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CHAPTER 5

an experimental test of the effects of online and face-to-face feedback on self-esteem
chapter 5

AN EXPERIMENTAL TEST OF THE EFFECTS OF ONLINE AND FACE-TO-FACE FEEDBACK ON SELF-ESTEEM

ABSTRACT

The aims of the present study were to investigate (1) the effect of online feedback (i.e., confirming or disconfirming) on self-esteem after disclosing oneself to a communication partner, (2) the explanatory role of reciprocal feedback in this relationship, and (3) whether these effects differ between online and face-to-face communication. Using a two (communication mode: online vs. face-to-face) by two (feedback valence: confirming vs. disconfirming) between-subjects experiment, we found that, although feedback did not immediately affect self-esteem, it indirectly influenced self-esteem through the receiver’s reciprocal feedback. This indirect effect was moderated by the communication mode: In online communication, participants responded with more negative reciprocal feedback to disconfirming feedback than in face-to-face communication. In turn, this reciprocal feedback positively affected their self-esteem in online communication, but not in face-to-face communication. Our results suggest that people are more likely to respond more negatively to negative evaluative comments in online conversations, which boosts their self-esteem.
Recent research on computer-mediated communication has consistently demonstrated the important role of self-disclosure in online interaction, for example in online impression formation (e.g., Antheunis, Valkenburg, & Peter, 2007), the development of intimacy (Bazarova, 2012; Jiang, Bazarova, & Hancock, 2011), and friendship quality (Valkenburg & Peter, 2009a). Less, however, is known about the dynamics of self-disclosure in online interaction. Specifically, the feedback that people receive on their online self-disclosure has hardly been studied. This is remarkable because reciprocal interactions over time are crucial for how online communication develops (Walther, 1996), notably when self-disclosure is involved (Jourard, 1964). The present study, therefore, focuses on how feedback on self-disclosure affects online communication processes and their outcomes.

A striking gap in our knowledge on the role of feedback on self-disclosure in online communication relates to people’s self-esteem. The few studies that have investigated the effects of online feedback have shown that confirming feedback augments effects of selective self-presentation on how people perceive themselves (Walther, 2011), and that peer feedback in social media is related to adolescents’ self-esteem (Thomaes et al., 2010; Valkenburg, Peter, & Schouten, 2006). However, the influence that the feedback on one’s online self-disclosure may exert on self-esteem has hardly been studied. The first aim of the current study was to fill this gap.

A second gap in our knowledge about the role that feedback on online self-disclosure plays for people’s self-esteem concerns their responses to this feedback. The responses to feedback may be equally, or even more, important than the feedback itself for how online self-disclosure affects self-esteem. After all, people’s responses to information from their communication partner form an important influence in the development of conversations (Snyder, Tanke, & Berscheid, 1977). To our knowledge, previous research has not yet investigated people’s responses to the feedback they receive on their self-disclosure. Without such knowledge, however, we are unable to explain why feedback on online self-disclosure may affect people’s self-esteem. Investigating this was the second aim of the present study.

Previous research suggests that characteristics of online communication, such as the reduced audiovisual cues, enhance the influence of feedback on self-disclosure in online communication compared to face-to-face communication (Walther, 1996). However, earlier studies have focused only on online feedback without comparing this to face-to-face feedback, which may lead to inflated views of the found effects (Walther, 2011). Although it is sensible to assume a powerful influence of online feedback on self-esteem, it is not possible to attribute this impact to characteristics of online communication without comparing it to face-to-face communication. The third aim of this study, therefore, is to investigate whether the effects of feedback, and responding
to feedback, on self-esteem differ between online communication and face-to-face communication.

In the literature, feedback is conceptualized in different ways. It is seen as verbal or nonverbal confirmation or disconfirmation of the content of another person’s message (Cissna & Sieburg, 1981), but it can also refer to evaluative comments that confirm or disconfirm another’s value as a person. The current study focuses on feedback as confirming or disconfirming evaluative comments, because such comments are particularly important to the receiver’s self-esteem (e.g., Thomaes et al., 2010; Valkenburg et al., 2006).

The effect of online feedback on self-esteem

Despite its important role in online communication, online feedback has received relatively little attention in research to date (Walther, 2011). While a few studies have focused on the effects of online feedback on the frequency and quality of online activities (e.g., Birnie & Holmberg, 2007; Cheshire & Antin, 2008; Lampe & Johnston, 2005), only four studies have dealt with the consequences of online feedback on self-esteem. A survey study among Dutch adolescents has found that adolescents who frequently used social network sites received mainly positive feedback, which, in turn, was related positively with their social self-esteem and well-being (Valkenburg et al., 2006). In a Japanese survey study, positive feedback on teenagers’ blogs increased a concept close to self-esteem, that is, satisfaction with themselves and feelings of acceptance, whereas negative feedback decreased satisfaction and feelings of acceptance (Miura & Yamashita, 2007). Also, a more recent survey study by Greitemeyer, Mügge, and Bollen (2014) confirmed that positive online feedback on Facebook posts was related to higher self-esteem, whereas negative online feedback was related to lower self-esteem. Finally, the relation between feedback valence and self-esteem was also confirmed in an experimental study (Thomaes et al., 2010). Based on the results of these studies, we hypothesize that receiving confirming feedback to one’s self-disclosure leads to higher self-esteem compared to receiving disconfirming feedback (H1a).

