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Empirical study on emoji usage as feedback strategy in dialogue

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Table of Contents

List of Tables

1. Introduction

In this thesis, I explore eliciting feedback utterances in instant messaging (IM) dialogues as well as investigate the use of emojis specifically as feedback strategies in IM communication platforms such as WhatsApp. The rationale for this investigation is that previous research has mainly focused on the feedback utterances in spoken dialogue and a search of the relevant literature revealed little research on eliciting feedback utterances in online chats. Besides that, on the use of Emoji, previous research focused mainly on syntax and semantic level, especially emojis in text; the use of emojis independently as a feedback strategy in conversations was rarely mentioned. I was motivated by this gap and wish to make my own contribution to this field in the scope of my thesis.

I investigated this topic by designing two explorative studies using online IM communication simulators. For the purpose of the first study, I aimed at exploring feedback utterances in IM and creating a corpus of eliciting feedback utterances in IM on a textual level. During the second study, I collected data about interpretations of emojis when used as feedback strategies.

By comparing the data, I finally drew the conclusion that emojis can be used as feedback utterances, under the condition that the addressee is able to fully recognize and adopt the speaker's intention. In the case of failed intention recognition or adoption, emojis can substitute some textual feedback utterances, such as utterances that indicate disbelief.

1.1 Background

With the continuous development and innovation of Internet technology and chat software, people have become very comfortable with daily communication and information exchange through IM software such as WhatsApp or Messenger. Unlike face-to-face communication, where the

speaker can get non-verbal information such as gesture and mimic from the hearer, communication with IM is mainly based on text level. It is thus crucial for the success of communication that the speaker receives and understands feedback utterances from the addressee. The first purpose of this thesis is to answer the question: what eliciting feedback utterances can the addressee use as evidence of understanding or trouble in understanding in IM dialogue?

Besides that, compared to traditional letter writing or SMS (Short Message Service) texting, IM chatting can use emojis or emoticons to offer people more possibilities to express their emotions. Emojis appear almost everywhere in our daily life; they are found in online articles, advertisements, and news and are used by numerous people in their chatting software. Although emojis provide a new modality of communication, differences in how they are used and understood still leads to possible barriers in communication. Thus, I also aim to answer the following question: can emojis be independently used as feedback strategies in online communication? What feedback information can an emoji convey when uttered as feedback? And how are emojis differently interpreted by different people?

1.2 Structure of this thesis

To explore this topic further, I first discuss feedback utterances in general, including the notion of feedback and feedback in spoken conversations. I also review different classifications of feedback utterances as well as feedback in IM in the literature. Section 3 presents in detail the terms used for emojis and their usage in IM, as covered by the literature. In section 4, I present the four questions concerning textual feedback utterances and the use of emojis as feedback strategies in IM dialogue to be investigated in this thesis. These questions determined the design and framework of my two experimental studies, which I present in detail in the section 5, where I also discuss the data

collected. Finally, before summarizing the key results of this thesis and my observations in section 7, in section 6, I compare and analyze the data from both experiments with respect to my research questions and the existing literature, and presents the limitations of my experiments and recommendations for future research based on my current data.

2 Feedback in dialogue

2.1 The notion of feedback

Successful and real-life conversations require coordination from both interlocutors. The speaker must ensure that he is being attended to, heard, and understood by the other participants, and the participants need to provide such evidence for the speaker (Clark & Schaefer 1989:259). In monologs, the speaker presents their utterance autonomously and without any kind of interaction. However, in conversation, Clark and Schaefer (1989) argued that the success of the presentation phase and acceptance phase are the two key points at which a speaker and partner reach their joint goal in conversation, which is that the speaker's contribution to the discourse is added to common ground. During the acceptance phase, evidence provided by the hearer which indicates that the latter has understood what the speaker meant by producing the utterance is called evidence of understanding by Clark and Schaefer (1989) and positive evidence by Brennan and Hulteen (1993). Evidence that proves the failure of the acceptance phase is called evidence of trouble in understanding (Clark & Schaefer 1989) or negative evidence (Brennan & Hulteen 1993).

The state of understanding of the conversational partner is the key factor in determining whether the acceptance phase is successful. According to Clark and Schaefer (1987: 268), the possible four states of addressee B in response to utterance U uttered by speaker A are:

State 0: B did not notice that A uttered any U.
State 1: B noticed that A uttered some U (but was not in state 2).
State 2. B correctly heard U (but was not in state 3).
State 3: B understood what A meant by U.

A level of action by speaker A corresponds to each state of addressee B. Clark (1994: 244) argued that there are four levels of action:

Level 1: Vocalization and attention.
Level 2: Presentation and identification.
Level 3: Meaning and understanding.
Level 4: Proposal and uptake.

Speaker A is obligated to gain B's attention on the first level. As for the second level, A must be sure that B has identified the U presented by A. A further level is meaning and understanding, where A ensures that B understands their intention by U. And at the highest level, B commits to the joint project. For each level of communication, addressee B should provide evidence of reaching that level; in the case of negative evidence or lack of evidence, speaker A should develop strategies to manage the problems.

For the purpose of this paper, feedback in dialogue refers to the evidence provided by the addressee that illustrates their degree of understanding, which helps the speaker decide the further course of the conversation. Feedback strategies used by the addressee vary depending on his status of understanding.

2.2 Feedback in spoken dialogue

The basic mode of language is face-to-face dialogue (Clark 1996). Thus, feedback in spoken dialogue is an essential part of feedback in general. As described above, the acceptance phase is one of the fundamental bases for the speaker and addressee to reach their joint goal. Clark and Schaefer (1989) argue that the acceptance phase is usually initiated by the addressee, who gives the speaker evidence of understanding. Here, I adapt the classification

of evidence given by Clark and Schaefer (1989), which is *evidence of understanding* and *evidence of trouble in understanding*.

2.2.1 Evidence of understanding

Clark and Schaefer (1989: 267) defined the five main types within the evidence of understanding frame as:

a) Continued attention, which means that by uttering evidence, the addressee B shows that he is continuing to attend and therefore remains satisfied with A's presentation.
b) Initiation of the relevant next contribution, by which B starts in on the next contribution that would be relevant at a level as high as the current one.
c) Acknowledgment, B nods or says "uh huh," "yeah," or the like.
d) Demonstration, B demonstrates all or part of what he has understood A to mean.
e) Display, B displays verbatim all or part of A's presentation.

Allwood, Nivre, and Ahlsen (1992) shared a similar understanding of reaction types, namely contact, perception, understanding, and attitudinal reactions. Allwood et al. (1992: 5) defined contact as "willingness and ability to continue interaction" which corresponded to the definition of continued attention by Clark and Schaefer (1989). Perception means that the addressee is willing and able to perceive expression and message. The willingness and ability to understand expression and message is defined as understanding, which is defined by Clark and Schaefer as acknowledgement. And attitudinal reactions described willingness and ability to give other attitudinal reactions to expression, message, or interlocutor (Allwood et al 1992: 5).

Schegloff (1982: 73) argued that discourse should be treated as interactional achievement, and organization of participation in the conversation is considered the character of this accomplishment. One mechanism for the achievement is the occurrence of the vocalization of "uh huh," "mm hmm," and "yeah," as well as non-verbal gestures such as nods made by the

addressee between two adjacent utterances uttered by the speaker. Thus, “uh huh” and “mm hmm” could be considered as evidence indicating acknowledgement according to Clark and Schaefer (1989). Schegloff also suggested the multiple uses of response tokens; for instance, repetitive use of the same response tokens by the same addressee could be interpreted as a signal of absence of interest.

Following Schegloff, Gardner (1998) suggested three minimum response tokens: “Mm,” “Yeah,” and “Mm hm” as back channels that vocalize the understanding of the addressee. “Mm,” a weaker acknowledgment than “Yeah,” is considered the minimal response to immediately preceding talk that allows for any subsequent action. “Yeah” is typically used as a response token that expresses acknowledgment with implications of agreement or affirmation (cf. Gardner 1998: 213). “Mm hm” is a continuer that conveys the functional meaning that the addressee is ready for the current utterance to continue, when there is some sense of non-completion (cf. Gardner 1998: 211).

Stubbe (1998) presented an intercultural use of supportive verbal feedback in communication by comparing the response of Pakeha and Maori, two groups of listeners in conversational New Zealand English. She compared neutral, minimal responses that are interactionally supportive but convey no personal judgment, such as “mm,” “uhuh,” and “yeah,” and supportive minimal responses that signal the involvement of the addressee, for instance “oh gosh.” Stubbe found that, although the context in which response tokens are used varies, different groups might use a similar range of strategies to perform the same interactional work.

Taking this type of investigation one step further, Bell and Gustafson (2000) distinguished feedback in dialogue using three parameters. Under the first, evaluation, expressions such as “good” and “yes” were considered positive

while “no” and “too bad” were negative. The second parameter is explicitness and implicitness. Feedback utterances that expressed a clear and direct opinion of the addressee was labeled as explicit, for which Bell and Gustafson gave examples: “that’s great”. Feedback utterances such as “mhm” and “aha, all right” tended to be a less direct way of giving feedback and were defined as implicit (cf. Bell & Gustafson 2000: 3). Attention and attitude were used as a third parameter to describe the addressee’s receipt or attitude.

In addition to nonword vocalizations such as “mm” and the most researched words to date, “yeah” and “no,” McCarthy (2003) focused on the most frequent lexical words in British and American English. According to McCarthy, the frequency and use of nonminimal responses such as “right,” “true,” “exactly,” and “wow” were similar in both American and British English. These responses proved the attention of the addressee and served as the feedback necessary for the speaker.

Hömke, Holler, and Levinson (2017) observed through their experiment that non-verbal signals, such as eye blinking, can also be seen as feedback strategies in conversation. They proposed that “short and long addressee blinks appear to fulfill partially different functions.” (Hömke et al. 2017: 66) The addressee uses long blinks for social communication, including to display continued recipiency and reduce the speaker’s cognitive load. Short blinks tend to co-occur with other types of feedback, such as nods, mutual gaze, and vocal response, and appear less frequently.

There is a considerable amount of literature on the feedback produced by the addressee in spoken dialogue. It has been proved that non-verbal gestures such as nodding and eye blinking, nonword minimal responses such as “mm” and “uhuh,” and the lexical words “good” and “true” can be used by the addressee as evidence of understanding and, in particular situations, can also show the addressee’s personal evaluation.

2.2.2 Evidence of trouble in understanding

Clark and Schaefer (1987) defined the four states of understanding, which I have mentioned above:

State 0: B did not notice that A uttered any U.
State 1: B noticed that A uttered some U (but was not in state 2).
State 2. B correctly heard U (but was not in state 3).
State 3: B understood what A meant by U.

Clark and Schaefer explained that the addressee may be in different states before reaching the final state, at which the addressee understands the intention of the speaker by uttering the utterance. Following types of utterances from the addressee correspond to different states of understanding (Clark & Schaefer 1987: 26):

a) Assert no hearing. By uttering the feedback utterance, the addressee B asserts that he is entirely in state 1 and thereby request a repeat. For example: I didn't hear you.
b) Presuppose no hearing. B presupposes that he is entirely in state 1 by asking for a repeat. For example: Would you say that again?
c) Presuppose incomplete hearing. B presupposes he is only partially in state 2 by displaying information he missed and requesting the speaker A to continue.
d) Presuppose fallible hearing. B presupposes he is probably in state 2 by requesting assurance that he is.
e) Display full hearing. B displays that he is in state 2 by repeating what he believes.
f) Assert full hearing. B asserts he is in state 2. For example: Right, Okay, or Got it.
g) Presuppose full hearing. B presupposes he is in state 2 by initiating the next contribution

A later work (1989) by the same authors mentioned that the communication goal for the speaker and hearer is to reach the mutual belief that the hearer reached the final state, which is the intention adoption or uptake (cf. Clark & Schaefer 1989: 269). Clark and Schaefer explained that the addressee may be in different states before reaching the final state. The utterances that the addressee provides to initiate the acceptance phase is called evidence of trouble in understanding (Clark & Schaefer 1989).

Derriks and Willems (1998) categorized the difficulties in communication as the following six levels: contact, linguistic level, pragmatic level, data, cognitive level, and scenario. Derriks and Willems argued that difficulties on linguistic level contain phonetic, syntactico-semantic and global perception. On pragmatic level, the addressee may have trouble with the reference or the recognition of intention. Trouble with specific data, domain and general knowledge happened on data level. Failed comprehension, integration and memorization of information were defined as difficulties on cognitive level. They defined feedback used for perception and/or identification of the problem in dialogues as linguistic devices (cf. Derriks & Willems 1998: 589); and found that "pardon?" and "what?" are the most frequently used linguistic devices by analyzing a French corpus.

The evidence and linguistic devices mentioned above are also known as clarification requests (CRs). The notion of CR was introduced by Corsaro (1977) and later defined by Cicognani and Zani (1988: 304) as "an interrogative utterance used by the speaker to ask for explanation, confirmation or repetition of an utterance previously produced by the listener, but which has not been perfectly understood."

