Emojis in Textual-Based Communication Among College Students: A Study in Perception and Frequency

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Abstract. Emojis have revolutionized text-based communication as we know it as users employ this personal utility to add nuance and avoid miscommunication in inflectionless text. Emojis express a more diverse and deeper span of emotions than traditional text-based communication. This study will focus on frequency and perception of emojis in traditional-aged college students (ages 16–28). As a young and technologically heavy-user generation, who see themselves as drivers of personal technology trends, college students make a good population study in this area. This interdisciplinary study applies Linguistics to HCI to further technological advances in emoji development and maintenance.

Keywords: Emojis · Text-based communication · College students

1 Introduction

The advent of technology has brought with it a myriad of developments with one of the most notable advancements being the introduction of social media. Social media has been used over the past decade for a broad range of activities from communication through to the mobilization of masses for a cause. Communication has been streamlined to a point in which people rely heavily on their mobile phones for updates on everything. In order to keep the users interested in their services, developers introduced emojis to represent users' emotions. With emojis, one can be more expressive in the conveying what and how they feel through text-based communication.

The history of emojis dates to the end of the 20th century, with the first case of the emoji being integrated in Japan. Gradually social media companies integrated emoticons into their platforms with the main benefit being the rich set of a graphical representation of activities, animals, emotions addenda to other things (Hakami 2017). Emojis have become vital in helping the reader comprehend the message as traditional text messages are often misconstrued. Summations drawn from research demonstrate that nearly 15% of tweets analyzed from the year 2014 through to 2015 had emojis in them (Chen 2017).

The efficacy of emojis has been a subject of debate for Human-Computer Interaction specialists with most trying to decipher the sentiment lexicon that helps in determining which emojis users choose. Research by Hakami (2017) indicates that the use of emojis helps in the determination of the kind of mood or attitude. Additionally,

sentimental analysis has become key to understanding emojis with an influx in emoji usage leading the decrease in the use of abstruse short words like "lol" or "rofl" which hinder the process of human-computer interaction.

Furthermore, additional research by Hakami (2017) exploring the frequency of emoji use found that emojis account for at least 19.6% of messages transmitted over social media by 37.6% of social media users. These figures derive from a dataset comprised of 8,489 Twitter users with a reported 62.4% of users not implementing the use of emojis. Additionally, distribution statistics from Chen (2017) show that 2% of Twitter users employ emojis in nearly every tweet without an emoji while 5% insert emoticons in half tweets. Therefore, while emojis users are a minority of Twitter users, those who do use emojis tend to use them heavily.

From a global perspective, the emojis are used most frequently in Indonesia, where emojis accompanied tweets by Twitter users 46.5% of the time with South Africa having a comparable 36.7% usage rate. Comparatively, the United States, which developed pictograms has a higher percentile of 11%. Hakami's large dataset, covering multiple nations, clearly points to the cultural impact on user's inclination to use emojis. While this study focuses on the United States, we plan to extend the research to other nations in the near future, extending beyond Twitter to include culture-specific Platforms such as WeiBao in China.

2   Literature Review

Emoji are text-sized graphics used in digital, text-based communications platforms used on personal computers, tablets, and smartphones for text messaging, Facebook, Instagram, Twitter, etc. Furthermore, emojis can be found in the more traditional tools such as Microsoft Suite and email, providing options to include facial gestures, animals, objects, and a wide variety of other symbols and expressions in text. They are much like emoticons, however, emojis consist of pictures instead of typo-graphics. Japanese designer Shigetaka Kurita invented emojis in 1999 (Lebduska 2014) while working on the i-mode mobile internet platform of NTTDoCoMo (Blagdon 2013). The inspiration for the invention was symbols, which are used in weather forecasts, Chinese characters, as well as Manga street signs. Emojis gained significant popularity and were included in the Unicode system, with the Unicode consortium approving new sets of emoji, followed by Apple's support for emojis in their 2012 iOS 6 platforms. Now, emojis are strongly integrated into nearly every platform of today's communication spectrum.

