

The Influence of Emoticons on the Perception of Job-Related Emails: An Analysis Based on the Four-Ear Model

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Abstract. Non-verbal communication cues and their surrogates in computer-mediated communication, emoticons, can influence how a message is understood. Based on the four-ear model, we examine in detail at which levels of communication emoticons affect message perception. Using a factorial survey with a treatment control group design (N = 104), our findings suggest that emoticons do not influence the understanding of a message at the content level. However, we show that they significantly influence the metamessage. These findings hold important theoretical and practical implications: First, our results help to explain the mixed results of previous studies on the effects of emoticon usage on message interpretation. Second, we show that emoticons are a means to convey contextual information over and above the raw content of the message, especially at the self-revelation and relationship level. However, this does not come without a price: Emoticons dilute the effects of job-related emails at the appeal level.

Keywords: Emoticons, Computer-Mediated Communication, Four-Ear Model, Factorial Survey

1 Introduction

How a recipient perceives and understands a spoken message depends, on the one hand, on the verbal content, and, on the other hand, on the contextual interpretation of non-verbal elements such as facial expressions and body language [1]. In the workplace context, computer-mediated communication (CMC), and especially email, has positioned itself as an alternative to face-to-face communication. However, this communication style has one important disadvantage: It lacks non-verbal communication cues. Since emails are a text-based form of CMC, a sender has no direct opportunity to use non-verbal communication elements to provide contextual information over and above the written information and, hence, the context of a

message might be difficult to interpret. Emoticons, however, as text-based symbolizations of facial expressions, emotional states, and feelings [2], can serve as corresponding cues.

Many studies show that emoticons have a certain impact on message interpretation. They are used and perceived as surrogates for non-verbal cues and are, for example, able to soften the illocutionary force of speech acts in emails [2-6]. In contrast, other studies claim that emoticons can only complement messages, and that they are far less important for message interpretation than the written content [7]. The aim of our research paper is to further clarify the effect of emoticons on message perception in job-related emails by drawing on the four-ear model of Schulz von Thun [8]. Indeed, we aim to explain why and how emoticons affect the illocutionary force of written (speech) acts and are able to explain the mixed results of previous studies.

The four-ear model postulates that every type of communication has an underlying anatomy that is a combination of four communication levels at which a message can be sent and received: the factual information level, the self-revelation level, the relationship level, and the appeal level. We hypothesize that in CMC, emoticons such as the smiley-face [:-)], influence the recipient's perception of a job-related message at all these communication-defining levels.

To test our hypotheses, we conducted a factorial survey [9] with 104 respondents and a treatment control group design in which one group was shown an email with an emoticon and another group was shown an email without an emoticon. Our main finding is that emoticons only influence the receiver's perception of the metamessage, namely at the self-revelation level, relationship level, and appeal level, but that they do not have an impact on the receiver's perception at the factual information level. First, this shows that emoticons are indeed perceived as surrogates for non-verbal communication cues and are able to convey information over and above the pure content level, however they are not strong enough to shape or even contradict the content level of a message. Second, we showed that emoticons are able to soften the illocutionary force of speech acts because they convey further information at the relationship, self-revelation and appeal levels. However, this does come with a certain price since the effect of the message at the appeal level is mitigated.

The paper is structured as follows: In the following section, we will introduce the four-ear model of Schulz von Thun [8] and we will also provide the theoretical foundations of CMC and of emoticons, both in general and in the professional context. Following this, we will present our research model and will introduce our research methodology, more specifically, the design of the factorial survey. Finally, we will present and discuss our results before concluding our article with the limitations of our study and the practical implications of our results.

2 Theoretical Background

2.1 The Four-Ear Model of Schulz von Thun

Schulz von Thun [8] postulated that each message has an underlying anatomy that is a combination of four different communication levels at which a message can be sent and received, respectively: the factual information level, the self-revelation level, the relationship level, and the appeal level. This model is also commonly termed the “four-ear” model, which refers to the ways in which the recipient understands (or hears) the message. The general process of communication and the four layers of a message are depicted in figure 1.