There seems to be no general classification of CRs in the literature, although several authors have put forward proposals. Gabsdil (2003) proposed uncertain understanding as a sub-category of non-understanding, originally introduced by Hirst et al. (1994) as one of the three types of miscommunications. Uncertain understanding describes a situation in which the hearer is uncertain about what was said and thus tends to ask a single polar question. In contrast, non-understanding indicates a failure to obtain the indication. The other two types of miscommunications are misunderstanding, which leads to corrections but not clarification; and misconception, which occurs when the hearer does not expect the utterance. Gabsdil (2003)

suggested three types of clarification questions to clarify those miscommunications, including partial CRs, alternative clarification questions, and reformulations. Partial CR enquires about only one part of utterance which the hearer did not understand; alternative CR offers a different interpretation of an explicit element; and reformulation "relate(s) an utterance to the effects it has on the task-level." (Gebsdil 2003: 7). Examples are also given by Gabsdil, as illustrated in (1a–c)

(1) a. Partial CR
Unknown: He's anal retentive, that's what he is.
Kath: He's what?
Unknown: Anal retentive.
b. Alternative CR
A: Did you hear? George Bush is in hospital.
B: Junior or Senior?
c. Reformulation
A: You turn the second road on your left left-hand side.
B: You mean Marchmont Road?

Rodriguez and Schlangen (2004) categorized CR according to two different criteria, surface form and function. On the surface form level, CRs can be divided into four different types: mood (declarative, polar question, alternative question, wh-question, imperative, and other); completeness (particle, partial, and complete); relation to the antecedent (repetition, addition, reformulation, and independent); and boundary tone (rising and falling).

Rodriguez and Schlangen (2004) also mentioned three functions of CR, starting with the source of the problem. Clark (1996) described four levels of communicative acts: execution, presentation, signal, and proposal. During the communication process, different kinds of problems can occur on different levels, such as acoustic problems, reference resolution problems, and problems to do with recognizing the intention. Rodriguez and Schlangen (2004) argued that to solve such problems Clark (1996) proposed, CR is used

to clarify their source. Rodriguez and Schlangen (2004: 4) also mentioned the extent as the second function of CR, which "describes whether the CR points out a problematic element in the problem utterance or not." The third dimension is expectation or severity, which distinguishes whether CR serves as repetition or elaboration of previous material or confirms the hypothesis (Rodriguez & Schlangen 2004).

Schlöder and Fernandez (2015) extended the classification of CR proposed by Rodriguez and Schlangen, using different states of intention. Schlöder and Fernandez argued that, questions in dialogue discourse can be divided into five types: (a) not CR, which "does not serve to better the asker's understanding of the previous highlighted utterance" (Schlöder & Fernandez :49); (b) low CR, which asks for clarification of semantic or propositional content; (c) intention recognition CR, which focuses on speech act determination; and (d) intention adoption CR, which is uttered when the addressee recognizes the main goal but has not yet accepted it. Other questions that the addressee produces are classified as (e) ambiguous.

For evidence of trouble in understanding, CRs are generally used to solve communication problems that occur on different levels. Besides CR, Jokinen (2009) mentioned that nonverbal features such as gaze, head movement, and gestures could also serve as feedback and are thus able to present nonacceptance of the utterance.

2.3 Feedback in instant messaging

2.3.1 Features of instant messaging in general

With the continuous development of cell phone technology and the popularity of the Internet, the ways in which people communicate have gradually increased. The first text message was sent in 1992; since then, text messaging

or texting has gradually been accepted and used by people worldwide. Faulkner and Culwin (2005) found through questionnaires that, by 2005, text messaging was already a common way of communicating and even preferred to email, fax, and phone. Although the SMS was described by Schlobinski et al. (2001) in 2001 as a new communication form, it is nowadays no longer new and may even be outdated. A more popular means of communication is IM, which allows people to send real-time messages. Depending on the application, users are even able to transmit emotions, pictures, hyperlinks, and videos. Although messages are sent in text form, Siebenhaar (2018) argues that language in chat communication is conceptually based on spoken dialogue. Previous research has distinguished features of IM that are different from face-to-face communication.

Herring (1999) pointed out that a new norm of loosened coherence was one of the features of computer-mediated communication (CMC). IM is a type of CMC that is unplanned and real-time, which means that messages are presented in the chat block sequentially in the order that they were sent. Loosened coherence means that the latter utterance may not be strictly relevant to the former utterance. Herring (1999) identified two main problems for coherence in CMC: the lack of simultaneous feedback and disrupted turn adjacency. Since the speaker and addressee are not able to interact face to face, the addressee cannot notice that the speaker is addressing him before the utterance is fully typed and shown; thus, they cannot provide the non-verbal feedback, such as nodding or blinking, that was mentioned in the previous chapter, which causes a lack of simultaneous feedback. IM, in contrast, offers speakers the opportunity to make their contributions simultaneously. Thus, Herring (1999: 2) claimed that in multi-participant interactions, “a message may be separated in linear order from a previous message it is responding to, if another message or messages happen to have been sent in the meantime,” which leads to disrupted turn adjacency.

Language and spelling are also widely discussed features in IM. Varnhagen et al. (2009) proposed a systematic and detailed classification for words and spellings that are especially used in IM. They considered shortcuts, pragmatic devices, and errors as the three main levels, with each containing several subcategories, as illustrated in table 1.

Category	Example	Example in context
Short cuts		
Insider word	Fugly	is that like a fugly slut?
Abbreviation	Feelin	how r u feelin?
Word combination	Wanna	i wanna sign up for the yhl
Acronym	Omg	omg that is terrible
Alphabet/letter	2day	did u go to skool 2day?
Phonetic	Wat	wat u doin?
Lower case	I	i almost cried
Contraction	Im	im so excited
Pragmatic devices		
Emotion word	Soooooo	wow im soooooo glad
Emotion acronym	Lol	lol im not talking to you
Uppercase	THAT	Not THAT nervous though
Emotion punctuation	:)	:) doo it hahah
Errors		
Typographical error	Carzy	im too carzy
Misspelling	embarrassing	how embarrassing….

Table 1: New language categories and examples of new language (Varnhagen et al. (2009))

Varnhagen et al. defined short cuts as "modifications of the spelling of specific words and phrases." The words and spellings used to describe emotions are classified as pragmatic devices, and errors include different kinds of typing errors. Colliser (2010) proposed that errors are commonly repaired by the utterer using * as a signal in their next message, for example: -Aniko: when i run ot -Aniko: out*.

Although it is impossible for addressee and speaker to provide and receive feedback through prosody and facial expression in chat communication, most IM applications provide interlocutors with a multimodal approach to express their utterance, by enabling them to send photos and videos, emojis and

emoticons, voice messages, and hyperlinks. Emojis and emoticons can be interpreted as non-verbal signals and allow the interlocutors to express their moods or feelings (Arens 2014, Bürscheid & Frick 2014, Siebenhaar 2018). Hyperlinks enable data transmission on different channels; photos and videos serve as a substitute for the situation that currently does available or cannot be presented; the use of photos and videos overcome the spatial distance (Arens 2014).

2.3.2 Feedback Strategies

To adapt loosened relevance, Herring (1999) mentioned several strategies utilized by the addressee, such as linking and quoting. The addressee clarifies what utterance he is responding to by using quotations or links, such as "I'm responding to XX" before he utters his feedback. Also, backchannel responses that are commonly used in face-to-face communication are adopted by the addressee in IM. Berglund (2009) carried out research based on disrupted turn adjacency and found that "sequential disruptions do not necessarily result in misunderstandings or confusion," due to the fact that the timing information of the utterance, as well as other features that support coherence, are provided by IM tools.

The language and spelling that are used in IM, especially on the level of pragmatic devices, are essential for the purpose of this paper. Although they do not mention the use of pragmatic devices such as feedback, Thurlow and Poff (2011) suggested that onomatopoeic and exclamatory spellings such as "haha!," "arrrgh!," "WOOHOO!," and "ahhh", which are categorized as emotion words, as well as devices such as "quick quick" and "yawn," add prosodic impact and immediacy in IM communication. Besides the pragmatic devices listed, discourse particles are also commonly used in IM. Nilsson (2013) focused on the use of the German particles *Hm*, *Ja* (yes), *Okay* and

Nein (no) in chat communication. According to Nilsson, the function of particles has four aspects. First, particles can be used as a statement or comment; particles in feedback utterance can be seen as an independent utterance that constitutes a response to the previous utterance. Second, particles are a guarantee of interaction: by uttering particles, the addressee provides his perception of the previous utterance. Third, particles are used to structure the conversation: the addressee also expresses his attitude to the previous utterance by using particles such as surprise or doubt. Fourth, particles convey expressive functions: they can be used to describe emotional feelings and evaluations[1]. The use of particles in feedback utterance is of great value for this paper; a detailed explanation and comparison are given in section 5.1.

3 Emojis

3.1 Clarification of terms

Before illustrating the use and features of emojis, it is necessary to clarify different terms for non-textual symbols. Terms such as pictograms, emoticons, emojis, and stickers are mentioned in online chat messaging. They can all be used to express emotions, but some researchers have previously used the same terms for different types of non-textual symbols. For example, Lee et al. (2016) used the term “emoticon” as a superordinate term that includes text-based emoticon, icon-style emoticon, and sticker emoticon, while Wang et al. (2014) used “emoticon” to describe graphic symbols that mimic facial expressions, which some other researchers call emojis. Since the use of different terms can be confusing and some overlap, it is useful to make a clear distinction between these concepts.

[1] Nisson (2013) defined four areas of function, Stellungnahme (statement); Sicherstellung des Austausches (guarantee of interaction); Strukturierung (structure) and Expressivität (expressivity).

In the field of IM, Arens (2014) made it clear that pictograms resemble almost everything – animals, flowers, or even imaginary objects; however, facial expressions are not included. Thus, symbols that mimic facial expressions cannot be called pictograms.

Emoticon is a compound word of "emotion" and "icon," and the first emoticon was introduced in 1982. The Oxford Dictionary explains an emoticon as a representation of a facial expression formed by a short sequence of keyboard characters (usually to be viewed sideways) and used in electronic mail, etc., to convey the sender's feelings or intended tone ("Emoticon" 2021).

According to this definition, emotions are ASCII-based (American Standard Code for Information Interchange) symbols such as :-D, which represents a smile, and :-(, which expresses unhappiness or sadness.

Emojis are small icons that were created in Japan (cf. Holvikivi 2019: 1). The display of emojis is platform- and software-dependent, which means that emojis with the same name and Unicode can be presented differently across applications. For example, the Google version of "smiling face" (☺️) differs from the Microsoft version (☺). Emojis convey an extensive range of categories, including facial expressions, objects, symbols, and flags. A complete display of emojis can be found on the website Emojipedia[2].

"Smiley" was initially used for :-). It comes from the phrase "smiley face," which indicates that it originally described a round, yellow face with a smile. A smiley is now a face-like symbol with different expressions; thus, it can be seen as a subsection of emojis.

Stickers are another type of symbol that can be easily distinguished. De Seta

[2] https://emojipedia.org/

(2018) defined stickers as “images, usually larger than graphical emoticons and emoji, offered as thematic sets in the communication interfaces of instant messaging apps and social networking services, often organized in tabs and personalized collections.” Stickers are sent as individual messages and cannot be combined with other textual information as one message.

To sum up, smileys and pictograms are among the emojis that mimic facial expressions or objects; emoticons are ASCII-based symbols that do not need a specific software to be realized; and stickers are larger pictures that individual users can personalize.

3.2 Background information

As mentioned before, the emoji was created in Japan, and the word “emoji” is a blend of “e” (Japanese: picture) and “moji” (Japanese: character). They can be described as graphic symbols that represent different items or concepts in our daily life. Emojipedia divides emojis into eight categories: smileys and people, animals and nature, food and drink, activity, travel and places, objects, symbols, and flags. The number and variations of emoji have been increasing rapidly in the last few years. The first 76 emojis appeared in 1995, and this number will grow to 3353 by the end of 2021 (Statista, 2020). The release of emojis with different skin colors has also contributed to their diversified use. Emojis are so widespread that Chairunnisa and A.S. (2017: 125) consider them as “highly needed in interpersonal communication.”

3.3 The use of emojis in instant messaging

Emojis can be used on enormous number of platforms. In different situations, they appear in monologs or stories on websites as well as in posts via Twitter or Instagram, and they are generally used in online chatting. For the scope of this paper, only emojis in dialogues are considered.

The position of emojis is not fixed. They can be used independently (Provine at al. 2007, Pohl et al. 2017), at the beginning of a message (Provine at al. 2007), at the end of a message (Provine at al. 2007, Grosz at al. 2021), or inside a message (Provine at al. 2007).

A considerable amount of previous research has focused on the functions of emojis used in combination with sentences. According to the outline of the literature given above, I categorize the function of emojis into three aspects: syntax, semantic use, and pragmatic use.

On the syntax level, emojis can be used as punctuation marks (Arafah & Hasyim 2019), as can emoticons and smileys (Albert 2015). Albert used the case ":)" to suggest that emoticons have extended the punctuation system. He mentioned that the emoticon :), as well as its corresponding smiley (😉), substitute for the full stop and exclamation mark and appear at the end of a sentence. It is also possible that speakers use them as a substitute for question marks, as in example (2):

(2) singst du grade :)
are you singing :) (Albert 2015)

On the semantic level, emojis have often been found to replace words in a message (Pohl at al. 2017, Siebenhaar, 2018). Siebenhaar suggested that emojis are able to replace (a) a subject, (b) a nominal phrase, (c) complex propositions, (d) verbs, and (e) actions and letters.

