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#TrendingNow: How Twitter Trends Impact Social and Personal Agendas?

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Twitter aggregates, in real time, the most popular search terms as trending lists and allows users to learn what is happening in the world. However, reports worldwide have found that networks of humans and bots often hijack Twitter's trending algorithm to push false narratives. However, do Twitter trending lists influence individuals' social and personal agendas? This study examines the extent to which Twitter trends shape individuals' perceptions of social reality. Through a 2 (exposure vs. no exposure to Twitter trends) × 2 (high vs. low context familiarity) online experiment (N = 319), we found that (1) Twitter trends significantly shape people's perceived social agendas and ultimately influence their personal agendas and (2) context similarity significantly influences both social and personal agendas, and the effects are consistent across different context levels. This study focuses on the individual-level agenda-setting effect of social media trends and provides practical implications for social platform responsibility.

Keywords: agenda setting, Twitter trends, social agendas, personal agendas

As one of the most frequently used social media platforms among politicians and journalists, Twitter is a critical digital space where political and social issues are disseminated, discussed, and debated (Ausserhofer & Maireder, 2013; Conover et al., 2011). However, in recent years, Twitter has been accused of incubating polarization and radicalization (Shahin & Ng, 2020), hate speech (Riedl, Joseff, Soorholtz, & Woolley, 2022), and misinformation (Grinberg, Joseph, Friedland, Swire-Thompson, & Lazer, 2019). Regarding the latter issue, many reports have found that networks of humans and bots are spamming messages and hijacking Twitter's trending algorithm to push false narratives (e.g., DFRLab, 2020; Jahangir & Popalzai, 2020). During the 2019 Indian general election, Jakesch, Garimella, Eckles, and Naaman (2021) found coordinated posts from 500 WhatsApp groups intended to manipulate Twitter trends through mass posting. Similarly, Elmas, Overdorf, Özkalay, and Aberer (2021) estimated that since 2015, hit-and-run astroturfing attacks, which use automated bots to artificially propel a chosen keyword to the top of Twitter trends, have manipulated nearly half of the local trends in Turkey and 20% of the global trends. While the original purpose of Twitter trends is to highlight popular issues of the day and serve as a readily available tip sheet for Twitter users, these trending topics are exploited to spread lies and misinformation.

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However, before addressing the problem of algorithmic manipulation, we first need to ask a fundamental question: Do Twitter trends affect users' minds and influence their social and personal agendas? The feature of Twitter trends has been widely used as a helpful tool for users to discover topics of interest in the Twitterverse (Small, 2011). According to Rosenstiel, Sonderman, Loker, and Kjarval (2015), 34% of Twitter users obtain news from the platform's trending topic lists. Furthermore, when a hashtag trends, its visibility can become newsworthy and easily filter into other mainstream media outlets beyond Twitter. In both cases (inside and outside Twitter), trending topics can capture the attention of a large audience and function in an agenda-setting capacity (Asur, Huberman, Szabo, & Wang, 2011). However, since many digital features are competing for our attention nowadays, users might overlook Twitter trends. Past scholarship has yet to empirically study the affordances and agenda-setting effects of Twitter trends.

In addition, the fragmented media environment and heterogeneous segmentation of audiences make it necessary to further differentiate public agendas at the individual level. For example, Zhang, Shao, and Bowman (2012) investigated individuals' personal and social agendas in a Chinese context. In our case, since disparities still exist between the Twittersphere and the public sphere (Bruns & Highfield, 2015), we further differentiate individuals' social agendas into two types: their perceived issue salience to Twitter users and to the general public.

Furthermore, while trending topics and hashtags function as filters and amplifiers to infer people's perceptions of reality, people can still construct social reality through personal networks or personal experiences (Wohn & Bowe, 2014). Since the agenda-setting function largely relies on how well the media constructs social reality for their audiences, the level of familiarity with the context can significantly alter people's perceptions of issue salience. Thus, the effect of Twitter trends on people's perceived agendas should be stronger in contexts in which they have limited knowledge about social reality, such as issues in foreign countries.

This study uses a 2 (exposure to Twitter trends or not) × 2 (context familiarity) experimental design to examine how these two factors affect participants' agendas—their own rankings of perceived issue salience. Two sets of ranked issue lists—one from participants' rankings of perceived issue salience and one from real-time trending Twitter topics—were compared with see if there was a significant association, thus answering questions about whether trending lists shape people's agendas and, more importantly, how that effect manifests differently in people's social and personal agendas.

This article contributes to the agenda-setting research community by addressing the role of Twitter trends in the agenda-setting process and treating Twitter trends as issue aggregators and agenda setters. From a practical perspective, Twitter trends could complicate debates over the legitimate use of digital tools for political participation and the possibility of participatory media manipulation. Our study draws attention to social media platforms' responsibility to monitor their trending lists because of their nonnegligible influence on social agendas.

Media's Role in the Social Construction of Reality

Since McCombs and Shaw (1972) first proposed the agenda-setting hypothesis, agenda-setting research has yielded valuable findings in media effect studies (Harder, Sevenans, & Van Aelst, 2017).