It is important to also note that emojis have carved a niche into pop culture as well. In 2015, the Oxford Dictionary hailed emoji as the "word of the year." Emoji is currently considered the fastest growing language in the world. It is estimated that about 90% of the online population in the world tends to use emojis as they can convey irony, wit, joy, sarcasm, etc. They have evolved from flat images into 2D and 3D models and different forms which can include human faces and gifs. While there has been substantial evidence completed on emojis focusing on meanings and interpretations, our research takes a deeper and more comprehensive dive into perception and

frequency of emoji use among college students—including attention to variation between females and males.

Stanford linguist, McWhorter (2013) observed that cell-phone contained, text-based communication was then emerging as a fingered speech in which abbreviated syntax, acronyms, and typographic replace traditional non-verbal communicative features such as tone and facial expression. As text-based communication technology has evolved, swipe keyboards, predictive text, and speech-to-text functionalities have lessened, to a degree, the struggles that early texters had with syntax and spelling. However, the need for aesthetic contributions to fingered speech remain—and so, the emoji appears likely to endure in text-based communication.

Previous research from Barron and Ling (2011) investigated the use of emoticons in electronically-mediated communication (EMC, which includes digital and computer-mediated communication, such as online chats) through analyzing adolescents' focus group data of text messages. New EMC tools, including emoticons and similar cues "lend an oral tone to the messages" and that approximate "intonation features or facial features" are comparable to face-to-face conversations (Baron and Ling 2011). The study suggests that using emojis and the like have a structure and purpose—to fulfill non-verbal and intonation gaps in digital communication.

Additionally, research regarding perceptions of the emoji in textual-based communication of female listeners from Kabir (2018) found that women use emojis in accordance with gender norms and cultural practices. Furthermore, this was an indication of how society maintains communication styles.

3 Methodology

To begin to understand the behavior and usage of emojis by college students in the United States, a simple cluster survey consisting of seventeen questions was distributed to ninety-one respondents. The survey was specific to frequency, usage, and perception and was unbiased as well as representative of the university. Based on the findings from the survey, we conducted open-ended interviews with two couples, one same-sex couple and one heterosexual couple and studied secondary data on the subject from various sources including websites and relevant research articles done in the past. The open-ended interview was conducted on two couples in a romantic relationship. Additionally, both couples are college students in the United States between the ages of 16–28 and both couples consented to research conducted on their usage and perception of emojis.

We were able broaden our understanding of how emojis are used in interpersonal communication and how emojis and text can vary within gender regarding relationship and age. Furthermore, by conducting the interviews we were able to get a better understanding of emojis as a universal language in terms of communication and how users (using textual-based communication methods) communicate more extensively and in greater detail based on context and relationship.

3.1   Analysis

Interview. From the open-ended interview, we found that the couples each communicated multiple times per day. Couple one (Respondent 1 and Respondent 2) estimated that they sent roughly 150 messages per day while couple 2 (Respondent 3 and Respondent 4) estimated that they sent roughly 200 messages per day. Each message consists of one "send," including at least a single word or an emoji. When asked whether they use emoji consistently with each other in textual-based messages, couple one comprised of Respondent 1 and Respondent 2 both mentioned that they did, and that "Emojis make it easier to understand each other and interact. It is easier to be clear with each other" (Respondent 1 and Respondent 2, personal communication, 2019). Additionally, couple two comprised of Respondent 3 and Respondent 4 mentioned that they also felt as though emoji created a clearer understanding of the intended messages. In terms of whether the couples felt that emojis should be considered a universal language, Respondent 4 was quick to agree to state that his "cousins in Japan were able to understand his meaning, even though he is not very good at Japanese as he is American" (Respondent 4, personal communication, 2019).

Additionally, both couples (Respondents 1–4, personal communication, 2019) all agreed that emoji are the language of technology and thus, should be considered a universal language in that emoji are easier to understand, even when the sender is not entirely sure of how to send a clear message. Furthermore, the listener or receiver of the message is less likely to misinterpret the intended meaning if they have a clearer picture of what is intended. Furthermore, Respondent 1 noted that he used emoji approximately every 1 in 3 textual-based messages, while Respondent 2 mentioned that he used emoji an estimated 1 in 5 times. When asked for their usage, Respondents 3 and four said that they used emoji an estimated 1 in 3 times (Respondents 1–4, personal communication, 2019).

