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EFFECTS OF PUT-DOWN HUMOR ON COHESION IN GROUPS

By

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ABSTRACT

EFFECTS OF PUT-DOWN HUMOR ON COHESION IN GROUPS

By

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Put-down humor is a type of humor that may have a particularly strong impact on socio-emotional group processes. It always has a target, and the intent of the speaker is to make fun of someone or something. Therefore, put-down humor always implies something about the speaker's attitude or relationship with a person or object. Observational studies suggest that put-down humor can affect cohesion in a group, and it is assumed to increase cohesion when it refers to outgroup members (as compared to ingroup members).

Two lab studies were conducted to examine the underlying processes and moderators of the put-down humor – cohesion relation. Participants were led to believe that they were able to interact with other group members via headsets. In fact, the contributions of other ostensive group members had been recorded to manipulate the occurrence of put-down humor.

In Study 1, I found that while put-down humor did not increase participants' attraction to other group members, it did increase the perception of cohesion among other group members. Participants in the Put-down Humor condition regarded the other group members to be a cohesive unit and perceived them to be in a more positive mood, to feel more psychological safety, and to be more similar to each other than did participants in the No Humor condition. Perceived positive mood and perceived similarity among other group members mediated the relation between put-down humor and cohesion.

In Study 2, changes in the procedure helped participants to feel safer in the group to begin with. But even under those circumstances, the pattern of results remained the same: When hearing put-down humor, participants were not more attracted to the group than when not hearing any humor. However, they perceived the other group members to be a more cohesive unit.

Overall, these results suggest that put-down humor can create positive impressions of other group members without increasing one's own attraction to the group. I discuss when and why put-down humor might also increase one's attraction to the group.

For Sebastian

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INTRODUCTION

Humor seems to occur in every group to different degrees. It is prevalent in many different social contexts (Foot, 1991), including groups. Wyer and Collins (1992) point out that in almost all conversations at least one person tries to elicit laughter or responds to something with amusement.

Humor has a major influence on the quality of an interaction (Wyer & Collins, 1992). In groups, it is alleged to lead to higher camaraderie and stronger bonds among group members, to better teamwork, more creativity and innovations, and better problem solving (Hudson, 2001; Stauffer, 1999). One type of humor with a particularly strong impact on group processes is put-down humor. Such humor always has a target, and the intent of the speaker is to make fun of someone or something (Terrion & Ashforth, 2002). Through put-down humor, speakers define their relationship with a target. It is this inherently social nature of put-down humor that makes it more likely to influence group processes than other forms of humor. In these two studies, I examined how put-down humor affects cohesion in groups.

Theories of Humor

To date, there is no clear or universally accepted definition of humor, although there are two broad classes of humor theories. Motivational theories focus more on the emotional aspect of humor, whereas incongruity resolution theories focus more on the cognitive aspect.

The first interesting subset of motivational theories are the *arousal and arousal reduction theories* (Wyer & Collins, 1992). According to these theories, humor responses reflect a reduction in or release of arousal. Freud (1928, 1960), for example, proposed

that humorous reactions are solely motivated by the need to release tension or arousal that was sex- or aggression-related and that could not be expressed openly due to societal norms. Berlyne (1969, 1971), on the other hand, described a more general theory of arousal and arousal reduction. According to him, hearing a joke induces arousal above and beyond the optimal level of pleasure. The punch line then reduces that arousal to more pleasurable levels.

The second subset of motivational theories are the *superiority or disparagement theories* (La Fave, Haddad, & Maeson, 1976; Levine, 1969; Zillman & Cantor, 1976). According to these theories, humor is experienced when one perceives another person's shortcomings and fulfills the goal of establishing or maintaining feelings of mastery or control. These feelings, in turn, are pleasurable.

In contrast to these varied motivational theories, the *incongruity resolution theories* explain humor as a cognitive process. In general, humor is experienced by the sudden awareness of an incongruity between two objects or events. Suls (1972, 1983) suggested that when hearing a joke, the listener activates certain schemata to interpret the incoming information and builds expectations. New information does not confirm the expectations, but instead, the listener needs to refer to other schemata to be able to interpret the new information. The reinterpretation then elicits humor. Thus, the experience of humor involves two stages: realizing the incongruity and understanding it.

Types of Humor

Long and Graesser (1988) described several types of humor. In general, they distinguish between jokes and witticism. Jokes are context-free humor and contain all information that is necessary to understand the content. Witticisms, on the other hand, are

context-specific. In order to understand them, the listener must understand the topic of the conversation. Examples of witticism are put-down humor, teasing, and ironic comments. In the case of all witticisms, a "play frame" is important, which indicates that the comment is not meant to be offensive (Foot, 1991). A play frame is indicated by the use of cues such as disclaimers or contextualization cues (like winks, laughs, or exaggerated expressions) (Eisenberg, 1986). In other words, a play frame functions like a meta-message that shows that the actual content is not to be taken literally. A play frame can sometimes be ambiguous, though. Listeners might not pick up on the cues. Thus, if a play frame is not clear enough, the comments can be regarded as hostile. Speakers usually convey both jokes and witticism with the aim of eliciting humorous reactions such as smiles and laughter in listeners, but they might also have less obvious goals like creating stronger social bonds among their listeners.

In this study, I will focus specifically on put-down humor and its effect on the group's cohesion. Put-down humor is the "attempt to derive amusement at the expense of something or someone" (Terrion & Ashforth, 2002, p. 59) – that is, there is always a target or "butt" of such humor. In groups, put-down humor should generally have stronger effects on group members and group processes than context-free jokes due to its inherently social nature. Put-down humor implies something about the speaker's attitude toward the people or objects and how the speaker relates to them. In other words, through such humor, the speaker self-discloses about him- or herself and defines his or her relationship to other people or objects.

For a number of reasons, such as its usual spontaneity, its ephemeral nature, and its contextuality, put-down humor in groups is extremely difficult to study. Some

researchers (e.g., Terrion & Ashforth, 2002) have used naturalistic, ethnographic studies, usually with small samples, and focused on idiosyncratic interactions that can only be generalized with difficulty. Others (e.g., Tragesser & Lippman, 2005) have used self-report methods. However, put-down humor may be difficult to describe after it has occurred, or participants might only focus on very extreme forms or instances of put-down humor in their retrospective responses. To my knowledge, no experimental or lab studies have been conducted examining the effects of put-down humor on group processes. The present studies will use experimental participants who will act as both observers of and participants in group interaction. This methodology permits me to achieve some degree of experimental control while gaining insight into processes that affect actual interactions which cannot easily be stopped or controlled. I also believe that this method is valid in its own right because people heavily rely on their observations to form impressions of individuals and groups (cf., Afifi & Burgoon, 2000).

Functions of Humor in Groups

Humor can serve several functions in groups. In general, when making humorous remarks, people can say what they mean, the opposite of what they mean, or both. In other words, humor can be both aggressive and supportive (Norrick, 2003). Speakers can retract their humorous message any time it appears to be too offensive ("Hey, I was only joking!").

By using put-down humor, speakers can both present information about themselves and seek information from other group members (cf., Foot, 1991). Speakers can share feelings or intentions that they might ordinarily not reveal publicly. For example, they can express their liking or disliking of another group member by making

fun of him or her. At the same time, they can find out if other group members share their feelings or intentions by having introduced a new topic humorously and by observing the others' reactions.

Put-down humor can help to control the interactions in the group. The speaker can attract other group members' attention to him- or herself and might thus gain their approval. Alternatively, the speaker can also subtly express the opinion that one group members' behavior was not in line with the group requirements and might thereby change the behavior of the person who got off track.

Furthermore, several scholars have suggested that humor (potentially including put-down humor) can directly serve the purpose of enhancing group identification and cohesion. Vinton (1989), for example, showed in a naturalistic study that in a small organization of 13 employees teasing (which is similar to put-down humor, but always directed at someone present in the conversation) served two purposes: First, it helped to get the necessary work done. Teasing allowed higher-status employees to order their subordinates in a pleasant way to finish a task. Second, teasing lessened status differentials between employees by putting everyone on the same plane, eventually improving cooperation. Vinton (1989) concluded that humor was used to create bonds and facilitated the socialization of newcomers. Similarly, Duncan and Feisal (1989) stated that at every workplace they examined, the most important reason why joking behavior occurred was that it makes people feel they belong. However, these authors do not offer any explanations for why this might be the case. The two studies, though, give us a first hint that put-down humor can influence cohesion in groups.

More support for the put-down humor – cohesion relation comes from Terrion and Ashforth (2002). They observed as participants a leadership training program in a Canadian police college, focusing on the development of put-down humor in this temporary group. The researchers found that put-downs followed a certain temporal pattern: Group members would first put down themselves, then shared social identities (i.e. the group as a whole), then external groups, and finally other group members. Terrion and Ashforth concluded that this developmental sequence signaled increased trust and inclusion in the group and helped create a common identity and cohesion.

Two other studies also indicate that humor is related to cohesion in groups – but they do not examine put-down humor specifically. Fraley and Aron (2004) conducted a lab experiment and had same-sex strangers participate in a series of interactions that created a humorous experience (e.g., by asking participants to act out a television commercial of their choice in a language made up by them) or did not create a humorous experience (e.g., by asking participants to act out a television commercial in English). Participants who shared a humorous experience felt closer to each other after the interactions than did participants who had interacted without any humor. Robinson and Smith-Lovin (2001) used event history techniques to analyze recorded lab group discussions. Based on their results, the authors developed a theory of humor and status in groups. This theory predicts, among other things, who will produce humor, who will be successful in producing humor, or how producing humor changes the speaker's subsequent interactions within the group. More important for this study, though, is that the theory also provides explanations of how and under which circumstances humor can increase or undermine cohesion in a group. Robinson & Smith-Lovin (2001) hypothesize

that humor can strengthen affective ties within the group, i.e. increase cohesion, when the humorous comment refers either to the group as a whole or to outsiders. They hypothesize further that humor can undermine cohesion when the comment refers to the self or another group member. This is an important distinction, which will be discussed in more detail below.

Group Cohesion as an Effect of Put-down Humor

Before explaining when and why put-down humor increases cohesion in a group, the concept of cohesion needs to be defined clearly. At this point, there is no universal definition of cohesion that all researchers agree upon (Dion, 2000). However, most researchers agree on the fact that cohesion has two distinct aspects: a social and a task aspect.

The social dimension of cohesion can be defined as "the emotional bonds of friendship, liking, caring, and closeness among group members" (MacCoun, 1993, p. 291). Some of the first researchers to examine cohesion were Kurt Lewin and Leon Festinger. Festinger and his colleagues (Festinger, Schachter, & Back, 1950) wrote about cohesion as "the total field of forces which act on members to remain in the group" (p. 164). This field of forces can also be described as attraction between group members (personal attraction) and attraction of the individual to the group as a whole (social attraction) (Forsyth, 2006). Besides attraction, social cohesion can also be described as perceived unity. When the group is cohesive, members report a sense of belonging to the group, feel included in the group, and report that the group is a part of who they are (Bollen & Hoyle, 1990; Forsyth, 2006). Furthermore, cohesive groups "stick together", have high levels of solidarity, and are unified (Forsyth, 2006).

The task dimension of cohesion, on the other hand, can be defined as "the shared commitment among members to achieving a goal that requires the collective efforts of the group" (MacCoun, 1993, p. 291). Forsyth (2006) adds that task cohesion can also be regarded as collective efficacy and team spirit. Task cohesion, in general, should not be as strongly influenced by put-down humor as social cohesion because of the social nature of put-down humor. Thus, the focus of this study will be mainly on social cohesion.

Cohesion, no matter if social or task, can always be measured at two levels: at the individual and at the group level. If cohesion is assessed at the individual level, one group member can be asked, for example, how much he or she is attracted to specific other group members or to the group as a whole, or how strong a sense of belonging he or she experiences in the group. All of these questions refer to an individual's personal perception or experience. If cohesion is assessed at the group level, some collective assessment is required. For example, the mean of group members' ratings of attraction to each other or to the group as a whole could be computed.

As outlined above, these studies will employ individual experimental participants serving sequentially as both observers of and participants in a group interaction. Because the behaviors of all the other group members other than the individual participant will be created and controlled by the experimenter, I will only be able to ask one group member, namely the participant, about cohesion. Thus, I will not be able to collect all group members' assessments of cohesion and aggregate them to define a group-level measure of cohesion. I will, however, collect two cohesion judgments from the participants: First, I will ask the participant how much he or she is attracted to the group (*experienced personal cohesion*). Second, I will ask the participant how strongly he or she perceives

other group members, excluding the self, to be attracted to each other (*perceived group cohesion*). Below, when I refer to a perceived group-level construct, it should be understood that I do so in the latter sense, i.e. as a judgment by one member of the group, and not as a summary of all group members' judgments about the group.

When Does Put-down Humor Increase Cohesion?

Put-down humor will not increase cohesion in every situation. The goal of the present two studies was to create conditions under which put-down humor might increase cohesion and to examine the underlying process in more detail. I suggest that two conditions are likely to be necessary for put-down humor to have positive effects on cohesion: First, the target of the humorous comment needs to be someone outside the group. Second, other group members need to react positively after the comment.

The target of humor. The necessary condition is that the target of the put-down humor, in other words the person who is the focus of the humorous comment, the "butt" of the joke, is someone outside the group. As mentioned above, Robinson & Smith-Lovin (2001) hypothesized that cohesion increases when the humorous comment refers to outsiders or to the group as a whole, but decreases when the comment refers to other group members or to the self.

Boxer and Cortés-Conde (1997) suggest that an important part of every humorous interaction is the "development of a relational identity among participants which leads to a sense of membership in a group" (p. 276). Similar to Robinson and Smith-Lovin (2001), they also mention that outcomes of a humorous interaction can lie anywhere from bonding to "biting", which is functionally similar to creating an increase or decrease in cohesion. According to Boxer and Cortés-Conde (1997), the identity of the target of

joking can determine the outcome: A speaker can direct his or her comment at a participant in the conversation, which has the potential of "biting", or the speaker can direct the comment at an absent other, which has the potential of bonding. Sometimes, in very intimate relationships or very close groups, though, comments that are directed at participants in the conversation can also serve the purpose of bonding (Terrion & Ashforth, 2002).

Joking about an absent other is similar to put-down humor about an outgroup member. According to Boxer and Cortés-Conde (1997), this kind of humor is not very ambiguous. Speaker and listener both recognize the target as an outsider. Because they have a common outgroup and are members of the same ingroup, they bond. Therefore, put-down humor should increase cohesion in the group more when the target is an outgroup member than when it is an ingroup member (at least for relatively new groups, as in the present study).

Group members' reactions. The second necessary condition for put-down humor to increase cohesion is that group members' reactions after the humorous comment are positive. The strongest sign of approval or disapproval of a joke or humorous comment is group members' laughter or lack of laughter. According to Norrick (2003), laughter demonstrates both understanding and appreciation of the humorous comment. The lack of laughter, or silence, is ambiguous because listeners either did not get the joke and/or do not appreciate it. Thus, laughter signals appreciation, but lack of laughter may signal a lack of appreciation. Terrion and Ashforth (2002) found in their study that the meaning of certain humorous comments was sometimes ambivalent, but that the uniform reaction of every group member, the laughing, made the comment seem benevolent. Thus, the

relation between put-down humor and cohesion in the group should be more positive with than without a laughter reaction.

We can find out more about the social functions of laughter by examining theories of the evolution of laughter. Hayworth (1928) hypothesized that laughter signals to other group members that the environment is safe and that they can relax. Ramachandran (1998) also theorizes that a sudden change in expectations leads to laughter in one person. This reaction informs conspecifics that expectations about lurking danger were wrong and that the environment is indeed safe.

Thus, put-down humor about outgroup members followed by laughter should increase cohesion. Laughter signals the group's appreciation of the comment, that the speaker had positive intentions, and that the situation is safe.

Hypothesis 1: Basic effects

Hypothesis 1.1: Put-down humor of outgroup members followed by laughter increases *experienced personal cohesion.*

Hypothesis 1.2: Put-down humor of outgroup members followed by laughter increases *perceived group cohesion.*

Why Does Put-down Humor Influence Cohesion? The Underlying Processes

Several mediators might help explain the relation between put-down humor and cohesion. These include mood, shared experiences, psychological safety, the perceived intentions of the speaker, and the perceived similarity of group members. In the following section, I will explain how each mediator might be influenced by put-down humor and how it, in turn, might influence cohesion. Similar to the assessment of cohesion, I will ask participants first about their own thoughts and feelings and second about the thoughts

and feelings of the other group members. For example, I will ask participants about their own mood and their perception of the mood of the other group members. Mediators regarding the individual participant should predict experienced personal cohesion; and mediators regarding the other group members should predict perceived group cohesion. For example, an individual's mood should predict how strongly he or she is attracted to the group (= *experienced personal cohesion*); and the perceived mood of other group members should predict how strongly they seem to be attracted to each other (= *perceived group cohesion*).

Mood. Humor, in general, increases positive mood (e.g., Martin, 2001, 2002) and decreases negative mood in people. More specifically, research has shown that humor increases hope and energy – indicators of positive mood – and decreases anxiety, tension, and stress – indicators of negative mood (cf., Berk, 2001). Some even regard humor as interpersonal emotion management (Francis, 1999). It is still an unanswered question whether put-down humor in a group also has these beneficial effects on group members' mood. Put-down humor should theoretically increase positive mood and decrease negative mood if the humor is not regarded as threatening to the self.

It has been shown that people in a positive mood form more positive impressions of others (Forgas & Bower, 1987), like others better, and are even more willing to work with them (Gouaux, 1971; Veitch & Griffit, 1976). All these effects could be regarded as indicators of cohesion. Thus, there is some evidence to suggest that put-down humor changes mood, which in turn affects the cohesion in the group.

