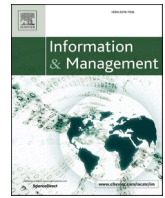




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Fake news believability: The effects of political beliefs and espoused cultural values

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ABSTRACT

Fake news has led to a polarized society as evidenced by diametrically opposed perceptions of and reactions to global events such as the Coronavirus Disease 2019 (COVID-19) pandemic and presidential campaigns. Popular press has linked individuals' political beliefs and cultural values to the extent to which they believe in false content shared on social networking sites (SNS). However, sweeping generalizations run the risk of helping exacerbate divisiveness in already polarized societies. This study examines the effects of individuals' political beliefs and espoused cultural values on fake news believability using a repeated-measures design (that exposes individuals to a variety of fake news scenarios). Results from online questionnaire-based survey data collected from participants in the US and India help confirm that conservative individuals tend to exhibit increasing fake news believability and show that collectivists tend to do the same. This study advances knowledge on characteristics that make individuals more susceptible to lending credence to fake news. In addition, this study explores the influence exerted by control variables (i.e., age, sex, and Internet usage). Findings are used to provide implications for theory as well as actionable insights.

1. Introduction

Social networking sites (SNS) – such as TikTok, Douyin, WeChat, Facebook, Reddit, Snapchat, and WhatsApp – provide a platform whereby information can be spread virally through culturally diverse and geographically distant parts of the world instantaneously [1]. The speed at which information flows in SNS makes them a popular tool for the dissemination of true as well as fake news [2–5]. The danger of fake news being spread by social media (SM) is the greatest threat to modern society because of the rapid spread of “digital wildfires” [6]. Fake news is understood here as “fabricated information that mimics news media content in form but not in organizational process or intent” ([7], p. 1094). Fake news have been identified in the context of presidential campaigns [8,9], politics [10,11], the Coronavirus Disease 2019 (COVID-19) pandemic [12–14], climate change and global warming [15,16], immigrants [17], and religion [18,19]. As such, fake news have contributed to the emergence of highly polarized societies [20,21].

Indeed, SM-induced polarization (using SNS) has become an emerging academic research area [22]. In particular, the relationship among SM, disinformation (i.e., false information spread to deceive people, for example, as part of efforts to influence individuals' political beliefs and ideology), and political polarization has attracted increasing academic attention [4]. SM (and SNS) can help instigate and exacerbate polarization through associated informational cascades and echo-chambers [23–25] that not only work to increase the number (and transmission speed) of rumors but also make individuals lend more credence to the rumors in question, in turn triggering viewpoint alteration processes [21], along with partisan epistemologies [26], world-view gaps [27], and – ominously – the emergence of extremist groups based on shared ideologies [28].

For instance, computational propaganda understood as the “assemblage of social-media platforms, autonomous agents, and big data tasked with the manipulation of public opinion” by means of information and communications “that deliberately misrepresent symbols, appealing to

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emotions and prejudices and bypassing rational thought, to achieve a specific goal” ([29], p. 273) has been studied and identified the world over [30].

Computational propaganda has been used for the purposes of sowing dissent and discord by catalyzing, instigating, and exacerbating polarization. In particular, bots-automated programs that perform simple repetitive tasks, which are integral to the spread of computational propaganda, along with networks of bots, were used in Facebook, Twitter, and WhatsApp during Brazil’s 2014 presidential elections to both “support and attack political figures, debate issues such as corruption, and encourage protest movements” ([31], p. 9). Furthermore, authoritarian regimes (such as China and Russia) have used bot-spreading computational propaganda to target their own populations, as well as dissent political figures in other countries, i.e., Taiwan, Poland, and Ukraine [31]. Unfortunately, the use of computational propaganda has become increasingly prevalent. In 2018, evidence of formally organized SM manipulation campaigns was found in 28 countries, and in 2019, twenty additional countries (for a total of 48) experienced “at least one political party or government agency using SM to manipulate public opinion” ([32], p. 3).

Presumably because of this, economists have, on the one hand, explored the levels of overall exposure to fake news circulated on SM, as well as how persuasive these would need to have been, to have been pivotal in changing the way people voted in the 2016 US election [33]. On the other hand, economists have used agent-based modeling to generate a large sample of SM networks to simulate how bots (with extreme opposite views) may manipulate opinion throughout these networks [34]. It turns out that these bots could not only lead to full misinformation – just as in the market for lemons [35] – but also that the fake news (spread by these bots) help prevent information aggregation and consensus [34]. Thus, increase polarization insofar as SM algorithms can limit users’ exposure to counter-attitudinal news [36]. It seems intuitive for discord to impose additional transaction costs on information aggregation, political compromise, and consensus building – particularly in democracies (even well-established ones) – but the adverse consequences of polarization, partisanship, and divisiveness (discussed above) for political gridlock [37] and institutional dysfunction were harder to foresee [38].

Crucially, when analyzing “the relationship between polarization and what is perceived as misinformation,” there’s “an increase in the polarization of users and URLs (in terms of their associated political viewpoints) for information labeled with fake news keywords and hashtags, when compared to information not labeled as ‘fake news’” ([39], p. 1). In light of this, we agree with Murungi, Purao, and Yates [40] that studies to help elucidate the types of underlying belief structures and values that bequeath fake news believability are essential. As part of efforts to achieve this, Moravec, Minas, and Dennis [41] found that confirmation bias prevents SM users from distinguishing between real and fake news, and also that cognitive activity increased when users interacted with content that aligned with their political beliefs. Unfortunately, they also found that there was little cognitive activity when users interacted with content that challenged their political opinions (and were thus less likely to absorb it and believe it).

In conclusion, current levels of political polarization, partisanship, and divisiveness make fake news believability studies relevant. As such, this study aimed to contribute to the body of research that helps characterize individuals who are more likely to believe fake news (and who might in turn unintentionally help prevent consensus and exacerbate political gridlock/dysfunction). In particular, Grinberg, Joseph, Friedland, Swire-Thompson, and Lazer [[42], p. 374] found that “individuals most likely to engage with fake news sources were conservative leaning.” Indeed, political bias can be a more important predictor of fake news believability than conspiracy mentality [43] despite conspiratorial predispositions playing a key role in motivated reasoning [44]. Perhaps because of this, an important body of research has examined whether conservatism influences fake news believability [45,46].