At the factual information level, i.e., the content aspect of the message, pure factual information is passed from the sender to the recipient. This communication layer is conveyed by the pure spoken word or the written textual word (logical digital language). At the factual information level, the recipient assesses whether a message is true or false, relevant or irrelevant, and reliable or unreliable.

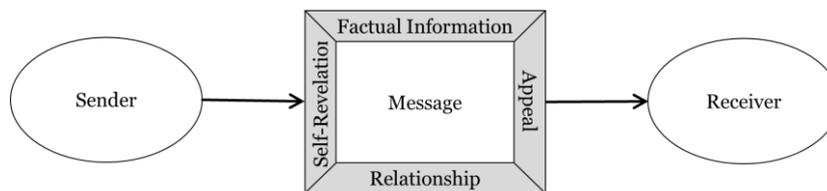


Figure 1. Communication Process and Four-Ear Model [8, p. 30]

Besides the pure words used, Schulz von Thun [8] argues that a message inherently consists of an additional subtext or metamessage. This metamessage is only partly influenced by the pure textual information delivered by the sender. Rather, it is conveyed via non-verbal communication means such as facial expressions, gestures, tone, speech speed and general body language, etc.

First, at the self-revelation level, the sender discloses information about themselves and their current motives, values, and emotions (so called I-messages). This level is described as a *small sample of personality*, since information about the communicator is inevitably revealed. Second, at the relationship level, the sender indirectly expresses a position towards the recipient (so called we-messages). Lastly, the appeal level provides information about the response expected by the sender.

As an example, imagine a conversation between two colleagues where one tells the other “your report is not here”. At the factual information level, the recipient may interpret the message as raw information regarding the current state of the process. At the self-revelation level, the recipient may get the impression that the sender was irritated by the delay. At the relationship level, the recipient may understand the message as an accusation of incompetence. At the appeal level, the recipient may feel that the sender expects him/her to work more thoroughly in the future.

2.2 Emoticons as Text-Based Computer-Mediated Communication Cues

Computer-mediated communication (CMC) is now an established form of communication, and continues to steadily develop itself as such. CMC can be defined as “[a]ny communicative transaction that takes place by way of a computer ...” [10, p. 552]. In contrast to real-life face-to-face communication, much of CMC today is founded on text such as emails and instant messages. In these contexts, analogue language normally used to clarify messages is inaccessible [1]. As a result, a sender’s ability to show emotions, for example, is limited.

However, as a substitute for these missing elements, text-based elements have established themselves as non-verbal cues in written communication. These CMC cues can be equally effective as regular analogue language [11] and are thus able to help clarify messages [12] as well as provide information about the type and strength of the emotions that the sender wishes to convey with the message [13]. One popular form of CMC cues are emoticons, i.e., text-based symbolizations of facial expressions, emotional states, and feelings [2].¹

Emoticons are not only used in the private domain but also increasingly in job-related communications within companies and organizations [16]. Indeed, it has been shown that positive emoticons in the professional context provide three functions: (1) marking positive attitudes, (2) marking jokes/irony, (3) acting as hedges, i.e., strengthening expressive speech acts (such as thanks or greetings) or softening directives and criticism (i.e., requests, rejections, corrections, and complaints) [2].

Multiple studies have examined the effects of emoticons in CMC. Huang et al. [17] found that the use of emoticons in instant messaging has a positive effect on the enjoyment, personal interaction, perceived information richness, and perceived usefulness of messaging applications. Some studies have proven that emoticons serve the function of clarifying textual messages by accentuating a tone or meaning [3, 6], thus, helping to communicate more clearly. Derks et al. [4] find that emoticons can help to create ambiguity and express sarcasm online. However, they conclude that emoticons are not strong enough to outweigh the verbal content of a message or even change the valence of a message. Also, Walther and D’Addario [7] find that emoticons can only complement messages and do not have the strength to enhance messages.

