The Chinese Diaspora and the Attempted WeChat Ban: Platform Precarity, Anticipated Impacts, and Infrastructural Migration

BEN ZEFENG ZHANG, University of Michigan, USA
OLIVER L. HAIMSON, University of Michigan, USA
MICHAELANNE THOMAS, University of Michigan, USA

In August 2020, the U.S. President issued an executive order to ban the Chinese-based social platform WeChat, alleging that WeChat posed a national security risk. WeChat is a vital application for Chinese diasporic communities in the United States. The ban's status were uncertain for several months before it was temporarily halted and later revoked in 2021. Through interviews with 15 WeChat users and online participant observation, this study examines the anticipated impacts of the potential WeChat ban and participants' reactions. We find that participants described negative consequences of the potential ban, including adverse network and economic effects and disruption of community-building efforts. We also find that many participants considered WeChat to be critical infrastructure in the United States, as it has become an indispensable part of their daily lives. To frame participants' experiences, we introduce the concept of *infrastructural migration*—the process of users relocating to another digital media service that embodies the properties and functions of infrastructure or moving to an assemblage of different applications that meet their infrastructural needs separately. We then discuss implications for designing for infrastructural migration and future considerations for HCI research with diasporic communities.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: Diaspora, Infrastructure, Immigration, Platform, WeChat, Social media

1 INTRODUCTION

Zeyu uses WeChat on a daily basis to stay connected with his friends and family both in and outside of the United States. He has fewer than ten contacts on Facebook, but more than 100 on WeChat. He does not often make posts on Moments,[1] but he comments on close friends' posts as a way to maintain relationships. As a gamer, he is active in several WeChat gaming groups. Last ~~December,~~ when the community spread of COVID-19 in the region was rampant, he used the application to

[1]~~Moments is an equivalent of Facebook's timeline feature, which allows users to post/share information — text, videos,~~ photos, web links—with their contacts: https://blog.wechat.com/tag/moments/.

~~Authors' addresses: Ben Zefeng Zhang, University of Michigan, USA; Michaelanne Thomas, University of Michigan, USA;~~ Oliver L. Haimson, University of Michigan, USA.

chat with his parents in the Chinese mainland to regularly update them on the local situation. *"I can also know my parents' well-being through chatting with them on WeChat. Their wellness puts my mind at ease,"* he explained.

WeChat also serves as a type of business hub for Zeyu, who piece together temporary job opportunities to support himself financially through the network he has cultivated on the app. At the time of the interview, Zeyu was informally working for local Chinese restaurants as a delivery person, using WeChat as his hub of operations. To gather customers' orders systematically, Zeyu posts a self-service ordering program via WeChat Mini Programs, sub-applications within the WeChat ecosystem.[2] He also helps maintain food ordering WeChat groups and actively answers clients' questions, tailoring his services to their needs. When he drives to different towns to deliver food, he either contacts clients through WeChat or calls them directly. Although his restaurant did not not accept WeChat Pay[3] for orders, it still used WeChat virtual "red envelope"[4] to incentivize customers to order food online. These are just some of the ways that WeChat has been integral to Zeyu's livelihood and well-being as it facilitates community connection and earning opportunities, areas that are crucial but often challenging for immigrants.

So, when the Trump administration issued an executive order in August 2020 banning WeChat, participants in this study were understandably concerned. Systemic inequalities and the COVID-19 pandemic had steered them to rely increasingly on WeChat for social support (e.g., emotional, informational, and instrumental support). A month later, the U.S. Commerce Department announced that it intended to execute the order to "deplatform" WeChat in the United States and prevent downloads on U.S. app stores [70]. After hearing this news, Zeyu and his employers were anxious, as the potential ban could have disrupt their business model and lead to a decrease in sales. For Zeyu, this could have meant the loss of his only source of income.

Often described as an "all-in-one app" [91], WeChat is one of the most widely used social apps among the Chinese diaspora in the United States. [48, 75]. Broadly speaking, the Chinese diaspora[5] is a globally dispersed group of people of Chinese origin living outside of the Chinese mainland, Taiwan, Hong Kong, and Macau [14, 51, 56, 63, 78]. It is also one of the fastest-growing populations in the United States, which has been one of the main destinations for Chinese immigrants since 1785 [18]. In 2018, the U.S. Census Bureau estimated the size of the Chinese diaspora within the United States to be 5.5 million people [25]. This study focuses on members of a Chinese diaspora community in a Midwestern U.S. state and adopts an ethnographically informed qualitative approach to examine the impact of the potential WeChat ban had upon this community.

Scholarship on immigration has examined the positive material impact that information communication technologies (ICTs), especially social media platforms like WeChat and Facebook, play in immigrants' lives [1, 19, 41, 42, 88]. In HCI and social computing, current research on immigration tends to focus on newcomers' immediate needs [12, 13, 42] while often paying less attention to

---

[2]https://walkthechat.com/wechat-mini-programs-simple-introduction/

[3]The integrated mobile payment feature of WeChat: https://pay.weixin.qq.com/index.php/public/wechatpay

[4]A Chinese customary practice of giving money in red envelope https://help.wechat.com/cgi-bin/micromsg-bin/oshelpcenter?opcode=2&id=160527nzbref160527mqemmm&lang=en&plat=2&Channel=helpcenter

[5]By "Chinese diaspora," we mean "*haiwai huaren,*" a Chinese word that cannot be fully captured in English but that includes globally dispersed people from the Chinese mainland, Taiwan, Hong Kong, and Macau (with an emphasis on location rather than duration). In the book, *The Chinese Diaspora: Its Development in Global Perspective* [72], Professor Lok Sui proposes seeing the Chinese diaspora as "marking a process of continual social-cultural formation, a process that takes into account not only migration patterns that expand and contract and that shift spatially, but also the geopolitical dynamics, the political and social circumstances, and the cultural resources and imaginaries that shape the possibilities of who constitutes the Chinese Diaspora."

the persistent challenges for settled immigrants[6] regarding long-term integration [67, 68]. Little is known about how Chinese diasporic communities use ICTs as they navigate U.S. society, or the role that non-Western ICTs such as WeChat play in this process.

Moreover, prior social media research has commonly characterized social media sites as platforms [4, 31], including WeChat [15, 82], rather than infrastructure. Yet more recently, Plantin and De Seta [61] argued that WeChat has developed as infrastructure on the Chinese mainland due to the specific context of the mainland's ICTs industry. In the United States, WeChat has 3.3 million active monthly users [44], and diverse functions, including Official Account, Mini Programs, and WeChat Pay. Yet, less is known about how non-Western applications like WeChat might be considered to be critical infrastructure in the United States, and if so, for whom? Further, what happens if this infrastructure becomes precarious for people who rely on it, such as in the case of the WeChat ban? In this paper, we explore the following research questions:

RQ1: How do participants use WeChat to support their day-to-day needs?

RQ2: How did the potential WeChat ban impact participants and in what ways did participants use other ICTs in an attempt to reduce negative impacts?

To address these questions, we used ethnographically informed qualitative methods— semi-structured interviews and online participant observation—with individuals in Chinese diaspora communities who are living or have lived in a particular Midwestern U.S. state. We offer a situated and qualitative perspective on the impact of the potential WeChat ban within the Chinese diaspora.

This work makes the following contributions to the HCI and social computing communities. First, to the best of our knowledge, this study is the first to empirically analyze the potential WeChat ban, and specifically, the anticipated impacts of the ban among the Chinese diaspora in the United States and their reactions to the potential ban. Second, this study contributes to recent discussions around platform infrastructurization (e.g., [61, 62, 91]) through a transnational perspective. Focusing specifically on the Chinese diaspora's experience using WeChat in the United States, we find that non-Western social media like WeChat, which is often seen as a platform, can also function as critical infrastructure in the United States, depending on how indispensable it is in people's everyday lives. Third, we extend prior research on platform migration by proposing the concept of *infrastructural migration*—a process in which users relocate to another digital media service that embodies the properties and functions of infrastructure or move to an assemblage of different applications that meet their infrastructural needs separately, for either voluntarily or involuntarily. Lastly, we provide insight on design implications for infrastructural migration and considerations for future HCI research on diasporic populations.

2 BACKGROUND

WeChat (also known as Weixin in Chinese PinYin), was first released as a mobile instant messenger (MIM) by Tencent in 2011. In the past few years, WeChat has morphed into the most popular mobile application in the Chinese mainland. By January 2021, WeChat had 1.21 billion monthly active users and was the sixth most-used social app in the world [80].

The attempted WeChat ban has been in a precarious legal position for several months. In August 2020, the Trump administration issued Executive Order 13943 to ban WeChat, alleging that WeChat posed a national security risk [76]. On September 18, 2020, the U.S. Commerce Department announced that an order to ban WeChat would be executed on September 20. According to Reuters, the order from the Commerce Department was intended to "deplatform" WeChat in the United

---

[6]Drawing from Hiller and colleagues' typology [41], settled migrants often refers to migrants who have been located at a particular destination for over five years. They also note that five years is a "somewhat arbitrary timeframe," but that it suggests a reasonable period of adaptation.

States and prevent its download from U.S. app stores [70]. The ban would also prevent overseas payments between users. Taken together, aspects of the attempted ban would have resulted in a loss of functionality of WeChat, which would cause a large and adverse impact on U.S. WeChat users' lives. On September 19, the U.S. District Court in San Francisco issued an injunction that temporarily halted the ban. Since then, the ban has been in limbo [86]. In February 2021, the Biden administration pause the ban in order to review it, which has allowed the app to continue to operate [87]. On June 9, 2021, the Biden administration revoked the Trump administration's executive order and replaced it with a new security review [45], so users' uncertainties remain.

3   RELATED WORK

In this section, we review the literature on ICTs and immigration as well as social media platforms and infrastructure to further situate this study in the field of HCI, social computing, and immigration.

3.1   WeChat and HCI

A brief introduction to WeChat: Scholars in HCI and social computing have studied WeChat by focusing on users' motivations and its features and design [82, 83, 92]. For example, Wang and colleagues explored people's motivations for using WeChat as an MIM [83]. They also examined its novel features such as Shake (also known as Yaoyiyao) and Drift Bottle (also known as Piaoliuping), which allows interactions between random users [83] as well as customized and downloadable "stickers" [92]. Other scholarship has studied social commerce practices on WeChat [91], values in platform design [82], and different communications practices such as patient-provider communication and intimate long-distance communication [21, 93].

Though previous studies have typically researched social media through a platform lens [4, 31], more recently, Plantin and colleagues have argued that platform-based services like Facebook have acquired characteristics of infrastructure such as scale and criticality, a phenomenon they call "platform infrastructuralization" [62]. Building on Plantin et al.'s argument that "platforms become infrastructure through monopoly" [62], Zhou and DiSalvo argued that one reason why WeChat can work as infrastructure in the Chinese mainland is that it is supported by the Chinese government [91]. Our study builds on Plantin et al. [61, 62] and Zhou and DiSalvo's [91] work to deepen an understanding of social media as infrastructure in a transnational context.

3.2   ICTs and Immigration

Scholarship on immigration has demonstrated that ICTs play an increasingly important role for people who identify as immigrants [1, 19, 41, 42, 88]. Despite being geographically dispersed, ICTs support the maintenance of both strong and weak ties with immigrants' homelands and current countries, providing greater access to social capital [19, 41, 88]. Research on ICTs and transnational immigration often begins with analyzing immigrants' lives after they arrive in a host country. For example, Hsiao and Dillahunt found that ICTs can help address immigrants' settlement needs (e.g., housing or transportation) [42]. In the context of forced displacement such as a refugee crisis, Alencar found that ICTs could be particularly relevant for refugees to build both bonding and bridging social capital as well as gain language and cultural competences [1].