Put-down humor can not only change the individual's own mood, it can also change how the individual perceives and interprets the mood of his or her fellow group

members. If someone makes a put-down humorous comment about somebody else outside the group, the individual's own mood might become more positive and less negative, and he or she might also perceive the mood of the fellow group members to become more positive and less negative. This could in turn affect how cohesive the individual regards the group to be.

Hypotheses 2: Mediation by *mood*

Hypothesis 2.1: The basic effect 1.1 is partially mediated by increases in *own positive mood.*

Hypothesis 2.2: The basic effect 1.1 is partially mediated by decreases in *own negative mood.*

Hypothesis 2.3: The basic effect 1.2 is partially mediated by increases in the *perceived positive mood of other group members.*

Hypothesis 2.4: The basic effect 1.2 is partially mediated by decreases in the *perceived negative mood of other group members.*

Shared experiences. Coser (1959, p. 173) regards humor as the "expression of the collective experience of the participants". Humor helps to translate individual experiences into collective group experiences (Pogebrin & Poole, 1988). In other words, through humor various issues, some of them important to the group, can be brought to the attention of all group members and can be tackled. Alternatively, group members could also realize through a humorous comment that they have the same perception of a situation and share the same feelings and thoughts. Furthermore, if all group members start laughing loudly after a humorous comment, they show the same behavior, which might make them come to the conclusion that they share the same feelings and thoughts

on the issue. This realization could make them feel closer to each other and increase cohesion in the group. Eventually, shared experiences facilitate group interactions and help build a group culture (Fine & DeSoucey, 2005).

Schachter's classic research on affiliation (1959) supports the claim that shared experiences can lead to an increase in cohesion. Schachter (1959) showed in his well-known studies that anxious people preferred to be in the company of similarly anxious others and that one plausible and well-supported reason for this was the individual's desire to receive comfort and support from another person. Schachter hypothesized that the presence of the other person who is in the same situation could have a direct anxiety-reducing effect and reported experimental evidence supporting this hypothesis (e.g., Wrightsman, 1959). Other researchers working with animals (e.g., Carbajal and Orihuela, 2001; Westenbroek, Snijders, den Boer, Gerrits, Fokkema, and Ter Horst, 2005) also pointed out that the shared presence of a same-species individual has stress-reducing effects. This research might show that shared experiences can lead to an increase in comfort, closeness, and eventually cohesion.

Hypotheses 3: Mediation by *shared experiences*

Hypothesis 3.1: The basic effect 1.1 is partially mediated by increases in *shared experiences with other group members.*

Hypothesis 3.2: The basic effect 1.2 is partially mediated by an increase in *perceived shared experiences among other group members.*

Psychological safety. Psychological safety is the belief that it is safe to take interpersonal risks in the group (Edmondson, 1999). It is "a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up" (p. 354). Put-down

humor is risky – especially in newly formed groups. However, if group members start making funny comments exclusively about people outside the group, group members' psychological safety should increase. They should feel more comfortable and believe that they can also take some risks in the group when they hear put-down humor about outgroup members. Furthermore, put-down humor about outgroup members might distract them from their initial feelings of discomfort in the new group (Fraley & Aron, 2004) because it shifts their focus from the current interaction to others outside the group who, for some reason, deserve to be made fun of.

The laughter that accompanies put-down humor also signals that the situation is not too dangerous or serious. According to one hypothesis about the evolution of laughter (Hayworth, 1928), laughter is a signal to other group members that the environment is safe. Thus, group members who witness amusement or laughter in others should perceive their environment as safer and as less serious than at first sight.

Psychological safety should increase cohesion because it alleviates concerns about the impression that one has to create and about other's reactions to one's own statements. It is not the same as cohesion, though, because cohesion can reduce one's willingness to disagree with others (Janis, 1982), but psychological safety does not necessarily have the same effect.

Hypotheses 4: Mediation by *psychological safety*

Hypothesis 4.1: The basic effect 1.1 is partially mediated by increases in *psychological safety.*

Hypothesis 4.2: The basic effect 1.2 is partially mediated by increases in *perceived psychological safety among other group members.*

Perceived intentions of the speaker. A humorous comment usually catches people's attention. Humor is inherently targeted at other people in the interaction (Francis, 1999). No one makes a joke and laughs loud when being alone (except perhaps in anticipation of sharing it with others). Joking and laughing alone could even be regarded as pathological. Humorous comments might therefore make listeners more likely to form an attribution of the speaker's intentions. Unless the put-down humor is patently hostile, not presented within a play frame, and directed at group members, hearing such humor should generally lead listeners to conclude that the speaker had positive and not negative intentions. For example, she or he might have wanted to create a pleasant atmosphere in the group or to make others laugh. Overall, the humorous comment should lead listeners to conclude that the speaker cares about the feelings of group members and regards the quality of group interactions as important. These positive perceptions of the speaker's intentions should in turn lead to higher cohesion in the group.

Hypotheses 5: Mediation by *perceived benevolent intentions of the speakers*

Hypothesis 5.1: The basic effect 1.1 is partially mediated by an increase in *perceived benevolent intentions of the speakers.*

Hypothesis 5.2: The basic effect 1.2 is partially mediated by an increase in *perceived benevolent intentions of the speakers.*

Perceived similarity. Usually, listeners show a similar reaction after a humorous comment. They might all laugh heartily, chuckle, or even show their disapproval through being silent. Realizing that other group members show the same reaction as the individual does should lead him or her to conclude that the others are similar to him or her, at least

in certain respects (e.g., their "senses of humor"). This similarity should, in turn, increase attraction to the other group members (Byrne, 1971) and increase cohesion.

Hypotheses 6: Mediation by *perceived similarity*

Hypothesis 6.1: The basic effect 1.1 is partially mediated by an increase in *perceived similarity to other group members.*

Hypothesis 6.2: The basic effect 1.2 is partially mediated by an increase in *perceived similarity among other group members.*

STUDY 1

In a lab experiment, participants were told that their fellow group members were sitting in adjacent rooms and that all group members interacted via headsets. Participants then listened to a highly-structured group discussion that had been pre-recorded to manipulate the amount of put-down humor. They believed that the group discussion was taking place naturally while they were listening and that they would later also contribute to it. The discussion content in the two experimental conditions (Put-down Humor and No Humor) was the same – except that when put-down humor was present, some additional discussion content was presented in a joking manner. After listening to the first part of the discussion, participants answered several questionnaires and then continued the discussion.

METHOD

Design

In Study 1, I sought to obtain a reliable relationship between put-down humor of outgroup members and cohesion and to examine the mediational pathway between these two variables. More specifically, I tested whether any of the variables *mood, shared experiences, psychological safety, intentions of the speaker,* and *perceived similarity* mediated the hypothesized relation between put-down humor of outgroup members and cohesion. The design of the study was a single-factor design: Put-down humor of outgroup members (followed by common laughter) was present or absent in the group discussion. The discussion content in these two conditions was the same – except that when put-down humor was present some additional discussion content was presented in a joking manner. In order to bolster the relation between put-down humor of outgroup members and cohesion, group members' reactions to the humor were always positive. In other words, group members always showed their approval of the humorous comments through laughter.

Participants

One hundred and eleven female college students participated in the study. Due to technical failures, data from eight participants were not recorded. Out of the remaining 103 participants, seven (=6.8%) reported in the post-experimental suspicion check that their fellow group members' contributions had been recorded; their data were excluded from all analyses. Thus, data from 96 participants were analyzed. Fifty-three participants had been randomly assigned to the No Humor condition and 43 had been randomly assigned to the Put-down Humor condition.

The average age of participants was 19.23 years (SD = 1.33, Min. = 18, Max. = 25). In terms of class rank, 33% were first-year students, 41% sophomores, 18% juniors, and 8% seniors. All participants were recruited through the MSU HPR Pool and received one hour of credit for taking part in the study.

The gender of the participants and of the fellow group members (whose contributions had been recorded) was always female. Previous research (e.g., Robinson & Smith-Lovin, 2001) has shown that there are gender differences in reactions to humor and in humor production. Because the MSU HPR Pool consists mainly of female students, I only invited females to participate in this study.

A power analysis showed that 51 participants per condition were needed in order to have an 80% chance of correctly rejecting the null hypothesis if the effect was moderate (d = .5). Power was estimated with the computer program GPOWER (Faul & Erdfelder, 1992) for studies using a one-sided t-test for independent means and testing hypotheses at the .05 significance level. Therefore, the number of participants in this study was sufficient to test the hypotheses.

Cover Story

The experimenter explained to participants that we were examining how groups work together when their members can only communicate via headsets. Each participant had to sit in a room by herself and was told that the other group members were likewise in different rooms in the Psychology building. Participants were also told that a group consisted of six members and that there were five more people participating in the study at the same time besides her. All group members would be connected with headsets that are attached to computers. Thus, the participant would be able to hear what the other

group members were saying through her headphone and to transmit messages to the others by talking into her microphone. All instructions would be shown in detail on the computer screen. In reality, there was only one actual participant per group (although up to four participants were run simultaneously). All verbal statements by the other ostensible group members had been recorded in advance in order to have control over the discussion content.

The Task

The experimenter explained that this study was also about how groups form impressions of people. The group's task was therefore to examine student profiles and to estimate where each student stood on five basic personality dimensions (viz. how outgoing, friendly, reliable, moody, and open-minded the student was). Group members would be able to see a student profile consisting of a picture and supplemental information (e.g., academic major, employment, hobbies, and an interesting fact) on their computer screens (for an example, see Figure 1) Every group member would see the same picture at the same time. After every member had a chance to examine the first student profile closely in private, one person would publicly give her impression of the student. The group member should first briefly describe the student in the profile (e.g., "I have Megan here. She is 20 years old and a sophomore."). Then, she would judge how outgoing the student in the profile was and use a four-point rating scale of 1(well below average) to 2 (below average) to 3 (above average) to 4 (well above average) for her judgment (e.g., "Well, Megan seems to be pretty outgoing because she is in a sorority. So I'd give her a 3, above average, for outgoing."). After the first group member had evaluated a student profile, every group member would be provided with a second profile

on her computer screen to examine privately, and a second group member would then publicly give her impression of the student. Thus, the evaluation process would not be a spontaneous discussion in which group members would be able to exchange their impressions about the students in the profiles. It would rather be a highly structured sequence of statements. The high amount of structure enabled me to manipulate the content of the statements without (most) participants noticing that they were not interacting with other group members but listening to recordings.

First name:	Megan
Age:	20
Major:	psychology
Class:	sophomore
Work:	none
Clubs/Memberships:	Gamma Phi Beta Sorority and Phi Beta Delta Honor Society
Favorite movie or TV show:	Clueless, Sex in the City, Desperate Housewives, Orange County
Hobbies:	hanging out with friends, playing softball
Hometown:	Hastings, MI
Number of siblings:	2
Current residence:	I live in a sorority house.
Career goals:	go to grad school
Interesting fact:	I made the Dean's List every semester so far.
Heroes:	my grandfather, my "sisters", Ms Piggy

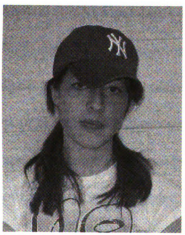


Figure 1: Example of a Student Profile Shown to Participants

Procedure

For every session, up to four participants could sign up. Immediately at their arrival, the experimenter led them into separate and adjacent lab rooms, asked them to read and sign a consent form, and instructed them individually.

The experimenter told each participant that we were examining how impressions are formed in groups when members can only communicate via headsets. Six group members would sit in separate rooms throughout the psychology building and be connected via headsets that were connected to computers. All instructions would be given in detail on the computer screen, but if the participant had a question, she could ask the experimenter any time.

The experimenter also briefly explained the task to participants: "Each member of your group will be given a student profile to evaluate over the microphone, one after the other. The evaluation process is not so much a discussion, as one group member will have the chance to speak first, then a second group member, then a third, and so on. The order of the speakers will be chosen at random." At this point, the experimenter presented several folded paper cards to the participant and asked her to pick one. On the inside of each card, there was a color mark. Unknown to participants, each color mark was red. So the participant always picked a card with red color. The experimenter went on: "This is your color. It will show up as a frame around your student profile when you need to speak." Then the experimenter left the room and the participant was led through the rest of the study by a computer program.

In order to familiarize them with the material in the study, participants were first asked to fill out a short questionnaire about themselves (e.g., what their major was, what

kind of work they had). They were told that they needed to answer these questions to acquaint themselves with the format of the student profiles, which they would later see and evaluate, because the student profiles would contain exactly the same information.

After that, participants were told that the evaluation process would start and were reminded not to talk back and forth while one group member was evaluating a student profile. Participants were also informed that all student profiles were from University of Michigan students (a relevant outgroup for MSU students). The computer program indicated that participants would have to wait several seconds to proceed to the first student profile because all group members needed to start examining it at the same time. After a few seconds, the first student profile (see Appendix A for this and all other student profiles) showed up on the screen. The first student profile was framed with green color, which indicated to participants that it was not yet their turn to talk (because they needed to talk when a red frame showed up). The first ostensible group member gave her impression of the student (for a complete transcript of the statements, see Appendix B). While participants listened to the group member's statements, they could always see the student profile on the computer screen. The second and third student profiles (with a yellow and blue frame, respectively) showed up afterwards and were evaluated by two more ostensible group members.

After three group members had had the chance to speak, the evaluation process was interrupted and participants were asked to answer some questions about the group. At this point, all mediating and dependent variables (described below) were assessed.

Then participants were informed that the way the evaluation process was conducted would change. Whereas at the beginning speakers were able to hear other

group members' reactions, after the break speakers would not be able to hear other group members' reactions anymore. The fourth student profile with a red frame showed up on the computer screen. Because participants had drawn a card with red color, it was now their turn to talk. Participants evaluated the student profile. Then the computer program indicated that the last steps of the evaluation process, i.e. the last two speakers, had to be skipped due to lack of time.

Finally, participants were asked to indicate how much they liked all four students from the previous profiles. They were also asked what they believed the purpose of the study to be, whether anything struck them as unusual or odd, and to answer some manipulation check items (described in more detail below). They were then thoroughly debriefed and dismissed.

Manipulation of the Independent Variable

In this study, *put-down humor* was manipulated by having the first three ostensible group members either use or not use put-down humor in their statements. In the Put-down Humor condition, each ostensible group member used put-down humor several times, whereas in the No Put-down Humor condition, no group member used put-down humor (or any other form of humor). The discussion content in these two conditions was the same as far as possible, except that in the Put-down Humor condition group members made some brief humorous comments about the person in the profile and other group members responded with laughter. For example, one group member said about a student who belongs to a sorority: "Her favorite shows are Clueless and she looks a little clueless so she'll fit right in there." The first speaker made four humorous

comments, the second speaker five, and the third speaker three. (The transcripts of all statements can be found in Appendix B.)

Assessment of Potential Mediating Variables

The following mediating variables were assessed: mood, shared experiences, psychological safety, the intentions of the speakers, and the perceived similarity of group members. Participants were first presented with the items assessing their own thoughts and feelings and then with the items assessing the perception of their fellow group members' thoughts and feelings. The order of the variable assessment is described in more detail below.

Mood: Participants' own mood and the perceived mood of the other group members were assessed with the PANAS (Watson, Clark, & Tellegen, 1988). The PANAS consists of two scales that measure the primary dimensions of mood: positive and negative affect. The scales are internally consistent and have been shown to have good convergent and discriminant validity (Watson, Clark, & Tellegen, 1988). Also, the short-term instructions ("Indicate to what extent you feel this way right now, that is, at the present moment.") are sensitive to fluctuations in mood, which were expected to occur in this experiment.

Participants were presented with 10 words indicating positive mood (e.g., interested, active, excited) and 10 words indicating negative mood (e.g., nervous, upset, hostile). First, they were asked to indicate for each word to what extent the word described their own feelings and emotions at the current moment to assess their own mood (1: very slightly or not at all – 5: extremely). After participants had answered all questions about their own thoughts and feelings (i.e. their shared experiences,

psychological safety, etc.), they were asked to indicate to what extent each word from the PANAS described the feelings and emotions of the average other group member at the current moment to assess the perceived mood of the other group members.

Shared experiences: Participants were asked to rate three statements about how much they shared the same experience with the other group members:

> "When group members can interact face-to-face, they sometimes feel like they share the same experiences. In this study, we are interested in finding out how much this is the case for teleconferencing groups. Of course, we expect these feelings to be different than in face-to-face groups, but one can still have some sense of shared experience even when one is not interacting face-to-face. So please indicate your agreement with each of the following statements:
>
> - I feel like I have shared some experience with the other group members.
> - I feel like we have started to have some shared experience together.
> - The discussion so far has created a shared experience for us."

Participants were asked to indicate their agreement with each of these statements on a scale from 1 (not at all) to 7 (very much).

Again, after participants had completed all items regarding their own thoughts and feelings, they were also asked to rate the statements above about the average other group member in order to assess perceived shared experiences among other group members. For example, the first statement was reworded to: "The average other group member has shared some experience with the group." Participants rated these statements on the same scale.

Psychological safety: Participants' psychological safety was assessed with two measures: Edmondson's (1999) Team Psychological Safety scale and five questions designed specifically for this study.

Edmonson's (1999) Team Psychological Safety scale contains seven items that are supposed to assess different features of psychological safety. For this study, they were slightly modified. An example item is: "It is safe to take a risk in this group." Participants rated all items on a scale from 1 (very inaccurate) to 7 (very accurate). Because a re-wording of the items to assess perceived psychological safety among other group members made these items very difficult to understand, the questionnaire was not used to assess perceived psychological safety among other group members.

Participants' own psychological safety was also assessed with the following five questions: "How safe do you feel in the group? How threatening is the group discussion for you? How relaxed do you feel among the other group members? How comfortable do you feel with the other group members? How much do you trust the other group members?" Participants answered these questions on a scale from 1 (not at all) to 7 (very much). Participants were also asked to answer these questions from the perspective of the average other group member in order to assess perceived psychological safety among other group members. For example, the first question was reworded to "How safe does the average other group member feel in the group?"

