

Goodbye Text, Hello Emoji: Mobile Communication on WeChat in China

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ABSTRACT

We present a qualitative study of mobile communication via WeChat in Southern China, focusing on the rapid proliferation of emoji and stickers and the lessening dependence on text. We use interview and observation data from 30 participants to investigate how rural, small town, and urban Chinese adults creatively and innovatively balance the use of emoji, stickers, and text in their mobile communication practices. We also discuss design implications of our research for the field of HCI, offering ways of leveraging the non-textual communication practices that we uncover, in scenarios where purely text-based communication may not suffice.

ACM Classification Keywords

H.5.m. Information Interfaces and Presentation (e.g. HCI):
Miscellaneous

Author Keywords

China; WeChat; Mobile; Emoji; Stickers; Qualitative
Methods

INTRODUCTION

“Emoji-mania is in full force, and we certainly aren’t mad about it. We now live in a world with emoji-only restaurant menus, and very important emoji debates; and we even judge celebs on how good their own line of emoji are. So, it makes perfect sense that we would now have a convention completely devoted to all things emoji...” [9]

Emoji are rapidly penetrating our daily communication practices. The quote above was included in the description of the very first Emojicon - “a multi-day celebration of all-things emoji” that took place in San Francisco in November 2016 [9]. The event was aimed at engaging people from all walks of life with different flavors and forms of emoji, through exhibitions of emoji artwork, screenings of emoji films, and more, affirming the growing hype associated with emoji-driven non-textual communication.

Our research provides a situated perspective of the use of non-textual elements such as emoji and stickers in mobile communication on WeChat, where they feature widely. WeChat is currently the most popular mobile instant messaging platform in China [56]. Designed, developed, and launched by Tencent, one of China’s leading technology companies, WeChat started out as a lightweight instant messaging application but has evolved into much more. The Chinese use WeChat for calling taxis, making various reservations, booking flight tickets, and more. We find that WeChat is now an integral part of daily life in China and emoji/stickers are too [26].

Prior research in the fields of Computer-Mediated Communication (CMC) and Human-Computer Interaction (HCI) has taken an active interest in studying emoji as well as similar instant messaging elements such as emoticons (e.g., ;-)). While CMC researchers have focused mostly on the non-verbal cues offered by emoticons [6, 30], they have also briefly examined their other illocutionary uses [8, 19]. HCI research on emoji use, by contrast, is still in nascent stages and has studied various motivations underlying sticker use [28] and by specific cultural populations (i.e., Japanese teens) [53]. Our research extends prior work by studying the combined use of emoji and stickers. The former are small, rely on unicode, are available via standardized keyboards, and cannot be edited; the latter are bigger, static or animated, can be added or deleted, and must be sent separately without insertion in text messages. Our focus on China offers a novel contribution by investigating a case of previously unstudied, widespread appropriation of emoji and stickers. Our choice of qualitative methods provides, in addition, an in-depth perspective into the motivations underlying adoption and use.

Our paper is structured as follows. After conducting a comprehensive review of related work that has studied emoji in the fields of CMC and HCI, we provide background on WeChat and emoji/sticker use in China so that our readers can better understand our findings and analysis. Next we present our methodology, describing the sites we visited in Southern China and participant demographics. In our findings section, we outline our participants’ adoption and use of emoji/stickers on WeChat, and how they balanced their use of text with non-textual communication. Finally, we discuss the implications of our findings for the HCI community by making design recommendations for use cases that could leverage the non-textual communication patterns we uncover.

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RELATED WORK

Below we summarize relevant literature that examines communication practices on popular mobile instant messengers (MIMs). We also discuss CMC and HCI research that studies emoji/sticker use. Finally we describe a growing line of work that examines dependence on text.

Communication on Mobile Instant Messengers

Around fifteen years ago, researchers started examining the practice of exchanging instant messages via mobile phones. They studied how adults sent messages in the workplace [18, 39] and how teenagers engaged in this practice at home or at school [14, 15]. Later, when mobile devices became progressively smarter, research shifted to examining how MIMs played a role in people's lives. Church and Oliveira [2] discussed that people were beginning to actively use MIMs such as WhatsApp but were also using traditional SMS. O'Hara et al. [40] studied how people enjoyed WhatsApp because it offered a sense of “dwelling” – a feeling of being with people through the exchange of messages. Since then, “dwelling” has been widely researched not only in relation to WhatsApp, but also with other popular MIMs in particular cultural contexts [20, 59, 60]. We not only study how people communicate with each other through MIMs and in China, but also how this communication is mediated by the use of emoji/stickers.

Emoji Adoption and Use

Emoji is a Japanese word made up of two parts – the *e* means “picture” and *moji* means “letter” [53]. It was originally crafted to refer to pictorial representations for expressions and other objects such as the sun [1]. Before emoji, there were emoticons – symbolic representations for facial expressions based on punctuation marks that could be covered using a standard keyboard (e.g., :-). Emoji and emoticons have been used widely by those who communicate daily using computing/mobile devices. As technologies develop, new types of emoji are coming into being. Stickers are one example. As explained, these are also pictorial representations, but are more elaborate and often animated.