Prior work in diaspora and immigration studies often highlights how individuals in diaspora manage the push-pull of identity work [6, 37] and their "in-between" experience [23]. Social media sites such as Facebook can be particularly beneficial when people migrate to another country. The affordances of social media provide opportunities for immigrants to enact their cultural identities and meet their information needs [19, 32, 64]. For instance, by joining identity or interest-based immigrant groups (e.g., ethnicity, professional development, location), immigrants are able to seek better social support within an inclusive online environment [19, 32, 64]. But, although

social technologies can be beneficial, they can also serve to further marginalize individuals. Such challenges can center on privacy [34, 40, 69], self-presentation [35], online disclosure [3, 36, 69], and online racism [9, 57]. Importantly, social media can pose even more complex challenges for immigrants, as was the case for the participants in this study. Specifically, when a social media platform is used as an infrastructure to fill in the gaps in support for communities, and then access to that infrastructure is threatened (i.e., the potential WeChat ban), it reveals the dependence of certain groups on social media platforms becomes a vulnerability.

In the field of HCI and social computing, current research related to immigration tends to focus on newcomers' immediate needs [12, 13, 30] while paying less attention to settled migrants' long-term needs. For an exception, see Sabie et al.[67]. For instance, HCI scholars have investigated topics that include newcomers' wellbeing [12, 77], adaptation challenges [2], and information access [16, 42, 66]. This study continues this scholarship by by focusing on longer-term needs within local communities in the United States.

Some recent scholarship has attended to online migration, in particular, platform migration [29, 55, 59]. For example, Fiesler and Dym's research on platform migration uncovered the causes and effects of online community migration and highlighted factors that contribute to the success and failure of social media platforms [29]. They documented platform-based and community-based reasons for platform migration, and identified migration's consequences and challenges, which are both technical and social [29]. To our knowledge, little is known about how Chinese diaspora communities perceived the impact of the potential WeChat ban and how it influenced their online behaviors. Moreover, while the current approach to studying the social media ecosystem mainly focuses on the U.S. context, the potential WeChat ban offers a unique opportunity to examine how different social media, especially social media that emerges from the Global South, operate as critical infrastructure in people's everyday lives.

3.3 Social Media Platforms as Infrastructure

A brief overview of the term platform: The term *platform* is widely used in media and information studies, and scholars in those domains often use *platform* to describe social media sites [31, 58].

Parker and colleagues offer a definition with the focus on the objectives of platforms: "A platform is a business based on enabling value-creating interactions between external producers and consumers. The platform provides an open, participative infrastructure for these interactions and sets governance conditions for them. The platform's overarching purpose: to consummate matches among users and facilitate the exchange of goods, services, or social currency, thereby enabling value creation for all participants" [58]:11. While investigating users' role in the platform infrastructuralization of WeChat, Zhou and DiSalvo [91] adopted Parker et al.'s definition, then redefined platforms as a "digital technology with an open architecture that is designed to facilitate user interactions, with some rule of governance set by the platform." In this paper, we adopt Zhou and Disalvo's human-centered definition of platform which highlights that platforms can include online social networks that "support users to generate content" and "facilitate users completing activities" [91].

A brief overview of infrastructure: In the context of computing, information systems scholars Hanseth and Lyytinen [39] conceptualized technical systems as infrastructure, and developed the concept of "information infrastructure" in their canonical work. Paul Edwards and colleagues [27] identified three phases of information infrastructure development. It begins with system-building. In the second phase, the technology then scales to different domains and locations. The third phase is consolidation, in which various systems merge and form into a network. Edwards and colleagues emphasized that infrastructures such as the internet are "ubiquitous, accessible, reliable, and transparent as they mature" [27]. The canonical work of Star and Ruhleder [74] argued that

infrastructure is "sociotechnical"; physical and technical infrastructures depend on human labor and a social layer of norms and knowledge in order to sustain technical functions.

Moreover, Star [73] identified the properties of infrastructure, including embeddedness and transparency, where "infrastructure is sunk into and inside of other structures, social arrangements, and technologies" and is "transparent to use, in the sense that it doesn't have to be reinvented each time or assembled for each task, but invisibly supports those tasks (p. 381)." She highlighted the invisible quality of infrastructure but also its visibility during moments when it breaks down. Indeed, during a complete internet shutdown in Bangladesh, Bin Morshed and colleagues found that the ban made the infrastructure visible and users were significantly affected in both online and offline settings [8]. Although the WeChat ban never went into effect, open questions remain about how much impact it caused. As there was a common understanding that it was likely to happen, and the possibility persisted for months, users had the opportunity to reflect on how much they relied on WeChat as well as make alternative plans to cope with the potential ban.

Platform as infrastructure: With the rapid expansion of platforms in recent years, scholars have begun to argue that such platforms can co-exist and even compete with or supplant infrastructures. Plantin and colleagues [62] conceptualized this phenomenon as "platform infrastructuralization," arguing that such platform-based services "acquire characteristics of infrastructure" [62]. They published a case study about WeChat's platform infrastructuralization (or the infrastructuralization process of platforms) to further support their argument [62]. Building on this concept while drawing on social construction of technology (SCOT) theory from Science and Technology Studies (STS), Zhou and DiSalvo [91] drew analytical attention to social factors, specifically the users' role in WeChat's platform infrastructuralization. They conceptualized interactions at three levels—practicing, appropriating, and creating. Practicing means to adopt the technology as intended by designers, appropriating refers to use the technology in a way that the designers did not intend, and creating means users with technical skills build functions and add value for themselves or others [91]. For them, "the first level is foundational, on which WeChat goes wide; the second is determinant, on which WeChat goes deep; and the third is to broaden the reach and deepen the embeddedness even further through customization, rendering WeChat as the invisible support for more user practices" [91].

Building on this body of work, our study contributes to existing scholarship by further understanding the role that social media sites like WeChat play on a transnational level. Our findings on people's use of media services like WeChat and the anticipated impacts of the ban deepen and extend prior work on platform migration and platforms as infrastructure.

4 METHODS

To address our research questions, we conducted an exploratory study using ethnographically informed qualitative methods with members of the Chinese diaspora who are living or have lived in a Midwestern U.S. state. These methods included interviews, participant observation, and online fieldwork. Our study was approved by our university's ethics review board.

4.1 Participants

Participants were recruited through direct contact and snowball sampling. Participants were required to be at least 18 years old and self-identify as part of the Chinese diaspora in a Midwestern state in the United States. Working with the Chinese diaspora population in the region helps to maintain the community aspect of the study, which allowed us to better examine people's relationships within the community. As those in the Chinese diaspora use multiple social technologies in their everyday life, the initial participants were recruited through online communities on popular social media platforms, including WeChat, Facebook, and Kuaishou, an algorithm-based Chinese

Table 1. Summary of participant demographics and immigration background

Participant	Age	Years in US	Gender	Degree Earned	Occupation	Status	Origin
Xue	29	10	F	High school	Restaurant worker	Green Card	Chinese mainland
Yinuo	32	3	F	Bachelor	Restaurant worker	Green Card	Chinese mainland
Zeyu	31	10	M	Bachelor	Self-employed	F2 Visa	Chinese mainland
Siqi	56	20	F	Master	TCM doctor	Citizen	Chinese mainland
Chenxi	29	7	F	Master	Tax consultant	H1B	Chinese mainland
Haoyu	29	7	M	Master	Car engineer	H1B	Chinese mainland
Sa	63	37	F	Bachelor	Secretary	Citizen	Chinese mainland
Hsin-yi	37	8	F	Master	Homemaker	H4 Visa	Taiwan
Yi-an	44	9	F	Master	Data analyst	Green Card	Taiwan
Annya	30	4.5	F	Bachelor	Auditor	Green Card	Taiwan
Yu-ting	35	7	M	Master	Web developer	Green Card	Taiwan
Chia-ying	27	5	F	Master	Grad student	Green Card	Taiwan
Hachi	34	7	F	Master	Grad student	F1	Taiwan
Ching-yi	71	49	F	Bachelor	Retired	Citizen	Taiwan
Shu-ling	35	11	F	Master	Realtor	Green Card	Taiwan

video-sharing platform. We first recruited contacts who identified as members of the Chinese diaspora from the first author's social circle on WeChat. We also reached out to participants in relevant Facebook groups organized by members of the Chinese diaspora living in the area. Finally, we used the location and search features of Chinese social media platforms, including Kuaishou and TikTok, to locate potential participants and send them direct messages. Through snowball sampling, some participants recommended others in their networks for the study.

We recruited 15 participants, seven (46.7%) of whom had been born on the Chinese mainland and eight (53.3%) in Taiwan, all of whom later immigrated to the United States. Three were men and 12 were women. Participants had been living in the United States for 3 to 49 years (*SD*=13.0 years). They ranged in age from 29 to 71 years old; the median age was 34 (*mean* = 38.8, *SD* = 13.7 years). Participants were highly educated: 14 had completed at least a bachelor's degree (93.3%), and nine had earned an advanced degree (60.0%). Participants were diverse in immigration status; ten (66.7%) had obtained either U.S. citizenship or a Green Card (Permanent Resident Card) and five (33.3%) held a nonimmigrant visa including F1, F2, H1B, and H4 visas.[7] Participants were compensated with a $30 Amazon gift card after completing the first interview as a token of our appreciation.

4.2 Data Collection and Analysis

Our study is part of a broader research program about ICTs' use within the Chinese diaspora to better understand the role ICTs play in migrants' lives. We collected data using a combination of qualitative methods. Between Fall 2020 and Spring 2021, the first author conducted ethnographically informed in-depth, semi-structured interviews, participant observation, and online fieldwork.

The interviews were designed to elicit life histories [85] where the first author asked participants about their lives, experiences living as part of the Chinese diaspora in the United States, and their use of ICTs in everyday life. Due to the COVID-19 pandemic, the interviews were conducted over the phone, Zoom, WeChat, or Facebook Messenger. Interviews lasted 42 to 164 minutes and averaged 97.5 minutes (*SD* = 28.3). In addition, the first author joined multiple local online groups

---

[7]**F1**: a nonimmigrant visa for those wishing to study in the US. **F2**: a nonimmigrant dependent visa for the immediate family members of an F1 visa holder. **H1B**: a nonimmigrant visa which permits a foreign national to work in the United States for a temporary period. **H4**: a nonimmigrant visa for immediate family members of an H1B visa holder

on multiple platforms, including WeChat and Facebook, and conducted participant observations, taking fieldnotes regarding how people were responding to the potential WeChat ban.

Nine interviews were conducted in Chinese and the remaining six in English, depending on the language in which participants were most comfortable. The interviews were transcribed in their original language. All quotes from the interviews conducted in Chinese were translated to English for this paper.

Prior to the interview, the first author informed participants about the study goals and the confidentiality of the study, and asked for consent to record the conversations. During the interview, participants were asked questions regarding motivations to migrate, challenges living as a member of the Chinese diaspora, the predicted impact of the attempted WeChat ban, their other reactions to the potential ban, and their ICT use broadly.

We conducted iterative and thematic analysis with fieldnotes and the 15 transcripts using open coding and memoing [11, 17]. We then inductively developed a codebook whith a list of codes and explanations of the codes. The codes that emerged were largely related to the everyday use of WeChat and the impact of the potential WeChat ban. All codes were translated into English and discussed by the research team on a weekly basis. This approach has been adopted by many HCI and social computing scholars who work with non-native English speakers (e.g. [49, 50]). Through collapsing and merging the codes, we generated the themes reported in the results section.

4.3 Author Reflexivity

The first author self-identifies as a member of the Chinese diaspora who grew up on the Chinese mainland. He received both his undergraduate degree and master's degree in the United States. He is fluent in both Chinese and English. His identity and background helped him to gain access to the Chinese diaspora communities in the area and take the role of participant observer in this study. He disclosed his personal background when speaking with participants. The second and third authors are White Americans who have extensive experience working with marginalized populations. They relied on the first author's cultural and language proficiencies for this study's data collection and analysis.

5 FINDINGS

We begin by introducing the consequences of the potential ban for participants, including adverse network and economic effects, and disruption of community-building efforts. We also describe the ways in which participants in our study engaged with WeChat, which meant that the ban would have disproportionately impacted people from the Chinese mainland rather than Taiwan. Lastly, we highlight and categorize the creative ways that participants responded to the potential WeChat ban, introducing the the concept of *infrastructural migration* to frame their experiences.