The couples in the real-life examples confirm the findings in the Literature Review that they express and understand digital messages more clearly with emojis. If they added an emoji "facepalm" (Fig. 1) (Respondent 3, personal communication, 2019) then it would be interpreted as a possible sign of exasperation. Similarly, if they add the emoji "face with rolling eyes" (Fig. 2) (Respondent 4, personal communication, 2019) then it would be interpreted as sarcasm or annoyance. Without emojis, the receiver may not be able to interpret the text accurately and respond properly as well. An interesting aspect of perceiving emojis is how the structure evolves and varies through usage. Baron and Ling (2011) noted from their study that EMC visual images are "punctuations" that are not taught in formal schooling. Instead, users "work out patterns themselves or adopt the punctuation style of their interlocutors" (62). I can see this formation of punctuations that change and differ across digital channels and groups. For instance, one of the subjects used mostly the "smiling face with smiling eyes" with their parents, which implies that they (the respondent) was happy (Respondent 3, personal communication, 2019). Formalization in communication structure according to an audience is comparable to FTF (Face to Face) communication. Furthermore, different kinds of emoji use indicate creativity and variation in use. Wijeratene (2017) studied the similarity of emoji use and determined that many people use the same emojis when they want to convey specific meanings and/or feelings. The same trend

was noticeable with real-life examples. One subject would use and receive numerous expressions of happiness, such as "beaming face with smiling eyes" and "tears of joy" from their friends, which are different than what is received from older family members (Respondent 3, personal communication, 2019). Emojis are live cues that can change alongside their users who drive their recognition and use.

Emoticons increased engagement and depth of conversations through boosting the interexchange of emotional experiences (Daud and McLellean 2016). Additionally, they react more emotionally when emojis are used, as if they could imagine the face of the other, and seeing these non-verbal expressions stimulated their emotional engagement (Respondent 2, personal communication, 2019). Anecdotal studies then illustrated how emojis could help increase participation and not necessarily simplify or make conversations less intimate (Participant 1, personal communication, 2019). The findings can be related to how college-aged students in the United States would perceive emojis with greater reaction as they mean something in regard to showing politeness and social connections. If they use emojis, it would suggest closeness and allows them to interpret sender intentions as accurately as possible for clearer, engaging EMC conversations and better relationship maintenance. As in, the more they used emojis, the more profound and extensive their conversations can become. Emoji use debunks the idea that chatting plus emojis is inferior to FTF conversations.

Since emojis enrich meaning and improve emotional interactions, the user interface is worth noting here since as previously mentioned, Stanford linguist McWhorter (2013) observed that cell-phone contained, text-based communication was then emerging as a fingered speech in which abbreviated syntax, acronyms, and typographic replace traditional non-verbal communicative features such as tone and facial expression. This makes it imperative to note that as text-based communication technology has evolved, swipe keyboards, predictive text, and speech-to-text functionalities have lessened, to a degree, the struggles that early texters had with syntax and spelling. Additionally, this has made the user interface of emojis much more simplified and user-friendly. However, the need for aesthetic contributions to fingered speech remain—and so, the emoji appears likely to endure in text-based communication and will continue to make a profound impact on user interface. Emojis are not only the whole way of expressing identity, but for users who see them as part of their "self," it underlines the importance of thee visual cues and grammatical structures to define the relationship between EMC and identity.

Fig. 1. "Facepalm"

Fig. 2. "Rolling eyes emoji"

Survey. Firstly, to understand the behavior of college students and their usage and frequency of emojis; a questionnaire was generated with approximately eighteen questions. Approximately ninety-one responses were acquired from users between the ages of 16–28 years of age that were college students in the United States. The

questions consisted of simple demographical information, frequency, usage, and inquiries about the communication efficiency that were impacted by emojis. Additionally, the survey was distributed on the University of South Carolina Upstate's campus in Spartanburg, South Carolina as well as electronically on social media, organization-based chat applications, classroom distribution and through word of mouth. From the survey, fifty-nine females and thirty-one males were surveyed, with one respondent preferring not to disclose gender. From the genders that were surveyed, the age results were oddly skewed in response, with most of the female respondents being between the ages of 20–23 and 28 and older, which indicates that female students 20 and older are heavy users of emojis (Fig. 3).