Agendas are often referred to as "objects accorded saliency in the media content or in people's consciousness" (Takeshita, 1997, p. 20). For example, agenda-setting researchers are often interested in news coverage of social issues, such as climate change, elections, and poverty (Atkinson, Lovett, & Baumgartner, 2014).

In essence, what agenda-setting research cares about is the principal connection between the real "world outside" and "the pictures in our heads"—as Lippmann (1922) put this notion as the title of one of the chapters of his classic book *Public Opinion* (p. 3). In the "pseudo-environment" depicted by media, the connection between objective reality and social reality in people's minds becomes the fundamental theme of agenda-setting research (Shimizu, 1951). Most earlier agenda-setting research examined whether the media is able to construct what is salient to the world and subsequently influence public agendas.

Over the past few decades, subdivisions of agenda-setting research have emerged. For example, the reversed agenda-setting studies, which investigated the transfer of agendas from the public to the mass media (Jiang, 2014; Kim & Lee, 2006; Ragas, Tran, & Martin, 2013); the intermedia agenda setting, which explored the flow of agendas among different media (Conway, Kenski, & Wang, 2015; Vonbun, Königslöw, & Schoenbach, 2016); and the second-level and third-level agenda setting where attributes of issues (Kim, Scheufele, & Shanahan, 2002; Takeshita, 1997), as well as the network of objects and attributes (Guo & Vargo, 2015; Vu, Guo, & McCombs, 2014), were added into the analysis of agendas respectively. Such agenda-setting research essentially focuses on how external sources with a certain agenda impact the agenda of a target group. Within this paradigm, the prevailing methodology is to compare the ranking similarity of two sets of agendas—typically one agenda from the mass media's news coverage and the other agenda from public surveys or polls (e.g., Dunaway, Branton, & Abrajano, 2010).

Agenda Setting and Twitter Trends

The research on the media's agenda-setting function originated from a time when traditional media monopolized content creation and dissemination (Lippmann, 1922; McCombs, 2005) and therefore held a central position in directing perceptions of social reality (Till, 2020). In the past decades, however, the advancement of the Internet and digital technology has considerably empowered the general public with decentralized ways of creating and obtaining information (Kolbitsch & Maurer, 2006; Luo, 2014). Social media, in particular, enables the public to become "neo agenda setters" (Wohn & Bowe, 2014, p. 261). As proposed by Wohn and Bowe (2014), people's perceptions of reality develop through their connections with other users on social media. Given that individuals have heterogeneous social networks, what we can anticipate is an "ever diverging cacophony of socially constructed realities" (Wohn & Bowe, 2014, p. 261).

Nowadays, the public receives personalized information through algorithmic recommendations. Algorithmic selection on the Internet, or news aggregators or trends on social media, has become an increasingly significant source of "social order, of a shared social reality in information societies" (Just & Latzer, 2016, p. 238). Most social media platforms, such as Twitter and Facebook, have aggregated, in real time, the most popular search terms as trending lists, thereby enabling users to immediately learn what is happening in the world. These trends have a dual role: From a production perspective, they aggregate news issues; From a consumption perspective, they reflect public interests. Trends serve as a

readily available tip sheet that consolidates what others are paying attention to and functions as an information hub for users to perceive the social reality that characterizes the real world (Just & Latzer, 2016). An important consideration, however, is that a topic does not make its way into a Twitter trends list solely because of its popularity.

Twitter has been reluctant to disclose how its trending algorithms work (Ananny, 2015; Twitter, 2019), but recent studies have found that networks of bots and compromised accounts artificially drive topics onto lists of Twitter trends worldwide. Examples are the 2019 Indian general election that the country's right-wing party coordinated mass postings of *#ModiMeinHaiDum* to demonstrate strength and support for Narendra Modi, the Bharatiya Janata Party's (BJP) iconic leader figure (Jakesch et al., 2021), hashtag calling *#ArrestAntiPakjournalists* for the arrest of journalists opposing Prime Minister Imran Khan and the military in Pakistan 2019 (Jahangir & Popalzai, 2020), and trended "Sodom and Gomorrah" fueled by far-right anti-LGBTQ conspiracy theorists in the United States in 2022 (Ohlheiser, 2022). Elmas et al. (2021) referred to this form of algorithmic manipulation as ephemeral astroturfing, wherein a chosen topic is artificially tweeted/retweeted via malicious, coordinated, and inauthentic activity so that the issue appears popular. Furthermore, even when these tweets are removed, Twitter's algorithm still detects spikes stimulated by eliminated tweets. The vulnerability of trending algorithms, which select and highlight content without examining its authenticity, has led to confusion about how their algorithms accurately reflect public agendas. Twitter has acknowledged trend manipulation (Macaulay, 2021) but seems to have little incentive to correct its algorithm, as it sells ads for "promoted trends" to business clients. Additionally, conspiracy topics can lure users to stay on the platform longer.

