study followed prior literature and only asked participants to report the number of Chinese friends they had. Future research should go beyond this simple measure to capture more variabilities in outgroup friendship such as types (casual, close, or best friend) and level of closeness in examining the role played by friendship in intergroup relations.

Fourth, the current study is correlational in nature. Longitudinal and experimental studies should be conducted in the future to examine and establish the causal relationship between media use and

intergroup attitudes. Additionally, the current study measured only U.S. college students' perceptions of contact quality with Chinese people and the number of Chinese friends participants had. From a perspective of intergroup threat theory, Chinese people tend to be perceived as realistic and/or symbolic threats by Americans, which is exacerbated by the coronavirus outbreak originating in China (Croucher et al., 2020). Future studies should also include negative intergroup explaining mechanisms such as intergroup threat and anxiety toward COVID simultaneously with contact quality in examining the role of contact in predicting intergroup attitudes.

With both theoretical and practical contributions to intergroup interaction during the COVID-19 global pandemic, this study illustrates the importance of having more intergroup dialogues, calls for more diverse voices and positive engagement in media, and shows the benefits of having more positive direct intergroup contact in real life. In fact, the need for intergroup dialogue and institutional support has only become stronger and more urgent in the wake of this pandemic and the deeply disturbing events of ethnic and racial injustice and violence that have transpired.

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