Perceived intentions of speakers: Participants were told that we were also interested in the impressions that prior speakers created and in how positive and benevolent their intentions seemed to be. Participants were therefore presented with several statements about the intentions behind the other group members' evaluations and

asked to indicate their degree of agreement with each statement on a scale from 1 (not at all) to 7 (very much).

"The first speakers you have heard so far...

...wanted to show how much they cared about the group interaction.

...intended to create a relaxing atmosphere.

...wanted to make the other group members laugh.

...wanted to amuse the other group members.

...wanted to make the other group members angry.

...wanted to insult the other group members.

...wanted to distract group members from the personality evaluation task."

Because it was very difficult to assess what the participant thought other group members believed about the first speakers' intentions, we did not ask these questions from the perspective of the average other group member.

Perceived similarity: Each participant was asked to indicate how similar she saw herself to the other group members in the following categories: perception of the situation, feelings in the situation, thoughts about the situation, behavior in the situation, goals for this interaction, and sense of humor. (Example: "How similar are you to the other group members in your perception of the situation?") She was asked to indicate degree of similarity on a scale from 1 (not at all) to 7 (very much). Each participant was also asked how similar the other group members were in these categories. (Example: "How similar are the other group members to each other in their perception of the situation?")

Assessment of the Dependent Variable

Cohesion: At the moment, there is no generally accepted, standard measure of cohesion (Dion, 2000). Thus, I used two measures of cohesion that focus on slightly different components of cohesion in order to assess it as thoroughly as possible.

The first measure of cohesion was the 6-item Perceived Cohesion Scale (PCS) by Bollen and Hoyle (1990). It measures two aspects of cohesion, namely Sense of Belonging and Feelings of Morale with three items each. An item measuring Sense of Belonging is "I feel a sense of belonging to this group" and an item measuring Feelings of Morale is "I am happy to belong to this group." Participants were asked to indicate their agreement with each of the six statements on a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree) to assess experienced personal cohesion. Participants were also asked to answer these items about the average other group member to assess perceived group cohesion. For this purpose, the first example item was be re-worded to "The average other group member feels a sense of belonging to this group." The second item of these two scales – assessing experienced personal and perceived group cohesion – was consistently not recorded due to a technical error. Thus, only five items were used in the analyses.

The second measure of cohesion was the Group Environment Questionnaire (GEQ) developed by Carron, Widmeyer, and Brawley (1985). Like most other cohesion researchers, Carron and his colleagues distinguish between social and task cohesion. Furthermore, they also distinguish between an individual component and a group component of cohesion (see also Carron & Brawley, 2000). The individual component is, for example, an individual's attraction to the group, and the group component is, for

example, closeness of group members. Because the questionnaire had originally been constructed to measure cohesion in sports teams and not in newly formed task groups, one item (out of 18 items) was dropped and some others were modified for this study. For example, "We all take responsibility for any loss or poor performance by our team" was re-worded to "We all take responsibility for any poor performance by our group". Participants were asked to answer all items from their own perspective to assess experienced personal cohesion and all items from the other group members' perspectives to assess perceived group cohesion.

Order of Variable Assessment

Participants were first asked to answer all items about their own thoughts and feelings and then all items about their fellow group members' thoughts and feelings. The exact order of the items was as follows: own mood (20-item PANAS), shared experiences from own perspective (3 items), own psychological safety (7-item Team Psychological Safety scale + 5 items), perceived intentions of speakers (7 items), perceived similarity to others (6 items), experienced personal cohesion (6-item Perceived Cohesion Scale, 17-item Group Environment Questionnaire), perceived mood of other group members (20-item PANAS), perceived shared experiences among other group members (3 items), perceived psychological safety among other group members (5 items), perceived similarity among others (6 items), perceived group cohesion (6-item Perceived Cohesion Scale, 17-item Group Environment Questionnaire). All items are listed in Appendix C.

Manipulation Checks

Participants were asked the following questions about the group interaction after all mediating and dependent variables had been assessed and after they had evaluated a student profile as well:

- Who were the people in the profiles (the choices being "girls on a dating website," "students from the University of Michigan," "students from Michigan State University," "girls in this group")?
- How much humor did the other group members use (1: none at all – 7: very much)?
- How much did group members laugh during the interaction (1: not at all – 7: very much)?
- If there was any humor in the group interaction, what or who was it about (about unrelated issues, about each other, about other students, about themselves)?
- How funny, do you think, were the comments by the other participants (1: not funny at all – 7: very funny)?
- How often, do you think, did you smile during this experiment (1: not at all – 7: very much)?
- How often, do you think, did you laugh during this experiment (1: not at all – 7: very much)?
- Was there anything in the study that seemed strange or unusual to you?

RESULTS

Manipulation Checks

When asked who the people in the profiles were, 88 out of 96 participants answered correctly that the people were University of Michigan students. Thus, almost all participants were aware of the fact that group members referred to outgroup members in their statements. The data of the remaining eight participants were left in the data set to have more power for the analyses.

Participants in the Put-down Humor condition indicated that other group members used more humor ($t(94) = 7.94$, $p < .001$, Cohen's $d = 1.64$), made funnier comments ($t(94) = 3.08$, $p < .01$, $d = .64$), and laughed more ($t(94) = 10.64$ $p < .001$, $d = 2.21$) than did participants in the No Humor condition. Means and standard deviations for the manipulation check items are displayed in Table 1.

Participants in the Put-down Humor condition also realized that speakers made humorous comments about other students (vs. unrelated issues, about each other, or about themselves). Thirty-nine out of 43 participants in the Put-down Humor condition chose the correct response option. Again, the data from the four participants choosing the response option were not excluded to have enough power for the analyses.

Participants in the Put-down Humor condition also reported smiling and laughing more during the experiment than participants in the No Humor condition ($t(94) = 2.73$, $p < .01$, $d = .57$ for smiling and $t(94) = 2.99$, $p < .01$, $d = .61$ for laughing). Overall, the put-down humor manipulation can be regarded as successful.

Table 1

Condition Means and Standard Deviations for the Manipulation Check Items

	Put-down Humor		No Humor	
Item	**M**	**SD**	**M**	**SD**
How much humor did the other group members use?	5.44	1.01	3.62	1.20
How much did group members laugh?	5.67	.99	3.08	1.33
How funny were the comments?	4.00	1.41	3.09	1.45
How often did you smile?	4.33	1.48	3.40	1.78
How often did you laugh?	3.79	1.81	2.72	1.70

Note: All ratings were made on a scale from 1 to 7.

Factor Analyses

In order to assess the dimensionality of the employed measures, I conducted factor analyses. When the dimensionality of a measure was known, I ran an exploratory factor analysis and fixed the number of factors in advance. When the measure was new, I ran an exploratory factor analysis without fixing the number of factors to find out of how many underlying dimensions the measure was comprised.

Mood: Responses to the 20 items from the PANAS were submitted to a principal axis factor analysis with varimax rotation. Two factors were expected to emerge: Positive Mood and Negative Mood. Results showed that two factors with eigenvalues of 4.16 and 2.76 explained 34.57% of the variance and that all items loaded on the expected factors. Items assessing positive mood loaded on the factor Positive Mood and had factor

loadings above .51. Items assessing negative mood loaded on the factor Negative Mood and had factor loadings above .32. I thus computed the two variables *positive mood* and *negative mood* by averaging the respective items. The internal consistency of these items was satisfactory: $\alpha_{pos.\ mood} = .86$ and $\alpha_{neg.\ mood} = .76$.

The same kind of factor analysis with the items assessing *perceived positive mood of other group members* and *perceived negative mood of other group members* yielded similar results: Two factors with eigenvalues of 4.19 and 2.81 explained together 35.33% of the variance. The rotated factor loading matrix showed the same pattern as the matrix for items assessing participants' own mood. Therefore, I computed the two variables *perceived positive mood* and *perceived negative mood* by averaging the respective items. Their internal consistency was also satisfactory: $\alpha_{perceived\ pos.\ mood} = .87$ and $\alpha_{perceived\ neg.\ mood} = .79$.

Shared Experiences: Three items had been designed to assess *shared experiences*. Responses to these items were submitted to an exploratory principal axis factor analysis with varimax rotation. The eigenvalues-greater-than-1 rule and the scree plot both indicated that all three items loaded on one factor, which explained 83.11% of the variance. All factor loadings were higher than .80. In order to compute the variable *shared experiences*, responses to these three items were averaged ($\alpha = .90$).

The same kind of factor analysis with three items assessing *perceived shared experiences among other group members* yielded very similar results and also suggested one factor (eigenvalue = 2.46, 82% of variance explained, factor loadings > .77). Thus, responses to these three items were also averaged to compute the variable *perceived shared experiences among other group members* ($\alpha = .89$).

Psychological Safety: Responses to the seven items from Edmondson's (1999) Team Psychological Safety (TPS) scale were submitted to a principal axis factor analysis. It was expected that one factor would underlie the items. However, one factor with an eigenvalue of 1.42 only explained 21.22% of the variance. The initial communalities of the items were generally low; estimates ranged from .41 to .16 with M = .29. Three out of seven factor loadings were below .30: "If you made a mistake on this group, it would be held against you." had a factor loading of .06. "People of this group sometimes reject others for being different." had a factor loading of -.20. "It would be difficult to ask other members on this group for help." had a factor loading of -.27. I thus decided to exclude these three items and to run a second factor analysis with the remaining four items. Results of this second factor analysis showed that one factor with an eigenvalues of 1.38 explained 34.56% of the variance and that all factor loadings (displayed in Table 2) were larger than .50. Therefore, I averaged responses to these four items to compute the variable *psychological safety (TPS)*. Because the internal consistency (α = .67) was still relatively low, results including this variable have to be regarded with caution.

Psychological safety was also assessed with five new items. I ran an exploratory principal axis factor analysis with varimax rotation on these five items. The eigenvalues-greater-than-1 rule and the scree plot both indicated that all items loaded on one factor with an eigenvalues of 2.88 explaining 57.56% of the variance. All factor loadings were larger than the absolute value of .55. In order to compute the variable *psychological safety (new scale)*, the second item was reverse scored and all items were then averaged. The internal consistency of these items was good (α = .86).

Table 2

Summary of Items and Factor Loadings for the Four Selected Items from the Team Psychological Safety Scale

Item	Factor Psychological Safety
Working with members of this group, my unique skills and talents would be valued and utilized.	.66
It is safe to take a risk in this group.	.65
Members of this group would be able to bring up problems and tough issues.	.52
No one in this group would deliberately act in a way that undermines my efforts.	.50
Eigenvalue	1.38
% of variance	34.56

Because I had two different measures of *psychological safety* – the four items from the Team Psychological Safety scale (Edmondson, 1999) and five newly created items – I computed the correlation between these two measures. The correlation coefficient of .40 indicates that the measures are related, but that they do not measure the same aspects of psychological safety. A closer look at the wording of the items indicates that the four items from the TPS scale refer to work-related behavior and that the five new items refer to one's general feeling when in the presence of other group members. I therefore decided to keep these two measures as separate measures of different aspects of psychological safety.

The five newly created items assessing psychological safety had also been rephrased to assess the *perceived psychological safety among other group members.* I ran a principal axis factor analysis with these items and expected one factor to emerge. Indeed, one factor with an eigenvalue of 2.09 explained 41.71% of the variance. The absolute values of all factor loadings were higher than .24. Therefore, the five items were

averaged (after the second item had been reverse scored) to compute the variable *perceived psychological safety among other group members*. The internal consistency of these items was satisfactory ($\alpha = .73$).

Perceived Intentions: An exploratory principal axis factor analysis with varimax rotation was run on the seven newly created items that were supposed to assess the perceived benevolent intentions of the first speakers. I used the eigenvalues-greater-than-1 rule and the scree plot to determine the number of factors. Three factors (with eigenvalues of 1.90, 1.49, and 1.15) emerged and explained together 64.84% of the variance. Factor loadings are displayed in Table 3.

Table 3

Summary of Items and Factor Loadings for the *Perceived Intentions* Items

Item	Factor 1 Intention to Entertain	Factor 2 Intention to Antagonize	Factor 3 Concern
The first speakers wanted to make the other group members laugh.	**.92**	.06	.17
The first speakers wanted to amuse the other group members.	**.95**	.12	.12
The first speakers wanted to make the other group members angry.	.13	**.61**	-.17
The first speakers wanted to insult the other group members.	-.18	**.85**	-.07
The first speakers wanted to distract group members from the (...) task.	.19	**.55**	-.09
The first speakers wanted to show how much they cared about the group.	.05	-.07	**.73**
The first speakers intended to create a relaxing atmosphere.	.25	-.27	**.72**
Eigenvalue	1.90	1.49	1.15
% of variance	27.41	21.32	16.38

Note: Boldface indicates highest factor loadings.

The first factor consisted of the two items "The first speakers wanted to make the other group members laugh" and "The first speakers wanted to amuse the other group members". It was labeled *Intention to Entertain*. The second factor consisted of the three items "The first speakers wanted to make the other group members angry" "(...) wanted to insult the other group members" and "(...) wanted to distract group members" and was labeled *Intention to Antagonize*. The third factor consisted of the two items "The first speakers wanted to show how much they cared about the group" and "(...) intended to create a relaxing atmosphere" and was labeled *Concern*. Because the results of the factor analysis clearly indicate that the seven items do not measure the same construct, I decided to compute three different variables (*intention to entertain*, *intention to antagonize*, and *concern*) by averaging the items that loaded highest on a factor. The internal consistencies ($\alpha_{\text{intention to entertain}} = .95$, $\alpha_{\text{intention to antagonize}} = .68$, $\alpha_{\text{concern}} = .71$) were satisfactory, although the scales were extremely short. The correlations between the three variables were low to medium (see Table 4) and also indicate that the variables do not measure the same construct.

Table 4

Pearson Correlation Coefficients for the *Perceived Intentions* Measures

Measure	1	2	3
1. Intention to Entertain	--		
2. Intention to Antagonize	.11	--	
3. Concern	.27*	-.26*	--

Note: *p < .05

Perceived Similarity: An exploratory principal axis factor analysis with varimax rotation was run on the six newly created items measuring *perceived similarity to others*. One factor with an eigenvalue of 3.44 emerged, explaining 57.39% of the variance. The factor loadings were all higher than .53. Because all items seemed to load on the same factor, they were averaged to compute the variable *perceived similarity to others*. This scale had high internal consistency ($\alpha = .88$).

A principal axis factor analysis was run on the seven items assessing *perceived similarity among others*. Similar results were found as for the previous factor analysis: One factor with an eigenvalue of 2.96 emerged, explaining 49.41% of the variance. All factor loadings were higher than .48. Thus, the seven items seemed to load on the same factor and were averaged to compute the variable *perceived similarity among others*. It had high internal consistency ($\alpha = .83$).

Cohesion: A principal axis factor analysis was run on the items assessing *experienced personal cohesion* from the Perceived Cohesion Scale (PCS; Bollen & Hoyle, 1990). As expected, one factor with an eigenvalue of 3.60 emerged, explaining 72% of the variance. All factor loadings were larger than .77.. To compute the variable *experienced personal cohesion (PCS)*, all five items were averaged. The internal consistency of this variable was very high ($\alpha = .93$).

The same kind of factor analysis was run on the five items from the PCS assessing *perceived group cohesion*, i.e., participants' perception of the cohesion among the rest of the group, excluding themselves. Again, one factor with an eigenvalue of 3.48 emerged, explaining 69.54% of the variance. All factor loadings were larger than .73.

Thus, the items were averaged to compute the variable *perceived group cohesion (PCS).* They had high internal consistency ($\alpha = .92$).

Another principal axis factor analysis with varimax rotation was run with the items assessing cohesion from the Group Environment Questionnaire (Carron et al., 1985). Because Carron and his colleagues (1985) distinguish first between social and task cohesion and second between an individual and a group component of cohesion (attraction and group integration, respectively), I expected four factors to emerge. The four emerging factors had eigenvalues between 1.87 and 1.23 and together explained 44.19% of the variance. An examination of the rotated factor loading matrix (Table 5) revealed that items supposed to hang together (e.g., all items measuring social attraction) did not necessarily load on the same factor. For example, the items "I would not enjoy being part of the social activities of this group", "I am going to miss the members of this group when the experiment ends", and "I could become friends with some people in this group" are supposed to measure social attraction, the individual component of social cohesion, but load on different factors. The rotated factor loading matrix seemed to suggest three different factors: Task Cohesion, Social Cohesion, and Negativity in the Group. Negativity in the Group subsumes all items that refer to group members' unhappiness and dislikes. I therefore decided to compute the three variables (by averaging the following items): *experienced task cohesion* (item 7, 9, 13; $\alpha = .73$), *experienced social cohesion* (item 2 reverse scored, 6, 8 reverse scored, 12, 14 reverse scored, $\alpha = .60$) and *experienced negativity in the group* (item 1, 3, 5, 11, $\alpha = .73$). The items for these variables had relatively low internal consistencies, though. I excluded two items from the computations: One item could not be assigned to any factor due to similar

loadings on all four factors (item 4 "I could become friends with some people in this group.") and one item was the only item comprising a Party factor (item 10 "Our group members would party together."), which was irrelevant for this study.