Although agenda-setting research on social media trends exists (e.g., Groshek & Groshek, 2013; Jiang, 2014), most studies used trending data as a substitute for traditional surveys to measure public agendas and a proxy for public opinion (e.g., Groshek & Groshek, 2013). These studies were unaware that such trends could be manipulated rather than organic. As we argue, however, while the platform's algorithm for generating trend lists remains concealed, the treatment of social media trends as a direct indicator of the public agenda may not be a robust approach, thus highlighting the need to question claimed representativeness. This issue gave rise to the first research question pursued in the current work:

RQ1: Do Twitter trends influence individuals' agendas?

Differentiating Individual Agendas from Public Agendas

In this study, our focus is on first-level agenda setting—the issue agendas—and our first aim is to disentangle individuals' agendas from public agendas and see how the effect works. Traditional agenda-setting research commonly measures public agendas using public surveys or Gallup Poll's MIP question: "What is the most important problem facing this country today?" (Coleman, McCombs, Shaw, & Weaver, 2009, p. 156). The answers are then aggregated into an indicator of public agendas or, more specifically, *prioritized agendas*—"a highly filtered version of what people found in the news and evaluated as most important" (McCombs, Shaw, & Weaver, 2014, p. 788). In this case, public agendas and individuals' agendas are often intertwined.

However, since current media consumption is becoming increasingly segmented (Fletcher & Nielsen, 2017), many versions of agendas coexist in contemporary society and virtually "everyone has a unique external media agenda" (McCombs, 2014, p. 544). Previous studies also suggest individual differences in their reaction to the media's agendas (Coleman & Wu, 2021; Wanta & Ghanem, 2007), mainly explained by the concept of the need for orientation—"the innate curiosity about the world around them" (McCombs, 2014, p. 547). Although this study does not take a cognitive psychological perspective to investigate how such individual differences moderate the agenda-setting effect, we acknowledge that public agendas should not be treated as uniform and that scholars should allow for the potential for multiple public agendas. More specifically, since public agenda(s), whether in plural or singular forms, are essentially aggregated from a group of individuals, we propose to disentangle individual agendas from the notion of public agendas and focus on how individual agendas are shaped and influenced.

Previous literature on individual agendas has suggested a distinction between personal issue salience and societal issue salience (Miller, 2007; Zhang et al., 2012). However, Zhang and colleagues (2012) criticized the fact that agenda-setting scholars often overlooked the difference between individuals' personal agendas (issues perceived to be salient to individuals) and social agendas (issues salient to the public). Using a publicly distributed survey, their study differentiated individuals' personal agendas and social agendas and found that the agenda-setting function of the Chinese media differed from these two types of agendas. The media can successfully influence one's perceived social agendas but not their personal agendas. Following Zhang et al.'s (2012) work, we adopt the social versus personal agenda differentiation to evaluate the agenda-setting effects on individuals. Furthermore, since our primary focus is the agenda-setting power of Twitter trends, we distinguish individuals' social salience into two aspects: issues' importance to the general public and to social media users.

In conclusion, we differentiate individual agendas from public agendas. We categorize individual agendas into three types: (1) issues' importance to individuals—individuals' personal agendas; (2) issues' importance to the general public—individuals' social agendas; and (3) issues' importance to social media users—another form of individuals' social agendas. We propose our first hypothesis accordingly:

H1a–c: Individuals who are exposed to Twitter trends will rank issues more similarly to actual Twitter rankings in terms of (a) personal salience and (b) social salience to Twitter users and (c) social salience to the general public than individuals who are not exposed to them.

Contextual Moderators of Agenda Setting

The media's agenda-setting effect largely stems from its ability to project the real "world outside" into "the pictures in our heads" (Lippman, 1922, p. 3). In this sense, the agenda-setting effect greatly depends on how well the reality is socially constructed, with such an effect possibly hinging upon different individual and contextual factors. For example, Moy, Tewksbury, and Rinke (2016) pointed out that agenda-setting effects are usually stronger for issues with which "individuals have little or no direct experience" (p. 3). The rationale is that when issues are directly observable, individuals will have more clues from their own connections or experiences; therefore, the media's construction of reality might not be successful. In contrast, when individuals find themselves in an unfamiliar context, they can only rely on limited channels

for knowledge; therefore, the agenda-setting effect will manifest in a more effective fashion. This means that when people have little prior knowledge about the context, they might be more prone to the influence of Twitter trends. Based on this rationale, we propose our second research question:

RQ2: Do agenda-setting effects become stronger when people are in unfamiliar contexts where they only rely on Twitter trends to perceive the social reality?

We propose that while social media trends work as channels through which people see the "world outside," the effect is stronger for people in unfamiliar contexts, as such effects not only affect people's social agendas but also their personal agendas. It should be acknowledged that, although individuals' personal agendas are impacted by personal factors, such as interest, they also face a need to keep up with society. Their perception of social agendas influences their evaluation of issue salience to self; therefore, we propose that the moderating effect of context familiarity on individuals' social agendas will ultimately pass on to their personal agendas. Combining our differentiation of the three types of individual agendas, we propose the second set of hypotheses:

H2a–c: Individuals who are exposed to Twitter trends and are in unfamiliar contexts will rank issues' salience to (a) themselves, (b) social media users and (c) the general public more similarly to actual Twitter ranking than individuals who are in familiar contexts.