(1) Ich habe keine Ratte 🐭 aber vielleicht nehmen wir die 🐍 (abbr.)
(I do not have a rat 🐭 but maybe we take the 🐍)
(2) 👩 fliegt mit 🚀 zu 👸 und 😸
(👩 flies with 🚀 to 👸 and 😸)
(3) Ja eben und trotzdem kein 👫 sondern 👤 🏠---------- 👩 🏠
(Yeah right, still no 👫 but 👤 🏠 ---------- 👩 🏠)
(4) Falls wir uns nicht vorher nochmal 📝, 👂 oder 👀, wünsche ich Dir einen guten🎇 ins Jahr 2 10 11 14 (abbr.)
(If we don't 📝, 👂 or 👀 again before then, I wish you a good🎇 into the year 2 10 11 14 (abbr.)

(5) Guten M  rgen… habe auch Frühstück gegessen, jetzt Auto einladen und los 
(Good m  rning ... I ate breakfast too, now I'm loading up the car and leaving )

Arafah and Hasyim (2019: 572) also mentioned that the semantic function of emojis is to "express connotation meanings in conversation". The authors argued that verbal text is not enough to describe speakers' feelings and emotions; thus, emojis are needed. They also pointed out that emojis help express the intent of the message, but they did not specify what intent is contained by which emoji.

Derks at al. (2008) summarized the pragmatic use of emoticons as (a) expressing emotion, (b) strengthening the message (a similar function is found in emojis, see Chairunnisa & A.S. (2017)), and (c) expressing humor. This last category was later adapted by Luor et al. (2010), who investigated the effect of emojis in IM. Dresner and Herring (2010) classified emojis (a) as emotion indicators, (b) as indicators of non-emotional meanings, and (c) as illocutionary force indicators. The use of emojis to express emotional states has also been mentioned by other researchers (See also Chairunnisa & A.S. 2017, Pohl at al. 2017, Li & Yang 2018, Arafah & Hasyim 2019).

Li and Yang (2018) offered a more detailed point of view through a corpus study. They classified the pragmatic use of emojis into seven functions in three general categories: emotion signifier, interaction device, and communicative effect device. Emotion signifier means that emojis can be used as (1) attitude/emotion signals and (2) attitude/emotion intensity enhancers. Emotions are also (3) turn-taking/giving markers, (4) backchannel devices, and (5) illocutionary force modifiers, which can be summarized as interaction devices for communicative purposes; they can also express (6) humor and (7) irony.

Pohl et al. (2017) mentioned further uses for emojis, including decorative use,

for example, “Happy birthday!” (🎂🎁) and reaction use, such as “👍” to indicate “all right.” The authors also identified a stand-alone use, which is considered to be a generalization for reaction use, since it is a message that contains only emojis. For example, Pohl et al. interpreted the message “😰🎄🎅🎁” as “I’m stressed out by Christmas shopping.”

Besides linguistic functions, previous research has also found that people tend to be biased toward using different types of emojis. Both Chairunnisa and A.S. (2017) and Li and Yang (2018) suggested that positive emojis are used more often than negative ones. Chairunnisa and A.S. (2017: 124) explained that “The usage of negatively oriented emoticon is rarely seen because an angry person tends (not) to bother making an emoticon with his present emotion.”

Although multiple studies have investigated the functions of emojis, few researchers have addressed the issue of their individual use, since most research has only focused on emojis in textual messages. Pohl et al. (2017) mentioned the reaction use; however, instead of further investigating how emojis can be used as reactions, they were more interested in the context around emojis. Thus, the specific area of how emojis are used independently – without textual input – in IM dialogues as feedback from the addressee to the previous contribution has been overlooked.

4 Research questions

After giving an overview of the theoretical background and previous research status in the field of feedback strategies in IM, as well as the function of emojis in online chatting, I now present the main research questions of the present work.

As mentioned above, one of the main proposes of this thesis is to explore and create a corpus of eliciting feedback utterances in IM conversation. Minimal

response tokens and nonverbal vocalizations, such as “mmm,” “uhuh,” “aha,” “yeah,” and “wow,” have been mentioned by previous researchers as evidence of understanding in dialogue. By uttering these utterances, the addressee shows that he has understood what the speaker meant before making his own contribution. Response utterances, such as “what?” or “pardon?”, tend to indicate that the addressee has trouble understanding the previous utterance. In the German language, Nilsson (2013) studied the use of the particles “Ja” (yes), “nein” (no), and “okay.” Besides these particles, there might be more verbal feedback strategies used specifically in German dialogues. Therefore, I pose the following question:

(Q1) What feedback utterances can the addressee use as evidence of understanding or trouble in understanding in IM conversation?

Since emojis as feedback strategies are still not widely understood, and because previous research has mainly focused on emojis that are sent together with textual messages, the second question to be answered is:

(Q2) Can emojis be independently used as feedback strategies in dialogues?

As mentioned in section 3, gestures and acts of mimicking such as head nodding or head shaking are essential parts of nonverbal feedback that provide information about the addressee’s state. For example, head nodding may convey the information that the addressee fully understands the speaker’s intention and agrees with it. Meanwhile, the “person gesturing OK” (🙆) and “OK hand” (👌) emojis visualize such nonverbal information. Moreover, it is well known that emojis are used as signals of emotion and ways to express emotional states (e.g., 😂 conveys the information of being glad), which means that emojis can theoretically substitute feedback utterances such as “hahaha” or “lol” in IM. Since it is possible for emojis to cover both verbal and nonverbal feedback information in dialogue,

they may also be good candidates for feedback strategies in IM. This observation leads to my third question:

> (Q3) If emojis can be used as good candidates for feedback, what kind of verbal feedback do they substitute?

Luor et al. (2010) investigated the use of emojis specifically in workplace IM. They found that, in a set of 48 emojis that mimic facial expressions, people use  ,  , and  as representative emojis to express positive, negative, and neutral emotions in IM. Li and Yang (2018) also mentioned that emojis could have positive, negative, and neutral meanings, giving examples of  and  as positive,  and  as expressing a negative emotion, and objects such as  being text supplements that denote neutral meanings. Just as these two groups of researchers classified the emoji  differently, Miller et al. (2016) confirmed through experiments that a same emoji could be perceived as conveying different emotional expressions. Furthermore, emojis such as  and  were rarely mentioned; it is thus inaccurate to classify all emojis into three emotional types, which leads to my last question:

> (Q4) In what way does people's interpretation of emojis differ, and what meanings are associated with different emojis?

5 Studies

To address the questions raised above, I designed two experiments. With the first experiment, I wanted to elicit a set of possible feedback strategies used in IM to express different states of understanding, that is, evidence of understanding and evidence of trouble in understanding. For evidence of understanding, feedback was separated into different types according to the evaluation made by the

participants in the given message. This experiment aimed to answer Q4, with the focus on feedback utterances in German.

In the second experiment, participants were asked for their individual interpretations of selected emojis. By comparing the data obtained from the two experiments, I was able to answer the second question (Q2). If participants' interpretations of the emojis that appeared in the second experiment matched the feedback strategies obtained in the first experiment, it could be proved that emojis can be generally used as a feedback method. Through a general analysis of the data collected in the second experiment, it was possible to answer Q3, namely what kind of verbal feedback can be substituted by emojis. For Q4, the difference in individual interpretations of the same emoji was analyzed to determine whether the understanding of emojis causes potential miscommunication.

5.1 Study 1 – Instant response to chat message

5.1.1 Design

As mentioned above, the aim of this design was to elicit a set of possible textual feedback strategies from German interlocutors. For the purpose of this experiment, I simulated a WhatsApp chat interface to present the chat message. According to a survey carried out by the Allensbach Institute, 85% of all Internet users use WhatsApp at least occasionally, and 46% of Internet users consider WhatsApp indispensable. This percentage is highest among those aged 14–29, reaching 67%[3]. WhatsApp allows users to chat individually or in groups through a multimodal approach. As shown in figure 1, WhatsApp allows users to send videos, audio text messages, and emojis.

[3] Allensbach Institute (German: Institut für Demoskopie Allensbach) is a German opinion and market research institute. A full report of the data can be found at https://www.ifd-allensbach.de/fileadmin/IfD/sonstige_pdfs/FOCUS_deutsch.pdf (Accessed 20 Jun 2021)

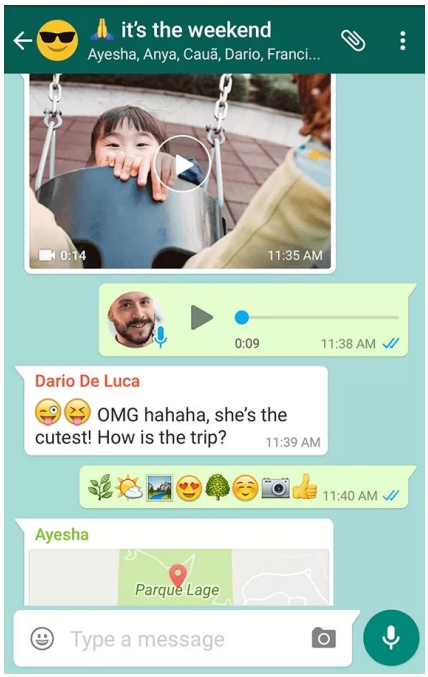


Figure 1: WhatsApp user interface[4]

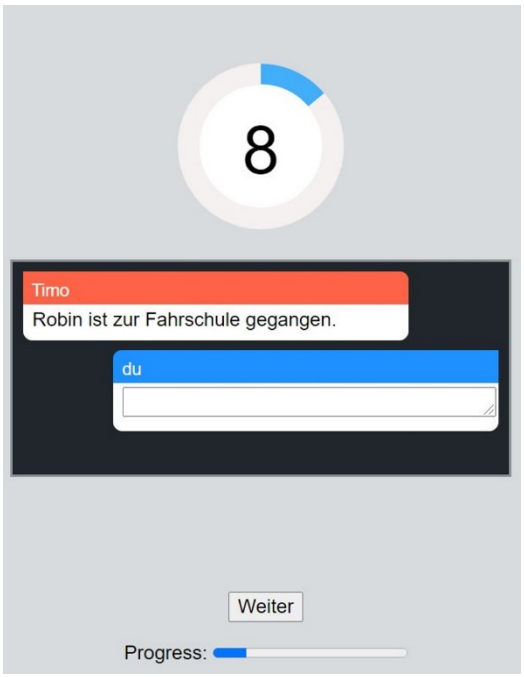


Figure 2: Experiment design[5]

This paper aims to explore feedback utterances in IM. The vast majority of German Internet users have used WhatsApp for online chatting. It is thus fair to say that feedback strategies used on WhatsApp dialogue represent feedback in IM in general. My first experiment focused only on the textual level. To eliminate the effect of participants' use of multimodal functions on experimental data, instead of using WhatsApp, I designed a web-based experiment that simulates WhatsApp (cf. figure 2). In my experiment, text stimuli were presented as messages on the left side of the screen, with the interlocutor's name at the top of the message, this being precisely the design of the group chat interface in WhatsApp. Instead of putting the input section at the bottom, participants were asked to insert their feedback to the left of the chatbox, which is usually where the message from the user themself is presented. This WhatsApp chat layout was quickly adopted by participants during the experiment process and turned out to be helpful for the purpose of

[4] This is a demo-picture downloaded from WhatsApp homepage https://www.whatsapp.com/

[5] I would like to express my thanks to PD Dr. Katja Jasinskaja for her support for creating the design of the test items. The programming and implementation of the layout of was supported by her.

this study. No participants complained about it.

5.1.2 Material

Eighty sentences were created; examples are given (3)A–H. Stimuli were written in the perfect tense and consisted of an animate subject different from the interlocutor.

(3) A – speaker: female, addressee: female, verb: intransitive
Hanna: Emilia hat gelacht. (Emilia laughed.)
B – speaker: male, addressee: female, verb: intransitive
Niklas: Lotte ist fast erstickt. (Lotte almost choked to death.)
C – speaker: female, addressee: male, verb: intransitive
Mina: Henry ist angekommen. (Henry arrived.)
D – speaker: male, addressee: male, verb: intransitive
Fritz: Ulrich ist fremdgegangen. (Ulrich cheated.)
E – speaker: female, addressee: female, verb: transitive
Greta: Lara hat die falschen Schuhe angezogen.
(Lara put on the wrong shoes.)
F – speaker: male, addressee: female, verb: transitive
Johann: Lucia hat das Abitur gemacht.
(Lucia passed the high school graduation exams.)
G – speaker: female, addressee: male, verb: transitive
Olivia: Anton hat die Heizung eingeschaltet.
(Anton turned on the heater.)
H – speaker: male, addressee: male, verb: transitive
Franz: Emilian hat das Wasser abgestellt.
(Emilian turned off the water.)

The gender of the utterer and subject were balanced, yielding a total of 80 stimuli.

5.1.3 Participants

Fifty-three sets of data were collected in the experiment, three of which were excluded due to the fact that they did not complete the experiment. Valid data were collected from fifty native speakers of German (12 male, 18 female, mean age = 33 years, age range = 19–68 years). Participants were recruited

via the online recruitment system Prolific (www.prolific.co), and all participants were paid £5 for attending the study.

5.1.4 Procedure

Participants were asked to imagine a situation in which they received a message from someone they knew shortly before they needed to dismount a train. Next to the WhatsApp simulator (cf. figure 2), the participants saw a timer that was set to count down 10 seconds. Participants were required to write a short response that referred to the message within 10 seconds, they could continue writing the message when the countdown was over, but were encouraged to finish within 10 seconds. They were aware that they did not have to write a complete sentence, but only textual messages, which meant that they were not allowed to type emojis or emoticons even when their input device had these functions. Participants were also asked to answer multiple-choice questions about the content of the messages as an attention check.