Feedback in online vs. face-to-face communication

Although previous research shows that online evaluative feedback can influence people’s self-esteem, these studies do not discuss how the effects of online feedback may differ from the effects of face-to-face feedback. The specific role of feedback between online communication partners is most explicitly described in Walther’s (1996) hyperpersonal model of computer-mediated communication. According to this model, feedback can reinforce and extend idealized impressions of, and relationships with,
online communication partners. In addition to the editability of messages, the reduced audiovisual cues, which still typify large parts of online communication, it promotes selective and desirable self-presentation and communication. In response to these reduced cues, people typically fill in the blanks in the information they receive. As the initial information is usually favorable, they often fill in missing information in a positive way (Walther, 1996). Thereby, they create idealized impressions of their online communication partners and their relationships. Given the well-established dynamic of behavioral confirmation (Snyder et al., 1977), people eventually confirm these idealized impressions of their online communication partners by actually behaving in line with the positive impressions they have of their partners and their relationship with them.

Although the hyperpersonal communication model (Walther, 1996) focuses on the intensification of positive interactions and effects, its basic propositions are also applicable to negative online interactions. In the same way in which positive cues in online communication are said to enhance the interpretation of an online interaction as positive, negative cues may, accordingly, intensify the interpretation of an online interaction as negative. In fact, previous research has shown that negative information about a communication partner affected people’s impression of this person more strongly after communicating online (i.e., through e-mail) compared to phone conversations (Epley & Kruger, 2005). Moreover, miscommunication caused by the reduced cues in online communication has been suggested to induce negative communication, such as flaming (Kruger, Epley, Parker, & Ng, 2005).

Thus, previous studies suggest that positive cues, such as confirming feedback, are likely to be interpreted as more positive in online communication than in face-to-face communication, whereas negative cues, such as disconfirming feedback, are likely to be interpreted as more negative. With respect to effects on self-esteem, we therefore hypothesized that the effects of confirming and disconfirming feedback are stronger in online communication compared to face-to-face communication (H1b).

**Dynamics of reciprocal exchange in online communication**

Several traditional disclosure theories, such as social exchange theory (Altman & Taylor, 1973) and Jourard’s (1964) theory of self-disclosure, deal with the dynamics of self-disclosure in face-to-face communication. These theories all emphasize that self-disclosure is a mutual exchange of personal information. When interpersonal relationships develop, this mutual exchange of information usually moves gradually from superficial self-disclosure (e.g., hobbies) to more intimate aspects of the self in interactions (e.g., feelings; Altman & Taylor, 1973). During the exchange of personal information, the reciprocity principle plays an important role (Jourard, 1964): Intimate disclosure by one communication partner leads to intimate disclosure by the other.
Sharing of impersonal information, in contrast, elicits impersonal responses. Most important, in the case of intimate self-disclosure, mutual disclosure increases liking between communication partners and the intimacy of their relationship (Collins & Miller, 1994).

Self-disclosure theories as well as the hyperpersonal communication model thus explain how the beneficial effects of self-disclosure on interpersonal relationships take place through reciprocal responses between communication partners. Importantly, these theories suggest that messages can have substantial consequences partly through others’ behavior in response to these messages. We argue the same mechanisms may also apply to the effects of evaluative feedback messages on the self-esteem of the receiver. That is, the effect of online feedback on self-esteem may, at least in part, take place indirectly through the response to feedback.

The effect of feedback on the receiver’s reciprocal feedback

In addition to its role in people’s tendency to reciprocate the level of intimacy in each other’s messages (Jourard, 1964), the reciprocity principle also plays an important role in determining people’s positive and negative behavior in response to others (Fehr & Gächter, 2000). In response to friendly actions by others, people tend to behave in a positive way (e.g., by being nice and cooperative), whereas they are more negative in response to other’s hostile actions (Fehr & Gächter, 2000). Previous studies have repeatedly shown such reciprocity effects in a variety of contexts and behaviors (e.g., Cialdini & James, 2009; Giacalone & Greenberg, 1997; Tidd & Lockard, 1978), which suggests that similar effects are also likely to occur with respect to the valence of interpersonal communication. More specifically, people are likely to reciprocate the valence of their communication partners’ messages by responding in a positive way to a positive message and in a negative way to a negative message. With respect to positive (i.e., confirming) and negative (i.e., disconfirming) feedback, this suggests that people may respond to confirming feedback by giving confirming or positive feedback of their own, whereas they respond to disconfirming feedback by returning disconfirming or negative feedback. Based on terminology in research on reciprocity (i.e., positive reciprocity and negative reciprocity; Fehr & Gächter, 2000), we call these positive feedback responses to received feedback messages positive reciprocal feedback, and we term the negative feedback responses negative reciprocal feedback. We hypothesize that receiving confirming feedback leads to more positive reciprocal feedback, whereas disconfirming feedback leads to more negative reciprocal feedback (H2a).