Method

In this study, we chose Twitter as the platform for evaluating the agenda-setting effects of social media trends. Twitter trends are often categorized into different interest areas, such as politics or sports. For some trending topics, Twitter also provides brief introductions and indicates the number of associated tweets.

Participants

We conducted a 2 (exposure vs. no exposure to Twitter trends) × 2 (high vs. low context familiarity) online experiment with 346 participants recruited from a Midwest public university in the United States in March 2022. The participants were students enrolled in a large general education class, and they received extra credits for their participation. To ensure survey quality, participants who speeded through questions or answered two (out of three) attention questions incorrectly were excluded from the analysis. This resulted in a final sample of 331 participants.

Procedures and Measures

The online experiment was hosted on Qualtrics. The participants were randomly assigned to one of four experimental conditions: (1) exposure to U.S. Twitter trends, (2) exposure to Singapore Twitter trends, (3) no prior exposure to U.S. Twitter trends, or (4) no prior exposure to Singapore Twitter trends. The no prior exposure groups were the control groups. Table 1 presents the sizes of each group.

Regarding context familiarity, we compared the United States with Singapore because, due to cultural and geographical distance, people in the United States are presumably unfamiliar with Singaporean daily news and regional affairs. Nevertheless, U.S. and Singaporean Web use is very similar (Ng & Taneja, 2019, 2023); therefore, the two countries share some familiarity, especially in terms of popular culture. In addition, English is one of Singapore's official languages, so no translation of trending terms/topics was required.

Table 1. Number of Respondents in Each Group.

	Control Group	Treatment Group
U.S. context	88	73
Singapore context	93	77

Stimulus

We selected topics from actual Twitter trends in the United States and Singapore from February 27 to March 5, 2022 (a week before the experiment) and distributed the survey on March 6, 2022. To ensure timeliness, we collected all survey responses within three days of the distribution date.

Participants were exposed to seven trending topics—the ideal number of items that adults could recall with their short-term memory (Miller, 1956). Although these trending topics represented a diverse range of issues, they were all potential topics of interest in Singapore and the United States. All trending topics were presented with a category indication (e.g., politics, sports) and a two-line summary that simulated the trending list interface on Twitter. Treatment group members were exposed to issue items with specific rankings, as well as the number of tweets associated with those issue items; the control group (no exposure to Twitter trends) was presented with the same set of issues, but those items did not have rankings and the number of associated tweets. To eliminate the influence of the display order, we also randomly shuffled the order of those issue items. Figure 1 shows the stimuli.