Age Group * Gender Crosstabulation

Count

		Gender			Total
		Female	Male	NA	
Age Group	16 to 19	8	7	0	15
	20 to 23	25	15	0	40
	24 to 27	6	3	1	10
	28 or older	20	6	0	26
Total		59	31	1	91

Fig. 3. Age group gender crosstabulation

From the gender crosstabulation results (Fig. 3), we analyzed the perception of emojis based on age. Approximately 93% of users between the ages of 16–19 felt that the interpretation and usage of emojis vary slightly from person to person, whereas 47% of users 16–19 felt that it is easier to express feelings with emojis. Comparatively, users ages 20–23 had similar results with 75% of respondents believing that interpretation and usage of emojis varying slightly from person to person. However, perhaps the most surprising results came from respondents ages 24–27. Approximately 70% of respondents ages 24–27 believe that it is easier to express feelings with emojis with 40% believing that interpretation and usage of emojis varies slightly from person to person.

Perception, a key concept in the utilization of emojis was arguably the most important component of the survey distributed. As noted in Fig. 4, respondents ages 16–19 and 20–23 were the majority in the belief that emojis help alter the perception of the intended meaning. More interestingly, 40% of users between the ages of 24–27 believed that emojis do not alter the intended perception of a message. It is important to note that users aged 28 or older that were surveyed only had an 11% difference in beliefs that emojis alter perception.

Perception Vary by Age Groups

28 or older — 54% / 65%
24 to 27 — 70% / 40%
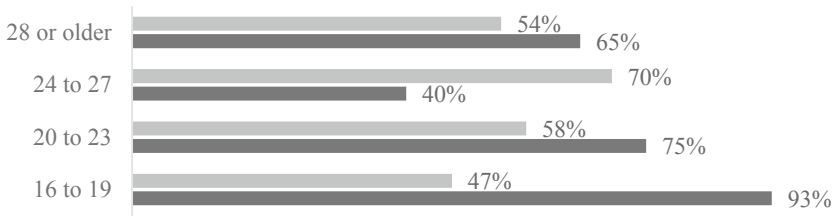20 to 23 — 58% / 75%
16 to 19 — 47% / 93%

Fig. 4. Perception vary by age group

Emojis as a universal language is crucial to HCI development as it creates the understanding that emojis are a graphical tool that can be "spoken" and understood on a universal language, without having to learn the language as it is self-taught and interpreted. Respondents of the survey were asked if they felt that emojis were a universal language. Depending on their frequency of usage, they were rated on a sliding scale of 1–10 (Fig. 5). Respondents, when asked how often they used emojis, would respond "Always," "Usually," "Sometimes," and "Rarely." The respondents would then rate on a scale of 1–10 whether they felt that emojis were a universal language. Surprisingly, respondents who answered that they "always" use emojis responded that on an average of 8.7, they believe that emojis are a universal language. Respondents who answered that they "rarely" use emojis were the lowest in ratings, having an average 6.7 in their belief that emojis are a universal language. However, this is still important as even though they aren't heavy users of emojis, they still believe on a small scale that emojis are a language.

Emoji as a Universal Language (Rating)

■ Emoji is an universal language (Rating)

Avg. Rating

Always 8.7   Usually 8.5   Sometimes 8.6   Rarely 6.8
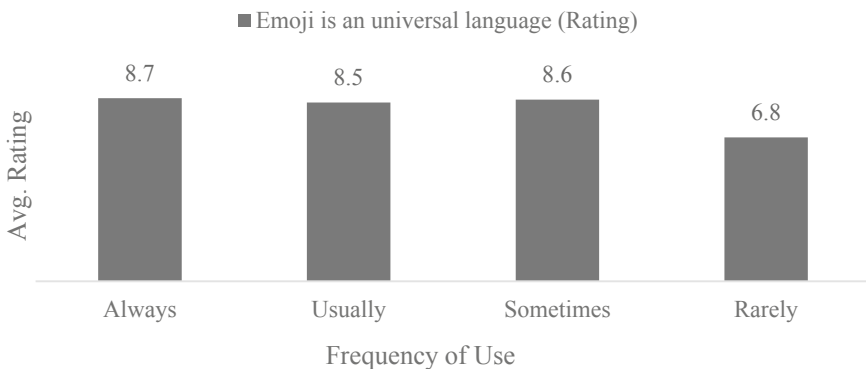
Frequency of Use