5.1 The attempted WeChat ban: network, economic, and community impact

In this section, we offer a situated, qualitative perspective on participants' engagement with WeChat and the consequences of the potential WeChat deplatforming for them. We found that WeChat serves as an critical tool in their everyday lives. We unpack the impact of the WeChat ban in three areas: network effects, economic effects, and disruption of community-building efforts, which have been especially salient during the COVID-19 pandemic. Importantly, we found that these different types of impacts are not mutually exclusive; they are interrelated, and exacerbate both both challenges for individuals as well as communal anxieties.

5.1.1 Network effects: affecting connections and social support. All participants from the Chinese mainland described how WeChat had been woven into the fabric of everyday diasporic life. We

later discuss the different impacts on users with from Taiwan. Despite participants having access to and using a variety of social media, including Facebook, Instagram, TikTok, and Kuaishou, they all reported using WeChat as their primary social media site. During the interviews, participants from the mainland explained that before WeChat became popular, QQ, Tencent's messaging service, had been their primary social media. Zeyu had moved to the the United States about ten years ago. Back then, WeChat did not exist, so he relied on international phone calls and QQ to maintain relationships with friends and family back home. Gradually, he realized that all his QQ friends had migrated to WeChat, so WeChat became his main social media site. Another participant, Chenxi, shared a similar experience: "*When I got here in the first year, I still used QQ.... Then we moved to WeChat. So I basically abandoned the QQ account.... Everybody began to have the WeChat account, and it seems like no one talks on QQ anymore.*"

Mainland participants' adoption of WeChat as their primary social media in the United States is largely due to WeChat's infrastructualization in China. Previous scholarship has noted that WeChat's "massive usage scale and the plethora of services translate into a phenomenon that is impossible to miss for anyone who has been in China" [[61]:261]. As members of the Chinese diaspora communities, mainland participants not only needed to manage ties within the United States, but also in mainland China, where most of participants' network resided. As most of the participants' contacts moved to WeChat, participants themselves also moved. WeChat thus became a tool for them to remain intimately tied to one another and to their networks on the Chinese mainland. This shows how the adoption and use of certain social media applications is highly influenced by one's network.

Nowadays, for all of the participants from the mainland, WeChat serves as the primary tool to maintain relationships and exchange social support with family and community members back in the mainland and within the United States. For example, Siqi had been living in the United States for 20 years. She told us that her father had passed away, and that she now relied on WeChat to connect with and care for the rest of her family, especially her mother and siblings:

> *When I moved here [from the mainland], there weren't many Internet technologies, so I had to rely on international cell phone plans. When Skype became popular, I still made phone calls home because not everyone home had laptops.... WeChat shortened the distance among family members. I am able to see them [my family] on WeChat and observe what they do via live-streaming.* - Siqi (F, 56)

For Siqi, WeChat is not only an tool for maintaining connections with her family, but also the primary means for her to send social support via WeChat's social networking features. Other existing communication infrastructure, specifically international cell phone plans, could cost her up to an additional 15 dollars a month, which made WeChat a more economical choice.

As a traditional Chinese medicine (TCM) doctor, Siqi said that she also relied on WeChat to reach former colleagues to exchange ideas when she encountered rare and intractable diseases, as there were very few Chinese TCM doctors in the Midwest—further demonstrating WeChat's indispensible nature for Siqi.

For new mothers like Yinuo, WeChat is a critical tool for her and her child to receive social support from her family back in China; Every day, Yinuo used the video chat feature to connect her parents with her daughter so that they could interact with each other synchronously. She also documented her daughter's growth by regularly posting photos and videos of her on WeChat Moments to share with family and friends. She disclosed that she did not feel as though she belonged in the United States, especially at first, but that interacting with her parents via WeChat gave her a sense of belonging and improved her emotional well-being.

In the face of the potential ban, participants from the mainland unanimously reported that it could impact not only domestic and transnational communication, but also increase barriers to exchanging vital social support among family and friend groups. *"My parents rely on WeChat to stay connected with my family and me here,"* Yinuo said. *"If WeChat were banned, we would have to depend on international long-distance telephone calls, which would be costly."* She planned to switch to QQ as a backup for maintaining connections with her network.

However, moving to a different platform could be more challenging for participants with senior citizens in their families. For instance, Xue lives over 600 miles away from her parents in the United States and they rely on WeChat to communicate and support each other. She stated that her parents, who have low technology literacy, only use WeChat. Switching to a different application would add additional labor and barriers for them to receive and send social support to each other.

In addition to connecting with his close ties, like many other WeChat users, Haoyu used WeChat to extend his networks. As a music aficionado and avid gamer, he had created several interest-based online groups, including gaming groups on WeChat, as it not only diversified his life in the Midwest, but also helped him to cope with a sense of isolation:

> *[During my] first couple of years [in the United States], I felt a little bit isolated ... because it's a new environment, and strange environment to me, and I had some homesick[ness] ... Most of the time, people talk in groups, so you join the chat [and] make posts.... I like music, so I post a lot of my music videos [Haoyu has his own WeChat music video channel] to the groups to keep connections with friends. Sometimes you don't know how to open up a topic, so you just make some posts.... At least you will know people are still watching you.* -Haoyu (M, 29)

As WeChat is widely accessible among Chinese mainland participants, it often functions as the primary application in their lives. Even when they use other platforms and services, they often end up returning to WeChat. For instance, Haoyu was also an active TikTok user. However, since his main network resides in WeChat, Haoyu often downloaded videos from TikTok and distributed them to different WeChat groups so that his friends could also watch them. He said that both WeChat and TikTok were irreplaceable for him: *"That's my life. Without WeChat, without TikTok, I don't know what to do every day."* The infrastucturalization of WeChat in China helped WeChat reach enormous scale and ubiquity in China [61], which also made it easier for overseas Chinese users to tap into a large-scale network.

Sa had had to move with her family to the Midwest back in the 1980s. She considered herself someone who had failed to integrate into U.S. society. She believed that cultural identity was the main factor that had hindered her from making an effort to integrate. Unlike international students who were exposed to a variety of people and activities, she had not had many opportunities to expand her world. "*I spend most of my time home and living in an relatively isolated environment. I was never put in a position of actively learning new things,*" she added.

In 2013, one of Sa's close friends had proposed using WeChat to maintain connections, so she bought an iPad:

> *WeChat transformed my social life. I was invited to all my class WeChat groups, and all of a sudden, I got reconnected with friends and classmates from primary school, high school, and college. Every day, people greet each other and have casual conversations there.... I have not been making a great effort to integrate into U.S. society, so I always feel there is something missing. Being able to reconnect with them made me feel I have many intimate friends. I felt less lonely.* - Sa (F, 63)

Sa's experience also demonstrates how challenges for more disadvantaged immigrants, such as the desire to maintain their cultural identity and their lack of social support, contribute to WeChat's infrastructurization in the United States.

Drawing on ethnographic work from the humanitarian crisis in Venezuela, anthropologist Michaelanne Thomas conceptualized some actions as "infrastructural care," or "infrastructural action as a form of caring for others at a distance through the ongoing management of resources, relationships, and infrastructures." In this case, due to the large scale of the network, WeChat serves as an critical tool for participants to cultivate robust transnational networks so that they can give and receive different forms of social support within the United States and overseas.

Sa said that when she heard about the WeChat ban, she realized the extent to which WeChat was critical in her life: "*I felt things would be extremely inconvenient, especially regarding connecting with my friends on the mainland.... I also felt helpless, and there was nothing I could do to overturn the order.*"

According to Metcalfe's Law [53], the value of a network grows as a function of its number of users. Thus, as more members of the Chinese diaspora from adopt WeChat as their primary tool for social support, WeChat's value rises while the potential consequences of the WeChat ban become even more destructive.

In this section, we documented participants' adoption of WeChat, and how WeChat reached substantial scale through facilitating social support among users from the Chinese mainland. We also focused on the network effects of the potential ban that would make social life difficult both individually and collectively. A total ban of WeChat in the United States would create challenges for sending and receiving critical social support from their transnational networks.

5.1.2 Economic effects: impacting business. Participants also anticipated significant economic impacts from a WeChat ban. Many ethnic small businesses such as Chinese restaurants and immigration services are vital for immigrants' everyday life.

In 2015, Chenxi had started a Certified Public Accountant business with a friend in New York, offering accounting services to both individuals and small businesses. As many of their clients are interested in EB-5 (the Immigrant Investor Program), they also support them in applying for H1B visas or Green Cards. She said that most of her clients are Chinese, and that WeChat was an essential business tool. To that point, their business had not had to spend money on marketing, as they received many referrals from other clients via WeChat. Moreover, most of their business communications happened over WeChat. When asked if WeChat could be replaced as a tool for her business, she replied: *"I don't think so, because there's no other app which can take over its usage right now."* She envisioned going back to QQ or adopting LINE as backups for her personal use; however, these did not provide ways to connect with her clients.

> That's the most important thing because if I want to talk with my friends, we can use iMessage or QQ, whatever Chinese app we could use. But for people you do not know personally, like my clients, they do not use email, so I have to figure out what would be a great way to keep communicating with them.... The app [WeChat] personally would be very important for us to communicate because we don't meet face-to-face. We only communicate through those social media. - Chenxi (F, 29)

Chenxi's experience highlighted how the communication norms within ethnic communities are often different from those in the United States more broadly. Moreover, as WeChat is becoming critical infrastructure for businesses in China [61], adopting WeChat as a business tool in the United States would eliminate additional financial costs for small businesses to purchase professional services. As a result, WeChat has gradually become a critical communication and marketing tool for Chenxi's business. Importantly, an inability to properly run her business could also put her

clients into precarious immigration situations. WeChat's network effects brought her many new clients, but also made the business more essential for her customers.

Participants also reported that COVID-19 had made WeChat more critical for many essential small businesses and the perceived impact of the WeChat ban would be more severe for those who relied on Chinese customers such as Chinese restaurants. Zeyu observed that due to the pandemic, the Chinese restaurant he worked for had shifted its business model: *"Traditionally, they profit from dine-in customers, but nowadays they depend on takeout or delivery service."*

During the course of online fieldwork, the restaurant expanded its business reach to nearby towns via WeChat. The owner created different restaurant groups for different towns, joined various WeChat groups, and shared QR codes among them to cultivate a new client base. She also used WeChat Pay to incentivize their customers to order online or invite more people into their groups. Each group ended up with several hundred potential clients. The owner or the groups often posted images and videos of newly cooked dishes among the restaurant groups and on WeChat Moments to increase orders. Yinuo's noodle restaurant also moved online during the pandemic and WeChat became a critical tool to sustain its business. Yinuo said that the restaurant would share the restaurant WeChat group QR code on Apollolands Station,[8] an information platform for the Chinese diaspora, to increase its client base. *"We have several branches in the area, and each branch has a WeChat group. We have a customer service representative manage those WeChat groups and take orders from local customers."*

Participants explained that the pandemic made restaurants more dependent on WeChat to sustain different aspects of their business, including ordering, payment, delivery, and receiving feedback from customers.

> Restaurant owners were very anxious because they were worried about the potential sales plunge. Every Chinese diaspora from the mainland has the app on their phone. If you introduce them to new apps, it takes time for them to adapt. Moreover, the ban could divert them to other apps like LINE or Telegram, which means you [restaurants] can no longer access all Chinese customers in one single platform. That makes a big difference. - Zeyu

Zeyu added that Chinese social media apps such as WeChat were vital for a local business that relied specifically on Chinese consumers: *"It really depends on your client base. The type of client you have determines the types of apps you use. If you want to sell things to Americans, you won't necessarily need to rely on WeChat, right?"*

Zeyu pointed out that the unique ethnic value of WeChat made it also almost impossible for businesses to migrate successfully. However, even for small businesses in the Midwest that were not dependent on Chinese clients, WeChat was sometimes still a critical business tool. Siqi, a TCM doctor and TCM clinic owner, told us that being in the Midwest means having acess to fewer ethnic resources. She has to order herbal medicine and other supplies from California via WeChat to sustain her business. As a result, WeChat compensates for the attenuation of the supply chain for ethnic resources.