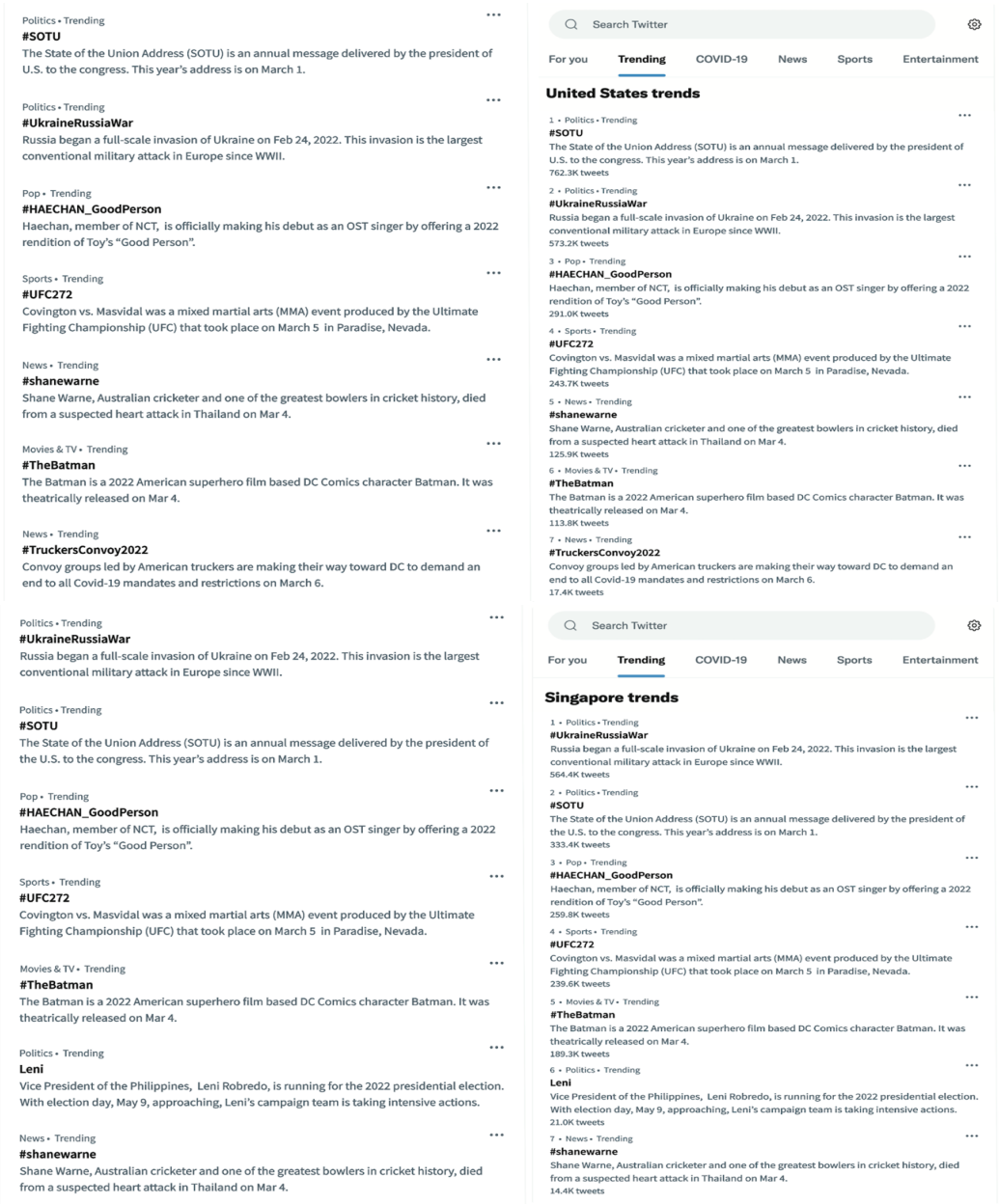

Figure 1. Stimulus in each experimental group.

Note. Up left: stimulus in U.S. context control group; up right: stimulus in U.S. context treatment group; bottom left: stimulus in Singapore context control group; bottom right: stimulus in Singapore context treatment group.

Although Twitter does not disclose the exact number of tweets associated with each trending topic, other third-party Web analytics services (e.g., GetDayTrends: https://getdaytrends.com/) estimates the daily number of tweets for each trending topic and its relative ranking in different countries. Even our selected trending topics might not necessarily trend on the same day; those trending topics were ranked according to the number of tweets associated with them within a period of time (once a topic stopped gaining new attention, Twitter would no longer consider it a trend, even though it still had a significant audience). In this way, the participants were still assured to be exposed to topics that resembled real-world settings, but we had more information to gauge a topic's relative salience. At the end of the survey, the participants were debriefed and presented with the number of tweets associated with the trending terms.

Control Groups

The participants in the control groups were instructed to assess the ranking of seven issue items according to their perceived salience to three categories of people: Twitter users, the general public in Singapore/the United States, and themselves.

Treatment Groups

For the treatment groups, the stimulus (i.e., exposure to ranked Twitter trends in either the U.S. or Singaporean contexts) was first displayed to the participants. The participants then proceeded to the next page, where they were asked to recall the ranking. Subsequently, they had a second chance to review the ranking as reinforcement. Finally, they ranked the items according to their perceived salience. The participants reported their perceived issue salience in relation to three categories of people: Twitter users, the general public in Singapore/the United States, and themselves.

Dependent Variables

Perceived issue salience was measured in three aspects: (1) salience to Twitter users, (2) salience to the general public in Singapore/the United States, and (3) salience to themselves using the following question(s): "Please rank the relative importance of the following seven topics (drag and drop) specifically to Twitter users (or the general public or yourself) in the United States (or Singapore). Rank the most important topic at the top." Then, the outcome variables were recorded in rank order—from 1 (most important) to 7 (least important). Each issue topic will have a rank order.

Participants' demographic information, including race, age (M = 20.40, SD = 2.84), and gender (70.09% female), was collected. The participants' relation to the United States/Singapore was also asked: (1) "were you born in the United States/Singapore?" and (2) "how long have you been in the United States/Singapore?"

Analytical Approach

One major challenge is the analysis of rank-order data. Previous agenda-setting research tended to aggregate individual ranks into a single set of issue ranks before comparing them with media agendas. Therefore, their core analysis is a comparison between two sets of ranks. However, in this study, we aimed to delineate agenda-setting effects at the individual level. The analysis was therefore composed of multiple

sets of ranks for individuals' agendas. This added difficulty because, unlike numerical values, rank data do not follow predefined parametric distributions.

Since we examined whether the treatment groups' ranking of issue salience was more aligned with the actual Twitter trends ranking they saw, we calculated the similarity between each participant's ranking and the true ranks in Twitter trends using Kendall's *tau*. Then, we transformed the rank orders into numerical data points. We further examined the statistical features of Kendall's *tau* and found that it followed a quasi-normal distribution (see details in Supplementary Section B[1]); thus, our subsequent analysis followed a standard parametric analysis procedure. To compare the treatment and control groups, a *t*-test was used.