Tellingly, Robertson, Mourão, and Thorson [47] found that in the US liberal news consumers were more aware and amenable to fact-checking sites, whereas conservatives saw them as less positive as well as less useful to them, which might be why conservative SM users are more likely to confuse bots with humans, while liberal SM users tend to confuse humans with bots [48]. In particular, those who may arguably belong to the loud, populist and extremist minority wherein “1% of individuals accounted for 80% of fake news source exposures, and 0.1% accounted for nearly 80% of fake news sources shared” ([42], p. 374).

Similarly, previous studies have shown that culture can influence an individual’s use of technology [49]. In addition, an individual’s cultural values can be used to predict their behaviors on SNS [50]. Moreover, it turns out that cultural values can help explain the extent to which an individual can detect lies in technology-mediated human interactions involving interviewers and interviewees [51]. As emphasized by Tucker et al. [4], there are various types of information disorders (e.g., rumors, misinformation, disinformation, slanted information, and hyperpartisan information). Here, we are specifically concerned with the influence that espoused cultural values – at the individual level, as in [16], instead of at the country level [52] – might exert on fake news believability while using SNSs. This would be the first study to do so using a repeated-measures design.

Thus, this study explores the influence that political beliefs and espoused cultural values might exert on fake news believability, using a repeated-measures design that exposes study participants to a series of fake news scenarios. And we have made an effort to answer the following research questions:

- 1 Would the fact that individuals’ conservative political beliefs lead to higher fake news believability in SNS be also uncovered using a repeated-measures design?
- 2 Do individuals’ espoused cultural values influence the extent to which they might find fake news (shared on SNS) believable using a repeated-measures design?

To answer these research questions, this study uses 17 fake news scenarios and tests the reliability of the conservatism and collectivism measures. As such, this study’s contributions are to (i) corroborate the influence exerted by conservatism on fake news believability, (ii) provide theoretical justification, as well as empirical validation, for the relationship between collectivism and fake news believability, and (iii) help advance efforts to identify individuals more likely to lend credence to fake news (and in doing so, discuss ways in which polarization, partisanship, and divisiveness could be mitigated, while helping facilitate political compromise and consensus building). Now, it is important to clarify that we treat political beliefs (conservatism and liberalism) and espoused cultural values (collectivism and individualism) as separate theoretical and empirical constructs insofar as interactions between the two would have to be explored under a different theoretical lens and methodological approach. A lens/approach probably based on social psychology and moral foundations research [53] for which “group-oriented moral concerns promote a conservative orientation, while individual-oriented moral concerns promote a liberal orientation” ([54], p. 258). Evidently, this would have to be the focus of a separate study. Thus, the remainder of the article is structured as follows: the following section presents the key literature that forms the basis for hypotheses development. Then, our research methodology is outlined in Section 3. We discuss our results and analysis in Section 4. Section 5 offers implications for research and practice, and Section 6 our concluding remarks.

2. Literature and hypotheses

In this section, we will first define and discuss fake news, as well as how political beliefs (conservatism) and how espoused cultural values (collectivism) may affect fake news believability.

2.1. Fake news

Once again, the definition of fake news we subscribe to here follows Lazer et al. [7], p. 1094, wherein they are deemed “fabricated information that mimics news media content in form but not in organizational process or intent.” Since online news outlets have always lacked editorial processes and norms that help ensure veridicality [55], there are different types – and even whole taxonomies – of online content that may be classified as fake news [56]. Fake news have been identified in many contexts, including healthcare, parenting, climate change, public policies, and products/services (see Table 1). Links included in the

Table 1
Fake news examples.

Item	Actual fake/misinformation case	Source
1	According to Greenpeace, a nongovernmental international environmental organization, “The whole climate crisis is not only Fake News, it’s fake Science. There is no climate crisis, there’s weather and climate all around the world, and in fact carbon dioxide is the main building block of all life.”	https://www.snopes.com/fact-check/patrick-moore-climate-doubter/
2	Wind energy is a problem because it kills eagles and other birds. According to some estimates, wind turbines kill more than 1 million birds in a year alone in the United States.	https://www.factcheck.org/2016/06/trumps-hot-air-on-wind-energy/
3	Costco, a major retailer in the United States, has issued a recall for their Kirkland Signature brand of toilet paper.	https://www.snopes.com/fact-check/costco-bath-tissue-recall/
4	A man was recently hospitalized after an Apple Airpod exploded in his ear.	https://www.snopes.com/fact-check/airpods-explode-hospital/
5	Studies show that tattooed parents are more likely to abuse, neglect, and starve their children.	https://www.snopes.com/fact-check/studies-tattooed-parents/
6	It has been proven that breathing hot air from a hair dryer could cure COVID-19.	https://www.snopes.com/fact-check/hair-dryer-coronavirus/
7	A woman in Indianapolis gave birth to 17 children at once.	https://www.snopes.com/fact-check/mother-17-babies/
8	A Connecticut man faked being deaf and dumb for 62 years to avoid listening to his wife.	https://www.snopes.com/fact-check/man-fake-being-deaf-dumb/
9	The government of Japan announced that it was banning microwave ovens’ use in the country by 2020.	https://www.snopes.com/fact-check/japan-ban-microwave-ovens/
10	The Government has introduced a bill that would ban senior citizens from voting.	https://www.snopes.com/fact-check/tara-mcclossoff/
11	Netflix, a popular video streaming service, is offering users a free one-year subscription due to the COVID-19 pandemic.	https://www.snopes.com/fact-check/netflix-scam/
12	It has been reported that insect repellent companies hire a Ugandan man whose flatulence kills mosquitoes.	https://www.snopes.com/fact-check/farts-kill-mosquitoes-uganda/
13	Pan Am Flight 914 that disappeared in 1955 with 57 passengers and six crew members after it took off from New York City landed in Miami yesterday after 37 years without incident.	https://www.snopes.com/fact-check/flight-914-reappears-37-years/
14	A new bill will require police officers to call their supervisors before drawing their weapons.	https://www.snopes.com/fact-check/police-weapons-supervisor-satire/
15	A California couple has named newborn child an emoji “👉👉”	https://www.snopes.com/fact-check/california-newborn-named-emoji/
16	A man got into five separate auto accidents shortly after receiving a woman’s brain in a transplant.	https://www.snopes.com/fact-check/car-crash-brain-transplant/
17	Tom Brady attributed his success as an NFL quarterback to the “witchcraft” of his wife, Gisele Bündchen.	https://www.snopes.com/fact-check/tom-brady-witchcraft/

column “Source” in Table 1 provide detailed explanations of why these news stories are demonstrably false.