Table 5

Summary of Items and Factor Loadings from the Group Environment Questionnaire (Measuring *Experienced Personal Cohesion*)

Item	**Factor 1 Task Cohesion**	**Factor 2 Negativity**	**Factor 3 (Party)**	**Factor 4 Social Cohesion**
7. Our group is united in trying to reach its goal.	**.73**	-.14	.13	-.05
13. If members of our group had problems during the task, everyone would want to help them so we can get back on track.	**.60**	-.22	.00	.00
9. We all take responsibility for any poor performance by our group.	**.45**	.04	.15	-.02
1. I would not enjoy being part of the social activities of this group.	-.04	**.72**	-.20	.17
3. I am unhappy with my group's level of desire to work on the task.	-.21	**.61**	-.03	.00
5. I do not like the style of work in this group.	-.38	**.61**	-.10	.25
11. Our group members have conflicting aspirations for the group's performance.	.12	**.51**	.14	.26

Table 5 continues

Table 5 continued

Item	Factor 1 Task Cohesion	Factor 2 Negativity	Factor 3 (Party)	Factor 4 Social Cohesion
10. Our group members would party together.	.21	-.07	**.87**	-.10
6. For me, this group could become an important social group to which I belong.	.46	-.06	.24	**-.53**
2. I am not going to miss the members of this group when the experiment ends.	-.01	.02	-.13	**.50**
12. Our group would like to spend time together after the experiment is over.	.47	.01	.48	**-.44**
14. Members of our group are not likely to stick together outside of this experiment.	-.00	.22	-.07	**.42**
8. Members of our group would rather go out on their own than get together as a group.	-.03	.18	.05	**.33**
4. I could become friends with some people in this group.	.31	-.32	.35	-.23
Eigenvalues	1.87	1.80	1.30	1.23
% of variance	13.32	12.85	9.27	8.75

Note: Boldface indicates the item is assigned to that factor.

Because the analyses resulted in four different measures of experienced personal cohesion – one from Bollen and Hoyle's (1990) Perceived Cohesion Scale and three from Carron et al.'s (1985) Group Environment Questionnaire – it is essential to determine whether these measures tap into the same aspects of cohesion. If they correlated very highly, they might simply measure the same thing and could be collapsed. But because

the correlations between them are all smaller than the absolute value of .36 ($M_{absolute\ values}$ = .31, $range_{absolute\ values}$ = .27 – .36; see Table 6), they do not correlate very highly and were analyzed separately.

Table 6

Pearson Correlation Coefficients for the *Experienced Personal Cohesion* Measures

Measure	1	2	3	4
1. Experienced Personal Cohesion (PCS)	--			
2. Experienced Task Cohesion (GEQ)	.34*	--		
3. Experienced Social Cohesion (GEQ)	.33*	.27*	--	
4. Experienced Negativity (GEQ)	-.30*	-.27*	-.36*	--

Note: *p < .05. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire

With the items measuring *perceived group cohesion* from the GEQ (Carron et al., 1985), I ran another principal axis factor analysis. For this analysis, I excluded items 4 and 10 because they had not been proven useful for the computation of *experienced personal cohesion*. I expected three factors to emerge due to the results of the previous factor analysis. Three factors with the eigenvalues 2.48, 1.53, and 1.50 explained together 45.91% of the variance. All items loaded on the expected factors. I therefore computed the following variables by averaging items: *perceived task cohesion* (item 7, 9, 13; α = .60), *perceived social cohesion* (item 2 reverse scored, 6, 8 reverse scored, 12, 14 reverse

scored, α = .76), and *perceived negativity in the group* (item 1, 3, 5, 11, α = .60). The internal consistencies of these items are generally low.

Because the correlations between the different measures of perceived group cohesion (see Table 7) are medium-sized ($M_{\text{absolute values}} = .28$, $\text{range}_{\text{absolute values}} = .04 - .57$), they indicate that the measures detect different aspects of the construct and should be analyzed separately, just like the measures of *experienced personal cohesion.*

Table 7

Pearson Correlation Coefficients for the *Perceived Group Cohesion* Measures

Measure	1	2	3	4
1. Perceived Group Cohesion (PCS)	--			
2. Perceived Task Cohesion (GEQ)	.37*	--		
3. Perceived Social Cohesion (GEQ)	.57*	.35*	--	
4. Perceived Negativity (GEQ)	-.16	-.04	-.19	--

Note: *p < .05. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire

Overall, the results of the factor analyses suggest that most measures had good psychometric properties, except for the Team Psychological Safety scale, which measures *psychological safety*, and the Group Environment Questionnaire, which measures *cohesion*. They both have low internal consistencies. Therefore, all results based on these scales need to be regarded with some caution.

Correlations between Measures of Own Thoughts and Feelings and Others' Thoughts and Feelings

As explained in the methods section, participants were asked to answer questions both from their own perspective and from the perspective of the average other group member. The correlations between the resulting two measures could potentially be very high for two reasons: First, participants might not be able to distinguish clearly between their own thoughts and feelings and their fellow group members' thoughts and feelings. Actually, the main base for inferring what their fellow group members think and believe in a certain moment could simply be their own thoughts and feelings. Second, there is likely to be a high amount of common method variance because the wording of the respective items is very similar and the items are assessed with the same method at almost the same time. However, the correlations between measures of own and others' thoughts and feelings were, on average, medium in size (M = .44, range .12 – .65, see Table 8) and low enough to indicate that two scales referring to one construct – but from different perspectives – do not entirely measure the same thing, but slightly different aspects.

Did Put-down Humor Affect Experienced Personal Cohesion?

To find out if put-down humor had the expected positive effect on *experienced personal cohesion*, I conducted independent-samples t-tests on all measures of *experienced personal cohesion*. As can be seen in Table 9, put-down humor did not have the expected positive effect. Participants in the Put-down Humor condition felt about the

same amount of *personal cohesion* (assessed with the PCS), *social cohesion*, and *negativity* (both assessed with the GEQ) as participants in the No Humor condition.

Table 8

Pearson Correlation Coefficients between Measures of Own Thoughts and Feelings and Measures of Others' Thoughts and Feelings

Measures	Pearson's r
own positive mood and perceived positive mood of other group members	.65*
own negative mood and perceived negative mood of other group members	.49*
shared experiences and perceived shared experiences among other group members	.47*
own psychological safety and perceived psychological safety among other group members	.43*
perceived similarity to others and perceived similarity among others	.12
experienced personal cohesion (PCS) and perceived group cohesion (PCS)	.36*
experienced task cohesion (GEQ) and perceived task cohesion (GEQ)	.65*
experienced social cohesion (GEQ) and perceived social cohesion (GEQ)	.47*
experienced negativity in group (GEQ) and perceived negativity among others (GEQ)	.33*

Note: *p < .05

Participants in the Put-down Humor condition even felt significantly less *experienced task cohesion* than participants in the No Humor condition, $t(94) = -2.66$, $p < .01$. They

did not feel that the group was striving towards the same goal and that group members were supportive and willing to take responsibility. Thus, hypothesis 1.1 is not supported.

Table 9

Means, Standard Deviations, and T-tests for the *Experienced Personal Cohesion* Measures

Measure	Condition	M	SD	t-value	p-value	Cohen's d
Experienced personal cohesion (PCS)	Put-down Humor	3.26	1.13			
	No Humor	3.48	1.16	-.88	.38	-.19
Experienced task cohesion (GEQ)	Put-down Humor	3.48	1.08			
	No Humor	4.10	1.18	-2.66	.009	-.55
Experienced social cohesion (GEQ)	Put-down Humor	3.26	.97			
	No Humor	3.17	1.04	.46	.65	.09
Experienced negativity (GEQ)	Put-down Humor	3.17	1.12			
	No Humor	2.96	1.04	.96	.34	.19

Notes: All ratings were made on a scale from 1 to 7. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. All degrees of freedom = 94.

Did Put-down Humor Affect Perceived Group Cohesion?

To find out if put-down humor had the expected positive effect on *perceived group cohesion* (i.e., participants' perception of the cohesion among the rest of the group), I conducted another set of independent-samples t-tests on all measures of *perceived group cohesion.* As displayed in Table 10, put-down humor had the expected positive effect on *perceived group cohesion* (assessed with the PCS) and – to a lesser extent – on *perceived social cohesion* (assessed with the GEQ; recall that these two measures were the most highly correlated of all perceived cohesion measures, r = .57). Participants in the Put-down Humor condition felt that their fellow group members were a more cohesive unit than participants in the No Humor condition, t(94) = .3.34, p = <

.01. Participants in the Put-down Humor condition also tended to perceive slightly more social cohesion, $t(94) = 1.74$, $p < .10$, and slightly less negativity among their fellow group members than participants in the No Humor condition, $t(94) = 1.85$, $p < .10$. However, they did not perceive their fellow group members to have higher task cohesion than participants in the No Humor condition. To summarize, put-down humor from fellow group members seemed to indicate to participants that the others liked the group and fellow group members (even beyond the experimental context) and were happy to be in the group, that they were less negative about several aspects of their group, but that they did not feel particularly committed to the task. Thus, hypothesis 1.2 is partially supported.

Table 10

Means, Standard Deviations, and T-Tests for the *Perceived Group Cohesion* Measures

Measure	Condition	Mean	SD	t-value	p-value	Cohen's d
Perceived group cohesion (PCS)	Put-down Humor	4.41	1.08			
	No Humor	3.63	1.20	3.34	.001	.68
Perceived task cohesion (GEQ)	Put-down Humor	3.86	1.04			
	No Humor	4.10	1.02	-1.14	.26	-.23
Perceived social cohesion (GEQ)	Put-down Humor	3.79	1.08			
	No Humor	3.39	1.13	1.74	.09	.36
Perceived negativity (GEQ)	Put-down Humor	2.90	.83			
	No Humor	3.21	.83	-1.85	.07	-.37

Notes: All ratings were made on a scale from 1 to 7. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. All degrees of freedom = 94.

Did Put-down Humor Affect Participants' Own Thoughts and Feelings in the Group?

The put-down humor manipulation did not affect most of the variables assessing participants' own thoughts and feelings (see Table 11). It did not increase participants' positive mood, their sense of shared experiences, their psychological safety, and their feelings of similarity to other group members. It did, however opposite to expectations, increase their negative mood, $t(94) = 1.96$, $p = .05$.

Participants in the Put-down Humor condition believed that the other group members had a stronger intention to entertain ($t(94) = 8.6$, $p < .001$) than did participants in the No Humor condition. Participants in the Put-down Humor condition did not, however, believe that their fellow group members showed more concern than did participants in the No Humor condition, but rather assumed that their fellow group members' intention was to antagonize others, $t(94) = 2.02$, $p < .05$. Although the obvious goal of fellow group members might have been to entertain each other, they were perceived as lacking regard and as being motivated to antagonize others.

In order to find out why participants in the Put-down Humor condition had higher scores on *negative mood* than participants in the No Humor condition, I computed scores for specific negative emotions according to the PANAS-X (Watson & Clark, 1994). *Fear* is the average of participants' scores on the items distressed, scared, nervous, jittery, and afraid. *Hostility* is the average of participants' scores on the items upset, hostile, and irritable. *Guilt* is the average of participants' scores on the items guilty and ashamed. As can be seen in Table 11, participants in the Put-down Humor condition did not experience more fear and guilt, but they did experience more hostility than participants in the No Humor condition ($t(94) = 2.16$, $p < .05$). The humorous comments of the (ostensible)

fellow group members seemed to have upset and irritated participants in the Put-down Humor condition.

Overall, it seems that participants in the Put-down Humor condition felt uncomfortable and disconnected from the other group members. Thus, hypotheses 2.1, 2.2, 3.1, 4.1, 5.1 and 6.1 were all not supported.

Did Put-down Humor Affect Perceptions of Others' Thoughts and Feelings?

The put-down humor manipulation affected how participants evaluated their fellow group members' thoughts and feelings (see Table 12) – but not uniformly according to the expectations. Participants in the Put-down Humor condition regarded their fellow group members to have slightly more positive emotions, to share slightly more experiences among each other, to feel more psychological safety among each other ($t(94) = 2.27$, $p < .05$), and to be more similar to each other ($t(94) = 2.27$, $p < .05$) than did participants in the No Humor condition. Participants in the Put-down Humor condition did not, however, believe that their fellow group members were in a less negative mood than did participants in the No Humor condition.

Overall, put-down humor seems to have had some positive effects on the perception of other group members' thoughts and feelings. They were regarded as similar to each other and displayed psychological safety in their actions. However, hypotheses 2.4 and 5.2 were clearly disconfirmed. Hypotheses 2.3, 3.2 4.2 and 6.2 will be tested in more detail.

Table 11

Means, Standard Deviations, and T-Tests for the Measures of Participants' Own Thoughts and Feelings

Measure	Condition	Mean	SD	t-value	p-value	Cohen's d
positive mood	Put-down Humor	2.23	.58			
	No Humor	2.31	.80	-.54	.59	-.11
negative mood	Put-down Humor	1.55	.45			
	No Humor	1.38	.37	1.96	.05	.41
fear	Put-down Humor	1.69	.62			
	No Humor	1.54	.60	1.22	.22	.25
hostility	Put-down Humor	1.51	.62			
	No Humor	1.28	.37	2.16	.03	.45
guilt	Put-down Humor	1.27	.43			
	No Humor	1.16	.44	1.21	.23	.25
shared experiences	Put-down Humor	3.23	1.44			
	No Humor	3.38	1.34	-.53	.60	-.11
psychological safety (TPS)	Put-down Humor	3.47	1.01			
	No Humor	3.72	.98	-1.24	.22	-.25
psychological safety (own scale)	Put-down Humor	4.24	1.23			
	No Humor	4.38	1.09	-.61	.55	-.12
intention to entertain	Put-down Humor	6.16	.88			
	No Humor	4.20	1.27	8.60	<.001	1.79
intention to antagonize	Put-down Humor	1.87	.83			
	No Humor	1.55	.69	2.02	.05	.42
Concern	Put-down Humor	3.93	1.39			
	No Humor	3.83	1.40	.35	.73	.07
similarity	Put-down Humor	4.03	1.23			
	No Humor	4.19	.87	-.77	.44	-.15

Notes: TPS = Team Psychological Safety scale. Mood ratings were made on a scale from 1 to 5. All other ratings were made on a scale from 1 to 7. All degrees of freedom = 94.

Table 12

Means, Standard Deviations, and T-Tests for Measures of Other Group Members' Thoughts and Feelings

Measure	Condition	Mean	SD	t-value	p-value	Cohen's d
perceived positive mood of other group members	Put-down Humor	2.54	.61			
	No Humor	2.29	.74	1.76	.08	.37
perceived negative mood of other group members	Put-down Humor	1.43	.45			
	No Humor	1.40	.34	.48	.63	.08
perceived shared experiences among others	Put-down Humor	4.06	1.15			
	No Humor	3.58	1.37	1.85	.07	.38
perceived psychological safety among others	Put-down Humor	4.98	.83			
	No Humor	4.60	.78	2.27	.03	.47
perceived similarity among others	Put-down Humor	4.97	.86			
	No Humor	4.58	.79	2.27	.03	.47

Notes: TPS = Team Psychological Safety scale. Mood ratings were made on a scale from 1 to 5. All other ratings were made on a scale from 1 to 7. All degrees of freedom = 94.

Mediational Analysis

I hypothesized that the thoughts and feelings of other group members would mediate the effect of put-down humor on *perceived group cohesion*. Because only four of the potential mediating variables (*perceived positive mood*, *perceived shared experiences*, *perceived psychological safety* and *perceived similarity among others*) differed between conditions (but not necessarily significantly), I tested whether these four variables might mediate the relation between put-down humor and *perceived group cohesion*. The correlations between the four potential mediating variables ranged between .27 and .54.

I included all of these variables in a multiple mediation model depicted in Figure 2. This model shows both the direct effect of put-down humor on perceived cohesion and the indirect effects via the four mediators *perceived positive mood*, *perceived shared*

experiences, *perceived psychological safety*, and *perceived similarity*. It is important to include all potential mediating variables in the model (instead of testing each one separately) to find out if the whole set of variables can collectively mediate the relation between put-down humor and perceived cohesion. One can, of course, also still test to what extent each variable mediates the relation. Each specific indirect effect is the ability of one variable to mediate the effect when all other mediators are included in the model (i.e., controlled for). An indirect effect is defined as the product of the two unstandardized coefficients connecting put-down humor with perceived cohesion through that one specific mediator. The total indirect effect is the sum of all specific indirect effects.

In order to test the effects, I bootstrapped them using the SPSS version of a macro supplied by Preacher and Hayes (Preacher & Hayes, under review; see also www.quantpsy.org). Bootstrapping is a nonparametric resampling procedure that is very well suited for testing hypotheses about mediation because the sampling distributions of indirect effects are sometimes not normal (MacKinnon, Lockwood, & Williams, 2004). The advantage of bootstrapping is that is makes no assumptions about the sampling distributions of coefficients and indirect effects (the product of the coefficients). MacKinnon, Lockwood, Hoffman, West, & Sheets (2002) showed that bootstrapping led to more accurate Type I error rates and greater power for finding indirect effects than other methods – partly because fewer inferential tests are involved than in other methods (e.g., the causal steps strategy, Baron & Kenny, 1986; the Sobel test, Sobel, 1982, 1986). Another advantage is that bootstrapping places more emphasis on the direction and the size of the effect instead of significance levels.

The point estimates and the 95% bias-corrected confidence intervals of the indirect effects are listed in Table 13. Point estimates are equivalent to the product of unstandardized coefficients that would have been found using the causal steps method (Baron & Kenny, 1986). Traditionally, they would have been tested for significance using the Sobel test (1982). (As can be seen in the table, none of the estimates for indirect effects are significantly different from zero when using the Sobel test, which has been shown to have too little power for small samples like this one.)

The interpretation of the bootstrapped estimates is that all four variables together mediated the effect of put-down humor on *perceived cohesion.* The total indirect effect was .41. Again, the total indirect effect is the sum of all specific indirect effects. The total and direct effects of put-down humor on perceived cohesion are .79, $p < .01$ and .38, $p < .10$, respectively. These two values are the unstandardized regression coefficients and were not bootstrapped. When all four mediators are taken into account, the effect of put-down humor is reduced from .79 to .38 and becomes non-significant. The difference between these two effects is the total indirect effect (.41, see above). The 95% biased-corrected confidence interval (CI) for the total indirect effect is .08-.71. Because this CI does not contain 0, we can claim that the total indirect effect is different from 0.