Whereas the valence of the feedback that people receive may determine the valence of their response to this feedback, the communication mode in which the conversation takes place may affect the intensity of their response. The reduced audiovisual cues
and higher controllability of online communication may make people less concerned about how others perceive them (Walther, 1996). As a consequence, they feel less inhibited to share their intimate feelings (Walther, 1996), and feel more comfortable showing their “true” self (Bargh, McKenna, & Fitzsimons, 2002). In line with the previously demonstrated positive effects of increased online self-disclosure on relationships (e.g., Jiang et al., 2011; Valkenburg & Peter, 2009a), feelings of disinhibition stimulated by online communication may lead people to express more intensely positive thoughts and feelings compared to face-to-face communication. Previous research has indeed indicated a higher proportion of explicit expressions of high-positive regard in online communication compared to face-to-face communication (Kiesler, Zubrow, Moses, & Geller, 1985).

However, the relative anonymity and lack of social context awareness in online communication have also been suggested to induce negative or even hostile behavior (Valkenburg & Peter, 2009b). Several previous studies have demonstrated higher incidents of negative behavior in online communication (Kiesler et al., 1985; Orengo Castellá, Zornoza Abad, Prieto Alonso, & Peiró Silla, 2000; Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Sproull & Kiesler, 1986). In addition, flaming behavior has been attributed to the anonymity and invisibility and, especially, the lack of eye contact in online interactions (Lapidot-Lefler & Barak, 2012). This implies that it may be easier to respond negatively if one is not confronted with a visible physical response of a communication partner. In sum, existing literature suggests that online communication may intensify both positive and negative responses to feedback compared to face-to-face communication. Therefore, we hypothesize that the effects of confirming and disconfirming feedback on the valence of the receiver’s reciprocal feedback are stronger in online communication compared to face-to-face communication (H2b).

The effect of reciprocal feedback on self-esteem

Based on the important role of reciprocal exchanges in online communication effects proposed by the hyperpersonal communication models (e.g., Kiesler, Siegel, & McGuire, 1984; Suler, 2004), the communication mode may not only affect how one responds to feedback, but also how this response, in turn, affects self-esteem. Literature on how people’s online responses may affect their self-esteem is scarce. However, based on theoretical considerations, several different processes may take place, which may lead to different effects of reciprocal feedback for people’s self-esteem. These processes are: (a) self-perception effects of the reciprocal feedback, (b) mutually reinforcing feedback loops, and (c) responding with negative reciprocal feedback as a coping mechanism.
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**Self-perception effects of the receiver’s reciprocal feedback**

According to the self-perception theory, people infer how they feel based on their behavior (Bem, 1972). More specifically, people form their attitudes, in part, after seeing their own behavior. Research suggests that people’s self-concepts can also be affected by what they communicate to others. For instance, one’s arguing in favor of an opinion has been shown to lead to attitude change in the direction of this opinion, even if one originally opposed this opinion (Chaiken & Baldwin, 1981). Similar effects have also been found in online communication: Using more arguments and expressing more disagreement in an online conversation shifted people’s attitudes about the conversation topic towards their behavior (Walther, Van Der Heide, Tong, Carr, & Atkin, 2010). Based on this research, it is thus likely that positive behavior, such as providing positive reciprocal feedback to a communication partner, induces positive self-perceptions and increases self-esteem. In contrast, negative behavior, such as giving negative reciprocal feedback, is likely to induce negative self-perceptions and decrease one’s self-esteem.

Although the valence of reciprocal feedback may thus determine the direction of the effect on self-esteem, the size of the effect may depend on the communication mode. In online communication, people typically can see their messages persistently on the screen, which magnifies the effects of their behavior on their self-perceptions. Consequently, they can infer their feelings more strongly from these messages than they would in face-to-face conversations, where the behavior is more transient. Reciprocating feedback to an online communication partner may therefore intensify the (positive or negative) effect on self-esteem when compared to face-to-face communication.

**Mutually reinforcing feedback loops**

A second way in which online communication may intensify the consequences of positive or negative reciprocal feedback for one’s self-esteem is based on the feedback component in the hyperpersonal communication model. This model suggests that online communication provides an intensification loop (Walther, 1996) as the reduced cues intensify the positive interpretation of positive cues and, therefore, positively affect the consequent mutual responses between communication partners. Such an intensification loop may also take place in the context of online feedback. That is, an initial positive message, such as confirming feedback, may trigger a positive loop in the conversation. Responding to positive feedback with positive reciprocal feedback may therefore ultimately have a greater impact on self-esteem in online communication than in face-to-face communication. Conversely, a negative intensification loop may also be more likely to occur in online communication compared to face-to-face communication. An initial disconfirming message that is responded to with negative...
reciprocal feedback may prompt further reciprocal negativity, resulting eventually in diminished self-esteem.