Our study seeks to specify these results. By drawing on the four-ear model, we were able to identify the level of communication at which emoticons unfold their effects and to what extent they are doing so.

¹ In addition to text-based CMC cues, there are also pictographic-based cues such as emojis (e.g., 🍌, 🍌). However, they are currently primarily used in private communication such as in instant messaging services and in social media [14], and especially on touch-based mobile devices [15]. Since we are interested in job-related communications, we thus refrained from using emojis and focused on their text-based predecessors, i.e., emoticons [14].

3 Research Model

While in face-to-face communication facial expressions might be used by the sender to provide information about their point of view as to how their message should be interpreted by the recipient [1], in emails, emoticons can be used to provide this information, since they are a form of text-based analogue language. We thus assume that subjects will understand a message significantly differently if emoticons are used. Our dependent variable, which is the receiver's perception of a message, is divided into four subconstructs, each representing one of the four communication levels of the four ear-model [8]. We expect to find a direct effect of our independent variable (assignment to the treatment group or the control group) on all these communication-defining levels, namely the factual information level, the self-revelation level, the relationship level and the appeal level. Figure 2 presents our research model.

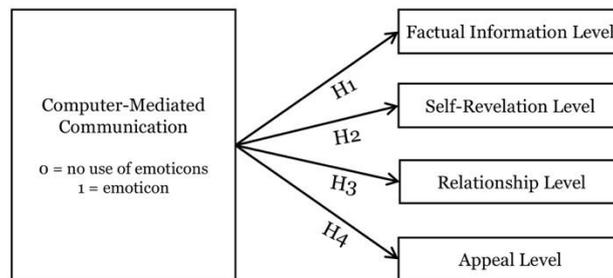


Figure 2. Research Model

First, we believe that emoticon usage influences the understanding of job-related emails at the factual information level. Indeed, non-verbal cues, such as facial expressions, gestures, and body language, influence the understanding of a message [8] by amplifying, weakening or even changing the entire verbal content — especially if there is a discrepancy between the verbal content and non-verbal cues [1]. In line with this, emoticons, which act as surrogates of facial expressions in CMC, can be expected to act similarly in the written word. However, following the insights of Derks et al. [4] and Walther and D'Addario [7], we assume the effect to be only weak, as the meaning and relevance of a message seems to be primarily conveyed by the spoken or written words. We hypothesize that:

The usage of emoticons influences the recipient's perception of a job-related message at the factual information level (H1).

Similarly, we argue that emoticons also significantly shape the metamessage of a message. More specifically, we believe that emoticons can convey information over and above the pure content level, providing enhanced information in terms of how a message should be understood and, by that, ultimately shape a message's perception.

Indeed, as Schulz von Thun [8] stated, messages' metamesages are generally conveyed to a large proportion by non-verbal cues. In line with this, we assume that

emoticons as facial expressions surrogates influence all levels of communication that carry a message's metamessage — namely the self-revelation, relationship and appeal levels. We hypothesize that:

The usage of emoticons influences the recipient's perception of a job-related message at the self-revelation level (H2), the relationship level (H3), and the appeal level (H4).

4 Research Design

4.1 Factorial Survey

To test our hypotheses, we conducted a factorial survey (also called vignette study). Factorial surveys use “short, carefully constructed description[s] of a person, object, or situation, representing a systematic combination of [the research-relevant] characteristics” [18, p. 128]. Respondents are then presented with these different fictional descriptions, and assess them on the basis of a questionnaire. Such descriptions may consist of a textual description, a video, illustrations or any other form of explanation.

In our context, we asked respondents to put themselves in the position of a company intern that receives an email from their supervisor, in which criticism is expressed (see table 1). We used the vignette character of an intern because we expected to recruit a quite young sample of people — indeed, we posted the invitation to our survey on Facebook, in special interest groups that are mainly used by students. We assumed that these subjects could quite easily put themselves in the position of an intern or might even have experienced such a situation themselves. Moreover, we used the scenario of receiving a criticism-filled email, since criticism in the workplace is typically expressed with the goal of improving work performance [19] and senders commonly use “positive” analogue language such as facial expressions to soften criticism and directives and to reduce the recipient's negative feelings [2].