It is not only essential to test whether there is an overall indirect effect. It is also important to test individual mediators in the model. Unstandardized coefficients and their standard errors are shown in Figure 2. The directions of all coefficients are, as predicted, positive. Participants who heard put-down humor in the group perceived their fellow group members to have more positive emotions, shared experiences, to feel safer, and to be more similar to each other than participants who did not hear put-down humor. A

closer examination of each specific indirect effect shows that only *perceived positive mood* and *perceived similarity* can be regarded as mediators, though, because their confidence intervals do not contain 0. The other two variables do not contribute significantly to the indirect effect above and beyond the effects of *perceived positive mood* and *perceived similarity*.

Table 13

Mediation of the Effect of Put-down Humor on *Perceived Group Cohesion* Through *Perceived Positive Mood*, *Perceived Shared Experiences*, *Perceived Psychological Safety*, and *Perceived Similarity*

				Bootstrapping	
	Product of Coefficients			**BC 95% CI**	
Indirect Effects	**Point Estimate**	**SE**	**Z**	**Lower**	**Upper**
Perceived positive mood	.14	.09	1.61	.01	.40
Perceived shared experiences	.07	.06	1.18	-.01	.24
Perceived psy. safety	.09	.07	1.38	-.03	.38
Perceived similarity	.11	.07	1.57	.002	.36
TOTAL	.41	.16	2.59	.08	.71

Notes: BC = bias-corrected. 5000 bootstrap samples. Z = value for the Sobel test (1982)

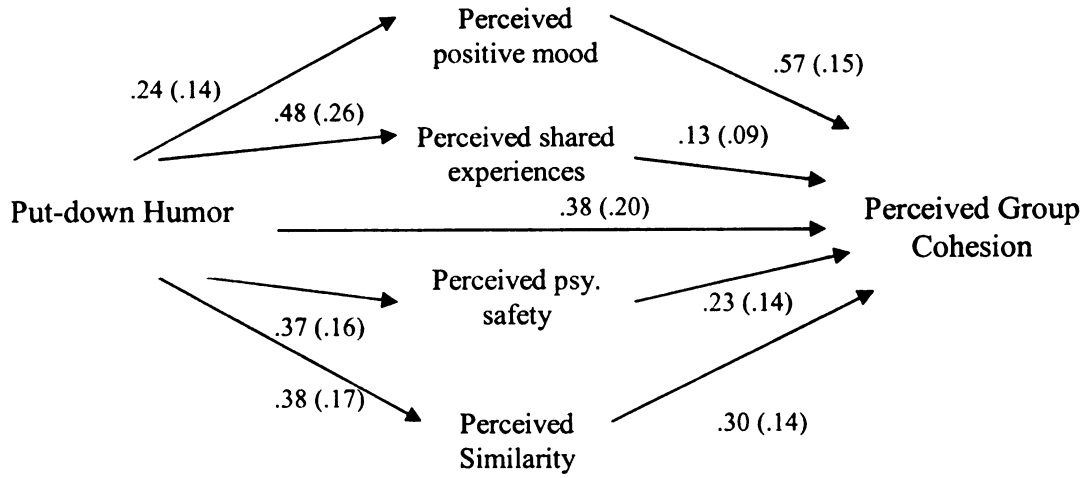


Figure 2: Mediation of Put-down Humor on *Perceived Group Cohesion* by *Perceived Positive Mood*, *Perceived Shared Experiences*, *Perceived Psychological Safety,* and *Perceived Similarity.* Displayed are unstandardized coefficients (and their standard errors).

DISCUSSION

The goal of this study was to examine the effects of put-down humor on cohesion in groups. More specifically, I created conditions under which put-down humor was hypothesized to increase cohesion and examined the underlying process. I assumed that the following two conditions were necessary and sufficient for put-down humor to increase cohesion: First, the target of the humorous comment is someone outside the group (an outgroup member) and second, the comment is appreciated by group members, what they signal through laughter.

All variables were assessed at two levels. First, from the participant's own perspective: Participants answered questions about their own thoughts and feelings (Example: How safe do you feel?). Second, from the perspective of the other group members: Participants also answered questions about their fellow group members' thoughts and feelings (Example: How safe does the average other group member feel?).

The participants who heard put-down humor did not feel more attracted to the group than participants who did not hear any humor. In other words, participants in the Put-down Humor condition did not experience more personal cohesion than participants in the No Humor condition. In fact, they even felt less task cohesion. The put-down humor did also not affect participants' own thoughts and feelings besides their negative mood. Participants who heard put-down humor were in a more negative mood than participants who did not hear any humor. They felt especially upset, irritated, and hostile.

However, hearing put-down humor made participants believe that the other group members (excluding the participant) were more attracted to the group (compared to participants not hearing humorous comments and reactions). Participants in the Put-down

Humor condition regarded their fellow group members to be a more cohesive unit, even beyond the experimental context, but also to be less committed to the task than participant in the No Humor condition. Participants in the Put-down Humor condition judged their fellow group members to be in a more positive mood, to share more experiences, to feel safer, and to be more similar to each other than did participants in the No Humor condition. Furthermore, the variables *perceived positive mood* and *perceived similarity among other group members* were found the mediate the relation between put-down humor and cohesion in a model containing four potential mediators.

To summarize, although put-down humor was presumed to lead to increased personal attraction to the group, it did not. Moreover, the participants in the Put-down Humor condition seemed to feel very different from how they perceived the feelings of their fellow group members. This observation is also reflected in the low correlation coefficient between the measure of similarity with other group members and similarity among other group members. The put-down humor had no or a negative effect on own feelings and feelings about the group, but made those who expressed it seem to be feeling more positively emotionally and about the group.

In this study, participants anticipated speaking and being heard by other group members, three of whom had been successfully joking during their turns. It is possible, therefore, that I did not find the expected effect on experienced personal cohesion because participants in the Put-down Humor condition experienced heightened anxiety. Such anxiety may not be inherent in overhearing put-down humor of outgroup members in one's group. Rather, such anxiety may have been aroused by the particular experimental procedures used in Study 1. In this experimental paradigm, participants

anticipated having to perform the same task that three fellow group members had previously undertaken. In the No Humor condition, participants heard three ostensible fellow group members talk in a fairly direct, sober fashion, with practically no reactions from the others in the group. In the Put-down Humor condition, on the other hand, the three ostensible fellow group members made several put-down comments about the stimulus persons, and these comments were reacted to with hearty laughter. So, in the Put-down Humor condition, participants may have perceived additional risks that were absent from the No Humor condition: 1) They might not meet the emerging norm/standard of being humorous in the group. That is, they might have been afraid that they would not be as funny as the first speakers. 2) Their apparently highly judgmental fellow group members would evaluate them negatively (as they had the outgroup members). It was not my expectation or intent to show that group members are more strongly attracted to groups which put higher performance demands upon them. Eys, Hardy, Carron, and Beauchamp (2003) showed that athletes who perceived their cognitive anxiety as debilitative had lower perceptions of group cohesion than athletes who perceived their cognitive anxiety as facilitative. In my study, participants probably experienced a certain amount of debilitative anxiety as well, which could have undercut the hypothesized relationship between put-down humor and cohesion. This interpretation is consistent with other features of the data: In the Put-down Humor condition (as compared to the No Humor condition), participants' positive moods did not improve, they did not feel they shared more experiences with the other group members, and they did not feel more psychological safety. My original hypothesis assumed that the perceived demands and risks of participation were identical for those who did or did not

hear put-down humor. However, my original paradigm may well have failed to achieve such equivalence.

Study 1 clearly showed that there are some boundary conditions for the personal cohesion effect. In this study, as I have argued above, I probably produced experimental conditions that suppressed the effect. Therefore, these conditions will be altered in Study 2 to ones less likely to suppress the hypothesized effect.

STUDY 2

In Study 2, I altered several elements of Study 1's experimental procedures to reduce participants' potential anxiety and evaluation apprehension. In order to decrease the participant's fear of not meeting an apparent high-humor standard, she always talked first in the group. At the beginning of the study, the participant listened to an example recording so that she would know how to handle the personality evaluation task. Then she was (supposedly) randomly chosen to be the first group member to evaluate a student profile. Because at that point, the participant had not heard any other group member talk and make humorous comments, there was no humor standard when the participant started.

In order to decrease the participants' fear of being evaluated negatively by others, she was always evaluated positively by her fellow group members at the beginning of the study. The participant was asked to fill out a short profile about herself (with, e.g., information about her major and career goals) at the beginning of the study and told that all other group members would be able to examine it. She was then able to see the profiles of her fellow (ostensible) group members and asked to pick the person who seemed the most reliable. All other group members would be asked to do the same. After that, the participant was told that the other group members had voted her to be the most reliable person in the group and that her task would be to record all evaluations of group members. Thus, in Study 2, the participant received a positive evaluation from her fellow group members and attained a higher status position in the group.

In Study 2, all other aspects of the procedure remained the same. To measure group identification, a construct that is closely related to cohesion, I added the Group

Identification Scale (Hinkle, Taylor, Fox-Cardamone, & Crook, 1989) because the Group Environment Questionnaire exhibited poor psychometric qualities in Study 1.

METHOD

Design

The design of the study was a single-factor design, the same as in Study 1: Put-down humor of outgroup members (followed by common laughter) was present or absent in the group discussion.

Participants

Participants in this study were 139 female college students who were recruited through the MSU HPR Pool and received one hour of credit for taking part in the study. Sixty-one percent of participants were in their first year of study at MSU, 24% were sophomores, 11% juniors, and 4% seniors.

Due to technical failures, data of four participants were not recorded. A total of 21 (= 15.1%) participants realized that the voices of their fellow group members had been recorded. This might have been due to the fact that participants needed to speak before all other group members and did not receive any feedback from them – unlike the later speakers who all received feedback. The data of the participants who figured out the set-up of the study were excluded from the analyses.

Twenty-two (= 15.8%) participants expressed some suspiciousness about the voting process for a recorder and did not fully believe that the other group members voted them to be the recorder. Instead, they indicated in their answers to the open-ended manipulation check question (Was there anything in the study that seemed strange or unusual to you?) that the computer program told every group member they were voted to be the recorder (which was, in fact, the case). However, the data of these participants were not excluded from the analyses because they still believed that they were members

of an ad-hoc group and collaborating with their fellow group members. The remaining number of participants for the analyses was thus 114, with 57 participants each in the No Humor and in the Put-down Humor condition.

As for Study 1, a power analysis with the computer program GPOWER (Faul & Erdfelder, 1992) had shown that 51 participants per condition were enough to have an 80% chance of correctly rejecting the null hypothesis if the effect was moderate (d = .5; power was estimated for studies using a one-sided t-test for independent means and testing hypotheses at the .05 significance level).

Cover Story

The cover story was the same as in Study 1: The experimenter told participants that we were interested in how groups work together when group members could only communicate via headsets. The participant believed that she could communicate with five other group members, but in fact listened to recorded statements.

The Task

The task was also the same is in Study 1: Participants were told that each group member was supposed to examine a profile from a University of Michigan student and to judge how outgoing, friendly, reliable, moody, and open-minded the student in the profile seemed to be. Each group member would evaluate one student profile, one after the other.

Procedure

The procedure in this study resembled the one from Study 1. Upon arrival at the lab, the experimenter led participants into separate rooms and told them individually what the goal of the study and their task was. Then the participant had to draw one out of several cards presented by the experimenter and after opening it, found out that her card

was marked with a red dot. The experimenter explained that this color would later determine when the participant had to speak.

After this, the participant started reading the instructions on the computer screen. She was informed that each group needed one member to record everyone's evaluations. This recorder would be determined through popular vote. The participant read: "All group members need to answer a few questions. The answers will be shown to everyone. Then every group member votes who she thinks would be the best recorder in this group."

The participant then typed her answers to the following questions: "What is your major? What is your class level? If you have a job, where do you work? Where do you currently live (e.g., on campus, off campus)? What are your career goals? What is an interesting fact about you? Who is your hero?" The participant then clicked on a button to send off her answers to all other group members. In fact, the answers were not sent to anyone else, though.

After a few seconds of waiting, answers of five other ostensible group members were displayed on the screen (see Figure 3). The participant was asked to study these answers carefully because she would later need to choose who would be the most reliable recorder. Nobody could vote for themselves.

Please examine these profiles carefully and try to find out who would be the *most reliable* recorder in your group.

PERSON 1	PERSON 2	PERSON 3
Major: undecided Class: freshman Work: as a lifegurad in the summer Current residence: HOlmes Career goals: don't know Interesting fact: Played soccer in high school?? Heroes: Madonna	Major: psychology Class: junior Work: at Harper's Current residence: off-campus apartment Career goals: teach college Interesting fact: am from the UP Heroes: Gwenyth Paltrow	Major: Psychology Class: Sophomore Work: none Current residence: apartment with friend Career goals: become a lawyer Interesting fact: I love chess! Heroes: Susan Polgar
PERSON 4 This is YOU!	**PERSON 5** Major: Accounting Class: Junior Work: SBS Current residence: Owen Hall Career goals: become an accountant in a large company Interesting fact: ? Heroes: Lance Armstrong :-)	**PERSON 6** Major: psychology Class: Freshmn Work: Meijer's Current residence: on campus Career goals: clinical psych Interesting fact: I am fluent in Spanish. Heroes: Erich Fromm

Figure 3: Profiles of Five Other Ostensible Group Members as Background Information for the Recorder Vote

After reading the answers, the participant needed to vote for one person to be the recorder. She was subsequently informed that group members had voted Person 4 to be the recorder "because Person 4 seemed to be the most reliable". We made sure each participant would know she was Person 4 by putting a poster that read "You are Person 4" on the wall in front of her and by indicating in the profiles that she was Person 4 (see Figure 3). The participant further read: "Your task is to record all evaluations. Please turn over the white sheet that is lying on your desk and write the evaluations in the appropriate places." The participant then turned around a sheet that was lying in front of her. It contained the following instructions: "Please record the ratings of your group members in the following table. You only need to write down the numbers that correspond to the ratings, but NO comments." The participant also read that group members need to use the following scale for their ratings: 1 (well below average), 2 (below average), 3 (above average), 4 (well above average). The participants further read: "For example, if someone says 'Victoria is above average in moodiness', write down 3. If a group member does not make a rating, leave the appropriate space blank." At the bottom of the page was the table that the participant in her role as recorder needed to fill out:

	How outgoing?	How friendly?	How reliable?	How moody?	How open-minded?
Julie					
Ashley					
Megan					
Kim					
Katie					
Victoria					

Figure 4: Table for Recorder in Study 2

The participant (and, ostensibly, the other five group members) then listened to an example evaluation that was supposedly from an earlier study in order to become familiar

with the task. She saw a student profile on her screen and heard how the evaluator gave her impression of the student and judged how outgoing, friendly, reliable, moody, and open-minded the person in the profile seemed to be. There was no put-down humor in this recording.

After listening to the example evaluation, the participant read that now members of her group would start evaluating the student profiles. One group member would evaluate the first student profile, another group member the second one, and so on. The participant was reminded that she picked a card with a color (red) at the beginning of the study and that it would be her turn to talk when this color showed up as a frame around a student profile.

Then the evaluation process started. The first student profile showed up on the screen with a red frame, which meant that the participant needed to talk first. While the participant was speaking into the microphone, background noise that included people breathing and moving chairs played in her headphones so that she would believe other group members were listening to her. However, the participant did not receive any kind of verbal feedback from the other group members. But all subsequent speakers received very explicit feedback from the others in the form of laughter (because their statements and the laughter had been recorded). Thus, some participants might have rightfully concluded that the statements of their fellow group members had been recorded. After the participant had evaluated the first student profile, three other profiles showed up on the screen and were evaluated by three other ostensible group members.

After these four evaluations, the task was interrupted and the participant was asked to answer questions about the group so that we could assess all potential mediating

and dependent variables. The computer program subsequently indicated that the last two group members would not be able to evaluate a student profile because time for the experiment was running out. At the end, the participant was asked to indicate how much she liked the four students from the previously evaluated profiles. She was also asked what she thought the purpose of the study to be, whether anything had struck her as unusual, and to answer some manipulation check items. Finally, the participant was debriefed and thanked.

Manipulation of the Independent Variable

Put-down humor was manipulated like in Study 1: The first three ostensible group members whom the participants heard either used or did not use put-down humor in their statements.

Assessment of Potential Mediating Variables

All potential mediating variables were assessed with the same questions as in Study 1.

Assessment of the Dependent Variable

Cohesion was again assessed with the 6-item Perceived Cohesion Scale (PCS; Bollen & Hoyle, 1990) and the 17-item Group Environment Questionnaire (GEQ; Carron et al., 1985), which had been modified for this study. Group identification was also assessed in this study because it is closely related to cohesion and because the GEQ had proven to have rather poor psychometric properties in Study 1. It was measured with Hinkle et al.'s (1989) version of the Group Identification Scale (GIS). This questionnaire contains nine items, which participants needed to rate on a scale from 1(strongly

disagree) to 7(strongly agree). Example items are: "I identify with this group. I am glad to belong to this group. I do not consider the group to be important (reverse scored)."