CMC research examines how communication takes place and is influenced by the presence of computers. As early as 2001, researchers like Walther and D'Addario [58] started to work on learning more about emoticons. In order to understand how emotion was perceived, Derks et al. [7] reviewed relevant works in CMC and found that online communication was as emotionally rich as offline communication; that is, people still needed to express their emotions even when they were not communicating face-to-face. This study was significant because it explicitly pointed to the possible connection between emotion and emoticons in CMC. Since then, researchers have further investigated how emotions and other nonverbal cues were represented by emoticons. Both Lo [30] and Derks et al. [6] confirmed that people relied on emoticons to express nonverbal cues. Liebman and Gergle [29] studied how social reciprocity played a role when people exchanged nonverbal cues such as emoticons and punctuation in their conversations. However, Dresner and Herring [8] challenged the dominant view that emoticons were only for emotion by

noting that they could also indicate other illocutionary forces. Jibril and Abdullah [19] built on this by stating emoticons were even “morpheme-like units,” expanding the understanding of emoticons as solely paralinguistic elements. We also examine how non-verbal cues are employed in online communication, additionally offering a situated understanding of rampant emoji and sticker use in China. In addition, we make design recommendations for mobile communication.

The HCI community only recently came to study emoji and has chiefly been interested in how emoji are integrated into technology. Examples include how to achieve better design when integrating emoji [43, 54], how people engage with emoji via various platforms [28], if people understand the same emoji differently [36], and whether culture shapes people's understanding and use of emoji [31]. We draw directly on two recent works. In 2016, Lee et al. [28] examined their participants' motivation for using stickers and found that users not only send stickers to represent emotions, but also for strategic or functional purposes. Sugiyama [53], on the other hand, provided an in-depth, culturally situated understanding of emoji use among a specific people, asking how Japanese teens use emoji to “*manage communication climate and express their aesthetic selves.*” We build on this work to cover both traditional emoji and sticker use in China, sharing findings from participants across various social strata.

Dependence on Text

There has been a strong focus on reducing text dependence in user interfaces (UIs) in the field of Information and Communication Technologies and Development (ICTD). This is because many users, typically from underserved communities, tend to be semi-literate or illiterate, with little ability to engage with technologies that depend heavily on text-based interactions. Medhi's work discussing the need for text-free user interface design was seminal [32]. Since then, her work has been widely referenced by others aiming to develop UIs that rely less on text. One line of work that has developed in this regard is that of voice-based user interfaces and frameworks, such as Avaaj Otalo [42], “the Spoken Web” [23], and CGNet Swara [38]. Another line considers video-based approaches. Studies include Medhi and Toyama [33] and Ladeira et al. [25]. Some take a participatory video-based approach for designing UI for low-literate users, including Digital Green [10], Projecting Health [24], KrishiPustak [34], and VideoKheti [3]. In 2015, Medhi-Thies reviewed works that designed UIs for low-literate and novice users, signaling multiple design opportunities for the future [57].

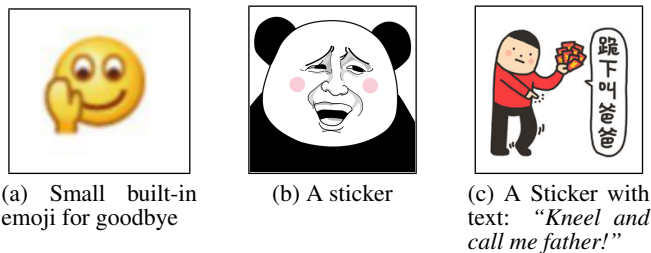
These works above aim for improved and more usable UIs for low-literate users in resource-constrained regions. There are also other scenarios where users might be keen to use less text, such as in the case of aging. We address these scenarios by considering how emoji/stickers as increasingly common visual elements in online communication could assist in communication. In our design recommendations, we consider the possibilities of integrating pictorial representations such as emoji/stickers when designing user interfaces or other HCI applications for populations that are less text-friendly.



(a) Main user interface

(b) Dialogue user interface

Figure 1: WeChat's UI also includes an emoji keyboard.



(a) Small built-in emoji for goodbye

(b) A sticker

(c) A Sticker with text: "Kneel and call me father!"

Figure 2: Users can send built-in emoji on WeChat.

EMOJI IN WECHAT

WeChat was initially launched by Tencent in 2011 across China. Other similar applications (such as Feixin [4] and QQ Mobile [63]) exist, but none are used as widely as WeChat. In March 2016, there were a total of 762 million monthly active users [56], making WeChat the third-most popular instant messaging application worldwide [51]. The WeChat UI, as shown in Figure 1, is similar to other MIMs such as WhatsApp. When WeChat was first launched, it was only a messaging service and did not stand out among its competitors. It allowed users to send text and audio messages with some default emoji inherited from QQ [61], also an instant messaging software by Tencent [55]. WeChat has now successfully developed into an all-in-one mobile application. People use WeChat for a diverse set of culturally situated uses, such as sending digital red envelopes¹. It is now an integral component of people's personal lives in China [26].

Emoji were included as soon as WeChat launched in 2011, while stickers came only 1.5 years later [37]. Although WeChat's emoji are different in appearance from those in iOS or Android, they are also small with yellow round faces showing various expressions (see Figure 2a). Additionally, they

¹This is an age-old Chinese custom for gifting money.

can be inserted alongside text, just as emoji in other applications. Stickers, as described earlier, are similar to yet different from emoji. They are generally bigger than regular emoji and occupy more screen space. This also means that they cannot be used within a text message, only sent as separate entities. WeChat stickers can be either static or animated, while emoji are always static. Moreover, emoji are built into WeChat and cannot be added or deleted, while stickers can. Two kinds of stickers are supported in WeChat: custom stickers and downloadable ones shown in the sticker gallery. Stickers in this gallery are presented in "sets," where each sticker set represents a cohesive theme and contains either 16 or 24 individual stickers [45]. Custom stickers are individual ones uploaded by users from other sources, such as conversations on WeChat or photos on the phone. Once uploaded, they can be shared.

