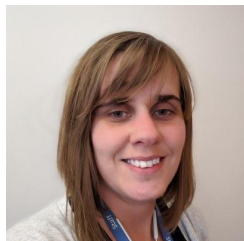# Uncover the Hidden Challenges of Using Emoji

Garreth W. Tigwell
garreth.w.tigwell@rit.edu

Rochester Institute of Technology

Benjamin M. Gorman
bgorman@bournemouth.ac.uk

Bournemouth University

Rachel Menzies
r.menzies@dundee.ac.uk

University of Dundee

TAKE HOME MESSAGE

We need to change how emoji are used and created to stop barriers in communication

Emoji Popularity

Updating Annually

Emoji Confusion

Nathan Park   Very sad to hear. It's terrible to lose a pet...BUT Molly's memory will live on in your work RIP Molly 🩷😂

Like · Reply · 1 hr

Unicode characters

Group	face-smiling
Code	U+1F602
CLDR Short Name	Face with Tears of Joy
Attributes	modifier_base (skin tone) gender_base (gender)

Rendering of Unicode characters

iOS 8

Android 5

iOS 13

Android 10

Rendering of Unicode characters

20 minutes ago

Rendering of Unicode Characters

□ Smiling Face with Tear
□ Disguised Face
□ Pinched Fingers
□□ Pinched Fingers: Light Skin Tone
□□ Pinched Fingers: Medium-Light Skin Tone
□□ Pinched Fingers: Medium Skin Tone
□□ Pinched Fingers: Medium-Dark Skin Tone
□□ Pinched Fingers: Dark Skin Tone
□ Anatomical Heart
□ Lungs
□ Ninja
□□ Ninja: Light Skin Tone
□□ Ninja: Medium-Light Skin Tone
□□ Ninja: Medium Skin Tone
□□ Ninja: Medium-Dark Skin Tone
□□ Ninja: Dark Skin Tone

Alternative Use for Emoji

Emoji are a Visual Language

36 million blind people worldwide

217 million have a moderate to severe visual impairment

Emoji Accessibility

Emoji Accessibility

Taco, Grinning face with cowboy hat, Chili pepper, Horse head, Taco, Party face with a party horn hat and confetti, Happy face with hugging hands, Chili pepper, Grinning face with cowboy hat, Running horse, Smiling face with glasses, Taco, Chili pepper, Running horse, Taco, Horse head, Grinning face with cowboy hat, Chili pepper, ONE DAY, Running horse, Party face with a party horn hat and confetti, Chili pepper, Happy face with hugging hands, Taco.

Research Studies

Online questionnaire
- 29 open and closed-ended questions
- 58 visually impaired participants

Challenges of Emoji

Searching for Emoji

P4: "...*hard to find the one [to] represent what I mean*"

Challenges of Emoji

Technology

P44: "*Sometimes if you miss click an emoji it might get weird. Like if you send a* ❤️ *to someone you'd never send a heart to and then have to explain it was an error, which also might be weird.*"

Challenges of Emoji

Visual Design

P28: "*Some emoji [are] useless or just have a bad design (I was told the 'pray' emoji 🙏 is actually a 'high five').*"

Challenges of Emoji

Context

P9: "One example is the peach emoji 🍑, I have never used it myself, but only recently became aware that it's generally accepted to be a butt."

Research Studies

Online questionnaire
- 29 open and closed-ended questions
- 58 visually impaired participants

Screen reader user interviews
- 1 hour interviews
- 11 screen reader participants

Output from Technology

P4: " JAWS describes 😫 as 'face with look of triumph' while Voiceover describes it as 'huffing with anger face' and according to my sighted brother, Voiceover's description is more accurate."

Emoji Descriptions Can Hinder Communication

P2: *"The labels are okay, though a little too verbose at times."*

Poor Use in Context

P7: "Try listening to 'cat with heart shaped eyes fireworks sparkles watermelon kissing face flag of Andorra' a few times in a row and you get the frustration."

Poor Use in Context

> **Rail Company**
> @official_railcompany
>
> ⚠️**#Waterloo** - ℹ️🔊GWR Customers: Lines reopened between Woking and Waterloo ⁉️🟧🚄Train services at these stations are returning to normal but may still be cancelled or delayed.Disruption expected until 16:30 🕖

Cultural Differences

P8: "imagine you're totally blind, you'd never seen the gesture. So that has to be learned. You can write 'no' or 'bad' etc. Choosing to send a pictorial representation of a negative feeling may pose more of a challenge."

"It's a bit frustrating and depressing. I don't follow many people and it's sad to suddenly be shut out of content or a conversation solely because of a text decoration trend."
– **P6**

Best Practice When Using Emoji

Number of Emoji

"So funny! 😂 😂 😂 😂 😂 😂" vs. "So funny! 😂 😂 😂"

Placement of Emoji

Placement of Emoji

Avoid placement at the beginning of a sentence.

Context of Emoji

Do the emoji make sense within the context?

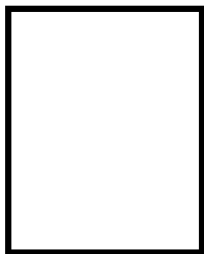✋ "hand with fingers splayed"

😷 "face with medical mask"
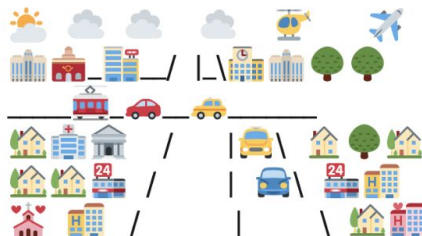
↔️ "left-right arrow"

Purpose of Emoji

Probing cane

~~White cane~~

Consideration of Reader

Recommendations for Future Emoji Releases

Recommendations for Future Emoji Releases

1) Emoji Descriptors

2) Facilitating Emoji Use

3) Platform Visual Differences

4) Unsupported emoji

5) Diversity in the Design Process

TAKE HOME MESSAGE

We need to change how emoji are used and created to stop barriers in communication

Thank You