Since the defining factors of our research hypotheses are emoticons, we chose the presence and absence of a positive smiley-face emoticon as the factor levels of our vignettes (in the control group, the emoticon shown in table 1 has been omitted). Finally, we chose to implement a between-subjects design in which subjects were randomly assigned to the treatment and control group.

In order to evaluate the influence of an emoticon on each of Schulz von Thun's communication levels, we developed two context-specific items for each layer in the subsequent questionnaire. All items were measured using a seven-point Likert-type scale ranging from “strongly disagree” to “strongly agree”. Table 2 presents the items of our questionnaire.

Table 1. Introductory Text and Treatment Vignette

Introductory text	Place yourself in the following situation: You are currently an intern with the company Krueger GmbH. Your tasks include, among other things, the preparation of presentations, which requires your participation in certain meetings. In the following section, you will receive an email from your supervisor, in which your work method is discussed. Please share your impressions by evaluating the given statements on a scale from 1 (“strongly disagree”) to 7 (“strongly agree”).
Vignette treatment group	Dear intern, It has come to my attention that you often arrive late for our meetings, and that the presentations you have edited are not submitted in a timely manner. Time management is crucial for good work performance.
Critical email with emoticon	I would kindly ask you to ensure to be on time in future and to adhere to your deadlines :-) Best regards, Kim Krueger

Table 2. Questionnaire Items

<i>Communication level</i>	<i>Item</i>
Factual information (FI)	I interpret the message as being an advice-giving message on how to improve my job performance (FI1) The message is informative (FI2)
Self-revelation (SR)	Mr. Krueger is assertive (SR1) Mr. Krueger is upset (SR2)
Relationship (R)	Mr. Krueger is disappointed by me (R1) Mr. Krueger does not appreciate me (R2)
Appeal (A)	I question my own way of working, and will work more conscientiously in the future (A1) I will consider the topics raised (A2)

4.2 Data Collection

As described above, we recruited German-speaking users via Facebook. The participation was incentivized by a raffle of 20 € Amazon vouchers for three of the participants. In this manner, we obtained 104 complete online questionnaires with 55 respondents evaluating the vignette without the emoticon and 49 respondents evaluating the vignette with the emoticon. As expected, our sample was quite young with 79% of the respondents aged 18 to 25. Our sample also consisted of a higher proportion of women (58%) and a majority of subjects (65%) had a high-school certificate as their highest current educational achievement.

5 Results

5.1 Descriptives

Table 3 presents the descriptives per questionnaire item and the average composite score for every communication level. For all items, the scores in the treatment group were lower than those in the control group.

We also examined the distribution properties of our sample. The variances of our two groups were equal, and the sample size of both groups were large (>30) and approximately the same size. However, a first examination of the QQ-plots and a subsequent Shapiro-Wilk-test ($W_{FI} = .962$, $p < .05$; $W_{SR} = .969$, $p < .05$; $W_R = .974$, $p < .05$; $W_A = .873$, $p < .05$) showed that our variables were not normally distributed. Still, since the t-test is relatively insensitive to a violation of the normality assumption, we were able to use it for our dataset analyses [20].

Table 3. Descriptives

<i>Item</i>	<i>Control group (CG)</i>			<i>Treatment group (TG)</i>		
	Mean	SD	SE	Mean	SD	SE
Factual information (FI)*	5.882	.990	.133	5.561	1.139	.163
FI1	5.691	1.318	.178	5.449	1.430	.204
FI2	6.073	1.184	.159	5.673	1.144	.163
Self-revelation (SR)*	5.091	1.097	.148	4.184	1.093	.156
SR1	5.636	1.310	.177	4.918	1.351	.194
SR2	4.545	1.317	.178	3.449	1.355	.193
Relationship (R)*	4.164	.938	.126	3.398	1.020	.146
R1	4.782	1.066	.144	3.694	1.278	.183
R2	3.545	1.288	.174	3.102	1.159	.166
Appeal (A)*	6.273	1.022	.138	5.806	1.025	.146
A1	6.182	1.188	.160	5.714	1.061	.151
A2	6.364	.988	.133	5.898	1.046	.149

* Composite score per communication level, normalized with item count (= 2)

5.2 Hypothesis Testing

To test our hypotheses, we performed multiple independent-means t-tests. Table 4 presents the t-values, degrees of freedom (df), the 2-tailed significance levels (sig.), and the effect sizes for all item means.