METHODOLOGY

Our study took place from June to August 2016 and included 30 in-depth, semi-structured interviews of individuals from field sites in rural, small town, and urban China (see Table 1). We recruited our participants using a combination of purposive and snowball sampling [13, 21]. Our study was approved by the institutional review board (IRB) at Georgia Tech.

We recruited participants from the following field sites in Southern China: Zhijiang county and Huaihua in the Hunan province, along with Shenzhen in the Guangdong province. Huaihua is a small town that lies on the western side of Hunan [17]. Zhijiang county is a part of Huaihua and covers 301 villages. We use "Zhijiang county" to refer to the three villages where we recruited our study participants. Our last site was Shenzhen, one of the most developed cities in China [49]. This selection of sites gave us a reasonable demographic spread across rural, small town, and urban China.

As is evident from Table 1, our participants were between 18 and 63 years old. This is because we were keen to study use across ages and understand whether young and old users displayed different behaviors. Our sample included 12 men and 18 women; recruiting male participants in rural/small town China proved significantly more difficult because the interviewer was female. Since WeChat only operates on smartphones, we needed to impose smartphone use as a criterion for participation in our study. This ruled out several potential participants in our rural field sites. Further, at the time of our study, smartphone penetration was largely limited to younger generations and those from higher socioeconomic strata.

The first 18 interviews were conducted in Hunan: 7 in Zhijiang and 11 in Huaihua. We then interviewed 12 participants in Shenzhen. All interviews were 30-60 minutes long and took place at participants' homes. The first author conducted all interviews; these took place in Mandarin, also her native language. During each interview, we first asked our participants for basic information, including their age, devices they used, and how long they had been using WeChat and smartphones (See Table 1). We proceeded by asking if they had used emoji on WeChat and how. We also observed the emoji on their phones and how they used them. We took notes and kept audio recordings. These recordings were transcribed in Mandarin and then translated to English for analysis.

Participant	Gender	Age	Location*	Smartphone**	Years of Smartphone Use	Years of WeChat Use
1	F	54	Small town	Huawei	2+	2
2	F	54	Small town	Samsung	3	2.5
3	F	52	Small town	Samsung	3	2
4	F	61	Small town	Samsung	5+	1.5
5	M	25	Small town	iPhone	7	3+
6	M	58	Small town	Samsung	4.5	2.5
7	F	52	Small town	iPhone/Xiaomi	4.5	2+
8	F	18	Small town	Huawei	4.5	0.5
9	M	42	Rural	OUKI	5+	2
10	M	63	Rural	Samsung	2+	2
11	M	27	Small town	iPhone	6	4
12	F	28	Small town	Samsung	7	4
13	F	54	Small town	Coolpad	1+	0.5
14	F	23	Rural	iPhone	2.5	2.5
15	F	25	Rural	Oppo/Unknown	4+	3
16	M	43	Rural	Gionee	4+	4+
17	F	43	Rural	Vivo	0.5	0.5
18	F	54	Rural	Huawei	3	1
19	F	26	Urban	Hammer	8	4
20	M	63	Urban	iPhone	5	5
21	F	59	Urban	iPhone	5+	4.5
22	F	39	Urban	Huawei	5	3.5
23	F	47	Urban	Huawei	1.5	1.5
24	M	25	Urban	iPhone	6	6
25	M	27	Urban	Xiaomi	3	3
26	M	27	Urban	iPhone	10	5
27	M	41	Urban	iPhone	10+	3
28	M	27	Urban	iPhone	6.5	4
29	F	26	Urban	iPhone	5.5	4.5
30	F	25	Urban	Samsung	8	4

Table 1: Participant Demographics

* Rural → Zhijiang; Small town → Huaihua; Urban → Shenzhen

** Other than Samsung and iPhone, other smartphones were all Chinese branded. P7 and P15 both owned two smartphones.

We applied interpretive qualitative analysis to all interview transcripts [35]. Our analysis began with “open coding,” in which we assigned short phrases as codes. The first round of coding was done line-by-line within transcripts, so that codes stayed close to data. Examples of first-level codes include “emoji are entertaining,” “using emoji for festivals and holidays,” and “sending emoji according to the audience.” We proceeded to analyze these codes and extracted themes for a conceptual understanding. Second-level categories included “sending emoji: audience matters,” “stickers with or without texts: descriptions and understandings,” and “non-use of emoji: conditions and rationales.” The process of analyzing data was iterative – we continuously went back and forth between categories and data to discover patterns and subject data to further scrutiny. Finally, we arrived at distinct themes that highlight how our participants started using emoji/stickers and how they currently use or do not use these.

FINDINGS

In this section, we structure our findings by describing how participants adopted emoji/stickers, how they used emoji/stickers to support and complement their use of text, and how these use cases have evolved over time such that emoji/stickers have taken on meanings of their own, sans text. We offer, in addition, a few cases of emoji/sticker non-use.

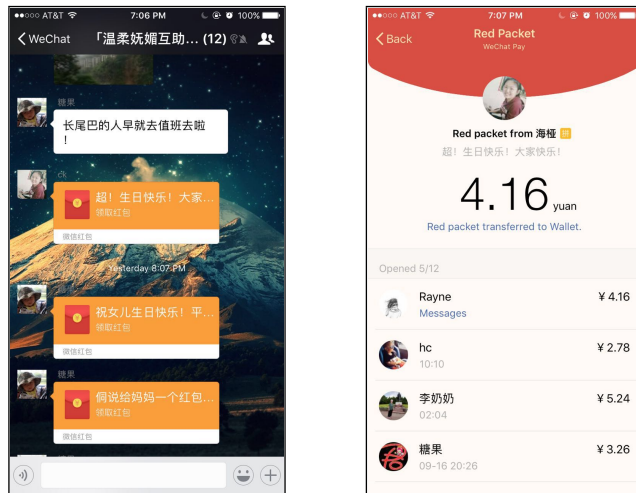
Hello, Emoji!