5.1.5 Data analysis

5.1.5.1 Segmentation into utterances

Although participants were asked to write their feedback within 10 seconds and were informed that their feedback did not need to be a complete sentence, they were not forced to write only one utterance. For the cases that the participant produced more than one utterance, only the first one was analyzed, since it reflects the immediate apprehension and cognition by the addressee within time constraints. The first utterance was separated from other following utterances by (a) internal structure and (b) lexical categories; thus, the following rules were considered when analyzing utterances:

(I) A complete sentence was considered an utterance. This rule also

applied in the absence of punctuation marks.

In (4-a), utterances were separated by punctuation marks; thus, it was clear that the addressee produced two separate utterances.

(4-a) - Das finde ich toll. im Tierheim ist es voll
(I think that's great. The animal shelter is full)
(4-b) - Das ist toll kam was spannendes
(That's great. Did anything exciting come up?)

For present purposes, the first utterance (4-a), "Das finde ich toll," was analyzed; it indicated that the participant had understood the given message and evaluated the previous contribution as positive. In example (4-b), where no punctuation marks were used, this message was also recognized as two separate utterances – "das ist toll" and "kam was spannendes" – based on syntactic structure.

(II) When line breaks occurred, each line was considered an utterance.

In an IM application such as WhatsApp, messages can be sent separately by pressing the "enter" key, allowing the addressee to utter one single utterance at a time. This function could not be realized in my simulation experiment; thus, if the addressee tried to send several utterances, the messages were ultimately separated by line breaks in the final data corpus, as shown in example (5):

(5) Oh cool! (Oh cool!)
Gibt es bilder? (Are there any photos?)

According to the rules, example (5) was considered two independent utterances, "Oh cool!" and "Gibt es bilder?" Within the scope of this thesis, only the first utterance – "Oh cool!" – was annotated and analyzed.

(III) Particles such as "hmm," "ja (yeah)," "nein (no)," and "okay" were considered as utterances when they were separated from

subsequent utterances by punctuation, line breaks and syntactic structure.

(6) okay super ich kümmere mich später darum
(Okay. Great. I'll take care of it later)

According to the first rule, in the absence of punctuation marks, a full sentence was considered an utterance. In example (6), “ich kümmere mich später darum” was annotated as an utterance, separately from the first two words (“okay super”). According to the third rule, “okay super” was one utterance without punctuation marks. Example 6 contained, in total, two utterances: “okay super,” and “ich kümmere mich später darum.”

(IV) Interjections such as “oh” and “oje” were utterances if separated from other utterances by punctuation, line breaks and syntactic structure in feedback.

This rule only applied, like the third rule, if interjections could be separated from subsequent or previous utterances by internal sentence structure or punctuation marks, as indicated by rule 1.

(7) oje wessen handy war das? (geez whose phone was that?)

It is thus clear that example 7 contains two utterances: the first one is the interjection “oje,” and the second is the question “wessen handy war das?”
As mentioned before, after separating the collected data based on the four rules, I annotated and analyzed the first utterances of each contribution and categorized them into different categories of feedback, as further discussed below.

5.1.5.2 Feedback Categories

Clark and Schaefer (1989) classified the evidence in the acceptance phase in dialogue into two categories: evidence of understanding and evidence of

trouble in understanding. Similar to Clark and Schaefer, I classified feedback in IM dialogue into two main categories: evidence of success and evidence of failure, based on different states of intention, as suggested by Schlöder and Fernandez (2015).

Intention recognition

I defined intention recognition on the basis of Schlöder and Fernandez' (2015) definition of intention recognition CR. The success of intention recognition means that the addressee has successfully parsed and understood the propositional content and the illocutionary force of the utterance U that the speaker uttered, as illustrated in (8).

(8) - Emilian hat das Wasser abgestellt. (Emilian turned off the water.)
- Ok. (Ok)

By uttering feedback "Ok", the addressee proved that he understood the meaning of the utterance.

Failed intention recognition

Failure of intention recognition means that the addressee was unable to parse the semantic meaning of the propositional content and failed to understand the utterance, as in (9).

(9) Noah ist nach Frankreich abgehauen. (Noah escaped to France)
Abgehauen? (Escaped?)

By repeating the word "abgehauen?", the addressee might have wanted to ask a question about the meaning of this word, which means it is possible that he could not understand the meaning of the given utterance without first understanding the word "abgehauen."

Intention adoption

Intention adoption exists when (a) the addressee has understood or recognized the speaker's U and believes that it is true, and (b) the addressee has received

all the information he needed that was relevant to the utterance (10).

(10) - Nora hat einen Regenschirm gekauft. (Nora bought an umbrella.)
- Sehr gut. (Very good.)

By uttering the feedback "Sehr gut," the addressee showed that he had fully understood the propositional meaning of this utterance. He did not need more information about this utterance, such as "who is Nora," or "What kind of umbrella." He expressed his opinion on the contribution, which is that he considered it a good idea or he praised Nora for buying an umbrella.

Failed intention adoption

Failed intention adoption means that the addressee has understood and recognized the speaker's intention, but he still needs more information or he failed to believe the utterance. Example (11) is an example of failed intention adoption:

(11) - Henry ist angekommen. (Henry arrived.)
- um wie viel Uhr? ((at) what time?)

In this example, the addressee understood. However. By uttering "um wie viel Uhr?", the addressee showed that he needed more current discourse information, for instance "when?" and thus the speaker's intention was recognized but not adopted.

Intention adoption also does not exist when the addressee does not believe the truth of the given utterance, as in example (12):

(12) - Alexander hat Selbstmord begangen. (Alexander committed suicide.)
- Bitte was? (Excuse me, what?)

By uttering the feedback "Bitte was?", the addressee showed that he could not believe that Alexander had committed suicide; in this case, he might need more information about this utterance or need the speaker to prove the truth of this utterance. From the examples discussed above, I can summarize that failed intention adoption means that the addressee may want or need more

information, or he is not able to believe the truth of the given utterance.

Evidence of success

Feedback is considered evidence of success when both intention recognition and intention adoption are fulfilled, which means that by producing the feedback utterance, the addressee provides evidence to the speaker that he has successfully identified the speaker's utterance and believed that it is true.

Utterances that were classified as evidence of success were segmented according to the emotional evaluations of the addressee, conveyed by the feedback utterances.

Positive evaluation

By uttering feedback containing a positive evaluation, the addressee showed that he was satisfied with the given utterance. He expressed agreement or support for the previous contribution (example 13) or thought that U is funny (example 14).

(13) - Ariana hat eine Leiter ausgeliehen.	(Ariana borrowed a ladder.)
- Sehr gut.	(Very good.)
(14) - Lara hat die falschen Schuhe angezogen.	(Lara put on the wrong shoes.)
- Hahahaha.	(Hahahaha.)

The feedback in example 13 shows that the addressee thought that it was a good idea that Ariana borrowed a ladder, as he expressed agreement. For example (14), the addressee found it funny that Lara had put on the wrong shoes, which is also considered a positive attitude.

Negative evaluation

The addressee negatively evaluated the content described in the utterance U, which means that the addressee thought that U is a bad idea or U is considered a bad situation or the addressee expressed his dissatisfaction, displeasure, disappointment, or anger by uttering U.

(15) - Samuel hat Fieber gekriegt. (Samuel caught a fever.)
- Oh nein. (Oh no.)

As example (15) illustrates, by uttering the feedback “oh no,” it is clear that the addressee thought that Samuel having a fever was a bad situation and felt sorry for Samuel.

No evaluation

No evaluation means that the addressee was able to understand the content of the utterance and the speaker's intention but showed no personal evaluation of the given utterance. The addressee may simply has indicated that he paid attention to the speaker or understood the speaker's utterance by giving feedback with no or natural evaluation.

(16) - Ava ist lange gepaddelt. (Ava paddled for a long time.)
- Oh ok. (Oh ok.)

As shown in (16), by uttering the feedback “oh ok” the addressee indicated that he understood and accepted the fact that “Ava paddled for a long time” without showing any personal evaluation of Ava’s action. In this case, “Oh ok” signals the involvement of the addressee.

Surprise

Feedback utterances that indicate that the addressee does not expect the given utterance to happen can also be seen as a particular case for feedback without evaluation, because the addressee does not show his personal evaluation by uttering the feedback. However, this type of feedback was considered separately because, unlike other types of evaluation, where the addressee accepts the given utterance immediately he receive it, surprise means that it takes the addressee some time to adopt the speaker’s intention, as in example 17.

(17) - Anastasia ist durchgefallen. (Anastasia failed.)
- Ohwei! (Uh-oh!)

By uttering “Ohwei!”, the addressee indicated that he did not expect Anastasia to fail the exam. Although he could understand the meaning of the utterance and believed it was true, he was shocked at the first moment and needed time to process the information thoroughly.

Evidence of failure

Evidence of failure indicates that the addressee has difficulty understanding or believing his interlocutor on different levels. The first level is intention recognition; if this is not achieved, intention adoption and evaluation are not applicable since the addressee fails to understand the semantic meaning of the utterance and is thus unable to utter his personal evaluation.

If the feedback indicated a successful intention recognition but a failed intention adoption, it was still considered as evidence of failure, due to the fact that the addressee needed more information for the previous utterance before proceeding to the upcoming discourse.

I summarize the different types of feedback utterances in table 2, with an example for each category from the data in my first experiment.

	Intention recognition	Intention adoption	Reaction	Example
Evidence of success	Yes	Yes	positive evaluation	- Marie hat auf Pünktlichkeit geachtet (Marie made sure to be on time) - Sehr gut von Marie (Very good of Marie)
	Yes	Yes	negative evaluation	- Marie hat auf Pünktlichkeit geachtet - Streber! (Nerd!)
	Yes	Yes	without evaluation	- Marie hat auf Pünktlichkeit geachtet - Verstehe ich (I can understand)
	Yes	Yes	unexpected	- Anastasia ist durchgefallen. (Anastasia failed) - Ohwei! (Oy!)
Evidence of failure	Yes	No	n.a.	- Alexander hat Selbstmord begangen. (Alexander committed suicide) - Echt? (Really?)
	No	No	n.a.	- Noah ist nach Frankreich abgehauen. (Noah escaped to France) - Abgehauen? (Escape?)

Table 2: classification of feedbacks with examples for each category.

5.1.6 Results

As mentioned above, one of the key purposes of the first experiment was to try to answer research question 1, which I repeat here:

> (Q1) What feedback utterances can the addressee use as evidence of understanding or trouble in understanding in IM conversation?

The current section examines the categories discussed above and elicits a reliable list of feedback utterances based on my first experiment.

(I) Evidence of failure – Feedback indicating failed intention recognition

As mentioned above, the addressee needed to recognize and adopt the speaker's intention before uttering his evaluation of a given utterance. Suppose the process of intention recognition failed, which means that the addressee was not able to phrase the proportional content of the previous utterance. In this case, the addressee tended to ask CRs about the specific word or phrase he had trouble understanding.

(9) - Noah ist nach Frankreich abgehauen.	(Noah escaped to France.)
- Abgehauen?	(Escaped?)

Example (9) has already been mentioned, and it was the only case of failed intention recognition in the first experiment. Unlike face-to-face conversation, the speaker's intention can almost always be recognized in online chats. In face-to-face communication, the addressee may be affected by the sound quality and noise in the environment and may not understand the meaning of the utterance. However, in online chats, the utterances are sent in written textual form. In the absence of spelling mistakes or unfamiliar phrases, the addressee should always be able to understand the semantic meaning of the utterance. In example (9), the addressee showed that he did not know the word "abgehauen" by repeating it, or he did not understand what the speaker meant by it; in this case, he had difficulties at pragmatic level. This feedback indicates that he neither recognized nor accepted the intention of the speaker.

(II) Evidence of failure – feedback indicating failed intention adoption

However, since facial expressions and eye contact cannot be received and processed by both interlocutors, other factors on the textual level, such as punctuation marks and line breaks, need to be considered when analyzing the meaning of an utterance.

(18) - Noah ist nach Frankreich abgehauen. (Noah escaped to France.)
- ABGEHAUEN? (ESCAPED?)

This is a different example of feedback from the data, this time using the exact same word in capital letters. In example (18), the addressee showed, by only using capitals, that he understood the previous utterance but could not believe the truth of this utterance or were highly shocked. The intention was recognized but not accepted, which is the second type of evidence of failure. Apart from this specific case, where the addressee repeated a word from the given utterance to show his disbelief, the participants commonly used other strategies to show that they had trouble adopting the speaker's intention.

(a) CR for a reason:

Warum?/ Wieso? Was ist passiert?

The particle “denn,” which indicates interest and concern, is a generally used word in this type of feedback, offering more variations of CR. Data gathered from the corpus are:

Warum (Wieso) denn?/ Warum (Wieso) das?/
Warum (Wieso) das denn?/ Warum (Wieso) denn das?

The addressee used these CRs to require a detailed reason or motivation for the utterance. Although the addressee understood the meaning of the utterance on a textual level, they could not fully process the utterance before being given a reason. These questions principally occurred when the given utterance was not common in daily life, for example:

(19-a) - Henrik hat Stühle zerschmettert. (Henrik smashed chairs.)
- Warum denn? (Why?)
(19-b) - Sarah hat ein Buch zerrissen. (Sarah tore up a book.)
- Wieso das? (Why is it so?)