Hypothesis 1 assumed that we would find an effect of emoticon usage at the factual information level. However, we found no significant difference between the treatment and control group ($mean_{TG} = 5.561$, $mean_{CG} = 5.882$, $t_{(102)} = 1.5226^{n.s.}$). Both in the treatment and control group subjects evaluated the message similarly strong as being informative and as being an advice-giving message to do better in the future. Hence, hypothesis 1 was not confirmed. We explain this finding by the fact that factual

information is predominantly conveyed by the digital language (the raw text) and not by analogue language (e.g., facial expressions, emoticons) [1]. Indeed, recipients mostly use the content aspect of the message to evaluate the relevance, importance and trustworthiness of the information provided [8]. This is in line with Derks et al. [4] who also described that “emoticons do not have the strength to turn around the valence of a message” [4, p. 386].

Table 4. Significance and Effect Sizes

<i>Communication level</i>	<i>t</i>	<i>df</i>	<i>Sig.</i>	<i> Hedges' g </i>
Factual information	1.5226	102	.131	.300
Self-revelation	4.2171	102	.000	.828
Relationship	3.9668	102	.000	.784
Appeal	2.3207	102	.022	.456

Concerning the self-revelation level, we found that participants evaluated the items measuring the self-revelation level significantly lower when the message contained a positive emoticon (mean_{TG} = 4.184, mean_{CG} = 5.091, $t_{(102)} = 4.2171^{***}$). We also evaluated the effect size. Concerning the effect at the self-revelation level, the effect size was large ($|g| = .828$). As a result, hypothesis 2 was confirmed.

Likewise, the negative associations of receiving criticism were lower at the message’s relationship level when the message contained a positive emoticon than when the message did not contain a positive emoticon (mean_{TG} = 3.398, mean_{CG} = 4.164). The difference was significant ($t_{(102)} = 3.9668$, $p < .001$) and represented a medium-sized effect ($|g| = .784$). Thus, hypothesis 3 was confirmed.

Finally, we also found a significant group difference ($t_{(102)} = 2.3207$, $p < .05$) for the appeal level of the email, which represented a small-sized effect ($|g| = .456$). More specifically, subjects in the treatment group evaluated the appeal level lower than the subjects in the control group did (mean_{TG} = 5.806, mean_{CG} = 6.273). Hence, hypothesis 4 was confirmed. These results confirm on the one hand that the emoticon has a significant influence on the appeal level, and on the other hand, that the positive smiley emoticon softens a message’s illocutionary force.

6 Discussion

Whereas Walther and D’Addario [7] concluded that emoticons do not have the strength to enhance messages, Derks et al. [4] showed that emoticons may act as surrogates for non-verbal communication cues in CMC, however, they “do not have the strength to turn around the valence of a message” [4, p. 386]. Our study helps to explain those mixed results concerning the effects of emoticons.

More specifically, previous studies did not differentiate between messages’ multiple communication levels and rather understood messages as one-dimensional entities. In contrast, we differentiated between four communication levels and showed that emoticons have a significant influence on the metamessage of messages, namely on messages’ self-revelation levels, relationship levels and appeal levels. Still, at the

level of factual information, the influence of emoticons was insignificant. Based on these findings, we can conclude that the use of emoticons helps recipients interpret CMC messages by increasing information richness while neither diluting nor enhancing the factual information of the message. Our findings also explain why emoticons are able to soften the illocutionary force of speech acts: They are able to convey information within the metamessage, namely at the self-revelation level, relationship level, and appeal level.