Most participants started using emoji on WeChat around 2013. When we asked what had inspired their adoption of emoji in the first place, we discovered that it was largely because they had been introduced to it by their friends in their chats. When WeChat introduced stickers, it placed a red dot in the interface to indicate the new addition, just as it always highlights new features [62]. More savvy participants noticed this and began to use them right away, while others learned from their family and friends. P13 described how she learned to send emoji/stickers by asking her daughter-in-law to teach her. She had seen them in conversations but did not know how to save or send them. P17 mentioned that her daughter, who was still a primary school student, was much more tech-savvy than her: “*My daughter used my phone all the time. These stickers were all downloaded by her. I saw them so I used them too. She taught me how to send at the beginning.*” In general, intermediaries – as described by Sambasivan et al. and others [11, 41, 46, 47] – played a significant role in expanding WeChat emoji’s user base. Prior experience and familiarity with QQ also made a difference, since WeChat first inherited emoji from QQ [61].

In general, our participants shared that they had adopted emoji/stickers because text was not always sufficient. Many participants called text messages boring, dry, and limited in the expressiveness they allowed. P4, who was familiar with computers and accustomed to typing on them, said: “*It didn’t look pretty when there was only text on the screen.*” P11 added that text looked “*weak and powerless, whereas emoji are so much more lively.*” In sections that follow, we describe how emoji/sticker adoption has led to the evolution of WeChat use as well.

Emoji for Non-Verbal Cues

According to Dresner and Herring [8], emoticons can be used to offer non-verbal cues that are poorly conveyed by text. We found that our participants also appeared to engage with emoji for this purpose. In general, when communicating emotions, expressions, feelings, greeting, blessings, and appreciation, they used emoji extensively as non-verbal cues and as “emotion indicators” [8]. Most participants told us they send emoji when they feel happy or when they want to bless or greet someone along with words for a livelier exchange. This role of emoji also reveals how people intentionally add them to text. For instance, P22 described how she usually sends emoji at the end of a sentence to help her show happiness. Similarly, P28 indicated that he often sends a smiley at the beginning of a conversation to indicate his friendliness. P27 summarized how he adds emoji to text messages: “*After saying something, I will then add emoji in the middle or in the end. This is to assist expression; some emoji simply express a response without adding much content.*” Here,



(a) Three red envelopes in one conversation

(b) Opened a Red Envelope

Figure 3: Clicking on the envelope shows money received.

emoji support text without introducing new meaning, serving a more supplementary role by adding non-verbal cues.

Stickers also serve similar function. In WeChat, stickers can either be solely graphical or contain both an image and text. Typically, there are one to ten characters in a single sticker, depending on the information it is trying to convey and whether the meanings of the text and image are aligned. A few participants believed that stickers with text are “clear and complete,” because they contain words that people cannot misunderstand. Their main focus was on the text and not the image, which ended up playing a supplementary role.

Emoji/Stickers for Complementing Text

Instead of echoing what the text represents by offering non-verbal cues, emoji/stickers also offer important information to complement the text so that emoji/stickers and words combine to form a holistic meaning. In some cases, text may not even be present.

Emoji/Stickers for Behaviors, Actions, and Attitudes

Certain types of messages are easier to convey when complemented by stickers than by inputting text, as discussed briefly by Lee et al. [28]. Behaviors, actions, and attitudes fall into this category. P1 shared how she often sends emoji hugs to her middle school classmates since she would really like to hug them in person. Nearly half of our participants told us they send emoji to express agreement or disagreement.

Stickers as Connotations

When stickers are used for adding connotative information, they complement text with meanings it failed to convey. When describing the kind of stickers he saved, P11 said: “Some connotative stickers, such as ‘give you a look and you understand it on your own.’ Also ones that feature ‘moral integrity shattered all over the place’.”² Though the stickers

²Both are phrases and jargon commonly used by Chinese youth.

he referred to were custom stickers, they embedded meanings that were rich, subtle, and culturally relevant, so they would likely be very hard to express through text. In these cases, a picture was indeed worth the proverbial thousand words.

Emoji/Stickers Modify Textual Meaning

Emoji/stickers can also modify the meaning of text. We observed and discussed with participants how they use emoji/stickers to alter the meaning of text deliberately. P1 said: “Sometimes when it’s not appropriate to say something or when you don’t have a proper word in mind, stickers will help you to communicate. For example, Zhijiang people use ‘the brain-chopper’ to curse people. But if you really use this word, it sounds pretty serious. Use a knife [emoji], then it becomes entertaining.” This finding differs from Walther and D’Addario’s [58] since they believe the negative element, whether verbal or graphical, will make the entire message negative. P1, instead, uses emoji to lighten the negative tone. P19 shared similar feelings here by telling us she makes sure to add an emoji if she believes her text could potentially hurt those on the receiving end. These examples highlight that users must understand the meanings of both the text and the emoji/stickers, and well enough, to balance their holistic meaning in diverse situations.