Order of Variable Assessment

Parallel to Study 1, participants were asked to answer all items about their own thoughts and feelings first and all items about the thoughts and feelings of their fellow group members after that. The order of the items was as the same as in Study 1 with the insertion of the Group Identification Scale after the cohesion measures: own mood (20-item PANAS), shared experiences from own perspective (3 items), own psychological safety (7-item Team Psychological Safety scale + 5 items), perceived intentions of speakers (7 items), perceived similarity to other group members (6 items), experienced personal cohesion (6-item Perceived Cohesion Scale, 17-item Group Environment Questionnaire), own identification with the group (9-item Group Identification scale), perceived mood of other group members (20-item PANAS), perceived shared experiences among other group members (3 items), perceived psychological safety among other group members (5 items), perceived similarity among other group members (6 items), perceived group cohesion (6-item Perceived Cohesion Scale, 17-item Group Environment Questionnaire), perceived identification of others with the group (9-item Group Identification Scale). All items are listed in Appendix C.

Manipulation Checks

At the end of the study, participants were asked the same questions as in Study 1 to find out if the manipulation had been successful. They were also asked: "Who was the recorder in this group?" (with the response options "I was the recorder" and "Someone

else was the recorder") to check if they had realized that they had been voted to be the recorder in their group.

RESULTS

Manipulation and Cover Story Checks

One hundred nine out of 114 participants correctly identified the students in the profiles as students from the University of Michigan. Almost all participants were thus aware that the statements they heard were about outgroup members. One hundred thirteen participants also indicated that they were the recorder in the group. Only one person indicated that someone else was the recorder, χ^2 (1) = 110.03, $p < .001$. No data was discarded to have enough power for the analyses.

The put-down humor manipulation can again be regarded as successful: Participants in the Put-down Humor condition stated that the other group members used more humor ($t(112) = 7.97$, $p < .001$, $d = 1.49$), laughed more ($t(112) = 11.08$, $p < .001$, $d = 2.07$), and made funnier comments ($t(112) = 2.73$, $p < .01$, $d = .51$) than did participants in the No Humor condition. Participants in the Put-down Humor condition also reported smiling and laughing more ($t(112 = 2.64$, $p < .01$, $d = .49$, $t(112) = 3.32$, $p < .01$, $d = .62$ respectively) than participants in the No Humor condition. All means and standard deviations from the manipulation check items can be found in Table 14.

Fifty six out of 57 participants in the Put-down Humor condition indicated that the humorous comments were about the students in the profiles (vs. unrelated issues, about each other, or about themselves). Almost all participants were aware that the humorous comments referred to outgroup members. Again, no data was discarded to have enough power for the analyses.

Table 14: Condition Means and Standard Deviations for the Manipulation Check Items

Item	Put-down Humor		No Humor	
	M	SD	M	SD
How much humor did the other group members use?	5.93	.92	4.44	1.07
How much did group members laugh?	6.05	1.03	3.82	1.12
How funny were the comments?	4.49	1.55	3.74	1.40
How often did you smile?	4.84	1.84	3.98	1.63
How often did you laugh?	4.53	1.84	3.44	1.65

Note: All ratings were made on a scale from 1 to 7.

Computation of Variables

For all scales, I ran the same kinds of factor analyses as in Study 1. The results turned out to be very similar to the ones from Study 1. I therefore computed the following variables in exactly the same way: own positive mood (α = .88), own negative mood (α = .80), shared experiences from own perspective (α = .88), own psychological safety (α = .84), perceived intention to entertain (α = .94), perceived intention to antagonize (α = .74), perceived concern (α = .59), perceived similarity to other group members (α = .90), experienced personal cohesion (PCS, α = .92), perceived positive mood of other group members (α = .90), perceived negative mood of group members (α = .81), shared experienced among other group members (α = .91), perceived psychological safety among other group members (α = .78), perceived similarity among other group members (α = .92), perceived group cohesion (PCS, α = .93). The reliabilities of all scales were satisfactory.

For the Team Psychological Safety scale (Edmondson, 1999) and for the Group Environment Questionnaire (Carron et al., 1985), however, a different factor structure emerged. I still decided to compute the variables like in Study 1 in order to be able to compare results across studies. The reliabilities of these scales are extremely low, though: For psychological safety (TPS) $\alpha = .45$, for experienced task cohesion $\alpha = .58$, for experienced social cohesion $\alpha = .59$, for experienced negativity $\alpha = .67$, for perceived task cohesion $\alpha = .42$, for perceived social cohesion $\alpha = .53$, for perceived negativity $\alpha = .66$. Results including these scales need to be regarded with caution and are only reported to present the complete set of results.

The Group Identification Scale (GIS; Hinkle et al., 1989) that had not been used in Study 1 was added in Study 2. Responses to the nine questions were submitted to a principal axis factor analysis with varimax rotation. The eigenvalues-greater-than-1 rule and the scree plot indicated that two factors with eigenvalues of 2.62 and 1.79 emerged. They explained together 48.98% of the variance. Items and factor loadings are displayed in Table 15.

The first factor consisted of items that indicated identification with the group and was therefore labeled *Identification*. The second factor consisted of items that indicated a lack of identification and was therefore labeled *De-identification*. Because the results of the factor analysis indicate that Identification and De-identification are different constructs, I decided to compute two variables (*experienced identification* and *experienced de-identification*) by averaging the appropriate items. Their internal consistencies ($\alpha_{identification} = .83$ and $\alpha_{de\text{-}identification} = .73$) were acceptable and their correlation was relatively low ($r = -.20$).

Table 15

Summary of Items and Factor Loadings for the Items from the Group Identification Scale

Item	Factor 1 Identification	Factor 2 De-identification
I am glad to belong to this group.	**.87**	-.17
I identify with this group.	**.77**	-.02
I think this group will work well together.	**.76**	-.23
I see myself as an important part of this group.	**.72**	-.07
I feel strong ties to the members of this group.	**.37**	.001
I feel uneasy with the members of this group.	-.03	**.81**
I feel held back by this group.	.03	**.68**
I do not fit in well with the other members of this group.	-.16	**.57**
I do not consider the group to be important.	-.11	**.50**
Eigenvalue	2.62	1.79
% of variance	29.14	19.84

Note: Boldface indicates highest factor loadings.

The same kind of factor analysis was run with the nine items from the GIS measuring *perceived identification of others with the group.* Again, two factors with eigenvalues of 2.88 and 2.18 emerged and explained together 56.22% of the variance. The rotated factor loading matrix showed the same pattern as the one in Table 15. Thus, the two variables *others' perceived identification* (α = .86) and *other's perceived de-identification* (α = .77) were computed. They did not correlate at all (r = -.003).

Because in Study 2 the Group Identification Scale had been added, four more dependent variables were examined overall: experienced identification, experienced de-identification, others' perceived identification, and others' perceived de-identification. It is again essential to show how these variables correlate in order to find out if they measure the same underlying constructs.

As can be seen in Table 16, experienced personal cohesion (as measured by the PCS), experienced task cohesion, experienced social cohesion (both measured by the GEQ), and experienced identification (as measured by the GIS) all correlate fairly highly ($.43 < r's < .74$). It seems that these measures tap into similar constructs, namely the positive aspects of cohesion and identification. They seem to show how much participants like the group. Experienced negativity (measured by the GEQ) and experienced de-identification (measured by the GIS) also correlate highly ($r = .65$), but do not correlate highly with the other variables ($r's < .24$). They also seem to tap into the same construct, which could be the negative aspects of cohesion and identification. They seem to show how much participants dislike the group. Although this pattern emerged, I decided to analyze the variables separately because some of their reliabilities were very low and in order to be able to compare results with those from Study 1.

A different pattern emerged for the measures of perceived cohesion and perceived identification, though (see Table 17). The variables did not correlate as highly as the ones for experienced cohesion and experienced identification. The only high correlation coefficients could be found between perceived group cohesion (as measured by the PCS) and perceived identification (as measured by the GIS) on the one hand and between perceived negativity (as measured by the GEQ) and perceived de-identification (as

Table 16

Pearson Correlation Coefficients for the *Experienced Personal Cohesion* Measures

Measure	1	2	3	4	5	6
1. Experienced Personal Cohesion (PCS)	--					
2. Experienced Task Cohesion (GEQ)	.59*	--				
3. Experienced Social Cohesion (GEQ)	.43*	.29*	--			
4. Experienced Negativity (GEQ)	-.22*	-.24*	-.18	--		
5. Experienced Identification (GIS)	.74*	.67*	.51*	-.22*	--	
6. Experienced De-identification (GIS)	-.21*	-.19*	-.12	.65*	-.20*	--

Notes: *p< .05. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. GIS = Group Identification Scale.

measured by the GIS) on the other hand. These measures could tap into two equivalent constructs, namely now much the other group members seem to like and to dislike the group. The reason for the low correlation coefficients between the other variables could either be their low reliabilities or that group members are better able to distinguish between different kinds of cohesion when they judge others. There is no direct evidence for either of these interpretations, however.

Table 17

Pearson Correlation Coefficients for the *Perceived Group Cohesion* Measures

Measure	1	2	3	4	5	6
1. Perceived Group Cohesion (PCS)	--					
2. Perceived Task Cohesion (GEQ)	.42*	--				
3. Perceived Social Cohesion (GEQ)	.34*	-.05	--			
4. Perceived Negativity (GEQ)	-.11	.02	-.23*	--		
5. Perceived Identification (GIS)	.81*	.48*	.30*	-.08	--	
6. Perceived De-identification (GIS)	-.17	.03	-.26*	.58*	-.003	--

Notes: *p < .05. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. GIS = Group Identification Scale.

Correlations between Measures of Own Thoughts and Feelings and Others' Thoughts and Feelings

The correlation coefficients between participants' own thoughts and feelings and their perceptions of their fellow group members' thoughts and feelings were relatively high (M = .55, range: .39-.66, see Table 18). For each measure, they were about as high as or higher than in Study 1. Especially the correlation coefficients for similarity (r = .12 in Study 1 and r = .48 in Study 2) and experienced cohesion measured with the PCS (r = .36 in Study 1 and r = .59 in Study 2) were much higher than in Study 1. Participants in this study either perceived themselves to be more similar to their fellow group members, which is supported by the higher correlation coefficient between *similarity to others* and *similarity among others*, or they did not distinguish very well between their own thoughts and feelings and those of their fellow group members. However, the correlation

coefficients are still low enough to conclude that two scales referring to one construct – but from different perspectives – don't measure exactly the same thing. Instead, they seem to measure different, but related, constructs.

Table 18

Pearson Correlation Coefficients between Measures of Own Thoughts and Feelings and Measures of Others' Thoughts and Feelings

Measures	Pearson's r
own positive mood and perceived positive mood of other group members	.66*
own negative mood and perceived negative mood of other group members	.48*
shared experiences and perceived shared experiences among other group members	.44*
own psychological safety and perceived psychological safety among other group members	.39*
perceived similarity to others and perceived similarity among others	.48*
experienced personal cohesion (PCS) and perceived group cohesion (PCS)	.59*
experienced task cohesion (GEQ) and perceived task cohesion (GEQ)	.63*
experienced social cohesion (GEQ) and perceived social cohesion (GEQ)	.53*
experienced negativity in group (GEQ) and perceived negativity among others (GEQ)	.62*
experienced personal identification with the group and perceived identification with others	.66*

Note: *p < .05

Did put-down humor affect experienced personal cohesion?

Put-down humor did not affect participants' experienced cohesion (see Table 19). Participants in the Put-down Humor condition felt the same amount of *personal cohesion*, *task* and *social cohesion*, and *negativity* as participants in the No Humor condition. They also identified as strongly with the group as participants in the No Humor condition. Participants in the Put-down Humor condition tended to de-identify more strongly with their group, though, than participants in the No Humor condition. To sum, put-down humor did not have the expected positive effect on experienced cohesion. If anything, it made participants feel uneasy and feel like they did not fit into the group. Thus, hypothesis 1.1 was not supported.

Did put-down humor affect perceived group cohesion?

Put-down humor had the expected positive effect on perceived group cohesion (see Table 20). It increased participants' overall sense of *perceived group cohesion* (as measured by the PCS, $t(112) = 3.81$, $p < .001$), their *perceived social cohesion* ($t(112) = 2.16$, $p < .05$), and the *perceived identification of others* with the group ($t(112) = 2.90$, $p < .01$). Put-down humor did not affect participant's sense of *perceived task cohesion*, *perceived negativity*, and *perceived de-identification* of others from the group. To summarize, put-down humor seemed to indicate to participants that their fellow group members were a cohesive unit, especially in regards to their social interactions, and that the others strongly identified with the group. Thus, hypothesis 1.2 can be partly supported.

Table 19

Means, Standard Deviations, and T-tests for the *Experienced Personal Cohesion* Measures

Measure	Condition	M	SD	t-value	p-value	Cohen's d
Experienced personal cohesion (PCS)	Put-down Humor	3.83	1.40			
	No Humor	3.75	1.28	.29	.77	.06
Experienced task cohesion (GEQ)	Put-down Humor	3.93	1.17			
	No Humor	4.11	1.12	-.85	.40	-.16
Experienced social cohesion (GEQ)	Put-down Humor	3.46	1.07			
	No Humor	3.32	.86	.75	.45	.14
Experienced negativity (GEQ)	Put-down Humor	2.93	1.13			
	No Humor	2.83	.91	.50	.62	.10
Experienced personal identification (GIS)	Put-down Humor	3.87	1.20			
	No Humor	3.82	1.01	.20	.84	.05
Experienced personal De-identification (GIS)	Put-down Humor	2.89	1.23			
	No Humor	2.54	.81	1.78	.08	.37

Notes: All ratings were made on a scale from 1 to 7. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. GIS = Group Identification Scale. All degrees of freedom = 112.

Did put-down humor affect participants' own thoughts and feelings in the group?

Put-down humor did not affect participants' own thoughts and feelings as expected (see Table 21). Participants in the Put-down Humor condition felt about the same amount of *positive mood*, *negative mood*, and *shared experiences* as participants in the No Humor condition. They even felt slightly less *psychological safety* and less similar to others than participants in the No Humor condition. However, participants in the Put-down Humor condition (compared to those in the No Humor condition) believed that the first speakers in the group intended to entertain ($t(112) = 9.07$, $p < .001$) and that they were more concerned about the group ($t(112) = 2.05$, $p < .05$). On the other hand, they

Table 20

Means, Standard Deviations, and T-Tests for the *Perceived Group Cohesion* Measures

Measure	Condition	M	SD	t-value	p-value	Cohen's d
Perceived group cohesion (PCS)	Put-down Humor	4.64	1.31			
	No Humor	3.80	1.00	3.81	< .001	.72
Perceived task cohesion (GEQ)	Put-down Humor	4.25	.98			
	No Humor	4.26	.96	-.07	.95	-.01
Perceived social cohesion (GEQ)	Put-down Humor	3.69	1.04			
	No Humor	3.33	.77	2.16	.03	.39
Perceived negativity (GEQ)	Put-down Humor	3.16	1.09			
	No Humor	2.89	.76	1.52	.13	.29
Perceived identification of others (GIS)	Put-down Humor	4.44	1.13			
	No Humor	3.91	.83	2.90	.004	.53
Perceived de-identification of others (GIS)	Put-down Humor	2.97	1.23			
	No Humor	2.79	.83	.91	.36	.17

Notes: All ratings were made on a scale from 1 to 7. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire. GIS = Group Identification Scale. All degrees of freedom = 112.

also believed that the first speakers intended to antagonize others with their comments more ($t(112) = 3.10$, $p < .01$). Overall, it seems as though participants in the Put-down Humor condition (as compared to participants in the No Humor condition) regarded the statements of the other ostensible group members ambivalently: They did not assume that the speakers had bad intentions, but they still felt like they made other group members angry and insulted them. The slightly negative perception of the speakers' comments might have made participants feel less safe in the group and somewhat distant from the group. Thus, hypotheses 2.1, 2.2, 3.1, 4.1, 5.1, and 6.1 were all not supported.

More specific emotions (fear, hostility, and guilt) were computed as in Study 1. Unlike in Study 1, though, where participants in the Put-down Humor condition had felt

Table 21

Means, Standard Deviations, and T-Tests for the Measures of Participants' Own Thoughts and Feelings

Measure	Condition	Mean	SD	t-value	p-value	Cohen's d
positive mood	Put-down Humor	2.45	.76			
	No Humor	2.58	.69	-.92	.36	-.18
negative mood	Put-down Humor	1.44	.39			
	No Humor	1.39	.48	.56	.58	.11
fear	Put-down Humor	1.42	.41			
	No Humor	1.45	.55	-.27	.79	-.06
hostility	Put-down Humor	1.58	.72			
	No Humor	1.42	.62	1.30	.20	.24
guilt	Put-down Humor	1.25	.47			
	No Humor	1.21	.54	.46	.65	.08
shared experiences	Put-down Humor	3.70	1.41			
	No Humor	3.67	1.27	.14	.89	.02
psychological safety (TPS)	Put-down Humor	3.93	.97			
	No Humor	4.07	.84	-.83	.41	-.15
psychological safety (own scale)	Put-down Humor	4.52	1.24			
	No Humor	4.91	.98	-1.84	.07	-.35
intention to entertain	Put-down Humor	6.26	.96			
	No Humor	4.28	1.34	9.07	<.001	1.70
intention to antagonize	Put-down Humor	1.81	.89			
	No Humor	1.35	.70	3.10	.002	.57
concern	Put-down Humor	4.57	1.19			
	No Humor	4.17	.89	2.05	.04	.38
similarity	Put-down Humor	4.04	1.21			
	No Humor	4.42	.91	-1.89	.06	-.35

Notes: Mood ratings were made on a scale from 1 to 5. All other ratings were made on a scale from 1 to 7. TPS = Team Psychological Safety scale. All degrees of freedom = 112.

more hostility than participants in the No Humor condition, no significant differences in emotions emerged in this study. Participants in both conditions felt about the same amount of fear, hostility and guilt.

Did put-down humor affect perceptions of others' thoughts and feelings?