Apart from its network effect, WeChat's infrastucturization in China laid a technical foundation for mainland participants' use of it as a business tool. Moreover, the COVID-19 pandemic and the inadequacies in existing financial and supply chain infrastructures also meant that participants adopted WeChat as critical infrastructure for business. A ban on WeChat would not only have led to severe financial impacts but would also mean that their customers would not able to receive vital resources and services such as ethnic food and medication.

In this section, we emphasized WeChat's criticality for small business owners and their clients. We showed how WeChat addressed unique needs for individuals and ethnic groups in the U.S.

---

[8]https://aboluoworld.com/en/oa/

Midwest during COVID-19. We also demonstrated how different technical features of WeChat such as WeChat Pay, QR codes, and Mini Programs, along with network effects, work in tandem to create an indispensable business infrastructure.

5.1.3 Communal impact: Disrupting community building and organic integration. The WeChat ban could have also impacted community building, which is especially important during an ongoing crisis such as the COVID-19 pandemic, which exacerbated xenophobia and bigotry toward Asian communities.[9] Notably, there was also a rise in anti-Chinese sentiment during the coronavirus pandemic in the United States.

As a settled migrant and well-connected landlord, Ching-yi was the group leader of a local WeChat gardening group with nearly 400 members. She also ran another WeChat group for single people to look for significant others within diaspora communities. Both groups had formed organically, and she shared an anecdote about how the gardening group had been created in a community-centered way several years ago:

> *I have this girlfriend who asked me, 'Ching-yi, do you want to eat fish heads? I know this guy who owns a restaurant. He has free salmon fish heads to give away.' I said, 'Really? Sure.' So, I went, and I got a fish head from Jacob, and it turned out he has fresh fish heads to give away every week. So, I started a WeChat group just to share fish heads with other Chinese people. And that became my gardener's group because I do gardening; I can share my seeds with people. - Ching-yi (F, 71)*

Even though the main focus of the group is gardening, to this day, members still turn to this community to acquire fish heads. Last September, the first author was invited by Ching-yi to join the group. The first author had observed that Ching-yi sent greetings to every newcomer and knew everyone in the group well. She shared seeds for plants such as chives, cilantro, and Chinese lettuce with the members, and helped members find desirable seeds through her network. The seeds were often common on the Chinese mainland, but difficult to find in the United States. Ching-yi often used a WeChat mini-program called *Jielong*, or "Connect the Dragon" to make a sign-up list that allowed members to copy the previous person's information, add their own name and needs, and post it again—an effective way to gather information. Moreover, members often exchanged gardening knowledge via text, uploaded images of vegetables and fruits, and shared audio or video stories about their gardening experiences. On a given day, the first author often got over a hundred messages from the group. "*People really share a lot of good knowledge there. I have a lot of really wonderful people here, and it amazes me,*" Ching-yi noted.

Prior research has shown that gardening contributes to immigrants' well-being, reinforces their cultural ties, and facilitates successful organic integration [33, 54, 84].In a study of domestic gardening practices among older Chinese immigrants in New Zealand [84]. They found that gardens are essential places for participants to develop and maintain a new sense of self and receive a sense of security. Instead of just being a mundane virtual space or a backdrop to social life, the WeChat gardening group became an online space allowing members to cultivate a sense of community and belonging. As Ching-yi elaborated, "*People go there [the gardening group]; it's like going home. We make friends and visit each other.*"

However, the potential WeChat ban could have dismantled such community-centered virtual spaces. Its loss could also have exacerbated communal anxieties, as such groups also share solidarity and exchange knowledge and resources during crises like the 2020—2021 wave of anti-Asian

---

[9]One-third of Asian Americans fear threats or physical attacks and most say violence against them is rising: https://www.pewresearch.org/fact-tank/2021/04/21/one-third-of-asian-americans-fear-threats-physical-attacks-and-most-say-violence-against-them-is-rising.

violence. Ching-yi told me that she spent hours on WeChat, mostly among her own groups. When asked about the impact of the potential WeChat ban, she recalled,

> *I was trying to find a way to protect ourselves so that we can continue to stay connected. So, we took action right away. I started two [gardening] groups on LINE. I told people to go there but don't start talking there as that's just the back-up channel.... I wasn't too nervous because I documented everyone's address while exchanging seeds. I started the LINE groups to make other people feel secure.* - Ching-yi (F, 71)

During fieldwork, the first author joined over two dozen local WeChat groups: restaurant groups, grocery store groups, food delivery groups, group buying groups (described below), pet groups, real estate groups, K-12 education groups, employment and immigration information exchange groups, activism groups, and more. Unlike U.S. social media sites like Facebook and Reddit, WeChat does not recommend groups to users. One can only join groups by being added to the group by a current member or by scanning the group's QR code. To ensure that community members could access local WeChat groups, group owners would share the group QR code via Apollolands. Apollolands uses WeChat to reach local Chinese diasporic communities around the world. Its official WeChat account is supported by Apollolands Stations. A local station is signed up as a WeChat user with the name of "Apollolands [city] convenience service station." When the first author added the local station as their WeChat "friend" back in September, the station had 9,200 other "friends" in the area. The station posted content about 50 times a day with a variety of information. Moreover, those posts included QR codes of self-organized ride-hailing groups, shipping groups, and restaurant groups. All its WeChat contacts in the area could see those posts and join respective online groups.

In the United States, features like "City Service" [61], a booking system for public and private services in urban areas, are not available. Creating Apollolands on WeChat based on local needs not only shows how people appropriate WeChat to meet their ethnic needs, but also shows how WeChat plays an important role in compensating for inadequacies in existing infrastructures such as transportation in the United States, especially among immigrant populations.

Participants also disclosed how WeChat functions as a cultural unifier, a tool that forges community and cultural connections. Yinuo relied on WeChat to expand local relationships and get food from local WeChat groups:

> *One of the best things about WeChat is the local WeChat groups. There are all kinds of groups, ranging from food groups [and] pet groups to beauty groups, basically, any groups that you could imagine.... When I crave good Chinese food after a long day of work, I can order things from those groups. So, instead of shuttling among different supermarkets, I could spend my time walking my dog and organizing my house.* - Yinuo (F, 32)

Yinuo also said that the restaurant she worked at offered a group-buying ('pingou') service, which allowed local community members to purchase their desired food (cooked dishes, raw ingredient and fruits) at a much lower price than market price. All of the local groups on WeChat are private groups. For some groups, non-members can only be invited in when approved by the group owners.

During the course of the interviews, participants and the first author recommended each other to local groups that we wanted to be a part of but did not have the connections to join. For instance, the first author invited Shu-ling, Sa, and Hsin-yin to restaurant groups, grocery groups, and housing groups, and participants including Shu-ling and Sa invited him to several restaurant groups and cultural groups. Exchanging groups and resources via WeChat also contributes to community building in the area. As Haoyu pointed out: "*I believe each Chinese person has WeChat, so it's a more like [an] ID card. If I communicate or connect with Chinese people, I mainly use WeChat. Then for people from different countries, I mainly use Facebook.*"

The first author also joined several local WeChat groups via Apollolands. One was the local career and visa information group. Coincidentally, Haoyu was also a member of the group, where members shared job opportunities and career development events. The group included a Google doc with member job and contact information so that members could better support each other. Haoyu said that such WeChat groups helped him manage uncertainties of the immigration process and better integrate into the local community:

> [A] visa is something I'm a little bit concerned about because, without a visa, you cannot stay here.... You have to have a company sponsor to have a Green Card, or I [have to] find another company to sponsor me, so it's something I have to talk to the company.... In the WeChat group, people share their [experiences of] how they talk with their HR and bosses, how the process will be, and how hard it is to get it [Green Card] nowadays. That helps you make decisions. - Haoyu (M, 29)

Meanwhile, Haoyu also served as a source of information by sharing career and immigration information (e.g., events that could connect people with immigration lawyers). However, the potential for the WeChat ban also caused Haoyu some concern regarding communication barriers:

> We were afraid that we can not use WeChat any more, so we had a lot of backup plans. We created a lot of other accounts [on back-up apps] including Telegram, LINE, and KakaoTalk. - Haoyu (M, 29)

Like Sa had, some participants expressed the unique challenge of organically integrating into U.S. society. Zeyu said, "*I have a different value system and different lifestyles [from] mainstream Americans, so it's very hard to be a part of them.*" Having WeChat to receive community support regarding language, culture, and employment information through the extended diaspora network has been essential for many of participants from the mainland.

While building community overseas, especially facilitating immigrants' integration into their local communities, is not the primary purpose of WeChat, our observations suggested that WeChat is often collectively appropriated in this way.

As an all-in-one mobile app, WeChat combines social media, digital money exchange, messaging, mini-programs, and other services. Scholars have argued that as social media platforms like Facebook achieve enormous scale, they compete with and even supplement infrastructure [62, 91]. Benefiting from its infrastructurization and large network scale in China, WeChat serves as critical infrastructure in the United States for mainland participants. The app compensates for inadequacies in existing U.S. public infrastructures and services and allows participants to forge bonds with one another to cope with challenges and external threats. Importantly, the combination of network, financial, and social effects makes WeChat indispensable to many in the Chinese diaspora. As prior work has demonstrated, people also become part of this infrastructure, playing a critical role themselves [23]. Therefore, when considering WeChat as an infrastructure, we can better see how indispensable applications like WeChat are for participants and how even just the potential of a ban impacted community building and disrupted participants' livelihoods.

5.2 Different ICT use patterns: peripheral impacts for Taiwan users

To further underscore the reliance of participants from the mainland on WeChat as infrastructure, we offer a contrasting case: participants from Taiwan's engagement with WeChat and their ICT use patterns in the United States. Their experiences demonstrate how the potential ban disproportionately impacted people from the Chinese mainland. We also show how WeChat's different roles in different participants' lives directly shaped their awareness of and responses to the potential ban.

All of the participants from Taiwan (*n* = 8) either used or are still using WeChat in the United States. However, they also explained that applications like LINE and Facebook are more central

to in their everyday lives. As a result, for these participants, the perceived effects of the potential WeChat ban were minor. For some, WeChat had not been as relevant when they lived in Taiwan, but it turned out to be beneficial for them in the United States. Among eight participants from Taiwan, five of them were still using WeChat during the interview, and three of them had stopped using it, mostly because their WeChat network was not as robust as those on LINE and Facebook. As Chia-ying elaborated: "*I've had WeChat.... I don't really use it because I just don't have that many friends on it.*"

Even though WeChat was not indispensable for participants from Taiwan, in a transnational context, it still helped them to connect with people from the Chinese mainland and access additional ethnic resources. For Hachi, WeChat was the best application to connect with her friends from the Chinese mainland: "*I installed WeChat because some of my friends who are from China use WeChat more*". Shu-ling reported that many of her church friends were WeChat users. To make sure the congregation all received regular updates and stayed connected, the church had reated a WeChat group chat that included all of its members. There was a period when she did not have WeChat on her phone, but she reinstalled it to connect with her friends from the Chinese mainland.

> *My friend's husband lost his job, so they moved back to the Chinese mainland without telling friends from the church. I was a bit shocked that she did not even say goodbye.... To reestablish connections with her, I had to reinstall WeChat.... You have to use WeChat to contact them [people from the Chinese mainland].* - Shu-ling (F, 35)

Although most participants from Taiwan in our study did not have a vibrant network on WeChat, they still found WeChat convenient and useful. For example, Hsin-yi joined different grocery groups to get ethnic foods that she could not get in mainstream U.S. supermarkets. Hachi elaborated:

> *I didn't use WeChat very often, but now and then. For example, one of the biggest Chinese supermarkets in [the area] also has a WeChat. I added that supermarket's account to my WeChat, and then they will post things about, 'This is a new product of this week.' I will check my WeChat to get to know what is on sale and what are some new products of that supermarket.* - Hachi (F, 34)

Interacting with people within the broader Chinese diaspora community cultivated a stronger sense of trust. For example, Yi-An felt reassurance while shopping among WeChat groups. She joined several second-hand buying and selling groups on WeChat.