Note how some of the examples in Table 1 are outrageous and even satirical (i.e., item 7, about a woman giving birth to 17 babies; or item 12, on flatulence killing mosquitos), while others may be viewed as misreported spins (i.e., slanted information) with false logics (i.e., item 1 with carbon dioxide being the building block of life and thus invalidating climate change). This evidences how difficult it is to draw clear lines between misinformation (i.e., false or misleading information) and disinformation (again, false information spread to deceive people) without context considerations (such as who is conveying the fake news to whom, when, and for what purpose). In conclusion, fake news overlap with both of these information disorders [7].

2.2. Political beliefs: conservatism vs. liberalism

Conservatism and liberalism are ideologies that political scientists around the world have traditionally focused on [57]. These two political ideologies could be considered as two opposing ends of a political ideology spectrum insofar as a politically liberal individual is not considered conservative, whereas a politically conservative individual is not liberal. The major differences between the two ideologies lie in terms of the role of governments and social institutions in handling a variety of issues/norms pertaining to race, religion, immigration, business/financial regulations, national security, public health, and environmental protection [58,59]. For example, those with conservative ideology believe that governments, in general, tend to be inefficient and government regulations do more harm than good. They also consider immigrants to be a burden on their country, and that peace can be more easily attained through military strength. By comparison, those with liberal ideology believe that governments can be efficient, and that regulations are needed not just to ensure markets behave properly (e.g., to prevent corporations from taking advantage of consumers) but also to protect the environment. Liberals also tend to see immigrants as contributing to their country’s economy. There are also differences between conservatives and liberals in terms of their views on diversity, equity, and inclusion [59,60].

As emphasized above, various studies have looked into the influence exerted by conservatism on fake news believability [45,46]. In fact, Boutyline and Willer [28] point out that conservatism may aid the emergence of reinforcing spirals, information cascades, echo-chambers, and filter bubbles insofar as “conservative and more politically extreme individuals tend to exhibit greater orientations towards cognitive stability, clarity, and familiarity” and this preference for certainty can make “these individuals more inclined to seek out the company of those who reaffirm, rather than challenge, their views.” Thus, conservative individuals tend to exhibit more political homophily (or the tendency to associate with individuals of similar political ideology) than liberals ([28], p. 551). This homophilic tendency may be exacerbated by the attributes, design, and algorithmic specifications of SM platforms [61].

In addition, certain topics appear to have different levels of susceptibility to information disorders [62]. Studies have found that the effects of fake political news to be more pronounced than those of fake news about science, natural disasters, urban legends, and even financial information [63], all of which, unsurprisingly (and as emphasized in the introduction), have provided justification for academic research establishing a link between the spread of political fake news and increases in polarization and partisanship [64]. Critically, taken together, homophily, along with the polarizing effects of online forums discussing fake political news, appears to have provided fertile grounds in which “conservatives were more likely to share articles from fake news domains” using Facebook “than liberals or moderates” ([45], p. 1). The same was uncovered among Twitter users in the US with “conservatives being more likely to re-tweet fake news” ([46], p. 28). In light of the fact that it is belief in rumors, leveraged by argument-induced belief change, that increases SNS users’ rumor-spreading intentions [21], it seems

intuitive to propose that conservatives are more likely to share fake news on SNS in part because they also tend to find them more believable. Thus, we expect that

H₁: Conservatism will lead to greater fake news believability.

We will now delve into the literature on national culture, the importance of measuring culture at the individual level (i.e., espoused cultural values), and how these could affect individuals' propensity to believe in fake news shared on SNS.

2.3. National culture

National culture is a complex construct as evidenced by the presence of more than 160 definitions of culture in the literature [65]. Yet, there does not exist one well-accepted universal definition of culture. For example, Hill [66] defines culture as a system of shared values and norms by a group of individuals and that these shared values and norms when taken together constitute a design for living. Hofstede [67] describes culture as "the collective programming of the mind which distinguishes the members of one human group from another" (p. 260). When "national" prefixes "culture," the phrase "national culture" distinguishes the cultural character of one nation from others. In addition to the countless definitions of national culture, cross-cultural scholars have proposed several cultural frameworks over the years [68].

Each available cultural framework provides a unique way to enhance our understanding of the multifaceted construct of national culture. For example, there is Hofstede's framework of national culture, the Global Leadership and Organizational Behavior Effectiveness framework of national culture [69], and Gelfand et al.'s [70] concept of national cultural tightness-looseness. Earley and Ang [71] presented a framework of cultural intelligence, which refers to an individual's ability to function effectively in situations characterized by cultural diversity. Then there is a cultural framework from Hall and Hall [72], who described high and low contextual cultural differences in the way individuals communicate across countries.

Of the myriad definitions and several frameworks of national culture, not only Hofstede's cultural definition but also his framework of national culture remains most cited in the business and IS discipline [73, 51,74]. Over the years, IS scholars have extensively used Hofstede's cultural framework to study a variety of information technology (IT) artifacts in cross-cultural settings [49,51,75–79]. Consequently, in this study, we follow Hofstede's definition of national culture and employ its most prominent dimension of national culture (i.e., individualism-collectivism) when applied at the individual (espoused) level to study how individuals' cultural values may affect the extent to which they may lend credence to fake news shared on SNS. Hofstede's (2011) framework consists of six national-level cultural dimensions: individualism-collectivism, power distance, masculinity-femininity, uncertainty avoidance, long-/short-term orientation, and indulgence/restraint.

Individualism/collectivism measures the extent to which individuals in a nation are affiliated with loosely or tightly knit social groups. *Power distance* captures the degree to which the less powerful members of a nation accept and expect that power is distributed unequally. *Uncertainty avoidance* is the degree to which the members of a nation feel uncomfortable with unpredictability and ambiguity. *Masculinity/femininity* measures the extent to which individuals in a nation prefer achievement, heroism, assertiveness, and material rewards for success versus cooperation, modesty, caring for others, and quality of life. *Long-/short-term orientation* gauges the extent to which a nation relies on its past while dealing with the present and future challenges. *Indulgence/restraint* assesses whether society values or suppresses the need for enjoyment and having fun in everyday life.