Fig. 5. Emojis as a universal language (rating)

Respondents were also asked about the top three emojis that they most frequently used. The respondents were surveyed on approximately 100 emojis that are currently in the Unicode Consortium. Of the 100 emojis featured in the survey distributed, the top three choices were "Face with Tears of Joy," "Face Blowing a Kiss," "Smiling Face with Heart Eyes" (Fig. 6). Additionally, an overwhelming 65% of respondents chose "Face with Tears of Joy" as their most frequently used emoji while an underwhelming 27% and 24% of respondents chose "Face Blowing a Kiss Emoji Name" and "Smiling Face with Heart Eyes."
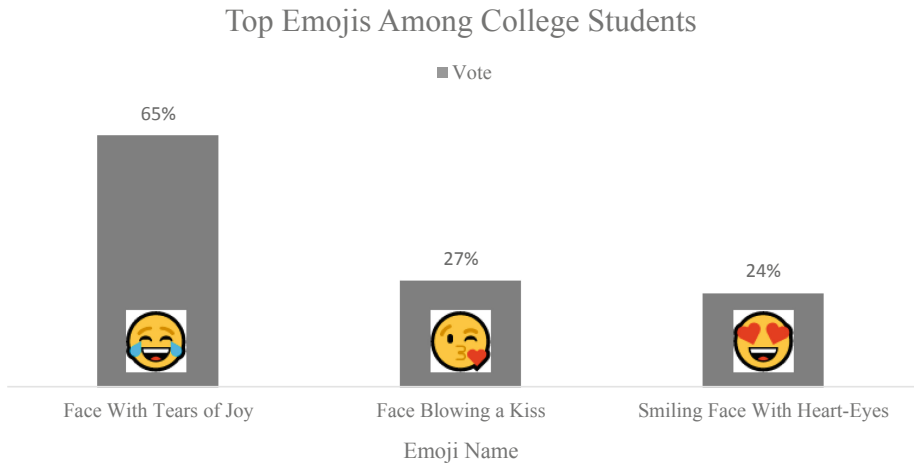

Fig. 6. Top emojis among college students

4 Conclusion

College students use emojis in accordance with their gender norms and cultural practices, an indication of how society maintains communication. The prevalence of using emojis as a form of increasing emotionality in language and to compensate for the absence of nonverbal cues in digital text underscores how college students speak through emojis. Furthermore, culture shapes gender and communication beliefs and practices. If the culture is collective and values communication that is respectful and emotion-laden, then women would tend to use emoticons accordingly. Culture and gender intersect in shaping how college students use and perceive emojis. Additionally, the most surprising data that was received from the respondents was that an overwhelming 85% of respondents rated an 8 or higher on a scale of 1–10 that emojsi are a universal language, which changes the perception of how emojis are used to communicate. The perception of emojis will not only alter the perception of emojis, but how user interface is developed and evolves to better use emojis.

With better communications comes better relationships, therefore proper and frequent emoji use may also boost individual/couple happiness and relationship satisfaction. College students can use emojis with confidence that their real intended

message meaning is getting across, even if other communication skills are lacking. Additionally, people do not have to guess what the sender intends to say if emojis are present. Moreover, emojis can enhance politeness and help people avoid wording that may instigate conflict. They can be used for saving face or interpreted as saving face, a new grammar for emotional, but controlled, EMC expressions. Emoji use and prevalence can bridge the gap between absences of non-verbal cues in EMC and the desire to be adequately understood, resulting in possibly greater communication effectiveness as well as happy individuals and relationships.

HCI, while constantly in an evolving and developmental state has a profound impact on how emojis are used from a user-interface standpoint. Since emojis are often touch based on smartphones, usability is crucial in how often and frequently emojis are used. As smart phones and technology further in development, more emojis are released on a frequent basis in technological software updates to user systems. It is necessary to understand that emojis will have a permanent fixture in technology as it advances.

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