In addition to these insights into the general effects of the emoticon on communication levels, we also provided insights into the direction of these effects. More specifically, in the specific case of an email expressing criticism, we showed that a positive emoticon can help soften criticism while simultaneously retaining the factual information of the message. In general, criticism can cause negative associations at the relationship and self-revelation levels in the recipient. Indeed, people can take criticism personally [21], even though in the workplace it is typically expressed with the goal of improving work performance and not meant personally [19]. Since a positive emoticon such as the smiley face conveys a sender's positive attitude [22], its usage in an email expressing criticism reduces negative associations of the recipient at the relationship and self-disclosure levels [8].

However, this does not come without a price. We also observed lower scores at the appeal level: Positive emoticons also seem to reduce the recipient's understanding of the overall intention of the sender and their expected response, i.e., the improvement of their work performance. Thus, expressing criticism along with the usage of emoticons may not be effective at evoking the awaited response. This effect can be explained by the fact that emoticon usage, especially in the professional domain, also comes along with decreased perceptions of competence and authority [23]. However, whereas the effects of the positive emoticon at the relationship and self-disclosure levels were large and medium-sized, they were only small-sized at the appeal level, which implies that the price paid is probably not all too high.

7 Conclusions

In this article, we evaluated the influence of emoticons on recipients' interpretation of Schulz von Thun's four communication levels, in the context of workplace emails expressing criticism. Based on a factorial survey with, our results suggested that emoticons exert an effect on the communication levels linked to the metamessage of a message, that is, the relationship level, the self-revelation level, and the appeal level. However, we did not detect a significant influence of emoticons on the interpretation of the content aspect of the message, that is the factual information level.

These findings hold important practical implications. Our study emphasizes that emoticons can be a useful means for conveying information about the metamessage of a message, thus helping the recipient of a message correctly interpret it as it was intended, while not diluting its factual information. Furthermore, we showed that positive emoticons can be used in workplace emails that express criticism, in order to mitigate recipients' negative associations with the messages at the relationship and

self-revelation levels. In other words, a recipient takes criticism less personally if the sender uses a positive emoticon. At the same time, although positive emoticons do not have an influence on the perception of the message at the factual information level, they do soften the illocutionary force of the message at the appeal level. Hence, the mitigation of recipients' negative associations comes with a price.

There are some limitations to our study that should be noted. Certainly, a situation that is described in a vignette can never be fully realistic and is especially prone to individual misperceptions. Thus, the external validity of our study might be limited, even though we tried to select an appropriate vignette situation that fit our expectedly young sample of people. Additionally, we only used two specific emails (which were identical with the exception of the additional emoticon in one of them). Although the scenario and the wording were carefully constructed and examined by third parties, it is still possible that the respondents might have misinterpreted the emails. Indeed, the situation that was described in vignette was not equally realistic for all respondents. For example, in the case of the employed people in our sample, it was maybe more difficult for them to imagine themselves as interns than it would be for students.

Furthermore, there are certain limitations to between-subjects designs when it comes to perceptions, opinions and situational judgments as is the case in factorial surveys. It can be argued that in between-subjects designs, each respondent judges only a single vignette, which can lead to measurement problems due to individually different vignette contexts. However, results from a within-subject design would be seriously flawed as subjects would not have been blind to condition and, thus, memory effects, sponsorship effects, and sequence effects would have come up.

Moreover, we only included one specific positive emoticon, :-). Hence, different results might be found when other positive emoticons are used, such as :) or :-D. In addition, we did not look at emoticons that introduce irony into the communication, such as ;-).

Finally, we only surveyed German-speaking people and 79 percent of our respondents were between 18 and 25 years old. Hence, differences might be found for non-German speaking people as well as for other age groups. Overall, due to these shortcomings, the external validity of our study might be limited.

As a next step, we intend to take a look at the influence of multiple kinds of emoticons (positive, negative, ironic, etc.) on recipients' interpretation of different kinds of job-related emails (positive, critical, etc.).

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