> *It's like the Facebook Marketplace. There are all kinds of people with different backgrounds on the Facebook Marketplace, and sometimes you would worry about things while making transactions. But all my WeChat groups are Chinese-speaking groups, and I feel reassured when buying things.* - Yi-An (F, 44)

Despite the usefulness of WeChat for Taiwanese participants, WeChat is not a critical application for the majority of them. Instead, LINE and Facebook served as their primary applications. Shu-ling shared her routine:

> *Every morning, I start with checking my emails and my LINE, to see if there are any friends or families' messages…I lived in Taiwan for most of my life. My high school friends still hang out, having playdates. I would never be able to join them. What we do now is chatting on LINE.* - Shu-ling (F, 35)

Shu-ling added that people in Taiwan love LINE, and she had been using LINE to stay in touch with her friends so that she would not lose track of them. Similarly, Shu-ling had her business account only on Facebook; WeChat was not as indispensable as her business counterparts from the Chinese mainland. She elaborated:

If I get more and more clients from the Chinese mainland later, WeChat could be an indispensable part of my life. Right now, WeChat does not have a substantial effect on my life. It made my life more convenient, but it does not really benefit me professionally. - Shu-ling (F, 35)

Yu-ting, Annya, and Hachi also mainly used LINE to connect with their family and friends in Taiwan. They emphasized that LINE was ubiquitous and very convenient. Hachi said:

LINE is not just a communication app. It's also embedded in your life where people might have stuffed animals, Brown and Cony [leading sticker characters of LINE] at home. In recent years, LINE has started to collaborate with many credit card companies, so people can use LINE to pay for things they buy online. I feel like LINE now is very similar to WeChat, where you can basically do whatever you want. It's not just like a text app. You can do a lot of things with LINE. - Hachi (F, 34)

Our data shows that the app participants in our study used was heavily dependent on their network and audience, and the network effect and scale is crucial for the infrastructurization of social media platform. As a result, the potential WeChat ban did not have a significant impact on most participants from Taiwan, did not have significant impact for them. For instance, Annya, Chia-ying, and Hachi said that they had heard about the ban but would not be affected as WeChat was not indispensable in their lives. Our data also show that for participants from Taiwan, LINE and Facebook serve as the primary digital media services. WeChat is useful for them as a part of the Chinese diasporic community, but not as critical as it is for participants from the mainland.

We have presented the case of participants from Taiwan in this section as a contrast to the case of participants from the Chinese mainland. While the latter is dependent on WeChat as infrastructure and faces precarity when that infrastructure is threatened, for the former group, the same social media application instead mostly acts as a platform, and the impact of the ban would have been minimal.

5.3 Responses to the potential ban

On September 18, 2021, multiple mainstream U.S. news outlets released breaking news alerts regarding the Trump administration's plan to ban TikTok and WeChat from the U.S. app stores. In the following days, the first author regularly noticed people from the mainland posting QR codes, IDs, and URL links of their different social media accounts such as Instagram, LINE, and Telegram on their WeChat timeline. According to the the government proclamation [65], the WeChat ban may have impacted areas including but not limited to app distribution and updates, content delivery, money transfers, and payment processing. At that point, the likely impacts were still unclear, but people worried about losing the many functions of WeChat in their everyday lives. Local WeChat users therefore began to creatively use the poly-social media environment [79] to reduce the potential impact. In this section, we report on the main strategies they used to mitigate any disruptions that could be brought about by the ban, which include platform migration, repurposing ICTs, using virtual private networks (VPNs) to bypass the ban, and critically evaluating the ban. These approaches are not mutually exclusive, as some participants adopted several different strategies .

5.3.1 Platform migration as a backup plan. In one online Chinese grocery store WeChat group, a regional manager posted, "The potential ban on WeChat has gone viral lately. It's very likely to be banned soon; if not, our use of WeChat will be limited, and we won't be able to download WeChat. In case we lose contact with each other, please add me on my Telegram so that I can invite you all in a new group later." She shared a QR code of her Telegram and step-by-step instructions that they had copied from others.

Other users also shared their account ID or QR code from other platforms including WhatsApp, Instagram, Bat, and LINE. Indeed, platform migration was the most common strategy to cope with the potential WeChat ban. However, most of those apps could only meet participants' networking and communication needs, as they do not have WeChat's other features that compensate for inadequacies in existing financial infrastructures in the United States. As a result, to replace WeChat, participants would have to cobble together different applications. Moreover, the perceived impact was deeply relational and communal, as Haoyu elaborated:

> *For people who are not as tech-savvy as we are or don't use other technologies, they're probably going to struggle for awhile before they get used to it. That's the big concern for me.* - Haoyu (M, 29)

Haoyu's quote underscores the relational aspect of platform migration. If members of a diaspora have to move from one digital space to another, they need to take both new and old ties into consideration [41]. Those two audiences often live in different countries, with different political and technological environments. Prior work in diaspora studies often highlights how individuals in diasporas manage the push-pull of identity work [5, 38] and their "in-between" experience [23]. Participants' experiences reaffirm that their diasporic identity could create additional obstacles when facing an unexpected infrastructural breakdown. Moreover, they also need to account for factors such as their audiences' age and cultural differences. Despite several potential workarounds, Haoyu was still concerned about feasibility.

The potential ban on WeChat created a reverse migration where people began returning to "obsolete social media" such as QQ as a backup plan. "*Let's say WeChat no longer exists right now, then what else can we use? Maybe we would go back to QQ again,*" Chenxi noted. Chenxi was not alone; Xue and Yinuo also took a similar approach. "*As people around me start announcing they would return to QQ, I was thinking about moving to QQ as well,*" Xue explained. She lamented that the ban would make her life inconvenient as her friends, especially her non-tech savvy parents, only use WeChat. However, it would be much easier for her to reconnect with people via QQ, an obsolete instant messaging software and social media where people's previous networks are still being preserved, than to start a new account on another platform. However, Xue's restaurant relied on WeChat to perform their business, and she also used WeChat to purchase different products. If WeChat were to be banned, QQ would only partially fulfill her and her employers' needs. As a result, Xue downloaded QQ as a backup plan, but she did not end up using it. Participants' reactions reveal that in the face of the potential WeChat ban, platform migration could be helpful but not sufficient.

5.3.2   Repurpose ICTs and use VPNs. Apart from platform migration, participants also repurposed existing technologies, using applications for functions that they were not designed for. For instance, within WeChat groups, people proposed using the communication channel of Alipay, a mobile and online payment platform, to stay connected. Other community members shared a post that encouraged people to download WeCom, Tencent's office collaboration app, which fell outside the scope of the ban. The post was circulated among different groups and offered a step-by-step guide to install and use the new app. Users could link their WeChat account to the app and add all their WeChat contacts. WeCom users can create group chats, send individual messages, and even make financial transactions without asking their WeChat contacts to install WeCom. Downloads of WeCom surged during September 2020 [47].

Apart from repurposing existing ICTs, participants also learned to use VPN software to bypass the potential ban. Zeyu was already using a VPN on a daily basis to access Chinese video platforms like iQIYI. He explained that the VPN could connect him to the mainland Chinese internet so that

he could watch Chinese TV shows unavailable in the United States. The VPN only cost about ten dollars a year, and could also be a way to cope with the potential ban. Zeyu elaborated:

> It's almost impossible to ban WeChat completely (in the United States). If the WeChat ban comes through, I could still use a VPN to get around the ban, and there won't be any loss for me.... For people who don't know how to use VPN, they were panicked. I wasn't alarmed because I know I could still connect with my family and friends via VPN. -Zeyu (M, 29)

Being able to use VPN to bypass the ban requires a degree of digital literacy. Moreover, the use of a VPN to access the Chinese mainland's internet only applies to our case, a transnational and legal (not technical) ban. For other types of platform-turned-infrastructure breakdowns such as technical ones,[10] using a VPN would not be an option.

5.3.3   Critically evaluating the ban. While making backup plans, some participants also assessed the likelihood that the ban would actually be passed, including by directly looking into official documents to validate the information and estimating the potential harm. Chenxi's evaluation of the ban closely aligned with the official documents despite her worries when she first heard about it. She elaborated:

> I did some research, and as long as you do not upgrade the app, there was no barrier to communicating with others, as long as you are not using WeChat for business purposes, like transferring money. So, I believed I would not be affected by the ban, but I had some money in the WeChat wallet, so I withdrew the money before the bank would be affected.-Chenxi (F, 29)

As a result, Chenxi shifted her financial attachments away from WeChat by transferring her money to her bank account. But making financial transactions via WeChat is more convenient, especially with her clients.

Not all participants had the ability to access the official documents. Others relied on secondary sources such as news reports and their pre-existing beliefs. Ching-yi shared her thinking process:

> I think Trump was saying, if somebody in the United States can purchase WeChat, then WeChat can stay. And I know some Chinese will step out, or somebody who cares about WeChat will step out and do that. So many Chinese people use WeChat: they not only use WeChat for gardening; they also talk to their parents and friends on WeChat on the Chinese mainland. And you want to cut off WeChat? I think he is stupid. I also think Trump just shot himself in his foot; the Chinese are not going to vote for him.-Ching-yi (F, 71)

However, as discussed above, Ching-yi still created other social media accounts to reduce the impact of the potential ban, particularly regarding her WeChat groups.

Despite participants from the mainland creating multiple backup channels to cope with the potential WeChat ban, they still relied heavily on WeChat for ordering food, creating community, transportation, communication, and more. They did not become active in other backup applications like LINE and WhatsApp. For instance, during the time of the potential ban, the gardening group had fewer than ten weekly group messages on LINE, but over a thousand on WeChat. Participants were aware that WeChat was in a precarious situation. However, they still relied heavily on it as they could not find an all-in-one app to fulfill their infrastructural needs. Siqi decided to keep using WeChat for sustaining her family ties and business and used the term "Zou yi bu kan yi bu" to describe her mentality, meaning "do something without planning first, and make

---

[10]Gone in Minutes, Out for Hours: Outage Shakes Facebook: https://www.nytimes.com/2021/10/04/technology/facebook-down.html

next steps according to the new situation." This behavior illuminates the indispensable nature of WeChat for many participants from the Chinese mainland. Despite the anticipated uncertainty and precarity, they still used WeChat for their infrastructural needs such as transportation and financial transactions.

6 DISCUSSION

In the above sections, we introduced the potential WeChat ban and presented how it could cause adverse network and economic effects as well as disrupt community-building efforts for the Chinese diaspora. We have also shown the diverse ICT use patterns within different facets of the Chinese diaspora, which led to the potential ban disproportionately impacting people from the Chinese mainland. Finally, we categorized the creative ways people responded to the potential ban. In this section, we first argue that social applications like WeChat, which is often seen as a platform, can also function as infrastructure, depending on how indispensable they are for their users. We then turn our attention to platform migration, describing how our findings extend previous research, and establish the concept of *infrastructural migration*. Finally, we contribute to CSCW and HCI by proposing new directions for the design of infrastructural migration and new directions for research into HCI and diaspora.

6.1 WeChat as infrastructure

In 2018, Plantin and colleagues [62] demonstrated that platform-based services like Facebook had attained levels of use and scale at which they had acquired characteristics of infrastructure. They conceptualized this phenomenon as "platform infrastructuralization" [62]. In the case of WeChat, Plantin and De Ceta argued that, in the context of mainland China's ICT industry, WeChat underwent infrastructuralization and achieved "infrastructural scale" on the Chinese mainland. [61].