Emoji/Stickers Represent Silence

One third of our participants said they use emoji/stickers when they have nothing to say or do not know what to say. P8’s reply fell into the former category: “I usually use stickers when the conversation becomes awkward. This means there’s no way to proceed...” P5 also used emoji when he did not want to talk, which happened frequently when he chatted with his older family members. He said: “They cannot understand. I sent emoji and tried to say that, in fact, I don’t want to talk to you. But it was a smiley, so the other side thought I was happy and continued talking even more.” P19 described her use of emoji when she was unsure of what to say. All these participants show that this particular use depends on specific audience and context.

“Timing is Crucial”

We discovered that many emoji/stickers are used only on certain occasions, such as festivals or holidays. These emoji/stickers must be understood by taking into consideration both the special contexts and the traditional cultural value ascribed to them. P9 told us he uses the rose emoji most often. When asked about when he uses it, he said: “The flower is for festivals and for birthdays, no matter whose birthday.” P24 explained further: “I use stickers frequently when it’s Chinese New Year. I probably don’t really want to send a simple ‘Kung Hei Fat Choy’ when it’s Chinese New Year, [but] the kind that is a bit joyful and also with some patterns.” Since the New Year is meant to be a happy occasion and represents family reunions, people adhere to traditional cultural values by choosing specific stickers that match the festive atmosphere.

The digital red pocket, or red envelope, is also used on special occasions. A red envelope is a red paper envelope used to gift cash. Chinese people traditionally have given them to children as a blessing during the Chinese New Year, but nowadays they are sent in other situations as well, such as

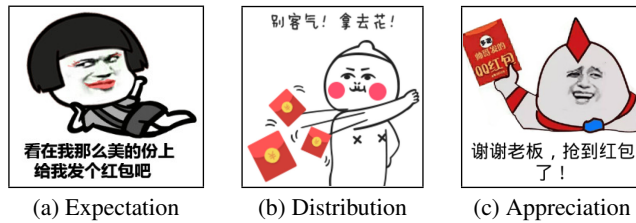


Figure 4: Various stickers featuring red envelopes.

weddings, birthdays, moving into new homes, and more [44]. Tencent designed a digital version of a red envelope (see Figure 3) for WeChat in January 2014 [26] in order to support an online experience of this cultural tradition. Fourteen participants told us they use emoji/stickers when expecting, sending, or receiving red envelopes and that these emoji/stickers generally take the form of stickers featuring red envelopes, similar to the examples shown in Figure 4. P23 claimed (and we confirmed) that most of her stickers featured red envelopes. P2, whose stickers were nearly all related to red envelopes, told us she saves these red envelope stickers strategically:

“It’s not possible to send one sticker for indicating appreciation in all cases. Today I grab two [red envelopes], then I will send two “thank you” patterns. Two days later, if there are more [red envelopes], then I will just send another two [thank you stickers]. I don’t want to send the same patterns in the same group.” (P2)

We can see that the use of these stickers depends on the user’s understanding of red envelopes. Given the widespread nature of this tradition of sending red envelopes [44], it was unsurprising that we saw red envelope stickers being used whenever people wished to send red envelopes.

Finding the right emoji for the right occasion is not enough. They also need to be sent fast enough, we found. But what counts as “the right time” if it’s not a festival or a birthday? Why does speed matter so much? P29 tried to explain:

“Sometimes people send messages pretty fast in groups. You need to be able to send out something fast enough for your sticker to make sense at that moment. People have already sent a few messages, and then it’s awkward if you suddenly send a sticker, which shows up after someone else’s message. For example, if you say something and I want to reply with a sticker, but other people are able to reply very quickly with several messages. Your message has already passed. If I still send a sticker (to your message), that will be very odd. Timing is crucial.” (P29)

In this example, the speed of replying with emoji/stickers becomes part of the context. Being able to reply in the appropriate timeframe entails digesting the entire context accurately and finding the proper emoji/sticker for a reply as soon as possible rather than spending considerable time typing long sentences. Because emoji/stickers essentially only require one click, they are much quicker to use than text. When mobile conversations move quickly, emoji/stickers trump text.

Motivations for Sticker Use

As discussed earlier, emoji and stickers are similar but different. Our participants shared their various motivations for using stickers over emoji.

All about Oneself

Emoji/stickers are not used just for communication; they are also representations of oneself. Sugiyama discusses the interpretation of “*kawaii*”³ aesthetics among Japanese teens’ use of emoji [53]. Our research confirms these findings with stickers but also finds that participants used stickers as a part of their personal identity, regardless of age and location. For example, P11 shared that after becoming a cop, he had become much more aware of his occupation and was keen that his online communication preserve his professional image. Some of his contacts on WeChat were strangers who only talked to him when they wanted his help. He showed us multiple saved stickers that featured cops and told us that he had gotten these from his colleagues.

Other than profession, participants showed awareness of their personality traits and how they conveyed these using stickers. P8, who had just graduated from high school, told us she liked stickers that were “*silly and also a bit funny,*” which (to her) meant that they looked simple and straightforward. When asked why she chose those stickers, she answered: “*Probably because my personality is like them, and I like this simple style since I was very young. Truly simple.*” These stickers spoke to her because they resonated with how she understood herself. P12 said she sent a particular set of stickers to her female friends in which the characters looked “*capricious and unhappy,*” because she felt free with these friends. Here, stickers were used with the intention of revealing aspects of oneself with different audiences – this is also how people act in the real world [12]. If the audiences know the sender, they will be able to understand the connection between the sender and the stickers. Otherwise, the audiences can get to know the sender through these stickers, making stickers even more crucial in this communication.