Results

Manipulation Check

To validate our experimental manipulation, we used a treatment-recall-reinforcement process. The participants' recalled rank was compared with the actual rank order. We expected that the total treatment effect on participants who received treatment reinforcement would be higher than on those who received only a single round of treatment. The average Kendall's *tau* score for treatment groups in both the U.S. and Singapore contexts was around 0.7, suggesting that the manipulation was effective.

We asked participants to indicate their experiences in Singapore and the United States. None of the participants in the Singapore group were born there, and only 3.6% had been to Singapore for short visits. Among the participants in the U.S. context, 86.34% were born there, and 95.65% had been in the United States for at least one year. The findings indicated that participants in the Singapore context were reasonably unfamiliar with Singapore and that participants in the U.S. context were familiar with the United States.

Participants were asked to indicate how often they used Twitter on a 7-point scale (1 = never and 7 = more than once a day). On average, participants used Twitter almost once a week (M = 4.50, SD = 2.10). Therefore, we believe that the participants were familiar with Twitter and the experimental presentation.

The Effect of Twitter Trends Exposure on Individuals' Agendas

This study examines whether exposure to Twitter trends impacts people's perceptions of issue salience on three levels: (1) salience to Twitter users, (2) salience to the general public in Singapore/the United States, and (3) salience to themselves.

RQ1 and H1a-c investigate the effect of exposure to Twitter trends on three types of issue salience. We tested the hypotheses through a series of *t*-tests. The results presented in Table 2 show that when exposed to Twitter trends, participants in both the U.S. and Singapore contexts significantly ranked the perceived issue salience more similarly with the order of items presented in Twitter trends at all three levels of agendas.

[1] See Supplementary Materials at https://osf.io/neaud/?view_only=96e30541e86f40dea6eaec531d2ae40d

More specifically, for the U.S. context, when asked to evaluate issue salience to Twitter users, the group difference in rank similarity between the treatment and control groups was the largest. On average, the treatment group's rank similarity (M = 0.47, SD = 0.39) is significantly higher than that in the control group (M = 0.11, SD = 0.30) at the level of $p < .001$. Cohen's d (d = 1.07) also suggested that treatment had a large effect. The effect of Twitter trends' ranking on participants' evaluation of issue salience to the general public is also significant ($p < .001$), yet moderate (Cohen's d = 0.74). When asked to rank issue salience to self, the effect was small (Cohen's d = 0.28), but still significant at the level of $p < .05$.

In the Singapore context, the effect of Twitter trends on participants' evaluation of issue salience to Twitter users is the largest (Cohen's d = 0.99) among all three types of agendas. The treatment group's rank similarity (M = 0.44, SD = 0.45) is significantly higher than that in the control group (M = 0.07, SD = 0.31) at the level of $p < .001$. For issue salience to the general public, the effect is also significant ($p < .001$) and moderate (Cohen's d = 0.72). For individuals' personal agendas, the effect of Twitter trends exposure is still significant at the level of $p < 0.05$ but relatively small (Cohen's d = 0.31).

Overall, the H1a–c were supported by the t-tests results. Therefore, RQ1 was answered. Twitter trends did influence individual agendas in three aspects: personal salience; social salience to Twitter users; and social salience to the general public. When exposed to Twitter trends, people will rank issues more similarly to actual Twitter rankings in all three aspects.

Table 2. Group Summary Statistics and Group Comparison Statistics.

	Group Mean (SD) of Rank Similarity		t (Cohen's d)
	Control	Treatment	
U.S. context			
Salience to Twitter users in the United States	0.11 (0.30)	0.47 (0.39)	6.74*** (1.07)
Salience to general public in the United States	0.11 (0.26)	0.32 (0.30)	4.66*** (0.74)
Salience to self	0.18 (0.26)	0.26 (0.31)	1.75* (0.28)
N	88	73	
Singapore context			
Salience to Twitter users in Singapore	0.07 (0.31)	0.44 (0.45)	6.45*** (0.99)
Salience to general public in Singapore	0.00 (0.29)	0.27 (0.45)	4.68*** (0.72)
Salience to self	0.27 (0.32)	0.37 (0.32)	1.99* (0.31)
N	93	77	

Note. The first two columns report the mean and standard deviation of Kendall's *tau* correlation coefficient between issue salience rank and Twitter trends rank. The last column reports the differences in Kendall's *tau* levels between the treatment group and the control group. Cohen's d measure was used to calculate the effect size. It is generally considered to have a large effect when $d \geq 0.8$, a moderate effect when $0.5 \leq d < 0.8$, and a small effect when $0.2 < d < 0.5$. *$p < .05$. **$p < .01$. ***$p < .001$.

The Moderation Effect of Context Familiarity

To answer RQ2 and test the hypothesis (H2a–c) that context familiarity moderates the effect of exposure to Twitter trends on individuals' agendas, a two-way ANOVA analysis was conducted.