**Responding negatively to feedback as a coping strategy**

One way of coping with unfavorable treatment by another person is to retaliate (e.g., Gollwitzer & Denzler, 2009), in particular when one’s self-esteem has been damaged (Bies, Tripp, & Kramer, 1997). In such a case, people may be motivated to respond negatively in return to disconfirming feedback from a communication partner, for instance by giving negative reciprocal feedback to this person. As research has shown, such retaliation can restore equity (i.e., a perception of fairness) in a relationship (Berscheid, Boye, & Walster, 1968) and may restore or even improve self-esteem.

However, being negative to others may also have negative consequences for self-esteem. For example, scholars have also suggested that retaliation may make people ruminate more about the situation instead taking their mind of it (Carlsmith, Wilson, & Gilbert, 2008). In addition, because being negative to others is generally seen as socially undesirable behavior, giving negative reciprocal feedback to a communication partner may feel awkward. This awkwardness might cancel out the positive effect of retaliation on self-esteem. Consequently, negative reciprocal feedback may not increase, but rather decrease self-esteem.

Hypothesis 2b predicted that, in online communication, people’s lowered inhibition makes it easier to respond with negative reciprocal feedback to a communication partner. Online communication may make people less concerned about how others perceive them (Walther, 1996) and the physical distance decreases the threat of a possible negative response of the communication partner. As a result, responding negatively may feel less uncomfortable. Importantly, being able to respond negatively to someone who hurt us may stimulate positive self-perceptions, such as assertiveness. This suggests that negative reciprocal feedback may negatively affect self-esteem in face-to-face communication or have no effect, whereas it may have a positive effect on self-esteem in online communication.

**The effect of reciprocal feedback on self-esteem**

In sum, the approach based on self-perception theory as well as theories emphasizing the role of mutual exchanges between communication partners predict that positive reciprocal feedback towards a communication partner increases self-esteem, whereas negative reciprocal feedback decreases self-esteem. Research into selective online self-presentation and online self-disclosure suggests that these effects are more intense in online communication. By contrast, the approach based on processes related
to retaliation predicts that negative reciprocal feedback increases self-esteem. However, the awkwardness of providing negative reciprocal feedback may also cancel out the possible positive effect, or even decrease self-esteem, in face-to-face communication. In online communication, a contrasting effect is predicted, as the relative comfort of providing negative reciprocal feedback may increase self-esteem.

Because all of these processes seem equally plausible, we did not pose hypotheses concerning the effect of the receiver’s response to feedback. Instead, we investigate the following research question: What is the effect of the valence of the response to feedback on self-esteem (RQ1a), and how do these effects differ between online communication and face-to-face communication (RQ1b)?

Method

We conducted an experiment with a two (communication mode: online vs. face-to-face) by two (feedback valence: confirming vs. disconfirming) between-subjects design. Participants were randomly assigned to one of the four conditions: (1) online confirming feedback, (2) online disconfirming feedback, (3) face-to-face confirming feedback, (4) face-to-face disconfirming feedback. Feedback was given to the participant by a confederate pretending to participate in the experiment.

Participants

The data were collected from September to November of 2013. Of the 154 participants who took part in the experiment, five were excluded because they exceeded the age limit of 30 years old. We chose participants younger than 30 years of age to prevent that a too large age difference between the participants and the confederates (who were both in their early twenties) would interfere with the credibility of the confederates and their feedback. The final sample consisted of 149 participants (51.7% female), with a mean age of 22.0 years old (SD = 3.0). Most participants were students of higher education (92.6%), were born in the Netherlands (94.0%), and had parents who were also born in the Netherlands (mother 79.9%, father 80.5%).

Procedure

The study was approved by the department’s ethical committee. Participants were recruited at the university campus and through an ad on the student webpage. Prospective participants were told that the study investigated how people get to know each other. Participants received a monetary reward for their participation (face-to-face
Participants were paired with a confederate of the same sex. Upon arrival at the laboratory, participants received a general instruction of the procedure of the experiment and filled in the consent forms. Participants were told that they would do a get-to-know-you task with another person (the confederate), in which they would have a short conversation, give first impressions of each other, and complete short questionnaires. They were told that this study was a first step in the process of getting acquainted, and that they would be invited for a follow-up study to get to know each other further. The communication mode in which the conversation between the participant and the conference took place was either face-to-face or online (i.e., instant messaging). Both the participant and the confederate received a booklet that included all instructions about the task as well as the paper-and-pencil questionnaires. In all conditions, participants were instructed to start with the first step in the booklet after the experimenter had left the room.