For this study, we shall focus on individualism/collectivism cultural dimension for at least four reasons. First, substantial research in the cross-cultural field considers individualism-collectivism to be the most salient cultural dimension [67,80,81]. Second, during an early

exploration of an IS phenomenon through the cultural lens, IS scholars have opted for the individualism-collectivism dimension [77]. Third, individualism-collectivism dimension has been used to study fake news (related to climate change) [16]. Finally, given that this study uses a quantitative survey methodology to test its research question(s), focusing on a few, yet critical, concepts allows us to minimize participant fatigue by keeping the study instrument/questionnaire short.

2.4. Espoused (individual-level) cultural values

Hofstede et al. [82] argue that all cultural dimensions exist at the national level and have also proposed national scores for each cultural dimension. Several cross-cultural studies have used these national-level scores to compare cultural differences between countries. However, several scholars disagree with this approach. Their main argument pertains to the methodological approach followed by Hofstede as scores were calculated by aggregating individual responses in each country; thus, the national scores fail to capture the variance in individual responses among respondents from the same country [83,84]. In other words, it is not methodologically sound to assume that all people in a country ought to behave culturally the same.

As such, people from the same country may likely vary in the extent to which they espouse national cultural values [85,49,78]. Moreover, scholars can avoid ecological fallacies in their studies by measuring culture at the individual level rather than at the national level [86,49,78]. Espoused (individual level) cultural values capture the degree to which an individual inherits the cultural values of his or her country. The espoused values framework is rooted in cultural psychology and physiological anthropology, which links individuals' cultural traits to their personality. Several recent cross-cultural IS studies have employed this framework to understand the role of cultural values in understanding varied technological phenomena and outcomes [87,51,88,75]. We next describe the individualism-collectivism cultural dimension and specifically how collectivistic (or lack of individualistic) cultural traits may make individuals more (or less) likely to believe fake news.

2.5. Individualism vs. collectivism

The individualism-collectivism dimension measures the degree to which individuals favor group orientation over self-orientation [67,82]. Collectivists display strong group-oriented behaviors, while individualists emphasize the self as being more important than others. Collectivistic cultural values are characterized by the presence of cohesive in-groups where other members are considered similar to oneself. Consequently, collectivists have a strong sense of community and trustworthiness toward other in-group members [89,90]. Examples of such in-groups may include a nation, religious group, soccer team, or college student body [90]. It is not that individualists will not ever belong to groups or would be unable to have their own in-groups, but rather that their bonds with other group members will not be sufficiently strong for group membership to exert as much influence at the individual level as it would for collectivists. Thus, individualists will do what they (or their self) feel is right as they do not feel as obliged to act and behave the same way as other group members.

As such, collectivism stresses the perception of "we, us, and our," whereas individualism emphasizes "I, me, and myself" [91,92]. In addition to "we" versus "I" categorization, the degree of individualism (or collectivism) can be measured by the extent to which individuals differentiate between their in-groups and out-groups. Tajfel [89] argues that in-groups and out-groups can be classified into "we" versus "they" where an individual has a sense of respect and loyalty toward the "we" or in-group, and a feeling of disagreement or opposition toward the "they" or out-group (i.e., the ones who do not belong to one's in-group).

Now, in the context of SNSs, a growing body of literature demonstrates that individuals' cultural traits influence how they behave and act online [86,50]. Moreover, online environments, such as the ones

created by social networks, may lead to the formation of in-groups that allow individuals “with common interests to share ideas, information, or personal observations” ([93]; p.32). Another example of online collectivism is the existence of online forums consisting of those who believe in Bitcoin, a controversial yet revolutionary blockchain-oriented digital currency [94]. Despite the significant criticisms of Bitcoin from various world leaders and leading financial gurus, those interested in Bitcoin have remained collective over the years and demonstrated a sense of community by actively participating in online forums and holding regular virtual meetings [94].

In a similar fashion, with regard to believing fake news on SNS, it seems reasonable to expect individuals with collectivistic cultural values to still be prone to forming strong in-groups in which there would be mutual respect. Collectivism, unlike individualism, imbues (and instills) a feeling of togetherness permeating online interactions – just as it has happened for Bitcoin communities [95] – that ought to also affect fake news believability. Similarly, because collectivists promote group welfare along with shared resources, information, and success [96], individuals with collectivistic cultural values should be expected to believe in fake news. This is the case because collectivists are committed to sharing resources, information, as well as success with in-group members. Because fake news shared on SNS might be perceived as (or even believed to be) a useful resource (i.e., a success enabler), then these pieces of information should be expected to be passed on to other in-group members (as part of collectivists’ commitment to sharing resources, information, as well as success with in-group members). Indeed, collectivists have been found to exhibit a higher willingness to donate to causes promoted on SNS (such as global warming) [16]. Meanwhile, those with individualistic cultural traits would not feel obligated to agree with others from their in-group; quite the contrary, they would be more likely to opine, express disagreement, and question the fake news being shared. Because of this, we expect that

H₂: Collectivism will lead to greater fake news believability.

3. Methods

To test both hypotheses (and answer the associated research questions), we collected data using Amazon Mechanical Turk (MTurk). MTurk is an Internet-based survey panel, where individuals volunteer to participate in research surveys and in return earn monetary incentives [97,98]. MTurk has become an important source of data collection for studies in the business and nonbusiness disciplines, particularly the ones that require participants from geographically and culturally diverse populations [75,99–103]. Moreover, prior research has demonstrated that not only MTurk participants are demographically diverse but also the data obtained from MTurk are of high quality [104,97]. Recently, Daly and Natarajan [105] conducted three studies to assess the quality of the data collected using MTurk and found MTurk data to be highly reliable with minimal nonresponse biases among MTurk participants. Similarly, Paolacci et al. [106] concluded that data collected through MTurk could produce results as consistent as the ones obtained from laboratory experiments, including research conducted on political ideology [107,108].

3.1. Participants

Even though the focus of this study is on individual characteristics, we decided to collect data in two countries (US and India) to ensure a culturally and politically diverse sample of participants. Just as several IS cross-cultural scholars have done by relying on participants from these two countries [51,88,75,95]. All survey questions were asked in English for both the US and Indian participants, and each participant earned \$2.00 for his or her participation. We then conducted the main study. In total, 526 completed responses (278 from the US and 248 from India) were obtained. Of the 278 participants in the US, 153 were males and 125 were females. In India’s participants’ pool, 174 were males and

74 were females. The average age of the US and Indian participants was 39.5 years and 31.2 years, respectively.