One person's platform could be another's infrastructure, depending on how critical the tool is for that user. Zhou and DiSalvo's recent work has paid specific attention to the users' roles in platform infrastructuralization [91]. They conceptualized interactions at three levels —practicing, appropriating, and creating—that users take in WeChat's platform infrastructuralization. They noted that not every WeChat user engages in the second level of interaction, but for those who do, WeChat "is both a platform and an infrastructure"[91]. For users who take the extra step of creating new functions to meet their needs, WeChat "becomes more embedded in [their] life" [93]. Moreover, Edwards noted that infrastructures are "largely responsible for the sense of stability of life" and infrastructure is often indispensable in users' social lives [26]. Building on Plantin et al.'s [61, 62], Edwards' [26], and Zhou and DiSalvo's [91] work, we examine the community impact of the potential WeChat ban in the United States to understand how WeChat has been infrastructuralized in a transnational context.

We found that for participants from the mainland, WeChat has properties including scale and criticality of use that are typically associated with infrastructure [62]. Our findings also show that WeChat's infrastructurization in China provided the network and technical foundation for participants to adopt WeChat as critical infrastructure in their everyday lives in the United States. Moreover, the unique social, cultural, and historical context of the U.S. such as the lack of critical infrastructure, systemic inequalities, and the COVID-19 pandemic, led to a urgent need for social support among ethnic minorities. As a result, WeChat plays an important role compensating for inadequacies in the existing infrastructures in the United States for the Chinese diaspora, which contributes to WeChat's infrastructurization in the United States. However, due to the different ICT use patterns and network effects, the ban only caused peripheral impacts among participants from Taiwan. This difference highlights that when a social media application is critical infrastructure for

certain groups, the dependency itself may amplify their digital precarity, affecting different groups unequally.

6.2 From platform migration to infrastructural migration

In this section, we contribute to platform migration scholarship through attention to infrastructure, extending and complicating prior work on migration among online platforms, especially social media platforms.

Building off the previous section, we argue that for people who use digital media services like WeChat as infrastructure, the migration process to a different platform is even more complicated and challenging than platform migration; thus, we introduce the concept of *infrastructural migration*. Recent scholarship has paid analytical attention to online migration, in particular, platform migration [29, 55, 59]. Drawing from the definition of traditional migration [46], Fiesler and Dym write that platform migration entails "changing primary use of one online platform for a purpose to primary use of another online platform for that same purpose" [29]. They point out that platform migration does not necessitate leaving the platform entirely, and that it may take a substantial amount of time.

Extending this research, our findings reveal that the effort required for online migration, in our case infrastructural migration, may be even more complex. Specifically, compared with platform migration, infrastructural migration may be more fraught as infrastructural needs are often essential and critical. This precariousness is likely amplified among marginalized communities such as immigrants and communities of color. In our case, many participants relied on WeChat for both financial and communal support. Moreover, as we showed by detailing participants' responses to the potential ban, infrastructural migration tends to be more laborious as it often requires people to reflect on their own habits and relationships to these sites. More importantly, no one other competing platform could reestablish interpersonal and communal connections as well as meet their different infrastructural needs; even an assemblage of multiple platforms was not enough. Drawing from the experiences of participants in our study, we define *infrastructural migration* as a process in which users relocate to another digital media service that embodies the properties and functions of infrastructure or move to an assemblage of different applications that meet their infrastructural needs separately, either voluntarily or involuntarily. Users would be better supported if one new digital media service filled their previous infrastructural needs. If an adequate all-in-one app is not available, users will piece together multiple platforms and ICT, which requires additional labor on their part.

WeChat was ultimately never banned, but participants, especially from the Chinese mainland, envisioned the impacts of the ban and reacted to cope with it. This unique incident sheds light on how different users might prepare for a platform-turned-infrastructure's breakdown. As participant Chenxi pointed out, no other applications that could substitute for WeChat. For her, WeChat functioned as a Financial Technology (Fintech) platform, and a business communication and client management tool, as most of her clients did not use email. Moreover, she relied on WeChat to connect with her Chinese community, both at home and abroad. As she could not find a single application that met all of her current needs, in her case, the actual infrastructural migration process would have been laborious and likely inadequate. Thus, we argue that in the process of infrastructural migration users would be better supported if there were a viable backup application that could also be used as infrastructure and that was ready for them to migrate to. The dependence that was revealed when a WeChat ban seemed imminent demonstrated how difficult it was to find a suitable replacement.

Our concept of infrastructural migration has broader implications for the HCI and CSCW scholarly communities. Platform-turned-infrastructures may be not only fragile but ephemeral;

importantly, the ripple effects of a breakdown could be profound. The potential WeChat ban in our study was impacted by political factors. However, platform-turned-infrastructures could also break down due to other factors, including technical ones. On October 4, 2021, an outage across Facebook's applications, including Facebook, Instagram, and WhatsApp, lasted for about six hours due to a "faulty configuration change."[11] This had disastrous impacts in many countries that relied on WhatsApp as infrastructure.[12] For example, the WhatsApp outage could have been a "matter of life and death."[13] The recent outage also shed light on the importance of designing for infrastructure migration. That is, if communities that used WhatsApp as infrastructure had easy ways to migrate to other infrastructures, they could have stayed in contact with friends and loved ones, and could have met their business, financial, transportation and communal support needs during the outage—which would have been vital if the outage had been prolonged.

The breakdown of such platform-turned-infrastructures could disproportionately impact low-resource individuals and marginalized communities and amplify social disparities. For some people, the Facebook outage could simply be an inconvenience, as they might not be able to post or connect with friends online. However, for some marginalized and low-resource individuals and groups, especially in the Global South, such breakdowns could be life-halting.[14] Such an outage could mean that customer service requests are unaddressed, payments do not come through, and other daily necessities go unfulfilled.

Infrastructural migration as a concept also has the capacity to reveal structural inequalities by identifying the role that social media applications, when they become infrastructure, can play in compensating for or filling the gaps of inadequate existing public infrastructures, especially for low-resource and marginalized communities. By contributing this concept, we provide a new lens for HCI and CSCW researchers and designers to study and begin to address the precarity surrounding platforms-turned-infrastructures.

6.3 Moving forward

6.3.1 Design implications for infrastructural migration. In the previous section, we conceptualized infrastructural migration and demonstrated its broader implications for CSCW and HCI research. In this section, we discuss design implications. In 2013, Tomlinson and colleagues [81] proposed the need to study what they called *collapse informatics*, which focus on the "role and potential effects of ICTs in dealing with changes—however induced—that create massive shifts in the way humanity must adapt to new conditions—political, social, and ecological" [81]. They argued that the major challenge of collapse informatics is "designing sociotechnical systems in our present context, even though the primary usage of these systems will occur in a very different situation in the future" [81]. Scholars have also argued that growing dependence on critical infrastructure systems is often accompanied by an increased sense of vulnerability to threats [10, 60]. The attempted WeChat ban offers a unique opportunity for envisioning and preparing for the possibility of a similar future infrastructure breakdown.

The concept of infrastructural migration is relevant because the idea that not all social media function only as platforms highlights the urgent need to prepare for potential infrastructure breakdowns (in our case, the potential ban). As an increasing number of platforms infrastructuralize [62], and millions, even billions, of people depend upon them, it is imperative to plan and design

---

[11]Update about the October 4th outage: https://engineering.fb.com/2021/10/04/networking-traffic/outage/

[12]Indians had a glimpse of life without WhatsApp: https://qz.com/india/2069538/how-did-indians-cope-without-whatsapp-during-the-facebook-outage/

[13]https://www.theguardian.com/commentisfree/2021/oct/07/whatsapp-outage-matter-life-death-social-media-facebook

[14]Much of the world relies on WhatsApp. Its outage ground their virtual lives to a halt: https://www.washingtonpost.com/world/2021/10/05/whatsapp-global-outage-blackout/

for their breakdown. Beyond the network effects, the anticipated impact could negatively impact food supply, financial transactions, community—building, and more.

Our data also revealed the relational aspect [24] of infrastructural migration; the different types of audiences and connections (with different levels of digital literacy) people have could further complicate the migration process. In most cases, people have to be on the same application to interact with each other. As documented in the results section, a promising alternative for infrastructural migration is WeCom. Designed as an office collaboration application, also developed by Tencent,[15] it could help people not only reconnect with their previous contacts but also interact with them without asking their contacts to install the additional applications. Moreover, it also has other features such as financial transactions. Importantly, it has the potential to be developed into infrastructure itself. As noted earlier, the ease of infrastructural migration for users depends on the degree to which a new media service fulfills users' previous needs. This point builds upon the concept of structural redundancy [43, 89]—if one element or structure fails, adjacent ones can take over; this is a fundamental tenet of robust design in the field of architecture. Structural redundancy can be either active or standby [7]. In other words, higher degrees of redundancy should be baked into designs to increase the resiliency of platforms-turned-infrastructures.

Moreover, in the context of platform-turned-infrastructure, as the degree of involvement varies among users, it is important to help users identify their level of involvement so that they are able to respond to a breakdown quickly. Indeed, if developing such parallel infrastructure is not practical, another potential approach to eliminating negative impacts could be recommending other platforms through identifying a user's level of engagement and everyday usage of the given infrastructure. It might go against technology companies' own interest to recommend other services to their users, but recommendations could be made through a third party. Our findings also show that technological interventions may not be sufficient to cope with infrastructure breakdown. For example, less technologically savvy populations such as senior citizens could have more difficulty adjusting. While supporting digital literacy among such populations might alleviate this, designs might also consider ways to support collaborative use and migration.

We also acknowledge that technology cannot and will not overcome difficulties that are fundamentally social and political [52]. As such, designers should be aware that technical solutions around infrastructural migration may only partially or temporarily support users' needs during breakdowns. It is crucial that users have the right and opportunities to not rely on social media applications to address their critical infrastructural needs, which leads to a call for more research and better public infrastructure to support people, especially marginalized populations. If research communities could accurately identify users' critical infrastructural needs to understand how indispensable certain social media applications are for them, and then collaborate with public sectors such as the government to build more equitable public infrastructures, then fewer users would be in precarious situations like WeChat users in this case (and WhatsApp users during the 2021 WhatsApp outage).

6.3.2 Implications for HCI diaspora research and beyond. First, our findings have implications for scholarship in immigration and social computing. Our results show the different patterns of ICTs and the different digital experiences they had in the face of the potential WeChat ban, which illuminates the diversity within Chinese diaspora communities due to the multiplicity of ethnic and cultural identities. In recent years, scholars in HCI and social computing began to focus on the Asian community [22, 64]; our findings also illuminate the importance of recognizing diversity not only within the the Asian community, but also within the Chinese diaspora. Thus, in researching diasporic groups in the United States, it is important to be more culturally sensitive by

---

[15]https://www.tencent.com/en-us/about.html

acknowledging cultural pluralism and paying special attention to cultural nuances within each community.

Second, future researchers should consider focusing on how non-Western technology functions in the West as a part of their inquiry. It is important for CSCW and HCI researchers to look to spaces of innovation beyond the West, including non-Western technology in the West. This study took place in a Western context, but the authors largely study media emerging in non-Western, non-Anglocentric sociotechnical contexts. Our findings illuminate how media platforms can be repurposed and integrated into Western society by diaspora communities and be a crucial part of their everyday life. In recent years, scholars in HCI and Communication have started to move away from single platform studies and adopt the social media ecosystem approach to understand how different platforms operate in people's lives [4, 20, 35, 90]. However, the current social media ecosystem approach tends to focus on Western social media sites and pay less attention to sites emerging from the Global South. Despite an increasing number of non-Western social media applications such as WeChat, TikTok [71], and RED[16] being used widely in the West, less attention has been paid to this space. Focusing on how non-Western technologies function in people's everyday life in the West could be a new way to look for agents of technology and infrastructural development.

Third, there is a striking paradox in the potential WeChat ban; it never happened, yet its effects were felt strongly. On the one hand, the ban never happened because it was halted the day before it was scheduled to take effect. Yet it did "happen" in a sense, as it made WeChat more visible and caused people to assess the role of WeChat in their everyday lives as well as the potential risks and challenges they would face if it disappeared, pushing them to make alternative plans. The threat of the ban provided a scenario in which a policy-induced technological crisis could fundamentally limit people's ability to maintain their routines and everyday lives.