During the experiment, the participants first engaged in deep self-disclosure to the confederate. The participant answered 12 questions, which were asked by the confederate in a fixed order. Confederates were instructed to react to the participants’ answers in a neutral way, for example by saying: “I see” or “OK. Next question.” After the self-disclosure, the confederate gave feedback as an apparent first impression based on the self-disclosure of the participant. After receiving this feedback, participants completed a questionnaire measuring their state self-esteem. Then, the participants and confederate exchanged roles: Participants asked the confederate the same questions, and also gave feedback to the confederate. Afterwards, participants completed a questionnaire, which again measured their state self-esteem, as well as demographic information (i.e., date of birth, birth country, birth country of mother and father, sexual orientation, their studies). Finally, participants were probed for suspicion, thanked, and immediately debriefed. The experimenter explained the role of the confederate and that the feedback the participants had received was not real, and that there would not be a follow-up conversation.

**Self-disclosure**

The questions used to induce self-disclosure among the participants were inspired by Taylor and Altman’s (1966) set of intimacy-scaled stimuli. The topics of the questions were based on items that were originally used to measure self-disclosure (Jourard & Lasakow, 1958; Miller, Berg, & Archer, 1983; Rubin & Shenker, 1978), manipulate intimacy of self-disclosure (Archer, Berg, & Runge, 1980) and relational closeness (Aron, Melinat, Aron, & Bator, 1997; Sedikides, Campbell, Reader, & Elliot, 1999), and items used as
topics for self-presentation (Gonzales & Hancock, 2008; Walther, 2011; Walther et al., 2011), complemented with new items. We pre-tested a list of superficial and deep questions among undergraduate students, who indicated how superficial or intimate they found each question on a scale from 1 (very superficial) to 9 (very intimate). The items with the highest (i.e., most intimate) and lowest (i.e., most superficial) scores that scored exclusively on the intended side of the scale (i.e., lower or higher than the neutral score 5) would be the most appropriate to select. Based on the intimacy scores provided by the respondents, we selected the items that met these criteria best. After some adaptations, a final version of the questions was created, which started with a few introductory, relatively superficial topics (e.g., the participants’ hobbies) and continued with deeper topics. Examples of deep self-disclosure questions are: “What are negative aspects of your personality?”, “What is the best experience you have ever had?”, and “What is something you worry about or have ever worried about?”

**Manipulation of communication mode**

To manipulate communication mode, participants communicated with the confederate online or face-to-face. In the face-to-face conditions, the conversations took place in a living-room type of laboratory. In the online conditions, the conversations took place on computers in the lab through a chat room on Chatzy.com. The participant was seated behind a desk with a laptop in the living room laboratory, while the confederate was in a different room, also with a computer. Participants were instructed to fill in their first name as a screen name in the chat program. The confederates also used their first names. After creating a screen name, participants could start chatting with the confederate.

Participants in the face-to-face conditions met the confederate at the entrance of the laboratory, whereas the participants in the online conditions did not meet the confederate until after the experiment. However, participants in all conditions had or received the same information about the “other participant” before the conversation, that is, his/her first name and sex. In the face-to-face conditions, the confederate also filled in all questionnaires in the booklet, whereas this was not necessary in the online conditions because the participant could not see the confederate. With the consent of the participants, the face-to-face conversations were audiotaped and the chat logs were saved.

**Manipulation of valence of feedback**

To manipulate valence of feedback, the confederate gave confirming or disconfirming feedback to the participant in the form of a first impression of the participant. This operationalization was based on Cissna and Sieburg’s (1981) conceptualization of
confirmation and disconfirmation. Before the data collection, the researchers and confederates practiced the feedback, to ensure that it was experienced as clearly confirming or disconfirming, in particular with respect to two aspects: awareness of the other’s significance or worth, and a (possible) relationship or affiliation with the other. The confirming feedback was: “My first impression... good, I guess. The things you like to do appeal to me. And based on the things you say about yourself, about your personality and stuff, you seem, at first glance, to be someone I would become friends with. Yes, I got a positive impression of you.” The disconfirming feedback was: “My first impression... I’m not sure. The things you like to do are not really what I like to do. And based on the things you say about yourself, about your personality and stuff, you seem, at first glance, to be someone I would probably not become friends with. Unfortunately, I didn’t get a positive impression of you. I’m sorry, but I want to be honest with you.”

Measures

State self-esteem

State self-esteem was assessed using an adapted version of a global self-worth scale (Harter, 2012b), consisting of five items: “At this moment...” (1) “I am pretty pleased with myself,” (2) “I like the way I am leading my life,” (3) “I am happy with myself,” (4) “I like the kind of person I am,” (5) “I am very happy being the way I am.” Participants responded using a Visual Analogue Scale (VAS) whereby they draw a vertical line on a horizontal line of 100 mm, with the left end point (0 mm) representing “not at all” and the right endpoint (100 mm) “very much”. The distance between the right endpoint and the vertical line, represent their response. We created a scale based on the average of the five individual items. State self-esteem was measured two times during the experiment, after receiving feedback from the confederate (Time 1), and after giving feedback to the confederate (Time 2). Based on the measures on these two time points, we created two scales: state self-esteem at Time 1 (α = .90, M = 70.58, SD = 13.76) and state self-esteem at Time 2 (α = .94, M = 73.03, SD = 13.81).