3.2. Fake news scenarios

The focus of this study is on the extent to which individuals might lend credence to a variety of fake news scenarios (because of their political beliefs and espoused cultural values). Accordingly, we conducted an extensive review of fake news articles on two popular fact-checking websites – Snopes.com and FactCheck.org. Websites considered established sources for authenticating online misinformation/disinformation. We developed a list of 50 fake news scenarios, then the coauthors, along with four more academics (all with knowledge of fake news research), reviewed the scenarios and provided a qualitative assessment for the most diverse range of fake scenarios that would be relevant in both countries. This is how the 17 fake news considered in the study (spanning across a variety of topics, such as climate, product/services, health, politics/government, parenting, policing, and sports) were defined. Of the 17 scenarios, 6 were minimally adjusted to conform to each country’s name/conditions (e.g., in fake news item 14, of Table 2, the word “Lawmakers” was replaced by “The Parliament”).

To ensure the adjusted fake news scenarios would make sense for both American and Indian participants, four academics (two of Indian origin and two Americans), along with the authors of this article (again, all with knowledge of fake news research), were asked to review them. In addition, we conducted a pilot survey of 100 participants (50 from the US and 50 from India) to assess the readability and clarity of 17 fake news scenarios in Table 2. Moreover, at the time of pilot study, participants were asked whether they had any comments about the fake news scenarios. No considerable additional modifications were suggested. The pilot study was also done to test the reliability of the conservatism and collectivism measures used (more on these follows). Finally, survey responses from individuals who participated in the pilot survey were excluded from the analysis.

Study participants were told that they belonged to a *WhatsApp* group comprised of high school friends/classmates, and that they saw the following message (see Table 2). They were then asked the extent to which they found the message shared believable using a 5-point Likert-type scale, where “1” indicates “not at all believable” and “5” indicates “highly believable.” All scenarios were randomized such that no two participants saw the 17 scenarios in the same order.

3.3. Measures

Degree of conservatism was captured using the conservative position of the Pew Research Center’s Ideological Consistency Scale Appendix A (Pew, [110]), which consists of two separate scales – one for the conservative position and another for the liberal position. Because our first hypothesis alludes only to conservatism as a predictor of higher fake news believability, we only used the conservative position scale. The influence exerted by the liberal position (Pew Research Center’s Ideological Consistency Scale) on fake news believability could be explored in a separate study. Meanwhile, the degree of collectivism was captured using a well-established individual-level scale proposed by Srite and Karahanna [49]. Items considered for both measures are detailed in Table 3. We also considered participants’ age, gender, and daily Internet usage (<1 hr/day, 1–2 hrs/day, 2–3 hrs/day, 3–4 hrs/day, and >4 hrs/day) (M. [109]) in our analysis. We controlled for education by ensuring all participants in the study had a bachelor’s degree.

Fig. 1 depicts the methodological approach followed.

4. Analysis and results

Because every participant in the study evaluated the believability of 17 fake news scenarios, we conducted a repeated-measures linear mixed model (LMM) regression to test our hypotheses using SPSS version 21.

Table 2
Fake news scenarios shared on WhatsApp (used in the study).

Item	US scenario	Indian scenario
1	There is no climate crisis, there's weather and climate all around the world, and in fact carbon dioxide is the main building block of all life.	Same
2	Wind energy is a problem because it kills eagles and other birds. According to some estimates, wind turbines kill more than 1 million birds in a year alone in the United States.	Wind energy is a problem because it kills eagles and other birds. According to some estimates, wind turbines kill more than 1 million birds in a year alone in India
3	Costco, a major retailer in the United States, has issued a recall for their Kirkland Signature brand of toilet paper.	Same
4	A man was recently hospitalized after an Apple Airpod exploded in his ear.	Same
5	Studies show that tattooed parents are more likely to abuse, neglect, and starve their children.	Same
6	It has been proven that breathing hot air from a hair dryer could cure COVID-19.	Same
7	A woman in Indianapolis gave birth to 17 children at once.	Same
8	A Connecticut man faked being deaf and dumb for 62 years to avoid listening to his wife.	Same
9	The government has announced that it would be banning microwave ovens' use in the United States by 2022.	The government has announced that it would be banning microwave ovens' use in India by 2022.
10	The Government has introduced a bill that would ban senior citizens from voting.	Same
11	Netflix, a popular video streaming service, is offering users a free one-year subscription due to the COVID-19 pandemic.	Same
12	It has been reported that insect repellent companies hire a Ugandan man whose flatulence kills mosquitoes.	Same
13	Pan Am Flight 914 that disappeared in 1995 with 57 passengers and six crew members after it took off from New York City landed in Miami yesterday after 25 years without incident.	Indian Airlines Flight IA914 that disappeared in 1995 with 57 passengers and six crew members after it took off from New Delhi landed in Chennai yesterday after 25 years without incident.
14	Lawmakers are considering a new bill that will require police officers to call their supervisors before drawing their weapons.	The Parliament is considering a new bill that will require police officers to call their supervisors before drawing their weapons.
15	A California couple has named their newborn child an emoji "👶👶"	A Delhi couple has named their newborn child an emoji "👶👶"
16	A man got into five separate auto accidents shortly after receiving a woman's brain in a transplant.	Same
17	Tom Brady has attributed his success as an NFL quarterback to the "witchcraft" of his wife, Gisele Bündchen.	Virat Kohli has attributed his success to the "witchcraft" of his wife, Anushka Sharma

LMM is preferred when the dependent variable is measured repeatedly across a variety of scenarios as this allows the researchers to control for potential correlations between different scenarios. Additional details on this method's relevance for our study are provided in Appendix A, but it applies in our study because the same participant is being asked to assess fake news believability of 17 distinct scenarios [111,112,50]. In addition, we relied on repeated-measures design because summing up information from different scenarios into an index would limit the amount of variability and may in turn lose information regarding individual differences.

Table 3
Measures.