Finally, users also choose stickers because they resemble their physical features. P5, for example, used a sticker just because people thought he looked like the character in the sticker. He provided more details:

“Whenever I send this sticker, particularly smiling like this at the end a conversation, people will say ‘hey this guy really looks like you’ or ask me ‘are you this guy?’ Later I even imitated this sticker! Then people will respond: ‘OMG, is this you?’ ” (P5)

All in all, these participants were naturally drawn to stickers that they could relate to for a variety of reasons. They were aware of these tendencies and more than happy to integrate these stickers into their communication, with the hope of constructing a desirable and fitting online image for themselves. We find that as mobile communication develops, sticker use is coming increasingly into focus, both for non-verbal communication and for identity management.

³Cute in the context of Japanese popular culture [27].

When Love Matters more than Time

We mentioned earlier that time matters a lot – however, some participants seemed to care more for stickers than for time. Two participants, P6 and P12, shared that they used stickers all the time. We confirmed this by looking over their WeChat conversations, which revealed high sticker use. Both sent stickers and really seemed to enjoy these graphical dimensions to their communication. P6, who was more than 60 years old and lived in a small town, loved stickers so much that he downloaded 56 sticker sets – even more than P5, a young man who saved 33 sticker sets and saw himself as a “heavy sticker user.” We asked P6 why he had so many sticker sets and didn’t delete any of them. He laughed and answered: “*Because they are good. It’s better to have a hundred sets. That will be the best.*” He went on and on about how he liked stickers better than text:

“I think it’s better to use stickers. Writing, first, is too slow. Second, if I’m happy, it will be better to hop and jump like [the bunny] in the sticker. I also like the stickers without text. If there are images, then perhaps it’s better to use them as often as possible since text messages may cause misunderstanding. Some text may not express the meaning completely.” (P6)

P12 also uses sticker extensively: “*I send stickers to my boss.*” She used stickers even if she did not quite understand their meanings – she saved a sticker set which featured NBA stars, only because her husband was a huge fan of NBA, so she could send them to him. She did not really know the basketball stars or what the animations meant. She just liked using them: “*When I see a sticker, I will think about if this one is interesting and if it can be sent to somebody. Then I will look for it – to see whether it’s there [in the sticker gallery].*”

In the cases above, participants took time to pick and choose their stickers, searching for them actively. Stickers played a major role in their mobile communication on WeChat by shaping their patterns of communication so that they turned to stickers before turning to text. P6 was so used to stickers that he would only think about how stickers could correctly illustrate his feelings. Similarly, P12 cared about her husband and, on encountering the NBA sticker set, thoughts of her husband first came to mind.

Emoji/Sticker Subcultures

Subculture, as defined by Dick Hebdige, is “a subversion to normalcy” [16]. We talk about emoji/sticker subcultures by pointing out how our participants’ novel use of emoji/stickers cultivated smaller groups of users that shared distinct beliefs towards emoji/stickers, when compared against the larger user population. We present two examples below.

The “Mysterious Smile”

All emoji/stickers on WeChat have a label. People generally become familiar with underlying meanings of them by looking at their graphical representations and names before sending them out, particularly for new and unfamiliar stickers. It is therefore not surprising that our participants used emoji/stickers as the names suggested, such as using a crying face to illustrate sadness. Nevertheless, this is not al-

ways the case. Younger participants from the city or small town appropriated emoji by assigning unconventional meanings to them. The first emoji, the ordinary smiley: ☺, was originally designed and understood to be a genuine smile [1]. However, our young participants (P5, P25, and P30) rejected this convention and insisted that it was a “*mysterious smile*” that covered all kinds of connotations, such as sarcasm or speechlessness, even though they knew that it was mostly used to indicate an ordinary smile. P5 told us he sent this smiley when he did not really have anything to say or when he did not know how to reply – but surely it was not meant to be a genuine smile. Similarly, P24 saw this smiley as “*a fake smile.*” We found that this alternative interpretation was widely known and accepted among younger participants but not among older users. Older participants, such as P20 and P21, shared that they used this smiley when they wanted to smile or show friendliness. The “mysterious smile” interpretation for this particular smiley was likely determined by age, since participants like P5 and P30 told us that they would not send it to their older family members since “*they won’t understand.*” For P8, P24, and P25, even though they used the smiley as a “mysterious smile” in their family groups, they did not bother to explain this connotation and did not care if their families understood.

“Sticker Competitions”

A special practice that has evolved in the case of sticker use is the *sticker competition*, when users exchange stickers for the sake of exchanging them, for showing off the stickers they have, or for collectively putting together a story using stickers only. Three of our participants, P8, P19, and P25, whose ages ranged from 18 to 27, mentioned that they occasionally engaged in sticker competitions. P19, who was a graduate student, described how she and her roommate used to compete with stickers in 2015:

“We had a WeChat group for the four of us in our dorm. So sometimes we would chat if there was nothing urgent to do for our labs. Since we all had other groups, we saved stickers from here and there, so we would communicate in our group. In general, it was between the two of us, myself and a roommate. The other two girls just watched. Basically, when we two received any interesting stickers, we sent them in the group and then started showing off. We would show off when we were terribly bored - ‘Hey I saved so many new stickers today’ and send tons of them. Then she would say: ‘Hey this is interesting. I have received these ones’, then she would send tons of other stickers. It was like that. Back and forth we both saved many, many stickers. We sent stickers for the sake of sending them.” (P19)