It is not common in daily life that someone smashes chairs or tears up a book, so the addressee tended to ask for a detailed reason why this utterance happened.

(b) CR for detailed information:

This kind of CR is dependent on the content of the given utterance. For example, suppose the previous utterance indicates that there might be another person involved. In this case, the addressee tended to ask for detailed information about this person, as in example (20).

(20) Leo hat die Theaterkarte verkauft. (Leo sold the theater ticket.)
An wen? (To whom?)

The addressee had been given the information that Leo sold the theater ticket. He understood the meaning of this utterance, but before uttering his personal evaluation, he needed more information about the buyer.

Because the given utterances differed from each other and were strongly context-related, it is hard to generate a feedback utterance which is suitable for all situations. However, certain typical feedback utterances can be summarized from the data:

<u>- Inquiries about agents or patients, time and location:</u>

As mentioned in example (20), inquiries about agents and patients were uttered when such a potential agent or patient might be implied in the situation. Another example (21) is given below:

(21) - Jacob hat einen Kuchen gebacken. (Jacob baked a cake.)
- Für wen? (For whom?)

The form of these inquiries is: *preposition + wen/ wem?*

The addressee may also ask for information about the time or location of the described utterance, similar to inquiring about agents and patients. In this case, the addressee tended to form an information question using the question words “wann” (when) or “wo/ wohin/ woher” (where / where [to]/ [from] where), as in example (22):

(22) - Lena ist in den Süden geflogen. (Lena flew to the south.)
- Wohin genau? (where exactly?)

- Inquiries about the course of the utterance

This kind of clarification question was asked by the addressee when he needed information about (a) the way the described situation happens, or (b) the gradual development of the utterance, as shown in example (23):

(23) a: - Lara hat die falschen Schuhe angezogen. (Lara put on the wrong shoes.)
- wie geht das? (How did that happen?)

Besides “wie geht das?” in example (23), the data show other commonly used feedbacks used as CRs for the development of the previous utterance, such as “Wie ist das passiert?/Wie ist das denn passiert?,” all of which bear the meaning “How did this happen?” This type of feedback indicates that the addressee has understood the given utterance but needs more information about the development to process it fully.

- Inquiries about features of the related object: Welch-/ Was für ein-?

The difference between this kind of CR and inquiries about the course of the utterance is that the addressee only focuses on the related object when inquiring about the features. He may ask for information about the size, color, material, or other features that distinguish the previously mentioned objects from other objects of the same type.

- Inquiries about confirmation

In this case, although the addressee might not fully understand the given utterance, he might have a personal speculation that needs to be confirmed.

The addressee tends to utter a general question that is related to the given utterance. This type of CR is different from all the other types of feedback mentioned in this category; since the addressee already has a specific speculation, he may ask a general question, as in example (24):

(24) - Lea hat laut gehustet. (Lea coughed loudly.)
- Ist sie krank? (Is she sick?)

As in example (24), the addressee has recognized the speaker's intention and believes it is true. If his speculation “Lea is sick” is confirmed, he can then adopt the speaker’s intention.

(c) disbelief:

As mentioned above, failed intention adoption also includes the situation that the addressee can understand the verbal meaning of the given utterance but has trouble believing it. In this case, the addressee needs to show his disbelief. The most commonly used feedback strategies are “Was / Was? / Was?! / Echt?/ Echt jetzt? / Schon wieder?” (What? Really?) and variations such as “was?? / was?! / waaaas?! / waaaas? / WAASS?” If such utterances are uttered, the addressee needs further information from the speaker to adopt his intention.

(III) Evidence of success – feedback conveying positive evaluation

Let us suppose that the addressee can recognize and adopt the intention of the speaker. In that case, he is then able to make his contribution to the discourse and utter his evaluation of the given utterance. Utterances that convey the following emotions and reactions are considered positive evaluations: (a) glad or elated: by uttering the utterance, the addressee shows that he is cheerful or pleased about the thing that happened or thinks that the previous utterance is terrific or fantastic, for example, “Super!”; (b) blessings and congratulations: the addressee expresses his hope for the success of whomever this utterance concerned or expresses his pleasure for that person, such as “Herzlichen

Glückwunsch" (Congratulations); (c) agreement or support: the addressee shows that he holds the same opinion or judge the utterance as right and commendable, for example "That's the right thing to do"; (d) amused: the addressee thinks that the given utterance is interesting and funny; (e) relief: the addressee is pleased that nothing unpleasant has happened or is glad that the burden has been removed, for example when all firefighters return safely after putting out a fire; and (f) gratitude and thanks: the addressee appreciates that the utterance has been made, for example, "danke" (thanks). A list of feedback utterances that contain a positive evaluation are given in table 3 below.

feedback utterance	Meaning	other variations
(a) Glad or elated		
Cool	Cool	ah cool, ja cool, das ist (doch/echt) cool, voll cool, cool!, coolio, coool, cooole Sache, so cool, wie cool
super	great, brilliant	super!, das ist super, supi, Supi!
schön	good, lovely, nice	das ist schön, ja schön, wie schön, wow schön, schöön
sehr schön	very well	sehr schön!
Gut	good	
sehr gut	very good	sehr gut!, Sehr gut!!, Sehr gut!!!
Nice	nice	hey nice, uhhh nice!
Geil	hot	wie geil, übel geil, ah geil
bravo	bravo	Bravo!
prima	that's great	prima!
perfekt	Perfect	perfekt!, Perfekt, Perfekt!
Fein	nice, smooth, fine	fein
freut mich	I'm pleased	Das freut mich
Toll	great, amazing, awesome	ja toll, jaa toll, jaaa toll, wie toll, wow toll, wow wie toll, ja wohl,
Krass	very good	wow krass
klasse	neat, brilliant, great	
Yay	juhu, great	Yay!
Süß	Sweet	Süß!, das ist ja süß, wie süß
(b) Blessings and congratulations		
Glückwünsch	Congratulations	Herzlichen Glückwünsch

Gratuliere	Congratulations	Gratulation
viel Spaß	have fun	Viel Spaß!, Viel Spaß!!
(c) Agreement or support:		
Okay!	Okay!	okay!
Ist auch nötig	that is necessary	
ist auch richtig	it's right to do so	
besser so	that's good	besser ist das, besser ist es,
gut so	it's good to do so	das ist gut so, das ist gut, gut gemacht
richtig so	Right	
das finde ich gut	I think it's a good idea	das finde ich toll
das klingt toll	that sounds perfect	das klingt krass, das klingt klasse
(d) amused		
hihi	Hehe	
Haha	Haha	HAHA, haha, HAHA!, Hahaha, Hahahaha
Interessant	Interesting	interessant
LOL	Laughing out loud	Lol, lol,
(e) relief		
gott sei dank	thank god	Got sei dank
Zum Glück	Luckily	Zum Glück!
(f) gratitude and thanks		
Danke	Thanks	ah danke, danke an jmdm., sag … danke
Das ist aber nett	that's nice	Das ist nett, nett von jmdm.
Das ist aber lieb	that's sweet	Das ist lieb, lieb von jmdm.
lieb von …	someone is sweet	

Table 3: Evidence of success with positive evaluation

Feedback utterances combined with other interjections, such as "Ah" or "Wow!," provide a tone of surprise or sudden understanding. Coleman (2015) argued that using capital letters is a tool for emphasis, so utterances such as "HAHA" and "LOL" reflect the addressee's intense feelings of happiness. According to Gray (2020), a stretched word is a type of word that contains stretched vowels or consonants to modify the meaning of the base word and can be used to strengthen the meaning, imply sarcasm, show excitement, or communicate danger. Thus, for positive evaluation feedback, the variations "hahahaha", "uhhh nice," and "coool" suggest the addressee's degree of excitement.

The data also contained instances of feedback that were strongly context-dependent. For example (25) Such cases are not listed in table 3.

(25) - Julia hat einen Porsche bekommen. (Julia received a Porsche.)
- NETTES GESCHENK! (NICE GIFT!)

This feedback can only be used in the situation when someone has received a gift and is not a representative strategy for feedback containing a positive evaluation; thus, it is not mentioned.

(IV) Evidence of success – feedback conveying negative evaluation

By uttering feedback with a negative evaluation, the addressee shows that he can recognize and adopt the speaker's intention but (a) consider it an unpleasant realization: the addressee realizes that the utterance described is disturbing, or he feels upset and uncomfortable; (b) is not satisfied or content with the utterance or the related person; (c) shows pity/sympathy, as in the situation when he is informed that someone is seriously ill; (d) believes that the utterance causes physical pain to the person concerned, for example when being told that someone has broken their leg; (e) insults: disparages the related person, holds the related person in scorn, and has a low opinion of them. Feedback strategies that contain a negative evaluation are annotated and presented in table 4.

Feedback utterance	Meaning	Other variations
(a) unpleasant realization		
ach du Scheiße	oh shit	ach du Scheiße!, Ach du scheiße
ach du Schande	oh my goodness	
ach du Gott	oh my god	ach du meine Güte, oh Gott, oh mein Gott, Jesus Maria
Ach du kacke	oh shit	
ach du Schreck	oh shit	Ach du lieber Schreck
um Himmels Willen	for god's sake	
(b) Dissatisfaction		
Das ist ärgerlich	that's annoying	Das ist ja ärgerlich, Das ist aber ärgerlich
ach das geht doch nicht	oh that's not possible	

blöd	dumb	Das ist blöd, oh blöd,
böse	bad	
Das ist schlecht	That's bad	
doof	that's stupid	
frechheit	Impudence	
Fuck	Fuck	Wtf
Igitt	Yikes	Igittigitt
Iih	Ew	Iiih, Iiiieh, Iiiii…
MAN MAN MAN!		oh man
Mist	Crap	oh mist
nicht so toll	not good	nicht so geil, nicht so schön
oh shit	oh shit	scheiße, scheiße!
Pfui	Ugh	
wie furchtbar	how terrible!	
wie ärgerlich	how annoying!	
(c) Pity/Sympathy		
ach der/die arme	poor …	oh der/die arme
ach je	oh dear/oh no	o je, oh je, ohje, ohje!, ohje!!!, ohjee!, oje,
ach Mensch	ah man	
ach Mist	ah crap	
ach ne	ah no	ach nein
ach Schade	ah sorry	ah Schade
ah doof	ah stupid	
ah fuck	ah fuck	Fuck
Beileid	my sympathy	Mein Beileid, Mein absolutes Beileid
Das ist schade	That's a pity	
Tut mir leid	I'm sorry	Das tut mir leid, Das tut mir sehr leid, Das tut mir so leid, oh das tut mir leid,
nein	No	nein!, nein!!!, neinnnn, oh nein, oh nein!, oh nein!!, oh nein!!!
schade	Pity	oh wie schade, oh zu schade, wie schade, zu schade
wie traurig	how sad!	
(d) Physical pain		
aua	Ouch	aua!, auaa
Autsch	Ouch	Autsch!, Autsch!!!
oh weh	oh hurt	
ouch	Ouch	Ouch!, Ouch

(e) Disparage		
der Depp	the fool	
das Schwein	the pig	So ein Schwein
der Horst	the horst	
der Lauch	the leek	
der Troll	the troll	
der Lümmel	Lout	
Idiot	Idiot	der Idiot, idiot
so ein Blödmann	such a jerk	Blödmann…
so ein A…(Arschloch)	such an...(asshole)	
so ein Tollpatsch	so clumsy	
ungeschickt	Clumsy	wie ungeschickt

Table 4: Evidence of success with negative evaluation

As listed in table 4, the feedback utterance "nein" is categorized as an utterance indicating pity or sympathy. However, the original meaning of "nein" is denial and rejection. Since all stimuli in this experiment are assertive sentences describing a situation, the "rejection" use of this word cannot be reflected due to the limitation of the experimental design.

Similarly to the variations of positive evaluation, capital letters and extended words are also used in feedback with a negative evaluation. Compared to "nein" (no), the extended word "neinnnn" conveys a more intensive tone of pity and sorrow. Moreover, the use of exclamation marks strengthens the meaning and enhances the tone. The number of exclamation marks used reflects the intensity of the addressee's emotions. For instance, both "Autsch" (ouch) and "Autsch!!!" indicate physical pain, but it is possible that the use of three exclamation marks may indicate a higher pain level than feedback without any punctuation marks.

(V) Evidence of success – feedback without evaluation

By uttering this type of utterance, the addressee shows that he is able to recognize and adopt the speaker's intention, but he has no personal evaluation of the utterance. In this case, the addressee may utter an utterance to show

that he has received the message and is involved in the conversation, as in example (26)

(26) - Felix hat lange gearbeitet. (Felix worked for a long time.)
- Oh (Oh)

The addressee believes that Felix has worked for a long time; the addressee has no further questions about this issue. For feedback without evaluation, which the addressee shows his understanding and involvement, the most commonly used utterances are listed in table 5:

Feedback utterance	Meaning	Variations
Ah	Ah	
Aja	Aja	aja
alles klar	Ok	Alles klar, Alles klar!
das glaube ich	I believe it	
Ja	yeah	ja
oh ok	oh ok	oh okay
Oh	oh	oh
Okay	okay	ok, okay, Ok
Verständlich	Understood	

Table 5: Evidence of success without evaluation

It is sometimes difficult to distinguish the meaning of the feedback "okay" since it can also be seen as feedback with a positive evaluation, indicating agreement or support. In such cases, I distinguish between these two different evaluations through the use of exclamation marks, as in example (27):

(27-a) - Emilian hat das Wasser abgestellt. (Emilian turned off the water.)
- okay! (okay!)
(27-b) - Emilian hat das Wasser abgestellt. (Emilian turned off the water)
- okay (okay)
dann kann der Klempner ja kommen. (then the plumber can come.)