As expected, put-down humor influenced participants' perceptions of their fellow group members' thoughts and feelings (see Table 22). Participants in the Put-down Humor condition regarded their fellow group members to be in a slightly more positive mood, to share slightly more experiences among each other, and to be more similar to each other ($t(112) = 2.10$, $p < .05$) than participants in the No Humor condition. However, participants in the Put-down Humor condition did not perceive their fellow group members to be in a less negative mood and to feel safer among each other than participants in the No Humor condition. Overall, put-down humor seems to have had the expected positive effect on some of participants' perceptions of their fellow group members' thoughts and feelings. Hypotheses 2.4 and 4.2 were not supported. Hypotheses 2.3, 3.2, and 6.2 will be tested in more detail.

Did the New Cover Story have the Intended Effect? Comparison of Study 1 with Study 2

Study 2 differed in two important ways from Study 1: First, the participant talked before all other ostensible group members. It was assumed that this change in procedure would make the participant less anxious (because there would be no pressure to be as funny as the previous speakers) and that she would feel safer in the group (because she was less likely to be evaluated negatively by other group members). If the intended

Table 22

Means, Standard Deviations, and T-Tests for Measures of Other Group Members' Thoughts and Feelings

Measure	Condition	M	SD	t-value	p-value	Cohen's d
perceived positive mood of other group members	Put-down Humor	2.68	.79			
	No Humor	2.43	.63	1.84	.07	.35
perceived negative mood of other group members	Put-down Humor	1.37	.45			
	No Humor	1.39	.39	-.29	.77	-.05
perceived shared experiences among others	Put-down Humor	4.26	1.39			
	No Humor	3.78	1.21	1.94	.06	.37
perceived psychological safety among others	Put-down Humor	5.02	.94			
	No Humor	4.87	.95	.85	.40	.16
perceived similarity among others	Put-down Humor	5.06	1.07			
	No Humor	4.67	.92	2.10	.04	.39

Notes: Mood ratings were made on a scale from 1 to 5. All other ratings were made on a scale from 1 to 7. All degrees of freedom = 112.

effects were achieved, one should see a decrease in the emotion *fear* and an increase in *psychological safety* from Study 1 to Study 2.

Second, the participant was voted to be the recorder in the group. This should make her feel more positive because she had a special role with higher status. One should see an increase in *positive mood* from Study 1 to Study 2. Taken together, these two changes in procedure were also assumed to increase the mean level of *experienced personal cohesion.*

In order to test if these procedural changes had the intended effect on the participant's own thoughts and feelings and on her *experienced personal cohesion*, I ran two 2(Study: 1 vs. 2) x 2(Put-down Humor: Yes vs. No) MANOVAs. For the first MANOVA, all measures of participants' own thoughts and feelings were the dependent variables. Results are displayed in Table 23. Neither the factor Study nor the factor Put-

down Humor nor the interaction was significant. Thus, the procedural changes did not have a strong global effect on participants' own thoughts and feelings. However, the univariate ANOVAs reveal that, as intended, the factor Study had a significant effect on participants' *positive mood, fear, shared experiences, psychological safety* (as measured with the TPS and with my own scale), and on perceptions of others' *concern*. Participants in Study 2 were in a more positive mood (M = 2.51 (SD = .72) vs. M = 2.28 (SD = .71), d = .32), experienced less fear (M = 1.43 (.48) vs. M = 1.60 (.61), d = -.31), felt they shared more experiences (M = 3.68 (1.33) vs. M = 3.32 (1.38), d = .27), felt more psychological safety (as measured by the TPS: M = 4.00 (.91) vs. M = 3.60 (1.00), d = .42 and by the own scale: M = 4.71 (1.13) vs. M = 4.32 (1.15), d = .34), and felt that other group members were more concerned about the group interaction (M = 4.37 (1.07) vs. M = 3.88 (1.39), d = .40) than participants in Study 1. Thus, the procedural change evidently had the intended effect on participants' own thoughts and feelings.

In the second 2(Study: 1 vs. 2) x 2(Put-down Humor: Yes vs. No) MANOVA, all measures of *experienced personal cohesion* were the dependent variables. It was expected that the factor Study would have an overall effect on the dependent variables. Results are displayed in Table 24. The factor Study did not have a significant global effect on the full set of dependent variables, but the factor Put-down Humor did ($F(4,203) = 2.49$, $p < .05$). The interaction was also not significant.

More specifically, the factor Study affected *experienced personal cohesion* scores on the Perceived Cohesion Scale (PCS; Bollen & Hoyle, 1990) ($F(1,206) = 5.38$, $p < .05$). Participants in Study 2 felt more *experienced personal cohesion* than participants in Study 1 (M = 3.79 (SD = 1.34) vs. M = 3.38 (SD = 1.26), respectively, d = .32). None of

Table 23

Multivariate and Univariate Analyses of Variance for Measures of Own Thoughts and Feelings

	Multivariate		Univariate										
Source	df	F	Positive Mood	Fear	Hostility	Guilt	Shared Experiences	Psy. Safety (TPS)	Psy. Safety (own scale)	Intention to Entertain	Intention to Antagonize	Concern	Similarity to Others
Study (S)	1	3.23	5.8*	5.6*	1.5	.1	4.0*	9.8*	6.5*	.3	1.6	8.3*	.7
Put-down Humor (P)	1	17.75	1.0	.7	5.3*	1.3	.1	2.2	2.8	154*	13*	2.2	3.4
S x P	1	.75	.5	1.4	.1	.2	.2	.2	.6	.003	.5	.8	.5
MSE			.51	.30	.36	.23	1.85	.90	1.29	1.31	.61	1.49	1.21

Notes: Multivariate F ratios were generated from Pillai's statistic.
Multivariate df = 11, 196. Univariate df = 1, 206. Negative Mood was not included in the analyses because it overlaps with Fear, Hostility, and Guilt.
* $p < .05$

the other measures of experienced personal cohesion were affected by the factor Study, though, which might be due to their low reliabilities.

Furthermore, the factor Put-down Humor affected scores on *experienced task cohesion* (as measured by the GEQ; Carron et al., 1985) ($F(1, 206) = 6.40$, $p < .05$). Participants in the Put-down Humor condition experienced less task cohesion than participants in the No Humor condition ($M = 3.74$ (1.15) vs. $M = 4.12$ (1.14), respectively, $d = -.33$). This result needs to be regarded with caution due to the low reliability of the measure in Study 2. None of the other measures of experienced personal cohesion were affected by the factor Put-down Humor. To the extent that Study 2 is viewed as a conceptual replication of Study 1, this analysis further bolsters the conclusion that when put-down humor had effects on experienced personal cohesion, it was a negative effect.

Overall, these results show that the procedural changes were successful in making participants in Study 2 feel less anxious and more positive in the group situation than participants in Study 1. Participants in Study 2 also felt slightly more attracted to the group. However, these changes were not sufficient to turn put-down humor from a neutral/negative factor into a positive one.

Mediational Analyses

I hypothesized that the thoughts and feelings of other group members would mediate the effect of put-down humor on *perceived cohesion*. In Study 2, only three of the potential mediating variables differed between conditions – and not always significantly. These were *perceived positive mood of other group members*, *perceived*

Table 24

Multivariate and Univariate Analyses of Variance for Measures of Experienced Personal Cohesion

	Multivariate		Univariate			
Source	df	F	Experienced personal cohesion (PCS)	Experienced task cohesion (GEQ)	Experienced social cohesion (GEQ)	Experienced negativity (GEQ)
Study (S)	1	1.50	5.38*	2.11	1.68	1.72
Put-down Humor (P)	1	2.49*	.18	6.40*	.71	1.12
S x P	1	.51	.68	1.92	.02	.16
MSE			1.71	1.30	.98	1.10

Notes: Multivariate F ratios were generated from Pillai's statistic. PCS = Perceived Cohesion Scale. GEQ = Group Environment Questionnaire.
Multivariate df = 4, 203. Univariate df = 1, 206.
* $p < .05$

shared experiences among others, and *perceived similarity among others*. *Perceived psychological safety* did not differ between conditions, unlike in Study 1. In order to be able to compare results with Study 1 and because perceived psychological safety might still contribute to the overall mediating effect, I included the latter variable in the multiple mediation model (see Figure 5). This model shows both the direct effect of put-down humor on perceived cohesion and the indirect effects via the four mediating variables. The correlations between the four potential mediating variables ranged between .14 and .58.

In order to test the effects, I bootstrapped them (for an explanation of this procedure, see Study 1). All four variables together mediated the effect of put-down humor on *perceived cohesion*. The total indirect effect was .39. This total effect is the

sum of all specific indirect effects, which in turn are the products of the unstandardized coefficients. The total and direct effects of put-down humor on perceived cohesion are .83, $p < .001$, and .44, $p < .01$, respectively. These estimates are all very similar to the ones from Study 1. However, when all four mediating variables are taken into account, the effect of put-down humor is reduced from .83 to .44 and remains significant. In Study 1, the effect had been reduced to non-significance. Again, the difference between these two effects is the total indirect effect (.39, see above). The 95% bias-corrected confidence interval for the total indirect effect is .05-.74. This CI does not contain 0 and therefore indicates that the total indirect effect is actually different from 0. Thus, taken as a collective, the four variables *perceived positive mood*, *perceived shared experiences*, *perceived psychological safety*, and *perceived similarity* partially mediated the effect of put-down humor on cohesion.

The point estimates and the 95% bias-corrected confidence intervals of all specific indirect effects are displayed in Table 25. Unstandardized coefficients and their standard errors are shown in Figure 2. The directions of all coefficients are positive, as predicted. Similar to Study 1, participants who heard put-down humor from their fellow group members concluded that the others were in a more positive mood, shared more experiences, felt safer, and were more similar to each other than did participants who did not hear put-down humor. Only the three variables *perceived positive mood*, *perceived shared experiences*, and *perceived similarity* can be regarded as mediators, though, because their confidence intervals do not contain 0. *Perceived psychological safety* did not contribute significantly to the effect above and beyond the effects of the other three variables.

Table 25

Mediation of the Effect of Put-down Humor on *Perceived Group Cohesion* through *Perceived Positive Mood*, *Perceived Shared Experiences*, *Perceived Psychological Safety*, and *Perceived Similarity*

	Product of Coefficients			Bootstrapping BC 95% CI	
Indirect Effects	**Point Estimate**	**SE**	**Z**	**Lower**	**Upper**
Perceived positive mood	.13	.08	1.74	.004	.33
Perceived shared experiences	.12	.07	1.72	.009	.32
Perceived psy. safety	.06	.07	.84	-.067	.20
Perceived similarity	.08	.05	1.58	.001	.26
TOTAL	.39	.17	2.29	.05	.74

Notes: BC = bias-corrected. 5000 bootstrap samples. Z = value for the Sobel test (1982)

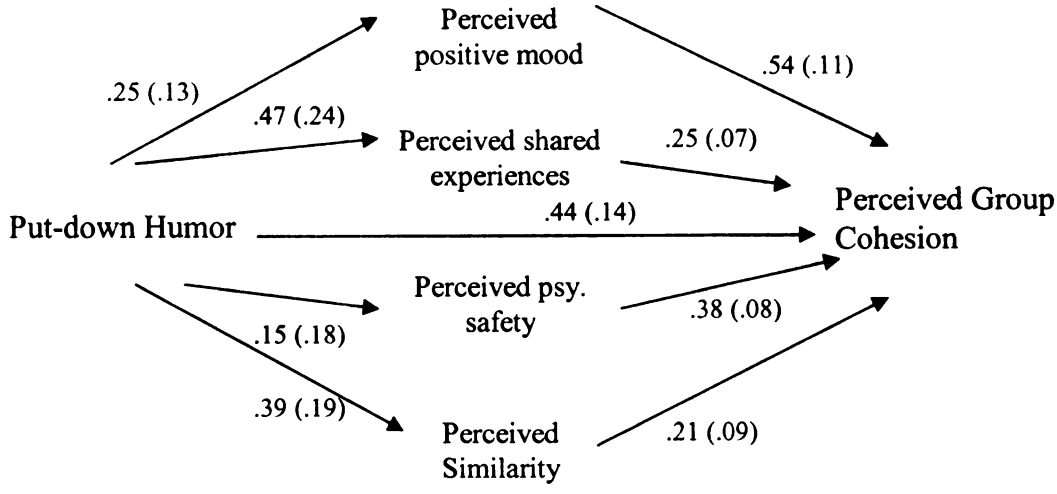


Figure 5: Mediation of Put-down Humor on *Perceived Group Cohesion* by *Perceived Positive Mood*, *Perceived Shared Experiences*, *Perceived Psychological Safety,* and *Perceived Similarity*. Displayed are unstandardized coefficients (and their standard errors).

DISCUSSION

In Study 2, certain conditions that were hypothesized to suppress the effect of put-down humor on experienced personal cohesion were removed. Participants were asked to talk first in the student evaluation task, were voted the most reliable person in the group by the rest of the members, and had the task of recording everyone's evaluations. A comparison between studies showed that these procedural changes actually made participants feel less anxious in the group situation, as intended. On average, participants in Study 2 were in a more positive mood, felt less fear, shared more experiences with their fellow group members, and felt safer than participants in Study 1. However, the procedural changes did not alter the null relationship between put-down humor and experienced personal cohesion. The results in Study 2 closely resembled those from Study 1. Put-down humor influenced neither participants' own thoughts and feelings nor their attraction to the group. But as in Study 1, it did influence how participants regarded their fellow group members. They were perceived more positively and to be more attracted to the group.

The pattern of results across the two studies clearly suggests that simply witnessing the exchange of out-group directed put-down humor and laughter among fellow group members is not sufficient to bolster one's own attraction to the group, nor is such a reaction made more likely by reducing one's social anxiety (viz. by reducing one's performance pressure and evaluation apprehension). In the general discussion, I will consider further which conditions might be necessary and sufficient to observe a positive effect of put-down humor on personal cohesion.

It is noteworthy that the procedural changes in Study 2 led to a much higher suspicion rate than in Study 1. In Study 2, 15.1% of participants realized that the statements of their fellow group members had been recorded, whereas in Study 1, only 6.8% of participants had realized that. In Study 1, participants were explicitly told before they started talking that they would not be able to hear any verbal feedback from their fellow group members. Their fellow group members would be able to hear them, but not vice versa. In Study 2, however, the participant talked first and heard some background noise, but no reactions from other group members. Then the second group member talked (which meant, in fact, that the recording started playing). Participants could hear what the group member said and how other group members reacted to the speaker's comments. In the No Humor condition, some group members cleared their throats, opened and closed bottles and shuffled papers. In the Put-down Humor condition, group members reacted with hearty laughter to all humorous comments by the speaker. In both conditions, the background noise in the speaker's recordings might have shown the attentiveness of other group members. Participants might have wondered why all other group members received some kind of feedback, but why they did not receive any. This might have contributed to suspiciousness. It might also have made them feel somewhat distinct and excluded from the group. This feeling of exclusion, of not being in the same situation as the others, could offer another explanation of why the effect of put-down humor on personal cohesion did not occur in Study 2 – an important point which will be elaborated further in the general discussion.

One problem that occurred in Study 2 was the low internal reliability of the Team Psychological Safety scale (Edmondson, 1999) and the Group Environment

Questionnaire (Carron et al., 1985). The first was used to measure psychological safety and the later to measure cohesion. In Study 1, the results of factor analyses showed that the factor structures of both measured were different than expected, based on prior scale development reports. Thus, I created composite scores of items that correlated highly under the present conditions. In Study 2, the results of equivalent factor analyses turned out to be rather different from those in Study 1. In order to be able to compare variables across studies, I computed all variables in Study 2 like in Study 1. However, the variables based on items from the resulting two measures turned out to have very low internal consistencies. Thus, all results including these measures need to be regarded with caution. The reason for the varying factor structures of both measures might be that the instruments had been designed to measure characteristics in existing teams and not in ad-hoc lab groups. Some of the items (for example, "Members of this group would be able to bring up problems and tough issues"), although specifically adapted to these studies, might not have made a lot of sense to participants and have led them to answer them arbitrarily.

In the mediational analyses in both studies, four mediating variables were included in a model with *perceived group cohesion* as the dependent variable. These were *perceived positive mood*, *perceived shared experiences*, *perceived psychological safety*, and *perceived similarity among other group members*. Recall that in Study 1, *perceived positive mood* and *perceived similarity* were found to be significant mediators in this model. In Study 2, the same variables plus *perceived shared experiences* were found to be significant mediators. The overall pattern of results was quite similar across studies.

The lower bounds of the CI's were very similar to each other, only the interval for shared experiences included 0 in Study 1, but not in Study 2.

GENERAL DISCUSSION

When people use put-down humor, they make fun of a specific target – a person or object. Put-down humor should have a strong influence on group processes and particularly on cohesion because of its inherently social nature. I hypothesized that put-down humor would increase cohesion in a group if it referred to outgroup members and if other group members showed their appreciation of the comment through laughter. In Study 1, I found that these conditions were not sufficient to increase personal cohesion. However, participants regarded their fellow group members to be a more cohesive unit when the group interaction contained put-down humor as compared to no humor. In Study 2, I found that even after making participants feel safer in the group, put-down humor did still not increase personal cohesion, but made other group members seem to feel good in the group and to be more attracted to it.

Both studies have some obvious limitations: Participants are individuals who believe themselves to be members of an ad-hoc group. Furthermore, all channels of communication between the participant and other (ostensible) group members are restricted due to the experimental procedure. It is thus difficult to generalize the results to existing groups and teams whose members interact face-to-face. However, this procedure allowed me to manipulate put-down humor, to control for all other variables, and to find out how individual group members react when hearing put-down humor in a group context. For this purpose, it was necessary to sacrifice naturalness. How much naturalness we can sacrifice in the long run to study such an ephemeral phenomenon like humor remains to be seen. In any case, these two studies are the beginning of what I hope will be an interesting program of research about the effects of humor in groups.