In our study, we used not only platform, but also infrastructure as lenses to examine the impact of the potential WeChat ban. We believe findings from such a "theoretical bifocal" [62] could be translated to higher-order processes [28]. As Plantin and colleagues' [62] work has demonstrated, the cross-articulation of infrastructural studies and platform studies can improve scholarly understanding of current digital media, despite differences in origin and features between the two theoretical approaches. As sociotechnical systems become more transnational and play a more complex role in people's everyday lives, we encourage future researchers to draw from a theoretical toolkit to analyze such situations in preparation for future crises. Furthermore, for studies related to immigration, it is important to make both migrants' host countries and their homelands' social environments and geopolitical processes a part of the research. In the case of our study, Sino-U.S. geopolitical tensions and the COVID-19 pandemic impacted every facet of diasporic life and participants' technology behavior. Instead of studying immigrants' technology behavior in isolation, the broader sociocultural contexts related to immigration should also be part of the inquiry.

7 CONCLUSION

This paper documents how members of the Chinese diaspora were affected by the potential WeChat ban and analyzes the ubsequent reactions to the potential ban. We found that WeChat is an critical application for some in Chinese diaspora communities and that the perceived impacts included adverse network and economic effects and disruption of community-building efforts. This work also uncovered diverse ICTs use patterns within Chinese diaspora communities, as the potential ban disproportionately impacted participants from the mainland. Drawing from participants' experience, we argue that non-Western social media platforms like WeChat could be considered infrastructure

---

[16]https://www.xiaohongshu.com/?language=en-US

in the United States, depending on how indispensable they are to users. For people who use digital media services like WeChat as infrastructure, the migration process could be much more complicated and precarious than platform migration, so we introduced the term *infrastructural migration*. Lastly, we ended the paper with implications for designing for infrastructural migration and considerations for HCI diaspora research moving forward.

ACKNOWLEDGMENTS

REFERENCES

[1] Amanda Alencar. 2018. Refugee integration and social media: A local and experiential perspective. *Information, Communication & Society* 21, 11 (2018), 1588–1603.

[2] Asam Almohamed and Dhaval Vyas. 2016. Vulnerability of Displacement: Challenges for Integrating Refugees and Asylum Seekers in Host Communities. In *Proceedings of the 28th Australian Conference on Computer-Human Interaction* (Launceston, Tasmania, Australia) *(OzCHI '16)*. Association for Computing Machinery, New York, NY, USA, 125–134. https://doi.org/10.1145/3010915.3010948

[3] Nazanin Andalibi and Andrea Forte. 2018. Announcing Pregnancy Loss on Facebook: A Decision-Making Framework for Stigmatized Disclosures on Identified Social Network Sites. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (Montreal QC, Canada) *(CHI '18)*. Association for Computing Machinery, New York, NY, USA, 1–14. https://doi.org/10.1145/3173574.3173732

[4] Joseph B Bayer, Penny Trieu, and Nicole B Ellison. 2020. Social media elements, ecologies, and effects. *Annual review of psychology* 71 (2020).

[5] Victoria Bernal. 2005. Eritrea on-line: Diaspora, cyberspace, and the public sphere. *American Ethnologist* 32, 4 (2005), 660–675.

[6] Victoria Bernal. 2006. Diaspora, cyberspace and political imagination: the Eritrean diaspora online. *Global networks* 6, 2 (2006), 161–179.

[7] Raul D Bertero and Vitelmo V Bertero. 1999. Redundancy in earthquake-resistant design. *Journal of Structural Engineering* 125, 1 (1999), 81–88.

[8] Mehrab Bin Morshed, Michaelanne Dye, Syed Ishtiaque Ahmed, and Neha Kumar. 2017. When the Internet Goes Down in Bangladesh. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing* (Portland, Oregon, USA) *(CSCW '17)*. Association for Computing Machinery, New York, NY, USA, 1591–1604. https://doi.org/10.1145/2998181.2998237

[9] Ana-Maria Bliuc, Nicholas Faulkner, Andrew Jakubowicz, and Craig McGarty. 2018. Online networks of racial hate: A systematic review of 10 years of research on cyber-racism. *Computers in Human Behavior* 87 (2018), 75–86.

[10] Arjen Boin and Allan McConnell. 2007. Preparing for critical infrastructure breakdowns: the limits of crisis management and the need for resilience. *Journal of contingencies and crisis management* 15, 1 (2007), 50–59.

[11] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative research in psychology* 3, 2 (2006), 77–101.

[12] Alice V. Brown and Jaz Hee-jeong Choi. 2018. Refugee and the Post-Trauma Journeys in the Fuzzy Front End of Co-Creative Practices. In *Proceedings of the 15th Participatory Design Conference: Full Papers - Volume 1* (Hasselt and Genk, Belgium) *(PDC '18)*. Association for Computing Machinery, New York, NY, USA, Article 15, 11 pages. https://doi.org/10.1145/3210586.3210598

[13] Deana Brown, Victoria Ayo, and Rebecca E. Grinter. 2014. Reflection through Design: Immigrant Women's Self-Reflection on Managing Health and Wellness. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Toronto, Ontario, Canada) *(CHI '14)*. Association for Computing Machinery, New York, NY, USA, 1605–1614. https://doi.org/10.1145/2556288.2557119

[14] Carolyn L Cartier, Laurence JC Ma, C Cindy Fan, Sen-Dou Chang, You-tien Hsing, Manying Ip, Robert B Kent, Lily Kong, David Chuenyan Lai, Maggie WH Leung, et al. 2003. *The Chinese diaspora: Space, place, mobility, and identity*. Rowman & Littlefield.

[15] Yujie Chen, Zhifei Mao, and Jack Linchuan Qiu. 2018. *Super-sticky WeChat and Chinese society*. Emerald Group Publishing.

[16] Lizzie Coles-Kemp and Rikke Bjerg Jensen. 2019. *Accessing a New Land: Designing for a Social Conceptualisation of Access*. Association for Computing Machinery, New York, NY, USA, 1–12. https://doi-org.proxy.lib.umich.edu/10.1145/3290605.3300411

[17] Juliet Corbin and Anselm Strauss. 2014. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.

[18] Roger Daniels. 2011. *Asian America: Chinese and Japanese in the United States since 1850*. University of Washington Press.

[19] Rianne Dekker and Godfried Engbersen. 2014. How social media transform migrant networks and facilitate migration. *Global Networks* 14, 4 (2014), 401–418.

[20] Michael A. DeVito, Ashley Marie Walker, and Jeremy Birnholtz. 2018. 'Too Gay for Facebook': Presenting LGBTQ+ Identity Throughout the Personal Social Media Ecosystem. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW, Article 44 (Nov. 2018), 23 pages. https://doi.org/10.1145/3274313

[21] Xianghua Ding, Yunan Chen, Zhaofei Ding, and Yiwen Xu. 2019. Boundary Negotiation for Patient-Provider Communication via WeChat in China. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, Article 157 (Nov. 2019), 24 pages. https://doi.org/10.1145/3359259

[22] Bryan Dosono and Bryan Semaan. 2020. Decolonizing Tactics as Collective Resilience: Identity Work of AAPI Communities on Reddit. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW1, Article 069 (May 2020), 20 pages. https://doi.org/10.1145/3392881

[23] Michaelanne Dye. 2021. Un Grano de Arena: Infrastructural Care, Social Media Platforms, and the Venezuelan Humanitarian Crisis. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW3, Article 247 (Jan. 2021), 28 pages. https://doi.org/10.1145/3432946

[24] Michaelanne Dye, David Nemer, Neha Kumar, and Amy S. Bruckman. 2019. If It Rains, Ask Grandma to Disconnect the Nano: Maintenance & Care in Havana's StreetNet. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, Article 187 (Nov. 2019), 27 pages. https://doi.org/10.1145/3359289

[25] Carlos Echeverria-Estrada and Jeanne Batalova. 2018. Chinese Immigrants in the United States. Retrieved 12/11/2020 from https://www.migrationpolicy.org/article/chinese-immigrants-united-states-2018

[26] Paul N Edwards. 2003. Infrastructure and modernity: Force, time, and social organization in the history of sociotechnical systems. *Modernity and technology* 1 (2003), 185–226.

[27] Paul N Edwards, Steven J Jackson, Geoffrey C Bowker, and Cory P Knobel. 2007. Understanding infrastructure: Dynamics, tensions, and design. (2007).

[28] Nicole B Ellison and Jessica Vitak. 2015. Social network site affordances and their relationship to social capital processes. *The handbook of the psychology of communication technology* 32 (2015), 205–228.

[29] Casey Fiesler and Brianna Dym. 2020. Moving Across Lands: Online Platform Migration in Fandom Communities. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW1, Article 042 (May 2020), 25 pages. https://doi.org/10.1145/3392847

[30] Karen E. Fisher, Ann Peterson Bishop, Lassana Magassa, and Phil Fawcett. 2014. Action! Codesigning Interactive Technology with Immigrant Teens. In *Proceedings of the 2014 Conference on Interaction Design and Children* (Aarhus, Denmark) *(IDC '14)*. Association for Computing Machinery, New York, NY, USA, 345–348. https://doi.org/10.1145/2593968.2610488

[31] Tarleton Gillespie. 2010. The politics of 'platforms'. *New media & society* 12, 3 (2010), 347–364.

[32] Oren Golan and Deby Babis. 2019. Towards professionalism through social networks: constructing an occupational community via Facebook usage by temporary migrant workers from the Philippines. *Information, Communication & Society* 22, 9 (2019), 1230–1252.

[33] Sonia Graham and John Connell. 2006. Nurturing relationships: The gardens of Greek and Vietnamese migrants in Marrickville, Sydney. *Australian Geographer* 37, 3 (2006), 375–393.

[34] Tamy Guberek, Allison McDonald, Sylvia Simioni, Abraham H. Mhaidli, Kentaro Toyama, and Florian Schaub. 2018. Keeping a Low Profile? Technology, Risk and Privacy among Undocumented Immigrants. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (Montreal QC, Canada) *(CHI '18)*. Association for Computing Machinery, New York, NY, USA, 1–15. https://doi.org/10.1145/3173574.3173688

[35] Oliver Haimson. 2018. Social media as social transition machinery. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW (2018), 1–21.

[36] Oliver L Haimson, Jed R Brubaker, Lynn Dombrowski, and Gillian R Hayes. 2015. Disclosure, stress, and support during gender transition on Facebook. In *Proceedings of the 18th ACM conference on computer supported cooperative work & social computing*. 1176–1190.

[37] Stuart Hall. 2020. *Cultural identity and diaspora*. Routledge.

[38] Stuart Hall et al. 1990. Cultural identity and diaspora.

[39] Ole Hanseth and Kalle Lyytinen. 2016. Design theory for dynamic complexity in information infrastructures: the case of building internet. In *Enacting Research Methods in Information Systems*. Springer, 104–142.

[40] Daniel Herron, Wendy Moncur, and Elise van den Hoven. 2016. Digital possessions after a romantic break up. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction*. 1–10.

[41] Harry H Hiller and Tara M Franz. 2004. New ties, old ties and lost ties: the use of the internet in diaspora. *New media & society* 6, 6 (2004), 731–752.

[42] Joey Chiao-Yin Hsiao and Tawanna R. Dillahunt. 2018. Technology to Support Immigrant Access to Social Capital and Adaptation to a New Country. *Proc. ACM Hum.-Comput. Interact.* 2, CSCW, Article 70 (Nov. 2018), 21 pages. https://doi.org/10.1145/3274339

[43] Mohamed Husain and Panos Tsopelas. 2004. Measures of structural redundancy in reinforced concrete buildings. I: redundancy indices. *Journal of Structural Engineering* 130, 11 (2004), 1651–1658.

[44] Heather Kelly and Emily Rauhala. 2020. What a WeChat ban could mean for millions of U.S. users. Retrieved 09/18/2020 from https://www.washingtonpost.com/technology/2020/09/18/wechat-ban-faq/

[45] Makena Kelly. 2021. Biden revokes and replaces Trump orders banning TikTok and WeChat. Retrieved 06/09/2021 from https://www.theverge.com/2021/6/9/22525953/biden-tiktok-wechat-trump-bans-revoked-alipay

[46] Everett S Lee. 1966. A theory of migration. *Demography* 3, 1 (1966), 47–57.