Instead of sending stickers for nothing in particular, P25 competed with stickers with his friend and they crafted stories without using any text: “*We only sent stickers, yes, but stickers could form some stories. For example, I sent this ‘eating shit’ sticker, she would reply with shit covering the face [sic]. This is actually very funny.*” We proceeded by asking him if they were showing off, and he answered:

“Not really showing off. It was just a particular type of humor. Sometimes you don’t want to talk and when you send stickers, you feel entertained. This is especially the case when I can connect the stickers together, creatively, connect them as a story – it becomes really fun.” (P25)

During sticker competitions, the phone screen fills with all kinds of stickers but zero text. Because all these three participants were recalling past experiences when referring to sticker competitions, we were unable to investigate this practice real-time. According to their descriptions, however, we can see the potential for mobile communication to involve mainly stickers, without explicit need for text. We note, however, that such sticker competitions need users to be relatively familiar with the stickers he or she has. Of course, users must also be fans of stickers for this level of use.

Democratized Stickers

Stickers, unlike emoji, have greater flexibility. As mentioned in the previous section, WeChat supports users in creating custom stickers elsewhere and uploading to WeChat for communication and exchange. Therefore, the content and design of these custom stickers is entirely under the creator’s control, not WeChat’s. A few participants took advantage of this flexibility and democratized stickers in one form or other.

Creating One’s Own Stickers

Two male participants, P24 and P25, were so enthusiastic about using stickers that they started creating their own stickers. P24, who likes to build things, made a custom sticker to create an animation of his work, so he could share it with others more easily. He used a mobile application called *Meitu Xiuxiu* to shoot a short video and transmit it as a gif. After that, he imported the gif as a custom sticker into WeChat, a process he described as “convenient.” P25, somewhat differently from P24, made multiple stickers based on the ordinary smiley that we discussed above as the “mysterious smile.” In fact, P25’s idea of creating his own stickers came from the alternative interpretation of “mysterious smile.” He explained:

“This emoji is very magical, this ‘mysterious smile.’ All the ones I created were based on it. There are plenty of resources online, so I just downloaded the first emoji and used it as a base and then worked on it in Meitu Xiuxiu (a mobile application for editing images).” (P25)

He told us how he did not expect people to use his stickers at the beginning, but found that they were soon being circulated by his friends. Together, these examples demonstrate how when users have been actively engaged in using stickers, they turn to creatively making their own and find ways to replace textual representations with their own creations.

Erotic Stickers

Sometimes during an interview, we would request or be given a chance to take a look at the stickers participants used and saved. When scanning their lists of custom stickers, we occasionally found them saving erotic stickers that presented pornographic visual elements in one way or another. For instance, some of them included graphic representations of a penis, while others were snippets of adult videos. P5, P25,

and P26 were the only participants that were willing to openly discuss erotic stickers with us. While P5 initially hesitated to show his custom erotic stickers, he eventually opened up and handed us his phone. P25 claimed he did not save any erotic stickers, while P26 said he saved them just for keeping them – not for circulating them, the same as P24. While most of these participants were young men in their 20s, there was one exception: P16, a rural villager in his 40s, told us that most of his custom stickers were saved by his daughter. There was a visible gender divide here, since not a single female participant saved erotic stickers. P1, who had recently retired as a teacher, told us how disgusting it was when her male peers sent erotic stickers in WeChat groups: “*Only those naughty guys send them.*” (P1)

Because the dissemination of pornographic content is not allowed in China, either online or offline, it can only exist in the form of custom stickers that are made, uploaded, and disseminated by individual users. To the best of our knowledge, these custom stickers are not monitored by Tencent and are thus freely circulated on WeChat, allowing enthusiastic users the freedom to create and share stickers of their choice. P12 mentioned that there were groups in which people would exchange erotic stickers without using a single word – “*Why bother, since no text is needed?*” The use of custom stickers for pornographic communication is apt since they offer versatile pictorial representations.

A Magical Custom Sticker

One rural participant, a young woman (P15), was happy to talk to us and told us she owned two smartphones. While one was on charging, she showed us the other one. She mentioned that she was not very into stickers but often used emoji: “*I’m a mother and I don’t have time to play around with those stickers.*” She also described how she conducted her small business via WeChat. We noticed that the last custom sticker on her list looked more like a screenshot than a regular sticker. When we asked what it was, she clicked on it to show us that it was in fact an instructional sticker for teaching people how to change an iPhone setting: “*Some iPhone users don’t know how to add the platform (an application her business used), so we will send it to them, as it illustrates the procedure for changing the setting pretty clearly.*” We present an example here with this instructional sticker, demonstrating that these graphical representations embedded in online communication can effectively convey information without relying excessively on text. This is also an area that we believe future HCI research could focus on.

Non-Use of Emoji

Two interview participants told us that they did not use emoji. P7 and P10, both retired, chatted daily with friends and family on WeChat. Even though we found that they both had saved stickers on their phone, they told us firmly that they did not like emoji and refused to use any:

“Texts and audio messages in WeChat already convey meaning. To add emoji is redundant, not necessary. I like brevity. Many of these emoji are small, crammed in a single screen. Their differences are nuanced, so sometimes they may be used wrongly. With just a round

face, they are also monotonous without much novelty. Audio and text can express meanings completely. They are not necessary.” (P10)

P7’s attitude towards emoji was similar. She told us she never liked using emoji. She used text to communicate for any formal communication because it was clearer. Apart from P7 and P10, some younger participants also shared that though they still used emoji, they had started using some stickers. P29, a user experience designer, had a lot of stickers on her phone, but said she could not figure out which to use:

“Whenever I want to send a sticker, it takes me such a long time. If they are convenient to manage or if I’m able to find the sticker very quickly, then I will probably use them. It doesn’t do a good job right now so I don’t want to use them. The order of these custom stickers cannot be rearranged. If I use these ten stickers very often, I should be able to move them to the top.” (P29)

P25 echoed P29’s views by adding that it could be troublesome to locate a sticker, because one page could only show eight stickers but 23 smaller emoji. In addition, emoji were more straightforward and widely understood, while stickers were too diverse and often required context.