Construct	Item
Conservatism position [110]	CONS1 Government is almost always wasteful and inefficient. **
	CONS2 Government regulation of business usually does more harm than good.
	CONS3 Poor people today have it easy because they can get government benefits without doing anything in return.
	CONS4 The government today cannot afford to do much more to help the needy.
	CONS5 Immigrants today are a burden on our country because they take our jobs, housing, and healthcare.
	CONS6 The best way to ensure peace is through military strength.
	CONS7 Most corporations make a fair and reasonable amount of profit. **
	CONS8 Stricter environment laws and regulations cost too many jobs and hurt the economy. **
	CONS9 Homosexuality should be discouraged by society.
Collectivism (α = 0.87) [49]	COL1 Group success is more important than individual success.
	COL2 Being loyal to a group is more important than individual gain.
	COL3 Individual rewards are not as important as group welfare.
	COL4 Being accepted as a member of a group is more important than having autonomy and independence.
	COL5 Being accepted as a member of a group is more important than being independent. **
	COL6 It is more important for a manager to encourage loyalty and a sense of duty in subordinates than it is to encourage individual initiative.

** Item dropped from analysis because of low factor loadings and/or low reliability.

4.1. Statistical analysis

LMM requires data to be set up in the long format such that there were 17 rows per participant. We first examined the psychometric properties of the model by assessing the convergent and discriminant validity of conservatism and collectivism variables. As shown in Table 4, because of low factor loadings, CONS1, CONS7, and CONS8 were dropped from the conservative position scale, and COL5 was dropped from the collectivism scale.

The items listed in Table 4 lead to distinct constructs that demonstrated excellent Cronbach's α (Hair Jr, Hult, Ringle, & Sarstedt, 2013). The conservatism scale had Cronbach's α = 0.851, and the collectivism scale had Cronbach's α = 0.849. Discriminant validity was further assessed by examining items' cross-loadings that were all smaller than their factor (of interest) loadings (Hair [113]). As such, the measurement model demonstrated sound psychometric properties. In addition, we gauged the degree of multicollinearity between items and constructs in our study by calculating variance inflation factors (VIFs). All VIF values were <3.3, indicating that multicollinearity was not a concern in this study. While the focus of this study is on individuals' conservative political beliefs and their espoused cultural beliefs, we also added the country variable to control for the participant's country of origin, which may play a part (given the data were collected in two different countries). However, the focus remains on individual-level beliefs – both political and cultural.

4.2. Results

As shown in Table 5, both hypotheses were supported. With increasing degree of conservatism (β = 0.65; p < 0.0001) and collectivism (β = 0.21; p < 0.0001), individuals' fake news believability increased significantly, thereby providing support for both H1 and H2

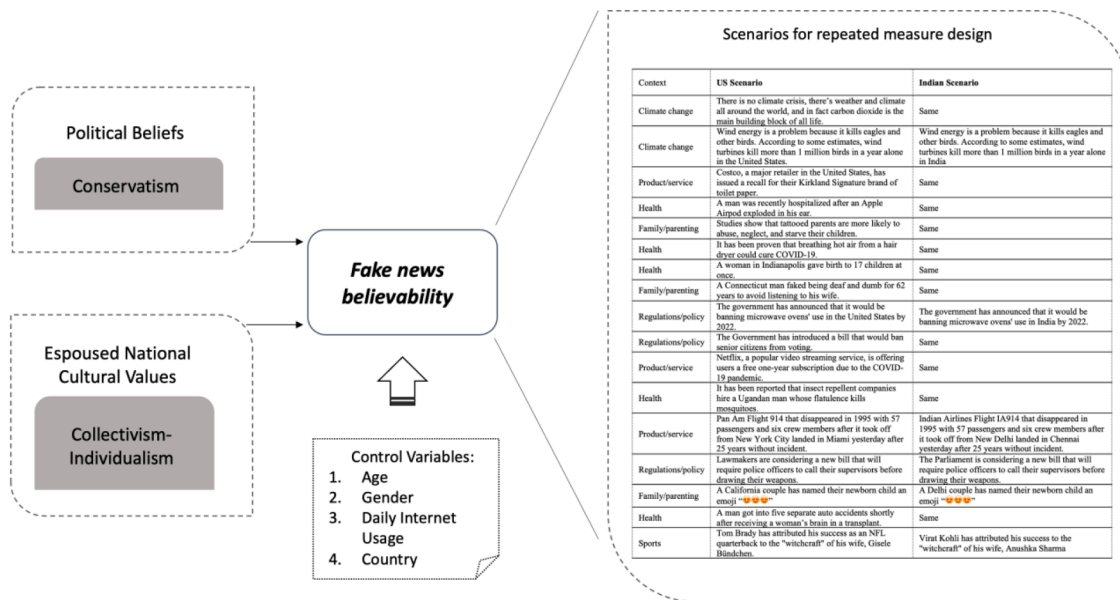


Fig. 1. Political beliefs, espoused cultural values, control variables, and adjusted fakes scenarios.

Table 4
Cross-loadings.

	COL	CONS
COL_1	0.843	0.568
COL_2	0.85	0.635
COL_3	0.768	0.391
COL_4	0.751	0.431
COL_6	0.728	0.445
CONS_9	0.483	0.737
CONS_2	0.404	0.709
CONS_3	0.512	0.791
CONS_4	0.448	0.791
CONS_5	0.513	0.766
CONS_6	0.532	0.743

Table 5
Type III effects: repeated-measures LMM results (n = 526).

Source	Numerator df	Denominator df	F	Significance
Intercept	1	8881.097	0.124	ns
Conservatism	1	8881.097	1600.400	<i>P</i> < 0.0001
Collectivism	1	8881.097	140.118	<i>P</i> < 0.0001
Gender	1	8881.097	0.602	ns
(0 = F, 1 = M)				
Age	1	8881.097	9.162	<i>P</i> < 0.01
Internet usage	1	8881.097	5.366	<i>P</i> = 0.02
Country	1	8881.097	148.267	<i>P</i> < 0.001
(0 = US, 1 = India)				

ns = not significant.

and answering positively both associated research questions. Participants' gender ($\beta = -0.02$) was found not significant. Age ($\beta = -0.004$; $P < .01$) was significant such that with increasing age, the fake news believability decreased. Internet usage ($\beta = 0.03$; $P < 0.05$) was also significant such that with increasing daily Internet usage, individuals' fake news believability increased. Country variable was found significant ($\beta = 0.36$; $P < 0.001$) such that American participants (mean = 3.12) in general were more likely than Indian participants (mean = 2.77) to lend credence to the fake news scenarios presented.