The results in Table 3 show the effects of Twitter trends exposure and context familiarity on participants' perceived issue salience to Twitter users, the general public, and themselves. Since we discussed the main treatment effect (exposure to Twitter Trend) in the previous session, we primarily focused on the context-similarity effect here. The effect of context familiarity was calculated when the effect of exposure to Twitter trends was controlled. The main effect of context on the perceived ranking of issue salience was significant for both perceived salience to the general public and the participants themselves but had no effect on Twitter users.

To Twitter Users

There was no significant difference ($p > .05$) among groups with different familiarity levels regarding their rankings of issue salience to Twitter users. Participants in the familiar context ($M = 0.27$, $SD = 0.38$) ranked issue salience similarly to those in the unfamiliar context ($M = 0.24$, $SD = 0.42$).

To the General Public in Singapore/the United States

Those who were in the familiar context ($M = 0.20$, $SD = 0.30$) ranked perceived issue salience to the general public more similarly to the actual Twitter trends when compared with those in the unfamiliar context ($M = 0.12$, $SD = 0.39$, $p < .05$).

To Themselves

The rank similarity between personal agendas and the actual Twitter trends for people in the familiar context ($M = 0.22$, $SD = 0.29$) was lower than that for people in the unfamiliar context ($M = 0.32$, $SD = 0.32$, $p < .01$).

The interaction effect of exposure to Twitter trends and context familiarity on the rank similarity between individuals' agenda rankings and the actual Twitter trends rankings was not significant for all three types of individuals' agendas, indicating that the agenda-setting effect of Twitter trends did not depend on the context in which the individuals were located. Therefore, H2a–c were not supported. Context familiarity did not moderate the effect of Twitter trend exposure on individuals' agendas.

Table 3. The Effect of Treatment and Context on Issue Salience Ranking.

	df	Salience to Twitter Users			Salience to General Public			Salience to Self		
		MS	*F*	η^2	MS	*F*	η^2	MS	*F*	η^2
Main effect										
Treatment	1	11.19	86.27***	0.21	4.64	42.71***	0.12	0.77	8.34**	0.02
Context familiarity	1	0.12	0.94	0.00	0.54	4.92*	0.01	0.65	7.00**	0.02
Interaction effect										
Treatment × Context	1	0.00	0.03	0.00	0.07	0.69	0.00	0.01	0.09	0.00
N					331					

Note. η^2 is used to show the effect size. It is commonly acknowledged that $0.01 \leq \eta^2 \leq 0.06$ is considered a small effect, while $0.06 \leq \eta^2 \leq 0.14$ is viewed as a moderate effect, and $\eta^2 > 0.14$ is considered as a large effect. MS indicates the mean square. *p < .05. **p < .01. ***p < .001.

Discussion

This study investigates the effects of ranked Twitter trends on individuals' agendas. The results suggest that exposure to Twitter trends significantly influences how the participants perceive social and personal agendas. Such effects hold in both familiar and unfamiliar contexts, indicating the effectiveness of Twitter trends in shaping individuals' agendas. By now, the process by which even small groups of people can hijack Twitter trends has been well documented (e.g., Elmas et al., 2021). The present study alerts the public and Twitter to how social and personal agendas can be placed at great risk when trend manipulation remains unchecked and unaddressed.

After exposure to Twitter trends, the participants ranked their perceived issue salience (to both Twitter users and the general public) as more consistent with the actual Twitter ranking, indicating that Twitter trends function as an aggregator of the social agendas "out there" to which individuals refer. More importantly, the effect of Twitter trends on participants' perceived social agendas also influenced their personal agendas. In this case, people tended to treat the reality constructed by Twitter trends as reality, and they perceived and formed their own personal agendas accordingly.

Moreover, in familiar contexts, participants perceived the social agendas of the public more accurately. However, their personal agendas tended to deviate from the actual issue rankings on social media, mainly because their personal agendas were influenced by multiple sources in the real world. As such, when compared with participants in unfamiliar contexts, individuals' rankings of perceived issue salience to the public were more consistent with the actual rankings in Twitter trends, while their rankings of personal agendas were less consistent. We also observed an insignificant relationship between context familiarity and people's perceived issue salience of other Twitter users. After controlling for the effect of exposure to Twitter trends, this study found that, regardless of whether people were in familiar contexts, they perceived the issue salience of Twitter users at a similar level of consistency with the actual Twitter trends.

One possible explanation is that, because social media users are highly heterogeneous, individuals cannot form an organic picture of themselves in their minds. In people's minds, the general public constitutes an imagined community with a shared interest in the social good (Anderson, 1991). Therefore, it may be hard for individuals to accurately evaluate the salience attributed to individual issues by Twitter users. By changing the context from unfamiliar to familiar, people's interpretations of Twitter users as a group are still unclear; as such, they are unable to "guess" what Twitter users might deem important. However, people's understanding of the general public will increase in familiar contexts. Therefore, the rankings of the general public's issue salience will more accurately reflect the actual ranking. The effect of context familiarity on people's personal agendas follows another line of logic: while in unfamiliar contexts, people tend to leverage limited information channels provided to them to infer social reality and form their own perceptions; therefore, their ranking of issue salience to themselves will be more aligned with actual Twitter trends.