DISCUSSION

Our findings highlighted the widespread adoption of emoji and stickers in WeChat and how the use of these non-textual elements in mobile communication also signals the lessening dependence on text. Although some of our findings are consistent with prior studies that show emoji/stickers to supplement text [8, 30], we also highlight how these embed additional rich and culturally relevant information. This rapid and multi-faceted proliferation of emoji/stickers in mobile communication carries important implications for several areas of interest within HCI, as we discuss below.

In Support of Text

We discussed earlier that emoji are frequently used to display non-verbal clues and supplement text. Our study participants mentioned how emoji helped them to better express their emotions and supported the text in their messages for more accurate and effective communication. Scholars including Derks et al. [7], Lo [30], and Dresner and Herring [8] have argued for giving importance to non-verbal cues in online communication. In addition, there is P15’s example of a custom sticker used for its instructional value. Given prior work and our findings, we believe that emoji/stickers might be leveraged to compensate for the lack of non-verbal cues in text-based exchanges and/or to simply convey meaning more effectively. HCI research addressing the design of user interfaces for populations that are less literate, such as Medhi’s [57], could build on our findings to examine the role that emoji/stickers might play to augment text-based communication among this population by allowing for diverse pictorial representations. With the gradually lessening dependence on text that we found in our study, and rapidly growing penetration of smartphones worldwide [50], leveraging emoji/sticker use might carry powerful implications for a growing group of users. This is an area we intend to explore with future work.

When Text is Incomplete

Our participants discussed how emoji/stickers could complement text to convey behaviors, actions, and attitudes, e.g., for modulating tone. In these cases, a complete intended meaning is only conveyed when pictorial elements are included. We saw several instances of this. For example, P19 shared that she added emoji to ensure that her texts were correctly understood by her audience. Also, since the Chinese language is complex and nuanced [5], the presence of emoji/stickers can compensate for the subtlety of messages, particularly on a text-based communication medium. Several languages other than Chinese, such as Indic languages, tend to require considerable effort from the user for the input of text. Aging users might also find it challenging to enter text on small phone screens. In these scenarios, emoji/stickers could be leveraged for a smoother user experience.

Sometimes, less text may be preferred. In the case of certain vulnerable populations operating amidst significant social stigma, such as people living with HIV or sex workers, pictorial representations can help to make communication more palatable and less intrusive as necessary. Sambasivan et al. described a deployment that sent medical testing advertisements to urban sex workers [48]. In contexts such as these, since the content of these messages is sensitive, exchanges must take place in discrete fashion and with regard for the comfort levels of the audience. Sorcar et al.’s approach in [52] highlights the value of carefully designed pictorial representations in communicating taboo topics.

Certain emoji are already commonly used in research and feedback instruments such as surveys, forms, and diary studies to make responding easier [9, 22]. This practice could draw on our findings to design instruments that make the process of data collection less tedious by including more pictorial representations that are familiar, diverse, and packed with meaning. This might mitigate barriers that hinder reporting.

Outside of Text

There are multiple facets to communication that lie beyond the realm of text. We found our participants took great pleasure in using emoji/stickers for personalizing their communication or for cultural exchanges in ways that would not have been possible with text. The sticker competitions highlighted an extreme scenario of how these exchanges could take place entirely without the use of text. The most active exchange of “red envelopes” that we witnessed also attests to high levels of engagement during acts of cultural production. Our participants also derived happiness from generating and/or appropriating pictorial representations that allowed them to develop their own identities in ways that they valued.

There are real-world scenarios where communication may need to convey silence and individuals may wish to convey silent consent or silent dissent to avoid uncomfortable situations. Young adults might be expected or feel pressure to listen to elders without stating their opinions. This might also be true for work scenarios where junior employees need to show deference to higher authorities. In such cases, emoji/stickers may be actively leveraged to add nuance to communication and fill in for the absence of appropriate words.

Our research highlights these prevalent, non-textual dimensions to mobile communication and how examining user-generated and/or culturally relevant emoji and stickers could bring additional, desirable meaning to communication that is primarily text-based. Appropriately factoring these dimensions into technology design within HCI could make interactions more rich and meaningful, as our findings demonstrate.

CONCLUSION

We presented a qualitative study of non-textual mobile communication practices in Southern China. Studying the rapid proliferation of emoji and stickers in WeChat use, we also examined the trend of lessening dependence on text. Using interview and observation data from 30 participants, we investigated how rural, small town, and urban Chinese adults creatively and innovatively use non-textual elements in their communication. We drew on our findings to discuss implications of our research for mobile-communication focused technology design in the field of HCI. These include considerations for scenarios in which emoji and stickers could be leveraged to augment existing text, compensate for text that is incomplete either due to concerns around social stigma or because it is tedious to type in certain languages, or replace text altogether. Our study is the first to qualitatively examine in-depth the widespread adoption and appropriation of both emoji and sticker use in a particular cultural context. Future work could explore this phenomenon in disparate contexts and go deeper to focus on incorporating these non-textual elements into technology design, possibly in tandem with audio and/or other modalities as well.

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