5. Discussion

This study investigated the effect of political beliefs (conservatism) and espoused cultural values (collectivism) on the extent to which individuals lent credence to fake news shared on SNS. Results indicate that higher levels of conservatism and of collectivism increase individuals' overall fake news believability. In particular, our repeated-measures design corroborated results regarding conservatism, which have been uncovered by a growing body of research [28,42,45–48]. In addition, instead of simply categorizing individuals as either conservative or liberal, by means of a binary (categorical) variable, our use of the conservative position scale outlined in Pew [110] allowed us to capture varying degrees of conservatism. This in turn allowed us to assert that higher levels of conservatism work to augment individuals' tendency to lend credence to fake news shared on SNSs.

Regarding the influence of espoused cultural values on fake news believability, we followed Parra et al. [27], p. 11 and their suggestion that it is becoming increasingly relevant "to examine cultural gullibility in different settings" by studying collectivism's propensity to lending credence to fake news shared on SNSs. We have uncovered that collectivism contributes to fake news believability as well, and, thus, our repeated-measures design contributes to academic research that helps establish individual characteristics associated with fake news believability. While the popular press has exalted (and academic research established) conservatives' tendency to believe and disseminate fake news, to the best of our knowledge, ours is one of the first studies to actually provide theoretical and empirical evidence for the influence that collectivism (as an espoused cultural value) also exerts on fake news believability.

We were not surprised that gender did not exert a statistically significant influence on fake news believability because, to the best of our knowledge, no previous academic research has uncovered it. Now, taken together, results regarding the influence of age and daily Internet usage seem intuitive. Over a decade ago, teens were found to be more avid SNS users than adults [114], and the more exposure to SNS content (including fake news), the higher the chances of finding some of it believable. Thus, it may be the case that older individuals are less likely to find fake news believable, not just because they may have more experience and thus could be less gullible but also because they spend less time than younger individuals (e.g., teens) on the Internet (and on SNSs). A combined fact – along with teens' increased access to

smartphones [115] as well as the impact that screen time has on individuals' cognitive processes (e.g., executive function and working memory) [116] –that should be explored in a future study.

Finally, before the COVID-19 pandemic, according to Barthel, Mitchell, and Holcomb [117], cited by Jang and Kim [118], 88% of Americans considered fake news to be a source of confusion about basic facts. This exceptional proportion probably increased even more after all the misinformation/disinformation spread about COVID-19 on SNSs during the pandemic [13,119], and the increases in COVID-19-related online discourse polarization [120]. In any case, American study participants being more likely to believe fake news shared on SNSs than Indian study participants may relate, first, to Americans being more frequent targets of computational propaganda and SM manipulation campaigns [29,32,30]. Second, to Americans being more prone to adopting conspiracy mentalities [121,122]. Third, to America's polarization discourse being clearly defined along political party lines but distinguished by the political context of each state, whereas India's "federal structure, multiparty system, and linguistic differences manifest in the coalescing political discourse in the largely monolingual north and the scattered regional states" ([123], p. 1054). Future research, focused on country-level differences [52] pertaining to these three realms, as well as others, should help further elucidate the causes of our findings.

5.1. Theoretical implications

On the one hand, regarding the way conservatism affects individuals' fake news believability, Wang et al. [21] showed how, in general, argument consistency moderates the positive influence that the volume of arguments exerts on rumor belief, and, in turn, how belief in rumor (aided by argument-induced belief change) works to increase individuals' rumor-spreading intentions. It seems intuitive that increasing individuals' rumor-spreading intentions would eventually augment the volume of arguments related to these rumors (posted on SNSs or SM). Now, fake news (as an information disorder) may be assumed to follow SM paths similar to those of rumors, and conservatives would be more likely to part take in associated misinformation/disinformation cascades. This is the case not only because conservatives are more likely to share fake news on SNSs [42,45–47], which augments the volume of arguments (i.e., amount of content posted in SNSs) based on – or related to – fake news but also because, as corroborated here, conservatives are more likely to believe fake news shared on SNSs as well, which would work to increase individuals' fake news dissemination intentions.

All these point to a self-reinforcing vicious cycle wherein conservatives might be unwilling participants and critical enablers of network effects – leveraged by SNSs catering to specifically them, for example, through customized social virtual world designs [124] – that can help catalyze and exacerbate polarization [45,4,21], partisan epistemologies [26], extremist groups with shared ideologies [28], as well as worldview-gap-induced confrontations [27].

On the other hand, including the cultural element in IS research has become increasingly relevant [51,125]. In general, our results provide further support for using the individualism-collectivism dimension to help capture individual-level behavioral nuances related to IS phenomena (such as fake news believability). This is probably why this cultural dimension continuous to be the most widely used in IS and non-IS-related research [73,112,77]. While several IS scholars have called for the need to use cultural concepts at the individual level (e.g., [85,49,78]) and have heeded their advice here, we also decided to include country as a control variable. Specifically, we found a statistically significant difference between the fake news believability tendencies of Americans and Indians, which should be the subject of further academic research. However, it does seem that America's "murkier SM waters" (owing to internal and external computational propaganda efforts, proneness to conspiracy mentalities, as well as to the prevalence of clearly defined partisan and continuously polarizing political

discourses) could be more conducive to fake news believability.

5.2. Practical implications

We shall now turn to offer actionable practical insights. Policymakers interested in recuperating and reinvigorating their democracies' ability to reach consensus and advance public policies with less partisan disruption and unwillingness to compromise (i.e., political gridlock) could focus on mitigating the adverse SM behaviors of conservatives, including the length of their SM posts, as well as their vividness, as part of efforts to forecast future post replying and resharing [126] and/or predict their continued use of enabling IS artifacts [127]. These policymakers could also look at the algorithmic stipulations of SM platforms offering tailored SNSs to conservatives [124]. As uncovered by Levy [[36], p. 834], "Individuals are willing to engage with counter-attitudinal news, and social media platforms provide a setting where a subtle nudge can substantially diversify news consumption and consequently decrease affective polarization." Thus, misinformation/disinformation cascades (based on fake news) could be more easily dissipated by focusing on the SNSs in which they are more likely to occur. Furthermore, fact-checking efforts could be even more focalized, and perhaps stay ahead of the fake news game, by means of well-intentioned, nonintrusive online community detection efforts [128–130].

In addition, specific fake news items being shared virally by conservatives using SNSs could be identified and then addressed in terms of their argument consistency, as well as their argument-induced belief change characteristics. In particular, Parra et al. [27] posit that fear-based credulity, along with negative amalgamating emotions (such as anger and disgust), may lead to individual as well as collective severe moral judgments (and associated actions/choices). Relatedly, it turns out that anonymity works to decrease (instead of increasing) the embodied group identity of far-right and ultraconservative online communities [131]. Perhaps because of this, conservatism was found not to play a moderating role between privacy and trust, while exploring intentions of SNS use [86]. Thus, SNSs catering to conservative users that may be interested in helping break vicious fake news spirals could implement and promote anonymity among their users.