[47] Pei Li. 2020. China's Tencent rebrands WeChat work app ahead of Trump ban. Retrieved 09/18/2020 from https://www.reuters.com/article/us-tencent-trump-wechat/chinas-tencent-rebrands-wechat-work-app-ahead-of-trump-ban-idUSKBN2691D7

[48] Wei Li, Le Qiang Han, Yan Jun Guo, and Jing Sun. 2016. Using WeChat official accounts to improve malaria health literacy among Chinese expatriates in Niger: an intervention study. *Malaria journal* 15, 1 (2016), 1–13.

[49] Zhicong Lu, Michelle Annett, Mingming Fan, and Daniel Wigdor. 2019. "I Feel It is My Responsibility to Stream": Streaming and Engaging with Intangible Cultural Heritage through Livestreaming. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–14. https://doi.org/10.1145/3290605.3300459

[50] Zhicong Lu, Yue Jiang, Cheng Lu, Mor Naaman, and Daniel Wigdor. 2020. *The Government's Dividend: Complex Perceptions of Social Media Misinformation in China.* Association for Computing Machinery, New York, NY, USA, 1–12. https://doi-org.proxy.lib.umich.edu/10.1145/3313831.3376612

[51] Laurence JC Ma. 2003. Space, place and transnationalism in the Chinese diaspora. *The Chinese diaspora: Space, place, mobility, and identity* 1 (2003), 49.

[52] Mirca Madianou. 2014. Smartphones as polymedia. *Journal of Computer-Mediated Communication* 19, 3 (2014), 667–680.

[53] Bob Metcalfe. 2013. Metcalfe's Law after 40 Years of Ethernet. *Computer* 46, 12 (2013), 26–31. https://doi.org/10.1109/MC.2013.374

[54] George Morgan, Cristina Rocha, and Scott Poynting. 2005. Grafting cultures: Longing and belonging in immigrants' gardens and backyards in Fairfield. *Journal of Intercultural Studies* 26, 1-2 (2005), 93–105.

[55] Edward Newell, David Jurgens, Haji Saleem, Hardik Vala, Jad Sassine, Caitrin Armstrong, and Derek Ruths. 2016. User migration in online social networks: A case study on reddit during a period of community unrest. In *Proceedings of the International AAAI Conference on Web and Social Media*, Vol. 10.

[56] Aihwa Ong. 1999. *Flexible citizenship: The cultural logics of transnationality.* Duke University Press.

[57] Ozge Ozduzen, Umut Korkut, and Cansu Ozduzen. 2020. 'Refugees are not welcome': Digital racism, online place-making and the evolving categorization of Syrians in Turkey. *new media & society* (2020), 1461444820956341.

[58] Geoffrey G Parker, Marshall W Van Alstyne, and Sangeet Paul Choudary. 2016. *Platform revolution: How networked markets are transforming the economy and how to make them work for you.* WW Norton & Company.

[59] Celia Pearce. 2011. *Communities of play: Emergent cultures in multiplayer games and virtual worlds.* MIT press.

[60] Ronald W Perry and Michael K Lindell. 2006. *Wiley pathways emergency planning.* John Wiley & Sons.

[61] Jean-Christophe Plantin and Gabriele De Seta. 2019. WeChat as infrastructure: The techno-nationalist shaping of Chinese digital platforms. *Chinese Journal of Communication* 12, 3 (2019), 257–273.

[62] Jean-Christophe Plantin, Carl Lagoze, Paul N Edwards, and Christian Sandvig. 2018. Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media & Society* 20, 1 (2018), 293–310. https://doi.org/10.1177/1461444816661553 arXiv:https://doi.org/10.1177/1461444816661553

[63] Dudley L Poston Jr and Juyin Helen Wong. 2016. The Chinese diaspora: The current distribution of the overseas Chinese population. *Chinese Journal of Sociology* 2, 3 (2016), 348–373.

[64] Xi Rao and Libby Hemphill. 2016. Asian American Chicago Network: A Case Study of Facebook Group Use By Immigrant Groups. In *Proceedings of the 19th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion* (San Francisco, California, USA) *(CSCW '16 Companion)*. Association for Computing Machinery, New York, NY, USA, 381–384. https://doi.org/10.1145/2818052.2869077

[65] Jacob R. Osborn Richard L. Matheny III and Ce Li. 2020. The U.S. Department of Commerce Restricts Certain Activities Related to WeChat and TikTok. Retrieved 09/25/2020 from https://www.goodwinlaw.com/publications/2020/09/09_18-the-us-department-of-commerce-restricts

[66] Dina Sabie and Syed Ishtiaque Ahmed. 2019. Moving into a Technology Land: Exploring the Challenges for the Refugees in Canada in Accessing Its Computerized Infrastructures. In *Proceedings of the 2nd ACM SIGCAS Conference on Computing and Sustainable Societies* (Accra, Ghana) *(COMPASS '19)*. Association for Computing Machinery, New York, NY, USA, 218–233. https://doi.org/10.1145/3314344.3332481

[67] Dina Sabie, Samar Sabie, and Syed Ishtiaque Ahmed. 2020. Memory through design: supporting cultural identity for immigrants through a paper-based home drafting tool. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 1–16.

[68] Dina Sabie, Reem Talhouk, Cansu E. Dedeoglu, Carleen Maitland, Volker Wulf, Eiad Yafi, Samar Sabie, Asam Almohamed, Safa'a AbuJarour, Kahina Le Louvier, Faheem Hussain, and Syed Ishtiaque Ahmed. 2021. *Migration and Mobility in HCI: Rethinking Boundaries, Methods, and Impact.* Association for Computing Machinery, New York, NY, USA. https://doi-org.proxy.lib.umich.edu/10.1145/3411763.3441352

[69] Bryan Semaan, Lauren M. Britton, and Bryan Dosono. 2017. Military Masculinity and the Travails of Transitioning: Disclosure in Social Media. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing* (Portland, Oregon, USA) *(CSCW '17)*. Association for Computing Machinery, New York, NY, USA, 387–403. https://doi.org/10.1145/2998181.2998221

[70] David Shepardson. 2021. EXCLUSIVE – Trump to block U.S. downloads of TikTok, WeChat on Sunday – officials. Retrieved 09/18/2020 from https://www.reuters.com/article/usa-tiktok-ban-exclusive-trump-to-block-u-s-downloads-of-tiktok-wechat-on-sunday-officials-idUSL1N2GF039

[71] Ellen Simpson and Bryan Semaan. 2021. For You, or For"You"? Everyday LGBTQ+ Encounters with TikTok. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW3, Article 252 (Jan. 2021), 34 pages. https://doi.org/10.1145/3432951

[72] Lok Siu and Khachig Tölölyan. 2021. *The Chinese Diaspora: Its Development in Global Perspective.* Zoryan Institute.

[73] Susan Leigh Star. 1999. The ethnography of infrastructure. *American behavioral scientist* 43, 3 (1999), 377–391.

[74] Susan Leigh Star and Karen Ruhleder. 1996. Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information systems research* 7, 1 (1996), 111–134.

[75] Wanning Sun and Haiqing Yu. 2016. Digital/social media and the Chinese community in Australia. *Media Asia* 43, 3-4 (2016), 165–168.

[76] Ana Swanson and David McCabe. 2020. U.S. Judge Temporarily Halts Trump's WeChat Ban. Retrieved 09/20/2020 from https://www.nytimes.com/2020/09/20/business/economy/court-wechat-ban.html

[77] Reem Talhouk, Sandra Mesmar, Anja Thieme, Madeline Balaam, Patrick Olivier, Chaza Akik, and Hala Ghattas. 2016. *Syrian Refugees and Digital Health in Lebanon: Opportunities for Improving Antenatal Health.* Association for Computing Machinery, New York, NY, USA, 331–342. https://doi-org.proxy.lib.umich.edu/10.1145/2858036.2858331

[78] Chee-Beng Tan. 2013. *Routledge handbook of the Chinese diaspora.* Routledge.

[79] Edson C Tandoc Jr, Chen Lou, and Velyn Lee Hui Min. 2019. Platform-swinging in a poly-social-media context: How and why users navigate multiple social media platforms. *Journal of Computer-Mediated Communication* 24, 1 (2019), 21–35.

[80] Lai Lin Thomala. 2021. Number of monthly active WeChat users from 2nd quarter 2011 to 1st quarter 2021(in millions). Retrieved 10/21/2020 from https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/

[81] Bill Tomlinson, Eli Blevis, Bonnie Nardi, Donald J. Patterson, M. SIX Silberman, and Yue Pan. 2013. Collapse Informatics and Practice: Theory, Method, and Design. *ACM Trans. Comput.-Hum. Interact.* 20, 4, Article 24 (Sept. 2013), 26 pages. https://doi.org/10.1145/2493431

[82] Xiaobo Wang and Baotong Gu. 2016. The Communication Design of WeChat: Ideological as Well as Technical Aspects of Social Media. *Commun. Des. Q. Rev* 4, 1 (Jan. 2016), 23–35. https://doi.org/10.1145/2875501.2875503

[83] Yang Wang, Yao Li, and Jian Tang. 2015. Dwelling and Fleeting Encounters: Exploring Why People Use WeChat - A Mobile Instant Messenger. In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems* (Seoul, Republic of Korea) *(CHI EA '15)*. Association for Computing Machinery, New York, NY, USA, 1543–1548. https://doi.org/10.1145/2702613.2732762

[84] Wendy Wen Li, Darrin Hodgetts, and Elsie Ho. 2010. Gardens, transitions and identity reconstruction among older Chinese immigrants to New Zealand. *Journal of Health Psychology* 15, 5 (2010), 786–796.

[85] Tom Wengraf. 2001. *Qualitative research interviewing: Biographic narrative and semi-structured methods.* Sage.

[86] Jeanne Whalen. 2020. Federal court issues preliminary injunction halting administration's ban of Chinese app WeChat. Retrieved 09/21/2020 from https://www.washingtonpost.com/technology/2020/09/20/wechat-ban-blocked-trump/

[87] Jeanne Whalen. 2021. Biden asks for pause in Trump's effort to ban WeChat. Retrieved 02/11/2021 from https://www.washingtonpost.com/technology/2021/02/11/wechat-trump-biden-pause/

[88] Ying Xu and Carleen Maitland. 2016. Communication behaviors when displaced: a case study of Za'atari Syrian refugee camp. In *Proceedings of the eighth international conference on information and communication technologies and development*. 1–4.

[89] Feng Yuansheng, YS FENG, and F MOSES. 1986. Optimum design, redundancy and reliability of structural systems. *Computers & structures* 24, 2 (1986), 239–251.

[90] Xuan Zhao, Cliff Lampe, and Nicole B. Ellison. 2016. The Social Media Ecology: User Perceptions, Strategies and Challenges. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (San Jose, California, USA) *(CHI '16)*. Association for Computing Machinery, New York, NY, USA, 89–100. https://doi.org/10.1145/2858036.2858333

[91] Rui Zhou and Betsy DiSalvo. 2020. User's Role in Platform Infrastructuralization: WeChat as an Exemplar. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–13. https://doi.org/10.1145/3313831.3376201

[92] Rui Zhou, Jasmine Hentschel, and Neha Kumar. 2017. Goodbye Text, Hello Emoji: Mobile Communication on WeChat in China. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (Denver, Colorado, USA) *(CHI '17)*. Association for Computing Machinery, New York, NY, USA, 748–759. https://doi.org/10.1145/3025453.3025800

[93] Rui Zhou, Zhonghe Wen, Muchao Tang, and Betsy DiSalvo. 2017. Navigating Media Use: Chinese Parents and Their Overseas Adolescent Children on WeChat. In *Proceedings of the 2017 Conference on Designing Interactive Systems* (Edinburgh, United Kingdom) *(DIS '17)*. Association for Computing Machinery, New York, NY, USA, 1025–1037. https://doi.org/10.1145/3064663.3064701