Valence of participant’s reciprocal feedback

The valence of the face-to-face and online feedback by the participant were coded by the first author. Coding categories were: 1 (negative), 2, (somewhat negative), 3 (neutral), 4 (somewhat positive), and 5 (positive). To assess intra-coder reliability, 10% (N = 16) of the cases were coded a second time after 10 months. Intra-coder reliability was good (κ = .79). To establish inter-coding reliability, a second coder was trained, who coded about 10% of the items (N = 16). Inter-coder reliability was also good (κ = .71).
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Demographic variables

Information was collected concerning participants’ sex, age (i.e., date of birth), country of birth, as well as country of birth of mother and father, sexual orientation, and their study (open questions).

Results

Randomization check

Before investigating the hypotheses, we tested whether the four conditions differed with respect to participants’ demographic characteristics. Univariate analyses of variance (ANOVA) did not show any significant differences between the four conditions with regard to sex, $F(3, 149) = 0.04$, $p = .989$, and age, $F(3, 144) = 0.26$, $p = .854$, showing that randomization was successful.

Effects of mode and feedback on self-esteem

Hypothesis 1a predicted that receiving confirming feedback to one’s self-disclosure would lead to higher self-esteem compared to receiving disconfirming feedback. An analysis of variance (ANOVA) with self-esteem at Time 1 as the dependent variable and feedback valence and communication mode as independent variables revealed no direct effect of feedback valence on self-esteem, $F(1, 145) = 0.00$, $p = .960$. Hypothesis 1a was thus not supported. Likewise, there was no effect of communication mode (online vs. offline) on self-esteem, $F(1, 145) = 0.27$, $p = .605$.

Hypothesis 1b predicted that the effects of confirming and disconfirming feedback would be stronger in online communication compared to face-to-face communication. To test this, a second ANOVA examined self-esteem at Time 1 as the dependent variable for main effects of feedback valence and communication mode, and for the interaction between feedback valence and communication mode. The results did not show a significant interaction effect between feedback and mode, $F(1, 144) = 0.08$, $p = .777$. Hypothesis 1b was also not supported.

Effects of mode and feedback on participants’ reciprocal feedback

Hypothesis 2a predicted that receiving confirming feedback would lead to more positive reciprocal feedback, whereas disconfirming feedback would lead to more negative reciprocal feedback. An ANOVA with the participant’s reciprocal feedback as a dependent variable and feedback valence and communication mode as independent variables showed main effects of communication mode and feedback valence on the valence
of the participants’ reciprocal feedback. Participants gave more positive feedback in face-to-face communication (\(M = 4.36, SD = 0.83\)) than in online communication (\(M = 3.65, SD = 1.12\)), \(F(1, 143) = 25.20, p < .001\). In addition, receiving confirming feedback resulted in giving more positive reciprocal feedback (\(M = 4.67, SD = 0.61\)) compared to receiving disconfirming feedback (\(M = 3.35, SD = 0.97\)), \(F(1, 143) = 104.30, p < .001\). This result supported Hypothesis 2a.

Hypothesis 2b stated that the effect of feedback valence on the participant's reciprocal feedback valence would be stronger in online communication compared to face-to-face communication. We conducted an ANOVA with the participant’s feedback as a dependent variable for the effects of feedback valence, communication mode, and the interaction between feedback valence and communication mode. Results showed a significant difference in the level of positivity in the feedback that participants gave to the confederate in both communication modes. However this difference was larger in the online communication mode compared to the offline mode. In the online conditions, participants responded with more negative feedback when confederates had provided disconfirming feedback to them (\(M = 2.95, SD = 0.88\)), and gave more positive feedback when they had received confirming feedback (\(M = 4.47, SD = 0.75\)). However, this was less distinct in the face-to-face condition, where participants tended to offer more positive feedback in response to confederates’ feedback, regardless of whether the confederate had given confirming (\(M = 4.84, SD = 0.37\)) or disconfirming feedback (\(M = 3.82, SD = 0.87\)). This disparity created a significant interaction effect between the valence of the feedback received from the confederate and the communication mode, \(F(1, 142) = 4.15, p = .044\) (see Figure 1). Participants in online conditions were more negative in response to disconfirming feedback compared to face-to-face conditions, but not more positive after receiving confirming feedback. Hypothesis 2b was partially supported.
Chapter 5

Effects of mode and participant’s feedback on self-esteem

Our research questions concerned the effect of the valence of the receiver’s reciprocal feedback on their self-esteem (RQ1a), and how this effect differs between online and face-to-face communication (RQ1b). A regression analysis examined self-esteem at Time 2 as a dependent variable, with the communication mode and participant’s reciprocal feedback as the independent variables, while controlling for self-esteem at Time 1. No main effect of feedback emerged: The valence of the reciprocal feedback did not affect participants’ self-esteem at Time 2, $B = -0.71$, $SE = 0.52$, $p = .179$. Likewise, the communication mode had no main effect on self-esteem at Time 2, $B = 0.24$, $SE = 1.09$, $p = .829$. Self-esteem at Time 1 had a positive effect on self-esteem at Time 2, $B = 0.90$, $SE = 0.04$, $p < .001$, so the level of self-esteem after receiving feedback was positively related to self-esteem after giving feedback.