Example 27 shows two feedback modalities for the same utterance. These two feedback utterances differ only in the use of exclamation marks. In example (27-a), the addressee uses an exclamation mark to emphasize that he is pleased that Emilian has shut off the water, but in example (27-b), the

addressee only states that he has adopted the speaker's intention. My interpretation can also be confirmed since the addressee makes another contribution to the discourse, indicating that the first utterance of "okay" functions as confirmation of involvement without containing evaluation.

(VI) Evidence of success – feedback indicating surprise

This type of feedback is uttered when the addressee did not expect the utterance to happen. Feedback indicating unexpectedness and surprise can be seen as an extension of feedback without evaluation but is mentioned separately because the two types are distinct. The first indicates that the addressee needs time before adopting the speaker's intention. The utterances that are commonly used are listed in Table 6.

Feedback utterance	Meaning	Variations
Haa	haa	haaaa
Oooh	Ooh	Ooooch
Oops	Oops	Ups!

Table 6: Feedback indicating surprise

A typical feature of this type of feedback is that it is likely to contain stretched words or exclamation marks. For example, the feedback "oh," without stretched vowels, signals the involvement of the addressee, but a stretched "Oooh" not only contains intention adoption but also shows excitement.

5.1.7 Discussion

In this chapter, I have classified feedback utterances in online dialogue into two main categories, evidence of success and evidence of failure, and presented the results of the first experiment. For evidence of failure, I have distinguished different types of CR on the intention adoption level, namely CRs for a reason / for detailed information / indicating disbelief. For evidence

of success, I have divided feedback strategies based on the addressee's evaluation: positive evaluation, negative evaluation, without evaluation, and unexpected. I then generalized the commonly used strategies for each category mentioned above and summarized them in Tables 3-6.

By answering this question, I also generated a reliable set of textual feedback strategies in online chatting, which I then compared with data collected during the second experiment to help answer the question of whether emojis can substitute textual feedback. In order to summarize the feedback strategies in online communication, the current section examines the categories discussed above and generates a reliable list of feedback based on my first experiment.

5.2 Study 2 – Emojis as feedback strategies

In the first experiment, I elicited a set of feedback utterances that the addressee utters at different levels of understanding. In order to answer the second research question, which I repeat here:

> (Q2) Can emojis be independently used as feedback strategies in dialogues, regardless of the context?

I conducted a second study in which I presented chat fragments. In this fragment, a single emoji is used as a reply to an utterance of the other interlocutor, and I asked the participants to "translate" the emojis into words. If the interpretation of emojis is similar to the feedback utterances in the first experiment, it is reasonable to say that emojis are good feedback strategies in online chatting. Furthermore, I aimed to answer the other question formulated in section 4, which is

> (Q4) In what way does people's interpretation of emojis differ, and what meanings are associated with different emojis?

In order to answer the questions above, I designed a second experiment to determine the interpretation of emojis when used as feedback strategies.

5.2.1 Design

Unlike the first experiment, in which I asked the participants to write feedback that they thought suitable for the given utterance, in the second experiment, I asked the participants to translate the emojis into verbal utterances, as shown in figure 3.

Figure 3: Experiment 2 – Stimuli

Figure 4: Experiment 2 – Filler

In order to minimize the bias caused by context, in all the experimental items the utterance of the first speaker was blurred and unreadable. In the filler items the first utterance was readable as in normal chat interaction, as shown in Figure 4. Before the experiment began, the participants were trained with three trials where the context sentence was given (as in Figure 4) so they could familiarize themselves with the interface of my chat simulator. The test items and fillers appeared in random order.

5.2.2 Material

As of September 2020, 3521 emojis were listed in the Unicode Standard[6], and the number continues to increase with the release of each new version. According to wordemojiday.com, over 900 million emojis are sent every day without text on Facebook Messenger[7], which means that emojis can carry information even when used alone and without any words. Thus, it is theoretically possible for emojis to be used alone as feedback strategies in chat conversations.

Due to the huge number of emojis, it was impossible for me to cover all of them within the scope of this experiment. Arafah (2019) argued that the most frequently used emojis are face and people. Luor et al. (2010) researched the most-used emojis to express positive, negative, or natural emotions in the range of face emoticons. In alignment with these studies, I narrowed down the range of emotions to smileys and the people category and chose 27 emojis based on their meaning according to www.emojipedia.com.

Good candidates were emojis that convey the information of positive emotions (happiness or gladness) and negative emotions (disappointment, frustration, or annoyance) for positive feedback and emojis that convey uncertainty, disbelief, and suspicion for negative feedback. A list of selected items is illustrated in table 7 below:

Emoji	Name	Emoji	Name
😠	Angry face	😲	Astonished face
👏	Clapping hands	😕	Confused face
😢	Crying face	😞	Disappointed face
😑	Expressionless face	😘	Face blowing a kiss

[6] This data was collected from the website: https://emojipedia.org/faq/#how-many
[7] This data was collected from the website: https://worldemojiday.com/statistics

🧐	Face with monocle	😮	Face with open mouth
🤨	Face with raised eyebrow	🙄	Face with rolling eyes
😂	Face with tears of joy	😆	Grinning squinting face
🤥	Lying face	👌	OK hand
🙅	Person gesturing NO	🙆	Person gesturing OK
🤷	Person shrugging	✋	Raised hand
🙁	Slightly frowning face	🙂	Slightly smiling face
😍	Smiling face with heart eyes	🤔	Thinking face
👎	Thumbs down	👍	Thumbs up
😒	Unamused face		

Table 7: Experiment 2 - Emoji stimuli

As mentioned above, one difference between emojis and emoticons is that the visual appearance of an emoji are defined by individual platforms: the same one can appear differently based on the platform and software. Some emojis are similar across platforms, while others can be very different. For example, the "face with monocle" emoji appears on an Apple device like this 🧐, with a slightly raised head looking up to the top left corner; on Google applications, the face looks straight ahead and the corners of the mouth are bent somewhat downwards (🧐), and the emoji appears utterly different on the Microsoft platform, with a crooked smile and a slightly tilted head (🧐). To eliminate the effect of different versions of emojis on the experimental results, instead of using Unicode, which allows each platform to display its own version of an emoji on different devices, I chose to use the Google version of emojis (as presented in table 4). I ensured that all the participants saw exactly the same version of emojis.

Besides test items that were listed in table 7, there were also 18 filler items, as

illustrated in example (28):

(28) - Lisa hat Abendessen gekocht. (Lisa cooked dinner.)

- 🍔

As shown in example (28), the 18 fillers in my experiment were objects such as 💸(money with wings) and 🐾(paw prints) that were suitable for each given context.

5.2.3 Participants

According to self-reported data, a total of 50 adults, who were native German speakers (27 female, 23 male, average age: 31.48 years, age range: 18–68 years) took part in the experiment. Participants were recruited via the online recruitment system Prolific and paid £5 for attending this study. To be eligible for participation in the study, they were required to finish the experiment using a laptop.

5.2.4 Procedure

As shown in figure 3, participants were asked to imagine a situation where they received a message from a friend and replied with an emoji. They were asked to write down alternative feedback if they were not able to send an emoji. They were informed that if previous messages were not always clearly displayed and the given messages were blurry, they should try to think of a situation where they would send the presented emoji, and then put the emoji into words.

Participants began the experiment with a training phase and continued to the testing phase after completing three trials in which the previous utterance was readable. They were then asked to finish the whole experiment, including 27

items and 18 fillers. The stimuli and fillers appeared in random order. There was no time limit for participants to answer each question, and participants were able to give feedback and comments at the end of the experiment.

5.2.5 Results and discussions

As mentioned before, this experiment aimed to answer the following question:

> (Q3) In what way does people's interpretation of emojis differ, and what meanings are associated with different emojis?

This section examines each stimulus and analyzes the interpretations of emojis when used as feedback based on the data collected. A detailed list of the most typical translation of emojis as feedback utterances in this experiment is given in table 4:

Emoji	Interpretation	Frequency of use (%)	Representative verbal feedback
	Anger	68%	Grrrr / Das macht mich so sauer!
	Disapprove	20%	Nein / Das ist doof
	Disbelief	10%	Das darf doch nicht wahr sein!
	Amazement	50%	OMG
	Disbelief	34%	Waaaaaas? / Echt ist das wirklich so?
	Compliment	8%	cool / Krass!
	Concern	4%	Oh nein!
	Without evaluation	4%	Oh
	Praise & command	74%	Bravo! / yeyy sehr gut
	Congratulation	20%	Gratulation / Glückwünsch!
	Glad and happiness	6%	Freut mich
	Pity & Sympathy	26%	Tut mir leid / Das ist aber schade!
	Disapproval	24%	Das ist nicht so gut / Das ist doof
	Unsure & disbelief	22%	Mh / Hm / Mhm / Eh….
	Disappointed	16%	Oh man… / Oh nein
	Pity & Sympathy	62%	mein beileid / das tut mir so leid
	Sad and sorrow	30%	Ich bin traurig / wie traurig
	Unsure & disbelief	4%	Wirklich? / Ich verzweifle noch
	Pity & Sympathy	44%	wie schade / oh nein
	Sad and sorrow	24%	Traurig! / ohje wie traurig
	Unpleasant realization	8%	Oh…

	disappointed	8%	bin enttäuscht
	disbelief	4%	Wirklich?
😑	Annoyed	44%	So ein Mist!
	Message received	30%	Kein Kommentar / oh / Mir egal
	Disbelief	18%	Hmmm“ / oh Mann wirklich?
😘	Kiss and love	70%	Hab dich lieb / Küsschen
	Gratitude and thank	12%	Dankeschön / Ja danke
🧐	Disbelief	42%	Hm? Komisch. / Bist du dir sicher?
	Investigation needed	40%	Lass mich das genauer begutachten.
	Interest	6%	interessant
😮	Shock	42%	omg / Ich bin erstaunt
	Disbelief	30%	Ist das die Wahrheit? / Was??
	Unpleasant	18%	Holy shit / wtf
	Message received	8%	oh
🤨	Disbelief	86%	Hä? / Wie bitte?
	Unexpected	6%	achso ist das so / Ich bin erstaunt
🙄	Disapproval & annoyed	62%	Du nervst / doof / Mann ey
	Disbelief	14%	Das ist ja wohl nicht ein Ernst
	Sarcastic	8%	Na toll / Wie du meinst
	Unexpected	8%	bin erstaunt / oh really
	Without evaluation	6%	Ich muss nachdenken / Ich bin unschudigt
😂	Funny and hilarious	100%	LOL / Hahahahaha
😆	Funny and hilarious	96%	Haha / So lustig / So witzig
	Praise	4%	cool / krass
🤥	Liar	64%	Du Lügner / Lüge
	Lot interested	12%	Oh oh… / Okay / Jaja
	Disagree	10%	Das ist doch nicht die Wahrheit
	Disbelief	8%	Das glaube ich dir jetzt aber nicht so ganz...
👌	Praise	50%	perfekt / Nice / Sehr gut / Super
	Message received	28%	Ok / Okay
	Agreement & support	10%	Das ist eine gute Idee.
	Got it	8%	Alles klar / Geht in Ordnung
🙅	Not allowed	98%	Auf keinen Fall! / Nein! / No way!
🤦	Glad and pleased	36%	Das ist super. bin zufrieden
	Dissatisfaction	30%	Oh nein / Oh je / Oh Mann!
	Unexpected	14%	Oh! / Oh Gott! / Aha
	No idea / no evaluation	10%	Keine Ahnung
	Disbelief	6%	Nein echt? / Echt

	Lack of knowledge Disbelief Not interested Anger and dissatisfied Shock / surprised	42% 26% 16% 8% 4%	Weiß ich doch auch nicht bitte was? / echt? / was??? Tja / egal what the f…? Häh! / ich bin geschockt
	Stop Greetings Glad and cheers	42% 32% 24%	Halt! / Stop! Hallo ich bin da / und tschüss High five!
	Unpleasant realization Dissatisfaction	82% 14%	Oh nein / Oh noo / Oh weh Das finde ich doof. / klingt gerade nicht gut
	Glad or happiness Message revived	84% 8%	nice / gut / freut mich! ok
	Favorite and love Glad and happiness Positively surprised	48% 34% 16%	Ich liebe das / Die ist so niedlig! Hammer!! / Hey super! Toll! / Wow! Wunderschön!
	Disbelief Lack of knowledge Questioning	56% 28% 6%	Hmm! / Hmm… / Wirklich Lass mich überlegen Komisch
	No / not good	98%	Das finde ich nicht gut / Nö / Absolut nicht / Schlechte Idee
	Praise Undertake Agreement and support	54% 26% 20%	Sehr gut / Toll Gerne / Alles klar / Ok! Gefällt mir / find ich super!
	Displeasure Disbelief	86% 10%	Wie nervig / boah / das nervt Hmmm / Hm / Mmh… / na und?

Table 8: Experiment 2 - Interpretations of emoji

I will discuss the individual use of the test stimuli in the upcoming paragraphs.