Finally, public, private, as well as not-for-profit organizations could gage their employees' political beliefs and espoused cultural values, and then use those assessments to develop tailored training protocols aimed at helping them recognize fake news shared on SM by empowering them (as SNS users) while managing concerns related to continuous fact-checking efforts [132]. Relatedly, SNSs could consider adding fake news sharing to their information security policies (ISPs) in a normative way. This would then allow SNSs to impose informal sanctions on users who intentionally keep on sharing fake news items insofar as for collectivist individuals, informal sanctions have a negative effect on ISP violation intentions [133]. Despite conducting our analysis at the individual level – following the guidelines in the existing literature [112,88,49,134] – prior research does indicate that some countries and regions tend to be more collectivistic than others (Geert [82]). In other words, collectivistic countries (or regions) on average have more individuals with collectivistic cultural orientation than individualistic cultural values. Therefore, our recommendations could also be of relevance to policymakers and regulators from collectivist countries.

5.3. Limitations and future research

As with all empirical research, our study has limitations that we believe offer interesting avenues for future research. First, the 17 scenarios that we used in this study encompassed a variety of contexts and topics. However, our participants were not asked about their prior knowledge of (or previous exposure to) the fake news topics considered. Although previous research determined that the relationship between analytic thinking and the perceived accuracy of fake news items "is not

moderated by the presence/absence of the headline's source (which has no effect on accuracy), or by familiarity with the headlines" ([135], p. 185). In addition, a future list could be further expanded to include a wider range of fake news scenarios and topics.

Second, participants assessed the believability of 17 fake news shared in the context of a WhatsApp group (i.e., a specific SNS). Though we are confident our findings will remain significant in other contexts, we encourage future researchers to test our theoretical model across other SNSs because different SM platforms may shape their users' information consumption in different ways [136], as well as across devices (tablets, desktops, smartphones, etc.) and emerging metaverse platforms [137,138]. Third, all data in this study were collected using MTurk. While MTurk is considered a quality source for collecting cross-cultural data and conducting research on political ideology, as discussed above, our findings could be replicated using other sources of data. Fourth, we relied on one espoused cultural dimension (individualism/collectivism); hence, a natural extension of this study would be to include other cultural dimensions. Fifth, future research could expose participants to a mix of veridical (nonfake) news as well as to fake news. Sixth, the survey methodology used is prone to self-selection bias, and future methods could adopt nonsurvey and/or qualitative methods to corroborate/complement this study's findings. Finally, collecting data from the US and Indian participants provided cultural diversity to our sample [139]; however, adding participants from more countries could make the study findings more generalizable.

6. Conclusion

Given the ubiquity of fake news on SNS, it is imperative that we all work to better understand the behaviors that may make individuals more or less likely to lend credence to fake news. In particular, because rumors, fake news, and misinformation/disinformation may lead to group polarization [21], partisan epistemologies [26], along with worldview-gap-induced confrontations [27]. In this study, we set out to discern the effects of individuals' political beliefs and espoused cultural values on fake news believability shared on SNS. Based on the data collected from a culturally diverse sample (including US and Indian participants), our results helped corroborate that conservatism contributes to fake news believability. In addition, our study is one of the first to provide theoretical justification for the relationship between collectivism and fake news believability while providing empirical validation for it. Accordingly, this study has contributed to understanding individuals' SNS behaviors by assessing the credibility of fake news through the exploratory lens of espoused cultural values.

CRedit authorship contribution statement

Manjul Gupta: Conceptualization, Formal analysis, Writing – original draft. **Denis Dennehy:** Data curation, Methodology, Writing – original draft. **Carlos M. Parra:** Conceptualization, Methodology, Writing – original draft, Software. **Matti Mäntymäki:** Methodology, Validation, Writing – review & editing. **Yogesh K Dwivedi:** Writing – original draft, Writing – review & editing, Supervision.

Declaration of Competing Interest

None.

Appendix

LMM repeated-measures design

We relied on a repeated-measures design using LMM in this study because a sum-up approach with respect to the different scenarios would limit the amount of variability and may thus lose information regarding individual differences. The LMM repeated-measures design requires

data to be set up in the long format such that the observations on the same subject get repeated under the same column. The wide format, in contrast, requires data to be set up in separate columns depending on the number of times the observations were made. Consequently, in this study, there were 17 rows per participant under the same column with each experimental fake news scenario being used as a repeated measure of the "Fake News Believability" construct.

LMM has been traditionally used in the pharmaceutical and health-care fields, where data are collected from the same participant (or patient) repeatedly over time. However, the main condition for using LMM repeated-measures design is that observations are repeated on the (same) subject. LMM is a less frequently used technique by business scholars, but over the last few years, it has attracted their attention and gained traction, particularly in the information systems field. In particular, several recent business studies have used LMM repeated-measures design using SPSS in a variety of information systems research endeavors [111,112,109,50,95].

In this study, we have simply relied on, and adhered to, the same steps followed in previous studies, such as Gupta et al. [50] – who asked their participants appropriateness of 22 social network behaviors and then analyzed the data using LMM repeated-measures design with social network behavior inappropriateness (SNBI) as the dependent variable. Gupta [111] further extended this work on SNBI by using the same 22 behaviors to run an LMM-based repeated-measures design. In addition, Gupta, Esmaeilzadeh, Uz, and Tennant [112] asked their participants the extent to which they would be willing to rent out and/or rent seven different products within the context of the sharing economy. The authors used the participants' seven responses and then used the LMM repeated-measures design to measure participant's renting out/renting propensity. Gupta, Parra, and Dennehy [109] created seven experimental scenarios dealing with racial and gender biases in AI-based recommendations. They then proposed two constructs of AI question-ability because of gender and race and examined the data using LMM repeated-measures design with each experimental scenario as the repeated measure. Finally, Salcedo and Gupta [95] examined how people would respond to adopting blockchain-based currencies. To gauge participants' interest, they created 12 different scenarios in which an individual could potentially use a blockchain-based currency to pay for a product or service (once again, the data were then analyzed using LMM repeated-measures design).

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