To investigate whether the effect of reciprocal feedback on self-esteem differed by the communication mode (RQ1b), we conducted a regression analysis using Hayes’ (2013) SPSS macros (model 1), with self-esteem at Time 2 as a dependent variable, and the communication mode, the participant’s reciprocal feedback, and the interaction between the participant’s reciprocal feedback and communication mode.
as independent variables, and self-esteem at Time 1 as a covariate. An interaction effect between the participant’s reciprocal feedback and communication mode revealed that communication mode moderated the effect of the participant’s feedback on self-esteem at Time 2, $B = -2.35$, $SE = 1.08$, $p = .032$ (see Figure 2). In order to see whether the slopes for the two communication modes were significant, we tested the conditional effects (i.e., simple slopes) of reciprocal feedback on self-esteem, separately for the face-to-face conditions and for the online conditions. Results showed that, in online communication, giving more negative reciprocal feedback significantly improved individuals self-esteem compared to giving positive reciprocal feedback, $B = -1.52$, $SE = .64$, $p = .019$. In contrast, the effect of valence of the participant’s feedback and self-esteem was not significant in face-to-face communication, $B = 0.83$, $SE = 0.88$, $p = .344$.

![Figure 2. Interaction effect between participant’s reciprocal feedback valence and communication mode on self-esteem at Time 2](image.png)
**Moderated mediation model**

In order to test whether the valence of the feedback of the confederate had an indirect effect on self-esteem through the participant’s reciprocal feedback, a regression analysis using Hayes’ (2013) SPSS macro (model 58), examined self-esteem at time 2 as an outcome, with valence of feedback of the confederate as a predictor, valence of the participant’s reciprocal feedback as a mediator of the effect of valence of feedback on self-esteem at Time 2, and communication mode as a moderator of both the effect of feedback on the participant’s feedback and of the consequent effect of the participant’s feedback on self-esteem, controlling for self-esteem at Time 1 (see Figure 3). The effect of feedback valence on final self-esteem in online communication was significantly mediated by the participant's feedback according to the bootstrap analysis, while being marginally significant based on parametric significance testing, B = 2.45, SE = 1.30 [BCI: 0.24 -5.20]. This was not the case for face-to-face communication, B = -0.77, SE = 1.40 [BCI: -4.137-1.63].

Figure 3. The mediated moderation model of the indirect effect of feedback valence on self-esteem at Time 2 through the participant’s feedback valence, moderated by communication mode.
Discussion

The first aim of the current study was to investigate the effect of online feedback on self-esteem after disclosing oneself to a communication partner. The second aim was to examine the explanatory role of reciprocal feedback in this relationship. The third aim was to investigate whether these effects differed between online and face-to-face communication. Results showed that, although the valence of feedback did not immediately affect self-esteem, it indirectly influenced self-esteem through the receiver’s reciprocal feedback. This indirect effect was moderated by the communication mode: in online communication, participants responded with more negative reciprocal feedback to disconfirming feedback than in face-to-face communication, which positively affected their self-esteem in online communication, but not in face-to-face communication.

The effect of online feedback on self-esteem

Our finding that feedback did not affect the self-esteem of the receiver after receiving this feedback is inconsistent with earlier results. This contradictory result may be due to differences in the operationalization of feedback. Earlier studies investigated feedback on adolescents’ social network site profiles, which included feedback from several peers (Thomaes et al., 2010; Valkenburg et al., 2006), or a more general measure of the frequency of positive and negative comments on adolescents’ profiles (Thomaes et al., 2010). In contrast, the current study looked at the effect of single feedback messages. It is plausible that repeated feedback messages and feedback from multiple communication partners on self-disclosure is necessary to impact the receiver’s self-esteem.

Also in contrast to our expectations, receiving confirming or disconfirming feedback to one’s self-disclosures did not appear to affect one’s self-esteem, regardless of whether the exchange took place online or face-to-face. We did thus not find the intensifying influence of online communication on the interpretation of cues as proposed by the hyperpersonal communication model (Walther, 1996). One explanation of this unexpected finding may be our focus on an initial stage of getting acquainted. Similarly to effects of feedback, it may take some time and several exchanges for the intensifying effects of online communication to appear.