Angry face  : This emoji is frequently used when the addressee thinks the previous utterance is annoying and expresses his anger. Some participants translated this emoji into expressions containing opposition and disapproval. This angry face emoji is thus a substitute for textual feedback like “das gibt’s doch gar nicht” (this is not possible) or “Das ist nicht gut!” (This is not good!). Data also contained the use of this emoji as a signal for disbelief, indicating “Meinst du das jetzt ernst...?” (Are you serious…?) or “Ne oder?” (No, right?/Seriously?). In this case, it is evidence of failure, which means that the

addressee is not able to adopt the speaker's intention. One participant interpreted the angry face as "super," which I consider to be an sarcastic use.

Astonished face  : According to the data, this emoji conveys a wide range of interpretations. Despite the name "astonished face," only half of the participants translated it with an expression of astonishment such as "ich bin überrascht" (I am surprised) or "Das wundert mich sehr" (That surprises me very much). This emoji may also contain both positive and negative emotions. It can thus be used when the addressee approves the given utterance or considers it to be bad news or bad idea. Some participants translated it to feedback without evaluation, which indicates that the addressee had received the previous message and paid attention to the conversation; in this case, they uttered no personal judgment. Moreover, the use of this emoji can sometimes indicate that the addressee did not believe the intention of the speaker, as in "Oh was?? Ernsthaft??" (Oh what? Seriously??), "Jetzt echt?" (For real now?), or "Im Ernst???" (Seriously???). The fact that this emoji covers a wide range of textual feedback indicates that different people may have different interpretations of it and, thus, that misunderstanding can be caused.

Clapping hands  : All participants used clapping hands as positive feedback on the previous utterance. It can convey information about gladness and happiness ("freut mich," I'm pleased); praise and command ("super!, sehr gut," great!, very good); blessings, and congratulations ("Gratuliere, Herzlichen Glückwunsch," congratulations) and thus indicate that the addressee has fully recognized and adopted the intention of the speaker.

Confused face  : Despite the name "confused face," this emoji was mostly (72%) used as evidence of success with a negative evaluation. It described the addressee's disappointment or dissatisfaction, for example "Oh man…," or indicated that the addressee was opposed to the utterance, as in

“Das ist aber nicht gut” (But that is not good). Furthermore, 22% of the participants categorized this emoji to express the feeling of being unsure, in which case it was used as feedback of failure. It is interesting to see that when this emoji was interpreted as evidence of failure (except for one case, where the participant translated this emoji to “Eh….”), participants used different variations of “Hm” or “Mh” to explain it. To describe the degree of uncertainty, besides the stretched “m” or “h”, some participants added dots at the end of this utterance. In an extreme case, one participant used “Mhhhhmmm....” to express that he felt highly uncertain and hesitant.

Crying face  : This is a typical emoji that expresses a negative attitude. It is generally used by the addressee to express a feeling of sadness or sympathy and functions as a substitute for textual utterances including “wie trauig” (how sad) and “das tut mir leid” (sorry about that). Only 4% of participants considered it to be a signal for suspicion and disbelief; for example, “wirklich?” (Really?).

Disappointed face  : Similar to the “crying face” emoji, the disappointed face is generally used as feedback when the addressee feels sorry for or pities the related person. Eight percent of the participants considered it to be feedback indicating that the addressee is negatively shocked, such as “Ohhhh” or “Wow.”

Expressionless face  : The use of this emoji varies across users, meaning it can convey a wide range of feedback utterances. Eighteen percent of the participants used it as a signal of lack of understanding or being unconvinced. It substitutes feedback utterances such as “nicht ernsthaft oder” (you didn’t seriously mean it, did you?), which shows disbelief, or “Mmh,” which indicates hesitation or doubt. This emoji is also used as evidence of success that contains a negative evaluation and suggests that the addressee is

displeased or annoyed with the utterance. In this case, feedback on the textual level is likely to be “So ärgerlich!” (So annoying!) and “So ein Mist” (What a bummer). This utterance is also translated to utterances which prove that the recipient has received the message and is paying attention to the conversation but has no personal opinion on it: typical feedback in this case was “dazu sag ich nichts” (I say nothing to this) or “Ja” (Yeah).

Face blowing a kiss  : All participants considered this to be feedback with a positive evaluation. The interpretations were slightly different. Some participants translated this to utterances that express thanks and gratitude, as in “Lieb von dir!” (Sweet of you!) or “Ja danke” (Yeah, thanks), while it is most frequently considered feedback expressing the feeling of love. It is also interesting that this emoji was not translated as feedback utterances, but was seen as a way of saying goodbye or ending the conversation: 4% of the participants translated it into “Bis zum nächsten mal” (See you next time) and “Bis später” (See you later), which is very far from the description of “blowing a kiss.”

Face with monocle  : Nearly half of the participants considered that using this emoji as feedback indicated uncertainty or skepticism, for example “bist du sicher? (Are you sure?).” Moreover, it was used when the addressee had no personal comment on the utterance before further investigating the issue, as in “Das muss ich mir genau anschauen” (I need to take a close look). It could also indicate that the addressee was interested in or curious about the given information, such as “interessant” (interesting).

Face with open mouth  : This emoji was principally used to express three kinds of feedback: (a) disbelief; the addressee doubted the correctness and truth of the utterance, as in “Echt?” (Really?) or “Wasss?” (Whaaat?); (b) unpleasantness and dissatisfaction, for example “wtf”; and (c) shock; the

addressee did not expect the utterance and was astonished, such as “Holy shit”. Furthermore, 8% of the participants used it as a signal for being attentive to the conversation, for example “oh”.

Face with raised eyebrow  : According to the data collected, this is a typical emoji for feedback indicating suspicion, skepticism, and disbelief. 86% of the participants used it as feedback for failure, for example “hä?” (huh?), “Das verstehen ich nicht” (I do not understand), and “Hm? Das klingt unglaubwürdig” (Hm? That sounds implausible). However, a small group of participants considered it to be evidence of failure, as in “Na da bin ich mir nicht sicher” (I'm not sure about that).

Face with rolling eyes  : This emoji is a gesture of an eye-roll and is commonly used as feedback with a negative evaluation. It conveys disapproval or annoyance, for example “Oh nein” (Oh no) and “nicht schon wieder” (not again). Besides that, based on individual interpretation, this emoji is sometimes sarcastically used. Some participants translated this into “Na toll” (Oh great), which did not necessarily mean that the addressee approved the utterance. Another use of this emoji indicates disbelief. By uttering this kind of feedback, the addressee doubted the truth of the utterance or seriousness of the speaker and might utter textual feedback such as “Dein Ernst?” (Are you serious?) and “Really?” In some cases, it was also used by the addressee to describe a feeling of surprise and unexpectedness or to prove that he was paying attention to the conversation.

Face with tears of joy  : This emoji was considered by all participants to be evidence of success with a positive evaluation. The addressee evaluated the utterance as hilarious and funny and used this emoji to describe a feeling of happiness. 32% of the participants used the element “ha” to describe this emoji. Based on the degree of happiness, this element can also be stretched.

The maximum frequency of the element “ha” is two to four times, as in “haha” or “hahahaha,” and this utterance can be combined with other feedback, such as “haha witzig” (hahafunny) or “hahahaha lol.” Participants tended not to add any other utterances after a stretched word based on three or five “ha,” which means that the feedback “hahaha” and “hahahahaha” were used without combinations of other utterances or punctuation marks. The exclamation mark was only added at the end of the utterance when two “ha” were used together, as in “haha!”

Grinning squinting face  : Similar to the “face with tears of joy” emoji, this emoji was used as feedback when the addressee considered the previous utterance to be interesting or funny. The use of “ha” outlined above could also be confirmed by the data from this emoji. Although both  and  are considered as feedback indicating happiness, participants tended to explain  using “LOL” (22%) and “haha” (32%), but  using “haha” (34%) and “lustig/witzig” (funny/amusing) (24%) rather than “LOL” (4%).

Lying face  : This emoji is used to represent lying or a liar. By uttering this feedback, the addressee insults the speaker by calling them a liar. It may also be used as evidence of failure by indicating failed intention adoption (disbelief). Besides that, 10% of the participants used this emoji to signal lack of interest, which means they uttered this feedback only to show that they had received the message. Possible textual utterances are, for example, “Oh oh” and “Jaja…” (Yeah yeah...).

OK hand  : This emoji represents “Super” (that’s great), which indicates that the addressee has recognized and accepted the intention of the speaker and approved the utterance, or the addressee uttered “OK” to show that he had received the message.

Person gesturing NO  : Although one participant thought that this emoji meant “cool,” the rest used it as feedback containing a negative evaluation. This emoji indicates that the addressee considers the situation to be a bad idea and will not allow it to happen. Note that participants were likely to add an exclamation mark at the end of the utterance to strengthen and emphasize the tone, for example, “Nein!” (No!), “No way!,” and “Auf keinen Fall!” (No Way!).

Person gesturing OK  : Although this emoji shows a person making an “OK” signal with their whole body, some participants did not interpret it in the same way as  , that is, as feedback with a positive evaluation. Thirty percent of the participants considered it to be a negative evaluation, meaning that the addressee is not pleased with the utterance, for example “oh nein” (oh no). In the opinion of 36% of the participants, this emoji can also be used as a feedback utterance if the addressee is pleased or satisfied with what has happened; in this case, it substitutes “yeyyyy” or “Toll machst du das” (Great, do it). Another use of this emoji is to describe a feeling of surprise or confirm the receipt of information, for example “oh”. The enormous difference in the interpretation of this emoji by different people may lead to misunderstanding in the communication process.

Person shrugging  : This emoji mimics a person shrugging their shoulders, which is used as feedback to show that the addressee lacks knowledge about the utterance or has no interest in it. It is also used as feedback indicating disbelief. According to individual use, it could also mean that the addressee is surprised or shocked by the utterance.

Raised hand  : This emoji was translated as two kinds of different feedback: (a) as a signal for “stop” and “forbidden”; this is used when the

participants need to prevent the speaker from making the utterance; and (b) cheers and collaboration; some participants used this emoji as feedback indicating happiness and satisfaction with their cooperation, for example "high five" or "cheers!" Besides that, some participants did not seen this emoji as a feedback utterance, they may use a raised hand when they are greeted, during both the greeting and parting process.

Slightly frowning face  : Although 4% of the participants used this emoji as feedback indicating surprise or unexpectedness, for example "OH!" and "Oh!," the others considered it a signal of negative evaluation. The two main explanations given were unpleasant realization and dissatisfaction. Unpleasant realization means that the addressee regarded this utterance as an unpleasant experience, in which case typical textual feedback for this evaluation is "oh nein" or "Das ist schade" (That is a pity). Dissatisfaction means that the addressee is not pleased with what happened or considers the utterance a bad idea.

Slightly smiling face  : This emoji generally means that the addressee has a positive evaluation of the given utterance. They may consider this utterance to be a good idea or be pleased by the fact that this utterance happened. One participant reported its sarcastic use by translating it into "sarkastisch" (sarcastic). Further feedback suggested that this emoji is a substitute for evidence of success without evaluation; the addressee confirmed that he had received the message by uttering the feedback "OK."

Smiling face with heart  : This emoji is used as positive feedback when the addressee is pleased with the given utterance, or they love or like the item or object described in the utterance, for example "ich liebe das" (I love this) and "das finde ich toll" (I think that's great). The use of this emoji may also indicate that the utterance is unexpected; however, unlike  , this emoji

(😍) means that the addressee is positively surprised, as in “wow soo schön!” (wow soo beautiful!) and “wow! Wunderschön!” (wow! Beautiful!). When explaining this emoji, the participants preferred to add one or two exclamation marks at the end of the utterance, as illustrated in this example: “Wow ich liebe das!!” (Wow I love this!!)

Thinking face 🤔: This emoji is typically translated into two ways: when the addressee (1) doubts the truth of the given utterance; or (2) lacks knowledge. The first case is often translated using variations on the textual utterance “hm”. The number of “m”s in this utterance indicates the degree of doubt or uncertainty. According to the data, “hm” with two and three “m”s is used most frequently, as in “hmm!” and “hmmm…” Extra punctuation marks can be added after two or three “m”s. If more than three “m”s were used, the participants preferred not to add any punctuation marks, as illustrated in “Hmmmmm” In a more extreme case, a participant used seven “m” letters, namely “hmmmmmmm” For the second use, this emoji substitutes textual feedbacks such as “ich weiß nicht” (I don’t know) or “ich muss überlegen” (I need to think about it).

Thumbs down 👎: This is typical negative evaluation feedback and indicates that the addressee is not pleased or does not support the utterance, for example, “Nop!” or “das finde ich schlecht” (I think that's bad).

Thumbs up 👍: This thumbs-up gesture is used as feedback of understanding with a positive evaluation. It indicates approval, for example “das ist doch gut!” (That is good!) or that the addressee is making a promise that related things will be done, such as “gerne” (with pleasure).

Unamused face 😒: This emoji conveys irritation, displeasure, and grumpiness. It is representative of negative evaluation feedback. Compared

with another emoji (😕) which also indicates negative emotion, an unamused face, as the name suggests, is usually used as feedback for dissatisfaction. In contrast, the confused face (😕) conveys a different range of feedback, including disappointment and sympathy.

As discussed above, some of the emojis tested in the experiment may convey a wide range of feedback information; for example, the astonished face (😲) can be used as disbelief, a compliment, or amazement, meaning that it can be seen as evidence of both success and failure. Similar interpretations can be made of the confused face (😕), expressionless face (😑), face with monocle (🧐), astonished face (😮), person gesturing OK (🙆), person shrugging (🤷), and the raised hand (✋). Even an OK signal (👌) can be interpreted as feedback without evaluation or with a positive evaluation, which means that, unlike the textual feedback I generalized in the first experiment, when emojis are used as a feedback strategy, miscommunication may occur based on the different interpretations of each interlocutor.