In addition to investigating the separate effects of context familiarity and Twitter trends exposure, we also investigated the potential interaction effect between them and found that the effect of Twitter trends exposure did not depend on context familiarity for all three types of agendas.

Overall, the study shows that Twitter trends influence individuals' perceived social and personal agendas. These effects are consistent regardless of how familiar individuals were with the context. This finding draws our attention to the critical role social media trends play in providing aggregated social realities to audiences. Even when audiences are relatively familiar with the social context, social media trends can still function as filters or amplifiers of people's perceptions of reality. Although audiences still construct social realities through mass media and personal networks (Wohn & Bowe, 2014), the dual role of social media trends to represent the public agendas and to set individual agendas means that Twitter trends not only constitute the public agendas but also influence them, establishing a self-reinforcing loop.

This study extends the agenda-setting literature by elucidating how individuals' social and personal agendas are shaped by Twitter trends. Its theoretical implications are twofold. First, it disentangles individual agendas from public agendas. Previous literature has treated individuals' agendas as the basic component of public agendas without examining the intertwined relations among them. This research contributes to the agenda-setting field by shedding light on individual-level agendas. More importantly, by looking into the effect of Twitter trends, we investigate how agendas flow (or do not flow) from collectives (Twitter trends) to individuals.

Second, it differentiates between people's personal agendas and social agendas. As Zhang et al. (2012) put in the title of their paper, what is most important for the country is not necessarily important for the individuals themselves. Furthermore, we differentiate the Twitter public from the general public in terms of individuals' social agendas. Such differentiation allows for finer granularity in examining individuals' agendas. This study is essential for showing that Twitter trends not only function as indicators of social reality and significantly influence individuals' perceived social agendas but also have an agenda-setting effect transferable to people's personal agendas.

From a methodological standpoint, this research is unique in providing evidence for individual-level agenda-setting research using an experimental design. Most previous research has focused on contrasting

two sets of agendas from different sources. However, in doing so, the direct effects of agendas from various sources cannot be straightforwardly observed. In this sense, it becomes difficult to answer the mechanism question—how the agenda setting took effect. There is also the question of aggregation since the aggregation rule matters and different rules can significantly influence the results of such studies. By focusing on individual-level effects, this study approaches the essential problem of filling a gap in agenda-setting research.

Limitations and Future Research

This study has several limitations. The first is the credibility of the simulated stimulus in the experiment, and the second is the generalizability of the findings using a single social platform. First, even though we attempted to simulate the look of Twitter trends and obtained information about the number of related tweets as a reference for ranking these issues, the ranking did not come directly from actual Twitter trends. Instead, it was manually compiled using trends from several days. Therefore, it could be inappropriate since Twitter trends do not solely rely on the number of related tweets. Moreover, since we selected the trending terms from Twitter trends within a week of the experiment date, the timeliness of the stimulus was also a significant limitation. While we acknowledge that simulation is a challenge in lab experimentation, future researchers may have opportunities to conduct field experiments (or natural experiments) using real Twitter trends to determine how they impact people's perceptions of social and personal agendas.

The second limitation is the robustness of the research findings. The selection of Twitter trends was intentional because we argued that people could refer to Twitter trends as representative of social reality or agendas. Twitter trends are not unique. Audiences can perceive social reality through other forms of trending issue lists, for example, Google Trends, which presents trending search terms, or the Trending Today option on Reddit. Our study is limited because it investigated only one platform: Twitter trends. In the real world, there are many more information sources competing for audience attention and simultaneously setting their agenda. Our study only considers the effect of a single source—Twitter trends—and therefore, our experiment cannot reflect a real-world scenario. Future studies should include more settings to make the findings more robust.

Although Twitter users tend to be younger and have a college degree (our participants were college students; Odabaş, 2022), the lack of diversity and representativeness in the sample might bring a limitation to our findings, since the effect of Twitter trends on college students might not be generalized to a larger population. Further research could include a more representative sample.

Conclusion

People have a fundamental psychological need to form a shared social reality with other members of society. Although users may perceive social reality differently through their own social networks, social media trends provide a uniform, ready-made set of issue lists to which people can conveniently refer and use as a base for their sense of social reality.

Despite these trending lists' generation processes remaining a black box, Twitter users typically view trending lists as a reflection of public interest issues. Our research echoes a growing concern over the public influence of social media platforms. This study has practical implications for the ongoing concern over platforms' social responsibility for gatekeeping. Twitter should consider concrete strategies to counter trend manipulations. Although Twitter has been working on the double-posting problem and preventing the same user from making duplicate tweets in a short period (Twitter, 2022), other measures should also be taken to combat the manipulation of Twitter trends. For example, coordinated cotweeting activities from multiple accounts using the same hashtag should be detected. Twitter needs to pledge and commit to fighting abuse on the platform, as information manipulations will certainly undermine its integrity and expose the general public to a democratic crisis.

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