The effect of feedback on the receiver’s reciprocal feedback

In line with the important role of the reciprocity principle in people’s behavior (e.g., Fehr & Gächter, 2000), we found that participants generally reacted more positively to confirming feedback from their communication partner than to disconfirming feedback.
However, whereas we expected that online communication would intensify both positive and negative responses, only negative responses (to disconfirming feedback) were intensified online. This suggests that online communication may differentially affect an individual’s willingness to respond to another person, depending on whether this response is negative or positive.

One possible explanation may be that people are particularly motivated to retaliate if others have treated them badly, resulting in a more intense response to other’s negative actions than to positive actions (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Disconfirming feedback is a sign of social rejection, and thus more threatening to one’s self-esteem (Harter, 2012a; Leary, Tambor, Terdal, & Downs, 1995), which may generate a stronger motivation to deal with this type of feedback. Importantly, the current study suggests that characteristics of online communication seem to facilitate doing so. In online conversations, participants may have felt less inhibited, but also safer from their communication partner’s possibly negative response, and were consequently more likely to retaliate by providing negative reciprocal feedback. In face-to-face communication, by contrast, the riskiness of responding negatively may have formed an obstacle against retaliating.

People’s less negative responses to face-to-face disconfirming feedback compared to online disconfirming feedback may also be due to the tendency to express negativity through nonverbal behavior in face-to-face encounters. Because online communication partners are forced to use the available cues to express the same message valence, they are more verbally explicit in providing negative responses (Walther, Loh, & Granka, 2005). It is possible that people express similar levels of negativity in their responses to feedback in online and face-to-face communication when taking into account their nonverbal behavior. In order to further investigate differences between online communication and face-to-face communication with respect to the particular cues (i.e., verbal and nonverbal) people use to express negative information, future research should also include visual data (i.e., videotapes) of conversations to analyze the nonverbal behavior in people’s responses to feedback.

The effect of reciprocal feedback on self-esteem

The valence of reciprocal feedback only affected participant’s self-esteem in the online conditions. The results of the current study particularly support the predictions based on online disinhibition and retaliation processes: Online communication facilitated a disinhibition-induced opportunity for retaliation. Being able to respond negatively to disconfirming feedback from a communication partner helped restore one’s self-esteem. People may have perceived their negative response as a sign of assertiveness, which boosted their self-esteem.
These results also seem to support the idea that negative spiral effects may be more likely in online communication. Albeit in a relatively short interaction, online communication induced more negative responses to disconfirming feedback than did face-to-face communication. If the conversation had allowed more exchanges between communication partners, this would likely have led to mutual negative responses. Through the dynamic of behavioral confirmation (Snyder et al., 1977), such negative exchanges may result in an escalation of the interaction, with negative consequences for the relationship between the communication partners.

Online feedback dynamics in online communication

Our study contributes to existing research in two ways. First, the present study points to an important role of people’s responses in the effects of online feedback on self-esteem. Our findings suggest the occurrence of coping behavior and retaliation, and possibly also an initial stage of a negative spiral effect, in online communication. Importantly, the effect of a communication partner’s evaluative feedback on people’s self-esteem seems to take shape only as people reciprocate feedback to their communication partner. Second, the current study shows that people in face-to-face and online communication might respond differently with respect to expressing negativity to others. Although there is much evidence of more negative messages online than offline (e.g., Kiesler et al., 1985; Orengo Castellá et al., 2000; Siegel et al., 1986), it has to date rarely been investigated whether online communicators express negativity automatically or purposefully. Our results suggest that people use online communication to express negativity in a purposeful way. Retaliating to disconfirming feedback is less risky in online communication than in face-to-face communication. Our participants did not automatically retaliate to disconfirming feedback, but only did so when they felt relatively safe. Research has generally shown that online communication facilitates giving negative feedback (e.g., Kiesler et al., 1985; Orengo Castellá et al., 2000; Siegel et al., 1986). Our study adds to this by suggesting that online communication users may be less susceptible to self-denigration as a result of providing negative responses to received negative feedback.

Directions for future research

There are at least three directions for future research. First, a possible extension of the current study is to investigate the influence of repeated feedback over time. It is still an open question whether the effects of feedback increase over time and after more exchanges between communication partners; whether they fade off; or whether they can be reduced, for example by retaliating to negative feedback. Second, it is important to know the consequences of feedback to people’s self-disclosure or self-presentation over time, as well as the role of how people cope with, or respond
to, this feedback. Peer feedback (i.e., peer acceptance or rejection) forms an important determinant of the self-esteem and well-being of young people. Because a great part of their social lives take place through online communication on social network sites, the effects of online feedback are particularly relevant to young people’s psychosocial development and well-being. Third and finally, future research may focus more strongly on individual differences. People interpret information differently based on individual characteristics (e.g., social anxiety; Amin, Foa, & Coles, 1998). In online environments less information is available, so the interpretation of information is probably more dependent on characteristics that influence how individuals interpret information based on selective cues. This is particularly interesting with respect to ambiguous feedback, where the interpretation of this feedback plays a more important role.
References


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