There are also some emojis for which people are generally unified in regard to their usage. Examples are clapping hands (👏), face with heart eyes (😍), face with tears of joy (😂), and slightly smiling face (🙂). These emojis are seen as evidence of success with a positive evaluation. Furthermore, a person gesturing NO (🙅), angry face (🙄), thumbs down (👎), and unamused face (😒) are typically used as negative evaluation feedback.

6 General discussion

In this chapter, I address the first two questions by comparing the data from both experiments:

> (Q2) Can emojis be independently used as feedback strategies in dialogues?
> (Q3) If emojis can be used as a good candidate for feedback, what kind of verbal feedback do they substitute?

In the first experiment, I elicited a list of possible feedback modalities containing different states of understanding and different evaluations. In the second experiment, 27 emojis following a blurred utterance were translated into textual messages. The use of blurring prevented the context from having any influence. Q2 can be answered by comparing the data from these two experiments. If we suppose that a single emoji can be used as a feedback utterance, then, for each type of feedback I classified in the first experiment, there should be at least one emoji that shares similar interpretations. If this is the case, I can answer Q3 by generating a list of suitable emojis for each type of feedback strategy. If not, emojis cannot be used independently as feedback utterances in online chats.

As mentioned in 5.1.5, there are two levels of failure: failed intention recognition and failed intention adoption. Failed intention recognition means that the addressee cannot understand the utterance, while failed intention adoption indicates that the addressee cannot believe – or needs more information to believe – the truth of the utterance. Failed intention recognition happens on the semantic level, when the addressee does not understand the textual meaning or fails to phrase the propositional content of at least a part of the utterance. Here, I mention example (9) from the first experiment again:

(9)	- Noah ist nach Frankreich abgehauen.	(Noah escaped to France.)
	- Abgehauen?	(Escaped?)

In this example, the addressee shows their trouble of understanding by repeating the word “abgehauen.” No emoji is suitable for this case since it is essential for

the addressee to indicate what phrase they do not understand, and emojis that mimic facial expressions or body gestures cannot replace objects.

When the addressee can phrase the semantic meaning of the given utterance but is not able to believe the truth, they may utter different kinds of feedback. Typical feedback utterances indicating disbelief that I generalized from the first experiment are “Was / Was? / Was?! / Echt? / Echt jetzt? / Schon wieder?” (What? / Really? / For real now? / Again?) which matches the explanation of the face with raised eyebrow ( 86%), face with monocle ( 42%), astonished face ( 34%), face with open mouth ( 30%), and expressionless face ( 18%). Another type of feedback could be a CR for detailed information when the addressee needs more information about (a) agents or patients, time, and location, (b) course of the utterance, (c) features of the related object, and (d) to inquire about confirmation. As in the case of failed intention recognition, since I tested emojis that mimic gestures and expressions, it is not possible for the addressee to use such emojis as replacements for specific questions. However, some emojis can indicate uncertainty and can thus be seen as a substitute for some functions of the CRs; typical emojis are thinking face ( 56%) and confused face ( 22%), which many participants translate as “hmm…” or “mhmm.” As mentioned in the first experiment, another type of feedback indicating failed intention adoption is a CR for a reason, for example “Warum? / Wieso? / Was ist passiert?” (Why? / Why? / What happened?); still, however, no specific emojis with similar explanations were found in the second experiment.

Evidence of success indicates that the addressee has understood and believed the truth of a given utterance and may utter their personal evaluation.

Several types of emotions are classified as **positive evaluation**:

(a) *glad or elated*, which means that the addressee is cheerful or pleased with the utterance. Typical feedback modalities from the first experiment were “super /

sehr schön (very nice) / sehr gut (very good) / nice / geil / prima (great).” Emojis that substitute this kind of emotion are slightly smiling face ( 84%), clapping hands ( 74%), thumbs up ( 54%), OK hand ( 50%), and face with heart eyes ( 34%);

(b) *blessings and congratulations*. By uttering this type of feedback, the addressee sends wishes to the related person, for example “Glückwünsch / Gratuliere.” (Congratulations). A typical emoji from the second experiment was clapping hands ( 20%);

(c) *agreement or support*: the addressee thinks the utterance is the right thing to do, as in “das finde ich gut / das klingt toll.” (I think that's good / that sounds great). A person gesturing OK ( 36%) and face with heart eyes ( 16%) can substitute this kind of textual utterance;

(d) *amused*. The addressee considers the utterance to be funny or hilarious. Utterances such as “haha / LOL / Lustig!” (Funny!) are considered to be this type, and suitable emojis are the face with tears of joy ( 100%) and grinning squinting face ( 96%);

(e) *relief*. The addressee is glad that nothing unpleasant has happened. An utterance on the textual level might be “Gott sei Dank” (Thank God); however, no specific emojis were found in the second experiment with a similar interpretation;

and (f) *gratitude and thanks*, which means that the addressee is grateful for things being done, for example “Danke / Das ist aber nett” (Thanks / That’s nice). A proper emoji of this kind is the face blowing a kiss ( 12%).

As for **negative evaluation**, feedback elicited from the first experiment indicates the following types:

(a) *unpleasant realization*, which means that the addressee is negatively surprised by the utterance, as in the feedback “ach du Scheiße / ach du Gott” (oh shit / oh god). The person gesturing OK ( 14%) is sometimes used to indicate this type of feedback;

(b) *dissatisfaction*. “Das ist ärgerlich / doof” (This is annoying / stupid) means that the addressee considers the given utterance to be a bad idea or is not satisfied with the related person. Fitting emojis were found in the second experiment: angry face ( 88%), unamused face ( 86%), face with rolling eyes ( 62%), expressionless face ( 44%), confused face ( 24%), and face with open mouth ( 18%);

(c) *pity or sympathy*. Feedback such as “ach je / ach ne / ach schade” (ah dear / ah no / ah too bad) conveys the emotion of sorrow or the fact that addressee feels sorry for the related person and considers the utterance an unfortunate event. Slightly frowning face ( 82%), disappointed face ( 68%), and person gesturing OK ( 30%) share similar emotions;

(d) *physical pain* such as “autsch / aua”: no substitute emojis were found in the second experiment;

and (e) *insults* like “der Schwein / Idiot / so ein Blödmann” (the pig / idiot / such a jerk); by uttering this kind of feedback, the addressee speaks about the related person in a way which shows that they do not have a good opinion of the latter. There are no curse emojis, but a similar use was found in the lying face emoji ( 64%), by which the addressee called the speaker a liar.

Another type of evidence of success is **feedback without evaluation**: interjections and utterances such as “ah / aja / oh / oh OK” are considered to be of this type. By uttering this feedback, the addressee shows they are attentive to the

conversation; they confirm reception of the message but make no personal evaluation of the given context. Emojis like expressionless face (30%) and OK hand (28%) have a similar function.

Feedback indicating the **feeling of suprise** is given when the addressee did not expect the utterance to happen. Although they are ultimately able to adopt the speaker's intent, it takes time for them to process the information. Typical feedback modalities are “Oooh / wow / haa,” while emojis such as the astonished face (50%) and face with open mouth (42%) can be used as feedback in this situation.

Table 9 summarizes all the cases mentioned above and compares the data obtained from the first and second experiments:

Feedback categories		Emojis (exp 2)	Representative textual feedback (exp 1)
Evidence of failure			
failed intention recognition		/	(clarification question about individual words)
Failed intention adoption	(a) clarification request for reason	/	Warum?/ Wieso? Was ist passiert?
	(b) clarification request for detailed information		Wann? / Wo? / Für wen?
	(c) disbelief		Was / Was? / Was?! / Echt? / Echt jetzt? / Schon wieder?
Evidence of success			
Positive evaluation	(a) Glad or elated		cool / super/ schön / nice / bravo / prima / freut mich / toll
	(b) Blessings and congratulations		Glückwunsch / Gratuliere
	(c) Agreement or support:		Okay / Ist auch richtig / besser so / gut so / das finde ich gut / das klingt toll
	(d) Amused		haha / LOL / Interessant / Lustig!

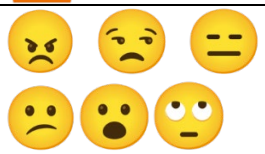
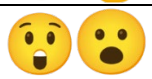
	(e) relief	/	Gott sei Dank / Zum Glück
	(f) gratitude and thanks		Danke / Das ist aber nett / Das ist aber lieb
Negative evaluation	(a) unpleasant realization		ach du Scheiße / ach du Kacke / ach du Schreck
	(b) Dissatisfaction		Das ist ärgerlich / das ist doof / das geht doch nicht / Fuck
	(c) Pity/Sympathy		ach ne / ach Schade / ach Mist / mein Beileid / Das ist schade
	(d) Physical pain	/	aua / Autsch / oh weh
	(e) Disparage		der Depp / das Schwein / der Horst / der Troll
No evaluation			ah / aha / alles klar / ja / oh / ok
Surprise			haa / Oooh / Oops / wow

Table 9: Discussion - List of emojis used as feedback utterances

As illustrated in table 9, the use of emojis as feedback utterances in online chatting is, in most cases, possible since at least one emoji shares similar interpretations as the textual utterances in most types of feedback. However, if the intention recognition and intention adoption fail and the addressee needs to ask CRs that are strongly context-dependent, emojis cannot be used as feedback strategies because they cannot describe specific objects or words or substitute for specific questions.

An interesting finding is that the use of some emojis is different from its original designed purpose. For example, most people in their communication do not use the emoji expressionless face () as indicated by its name, “neutral face,” but as feedback containing frustration or annoyance. Thirty percent of the participants used the OK gesture () to express dissatisfaction, which is some way from the original purpose of “OK.” Instead of two arms gesturing OK, some people interpret the two arms as scratching the head, signaling confusion. This finding suggests that not all people share the same interpretation and use of emojis, so misunderstandings may arise during the communication process.

Thus, based on the data from the two experiments conducted, it is fair to say that emojis that mimic facial gestures or body positions can mostly be independently used as feedback strategies when the addressee is able to recognize and adopt the speaker's intention. Only a few emojis, such as astonished face () and face with raised eyebrow () can be used as evidence of failure. In order to be able to communicate effectively, and to avoid misunderstanding, the interlocutors should share the same or a similar understanding and interpretation of emojis.

However, the findings of this study have to be seen in the light of some limitations. For the first experiment, I tried to elicit feedback for as many situations as possible by creating stimuli that represented extremely positive or extremely negative situations; for example "Damian ist gestern gestorben" (Damian died yesterday) and "Julia hat einen Porsche bekommen" (Julia got a Porsche) as well as neutral sentences such as "Amira ist früh aufgestanden" (Amira got up early). Nonetheless, it is impossible to cover all the utterances used in daily life; thus, there might be other feedback utterances that are not listed in this thesis. For the second experiment, for the scope of this paper, only 27 emojis from the emoticons and people category were tested on 50 participants. It remains unknown whether emojis from other categories can also be used as feedback strategies.

7 Conclusion

In this thesis, I took an experimental research approach to the use of emojis considered as feedback strategies in online chatting. The four research questions proposed were all answered through the data analysis and discussion, so that the following conclusions can be drawn.

The first purpose of this thesis was to explore and create a corpus of elicit feedback utterances in IM conversation. By analyzing data from the first experiment, I divided feedback strategies into different categories based on the

addressee's state of understanding and emotional evaluation. Intention recognition and intention adoption are the two states of understanding. A successful intention recognition means that the addressee was able to understand the illocutionary force of the utterance. A successful intention adoption means that the addressee has received all the information he needed and believed that the utterance was true; in this case, I separated feedback utterances according to different emotional evaluations: utterances with positive evaluation, negative evaluation, no or neutral evaluation and utterances indicating surprise. For individual categories, textual feedback modalities exist that fit most contexts. A detailed list of feedback was created from the data generated by the first experiment.

The second goal of this thesis was to answer the question: Can emojis be independently used as feedback strategies in dialogues. Data from the two experiments showed that emojis mimicking facial expressions or body gestures can be used independently as feedback strategies in online chatting after the addressee has adopted and recognized the speaker's intention; this means that they can be used as feedback containing different evaluations. If intention recognition failed, some of the emojis can be used to express disbelief, but emojis are not capable of replacing all types of CRs.

The third aim of this thesis was to investigate what kind of verbal feedback do emojis substitute, and in what way people's interpretation of emojis differ. Data showed that not all emojis are used for the purpose for which they were designed. For example, the dominant use of the "expressionless face" emoji is not neutral and without evaluation; rather, it is used as feedback conveying negative evaluation.

People often interpret the same emoji differently; this difference can be significant, and might lead to problems in communication and information exchange. For instance, the "person gesturing OK" emoji is used by one third of people as feedback indicating dissatisfaction, while another third use it as feedback with a

positive evaluation. Therefore, only using emojis as feedback should be avoided when a similar interpretation of emoji cannot be established between two interlocutors.

This thesis contributes to our knowledge of the linguistic use of emojis, with the focus specifically on its usage as feedback in dialogue. For the scope of this paper, I would say that emojis have great potential to be used as feedback strategies, and I strongly suggest a further and deeper investigation of this field, in particular to investigate emojis in categories other than emoticons and people.

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