Why did put-down humor not increase personal cohesion? Potential necessary and sufficient conditions

The experimental conditions created in Study 1 and 2 were not sufficient for put-down humor to increase personal cohesion. Because observational studies have suggested, though, that put-down humor can increase cohesion (e.g., Terrion & Ashforth, 2002), the question arises as to just which conditions are necessary and/or sufficient for the effect to occur. Theory and research about humor markers, shared reality, communication maxims, and group development suggest four additional conditions that might be necessary.

Condition 1: The play frame of the put-down needs to be obvious.

According to Grice (1975), one can distinguish between on-record and off-record communication. On-record comments can be taken literally and are direct and honest. Off-record comments, however, cannot necessarily be taken literally and are indirect. All humorous comments, among them put-down humor, can be considered off-record because their content need not be taken literally. They are usually delivered with a play frame. Communicators indicate that their comments are off-record by employing certain markers. These can be verbal (e.g., exaggerations, changes in tone of voice) or nonverbal (e.g., facial expressions, gestures). In the case of teasing, communicators have been observed to use unusual vocalizations, a singsong voice, and unusual facial expressions to indicate that they did not mean the comment seriously (Abrahams, 1962). Some of them also laughed before or after the tease (Drew, 1987) – probably to indicate the play frame.

Such off-record markers signal that the comment should be taken in jest. In the case of put-down humor, off-record markers include the humorous nature of the comment

and laughter. Without them, the comment would only be a put-down and regarded as a hostile act. The presence and the nature of such off-record markers could strongly influence the perception of the put-down humor. If there are many and obvious markers, the humorous nature of the put-down should be more obvious. However, if there are few and less obvious markers, the put-down could be taken more literally.

In this study, participants could not see nonverbal off-record markers of the sources of the put-down humor because they were connected to the other (ostensible) group members via headsets. They could only hear the voices of the other group members. Furthermore, participants did not know the voices of their fellow group members. Therefore, it might have been difficult for them to pick up vocalizations as unusual. It could also be the case that the speakers recorded for this study did not use many audible off-record markers (e.g., a teasing tone of voice) to indicate the humorous nature of their comments. In any case, participants might not have heard enough off-record markers to realize that the put-down humor should have been taken in jest. Participants might have heard the put-down, but not the humor. One indication of this is participants' answers to the manipulation check question "How funny were the comments?" in the Put-down Humor condition. The average rating on a seven-point scale was a 4.00 in Study 1 and 4.49 in Study 2, which is near the mid-point of the scale and certainly not high – considering the fact that the manipulation was crafted to be very strong. These results, in combination with the results from the other manipulation check items, could also indicate that participants regarded the comments as humor attempts, but did not find them funny. This, in turn, could mean that it was not put-down humor, but put-down humor attempts that were manipulated. Another indication of too few off-

record markers is that participants in the Put-down Humor condition attributed a stronger intention to antagonize to their fellow group members than participants in the No Humor condition.

To summarize, participants in these studies might have perceived few and less obvious off-record markers of put-down humor and have taken the comments more literally. In a future study, the off-record markers and the resulting play frame of the humorous comments could be made more obvious or explicitly manipulated. Such research could help establish whether having a high-level of off-record markers is necessary before put-down humor can have a positive effect on personal cohesion.

Condition 2: A shared reality needs to be created between group members.

According to Hardin and Higgins (1996), cognitive processes are shaped by social activities. Furthermore, all social activities require some sort of social consensus. Individuals can only interact with each other in a "shared reality". If they share their individual experiences with each other, subjective experiences can become objective and a shared reality emerges.

Hardin and Higgins (1996) posit that a shared reality is a necessary requirement for effective communication. Another requirement is that communicators take the perspective of each other, in other words try to experience the situation as it is experienced by others. If communicators take each others' perspectives, they can verify each others' experiences. Usually, communicators wait for listeners to verify their experiences. They phrase their utterances in a way that elicits feedback and wait for listeners to show them that the message is understood. These signs of understanding do not have to be whole words or sentences; often, simple "uh-huh"s and head nods suffice.

If the communicator does not receive any feedback from listeners, he or she stops transmitting information and tries to find out why the listeners are not verifying his/her experience. In the early stages of group development, the goal of establishing a shared reality might be primary. Shared reality also seems to be necessary for groups to function successfully.

In my studies, it was relatively difficult for participants to create a shared reality with other group members. In Study 1, participants listened to others talk and then answered questions about the group. Before participants themselves talked, they were told explicitly that the experimental procedure would not allow them to hear the reactions of their fellow group members. Thus, they never received any feedback from others throughout the study. In Study 2 also, participants did not receive any feedback from their fellow group members although here they believed that this could have been possible. Thus, participants were essentially left alone with their own subjective experience of the situation. From their perspective, there was no consensus about the situation, or at least no consensus that included them. Communication was not possible and thus a universally shared reality in the group could not be created. This could also mean that participants did not even feel like they were part of any group because their communications to and experiences in the group were not validated. In summary, if an important initial goal of the group was to create a shared reality, the experimental procedures made it difficult or impossible to achieve this goal. Instead of becoming a part of the group, the participant remained apart from it.

In order to test if a common group experience would be sufficient to create a shared reality, I conducted a follow-up study (Study 3). Before participants engaged in

the personality evaluation task, they went through a team-building exercise with other participants. Participants in the same session (i.e., up to four actual participants plus confederates to have six members in the group) were asked to stand in a circle, facing each other. Then the experimenter threw a balloon into the air. The group's task was to throw the balloon from one person to another so that the balloon would never touch the ground. After some time, the experimenter added another balloon into the game, then a third one, and so on, until the group had to keep five or six balloons in the air. This team building exercise had been chosen because pilot testing indicated that it was fun for participants, easy to conduct, and did not take up much time. Importantly, during the whole team building exercise participants (and confederates) could see but not speak to each other. This was done to prevent recognizing that the voices heard during the following personality evaluation task were different from the voices heard in the team building exercise. However, participants believed that the other group members in the team building exercise would be the ones they would later talk to. I found that this exercise significantly increased overall levels of personal cohesion in both conditions, but that the inclusion of such a team building phase was still not sufficient for put-down humor to increase personal cohesion.

Although these findings are quite tentative, they add to the earlier findings by suggesting that the pre-existing level of cohesion in the group does not moderate the relationship between put-down humor and personal cohesion (at least not within the range of pre-existing cohesion levels examined here). In Study 2, a boost in cohesion was achieved via positive evaluations from fellow group members and from a relatively safe task procedure (in which the participant was not made as apprehensive about meeting

others' expectations). In Study 3, a boost was achieved via shared experiences in a team building exercise. Of course, this still leaves open the possibility that some other type of shared experience may be necessary to create a shared reality between group members.

In future research, participants could be allowed to create a shared reality with other group members so that they definitely feel like a member of the group. A shared reality might be created by other group members' explicitly acknowledging the presence and the comments of the participant. Some form of communication between the participant and other group members may well be necessary to create a shared reality.

Condition 3: Put-down humor needs to be relevant to the group or its task.

Grice (1975) described how people usually interact by describing the "cooperative principle". It states that communicators should make contributions that are required and use accepted means of an interaction for their contributions. In other words, statements should follow the purpose of a conversation if the communication is to be effective. The speakers in the present Put-down Humor condition may have violated the cooperative principle to a certain extent because they made some negative remarks that did not serve the purpose of the conversation: The put-down humor may not have been seen as flowing from or assisting the group's work on the personality evaluation task.

According to Grice (1975), the cooperative principle can further be divided into four maxims: First, communicators do not say what they believe to be false (Truth). Second, communicators make their contribution as informative as necessary for the current conversation (Information). Third, communicators are relevant (Relevance). Fourth, communicators are brief and avoid ambiguities (Clarity). As we all know from experience, these maxims do not always describe how people usually communicate.

Instead, they describe the assumptions that listeners normally make about speakers' statements. If the listener realizes that an utterance is not consistent with these maxims, he or she will look for other meanings.

In these studies, speakers in the Put-down Humor condition (i.e., the recording that the participant heard) may have violated at least two of the Gricean maxims: First, the humorous comments of the speakers may not have been seen as highly relevant in the situation. The task was to evaluate student profiles, and the put-down humor did not help the evaluation process. It rather appeared to distract from the task, which is shown in the lower ratings of task cohesion by participants of the Put-down Humor condition compared to participants in the No Humor condition. Second, the humorous comments were prolix and ambiguous. This might have led participants to look for other meanings in the messages and to conclude eventually that the speakers were mean-spirited. That is, the speakers who used put-down humor (i.e., the recorded statements) may have been viewed as impolite, particularly for a first conversation. People who don't know each other normally don't insult strangers. If anything, they would rather say something positive about others (Brown & Levinson, 1987). So if there was no apparent reason in the situation to use to put-down humor, one plausible alternative conclusion could be that something about the speakers themselves must have led them to use it. To summarize, put-down humor may need to be more relevant for the group or its task to have positive effects on personal cohesion.

In a future study, the identity of the outgroup members and their distinctiveness from ingroup members should be more salient or manipulated. This could establish

whether the relevance of outgroup-member directed put-down humor moderates the relation between put-down humor and personal cohesion.

Condition 4: Group members need to go through a specific sequence of different kinds of put-down humor.

As mentioned earlier, observational research suggests that put-down humor of outgroup members can increase cohesion. Terrion & Ashforth (2002) concluded that put-down humor of outgroup members increased trust and cohesion in a group of police officers. However, this kind of put-down humor occurred relatively late in the development of the group (after group members had started to put down themselves and shared social identities). It could well be that put-down humor of outgroup members only increases cohesion after the group has gone through several stages of put-down humor. Group members might have to go through a sequence of different kinds of put-down humor together before put-down humor of outgroup members increases personal cohesion. Perhaps some (or all) group members need to put down themselves and the whole group first before they can use put-down humor about outgroup members for the benefit of the ingroup's cohesion.

Conclusion: The following conditions might be necessary for put-down humor of outgroup members to increase personal cohesion: The play frame and the relevance of the put-down humor is clear to group members, and group members have a shared reality and have already used put-down humor about themselves and shared social identities. Clearly, these conditions were not satisfied in the present studies. However, participants might well have perceived their fellow group members as if all these conditions had been satisfied for them. That means the play frame of the put-down humor appeared to be clear

to other group members, which they indicated through their laughter. They acted as if these comments were relevant to the task and as if they, as a group, had a shared reality. They might even have appeared as if they had had past experience with each other. Anecdotally, few participants left these studies asking the experimenter if the other group members already knew each other or if they had been sitting in the same room. Thus, the conditions might have been apparent in the rest of the group (excluding the participant), but not in the full group (including the participant).

Can the lack of an effect be due to the gender of the participants?

All participants in these studies were women. This was mainly due to practical considerations because most of the participants in psychology experiments at Michigan State University are women. Unfortunately, data on put-down humor and gender is very limited. If we assume that status and power influence how much put-down humor a person uses and that women are stereotypically of lower status than men, then men should be more likely to use put-down humor than women. Men's put-downs should also be more hostile and contain fewer off-record markers according to this reasoning. Some studies have suggested that men are more likely to tease than women (e.g., Lampert, 1996). Teasing is in many ways equivalent to put-down humor of an ingroup member. But to date, no studies have contrasted how men and women deliver and react to put-down humor. Put-down humor could be much more normative among all-male groups than among all-female groups and mixed-gender groups. Men might also use put-down humor more often than women to create bonds with each other (Tannen, 1990). However, there is not enough evidence to support these speculations. To summarize, because put-down humor might be more common in all-male groups, it might have a stronger effect

on personal cohesion in those groups. Future research needs to show if this is actually the case.

Future research

In future research, it will first be necessary clarify the nature of put-down humor and to find out what the essential ingredients of put-down humor are. In order to gain a deeper understanding of the concept, I hope to conduct surveys or observational studies to find out how people use put-down humor in existing groups. More specifically, I will examine what about the put-down humor makes it a put-down, how speakers indicate the humorous nature of the comment, and how listeners indicate their appreciation of the comment. Interviews with speakers could also reveal which goals they pursue when using put-down humor in a group context. A better understanding of the concept will help differentiate put-down humor from non-humorous put-downs and from other forms of humor, which will eventually aid in the formulation of a general theory about the effects of humor in groups.

As mentioned above, in future research it will also be necessary to test the importance of several conditions to find out when put-down humor of outgroup members can increase personal cohesion. With the current paradigm, I plan to test in the near future whether creating a shared reality is a moderating variable. Participants will be able to communicate with other group members. As Hardin and Higgins (1996) suggest, it is not necessary to exchange complete sentences to start building a shared reality; instead, verbal feedback of the form "uh-uh" might be enough for participants to feel acknowledged by others. This could lead them to develop a common understanding of the situation and to feel like members of the same group as others. More specifically, in my

next study, I plan to have confederates listen to the participant's statements and give her feedback (through the headset) so that she realizes others hear her, understand her, and have a similar perception of the situation. Furthermore, confederates will be instructed to laugh at every humor attempt the participant makes so that the participant receives the same reaction from group members as all other speakers.

If I can establish some conditions under which put-down humor will affect personal cohesion, I plan to examine two potential moderators of the relation. First, I'd like to test how the target of the humorous comment (an ingroup vs. an outgroup member) moderates the relation. I hypothesize that outgroup targets will have a stronger positive effect on cohesion than ingroup targets. Second, I'd like to systematically explore the effect of laughter on the relation between put-down humor and personal cohesion. I hypothesize that common laughter should increase cohesion to a stronger extent than milder forms of appreciation or no appreciation of the humorous comment. In the future, it will also be important extent this program of research to other, milder forms of humor and compare their effects with those of put-down humor.

In the future, I also plan to extent the current model of put-down humor and cohesion in groups. In these two studies, I explored how put-down humor might influence cohesion. However, the relation between put-down humor and cohesion is unlikely to be unidirectional; cohesion also influences the production of put-down humor. The role of put-down humor is likely to be quite complex and embedded in dynamic personal and interpersonal processes. Such complexities are fascinating to study, but could not be examined with the current lab paradigm. I hope to conduct longitudinal studies with existing groups to capture the interplay between put-down humor and

cohesion over time. For example, I could study groups of students completing a project over one semester and record who uses put-down humor about whom, how listeners react, and how the comment changes group members' experiences in the group and their interactions with each other. Such observational studies could help me in formulating a richer theory about the effects of put-down humor in groups.

Applications

In her study about teasing at the workplace, Vinton (1989) observed that teasing was used by employees for two reasons: to get the work done and to lessen status differentials. She concluded that humor created bonds between employees and helped to accomplish tasks. Although my studies focus on one specific kind of humor, put-down humor, and Vinton examined all kinds of humor, my findings seem to contradict Vinton's to some extent. If anything, the put-down humor about outgroup members did not help to get the work done. Participants who heard put-down humor tended to feel less task cohesion and also perceived slightly less task cohesion among their fellow group members. This observation is not to say that Vinton's observations are invalid. They simply help pointing out that the effects of put-down humor clearly depend on a variety of situational factors.

There is no simple recipe for humor that one can follow when intending to increase the cohesion in a group. Humor is a double-edged sword. Sharing put-down humor about others outside the group can undercut the attraction of some group members to the group. Unless all group members can be a part of the humor experience, humor might not bond, but bite.

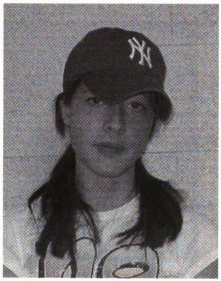
APPENDIX A

STUDENT PROFILES

First name:	Ashley
Age:	21
Major:	Sociology
Class:	Junior
Work:	bartender, babysitting
Clubs/Memberships:	Democracy for America and my church
Favorite movie or TV show:	America's next top model, MTV Real World
Hobbies:	Talking on the phone, reading magazines
Hometown:	Ann Arbor, MI
Number of siblings:	5
Current residence:	off campus
Career goals:	Teach elementary students, preferbly 2nd grade
Interesting fact:	will get married next spring
Heroes:	Hillary Clinton

This profile was evaluated by the first speaker.

First name:	Megan
Age:	20
Major:	psychology
Class:	sophomore
Work:	none
Clubs/Memberships:	Gamma Phi Beta Sorority and Phi Beta Delta Honor Society
Favorite movie or TV show:	Clueless, Sex in the City, Desperate Housewives, Orange County
Hobbies:	hanging out with friends, playing softball
Hometown:	Hastings, MI
Number of siblings:	2
Current residence:	I live in a sorority house.
Career goals:	go to grad school
Interesting fact:	I made the Dean's List every semester so far.
Heroes:	my grandfather, my "sisters", Ms Piggy



This profile was evaluated by the second speaker.

First name:	Kim
Age:	22
Major:	Biosystems Engineering
Class:	Senior
Work:	I volunteer at Hurley Medical Center, Flint; part time at Subway
Clubs/memberships:	Biomedical Engineering Society
Favorite movie or TV show:	Muppet Show, Grey's anatomy, Extreme Makeover: Home Edition
Hobbies:	dancing, traveling, hanging out with friends
Hometown:	Flint, MI
Number of siblings:	none
Current residence:	I share a house with friends.
Career goals:	Have a job that combines engineering and medicine
Interesting fact:	Have been to Europe three times
Heroes:	my uncle, he's a paramedic

This profile was evaluated by the third speaker.

First name:	Julie
Age:	20
Major:	Environmental Geosciences
Class:	Junior
Work:	part-time at Best Buy
Clubs/memberships:	Magicians Club
Favorite movie or TV show:	Friends, Will & Grace, Harry Potter of course
Hobbies:	bike riding, yoga, shopping
Hometown:	Pittsburg, PA
Number of siblings:	3
Current residence:	off campus
Career goals:	Complete BS and teach high school science
Interesting fact:	volunteer at the Humane Society occasionally
Heroes:	Harry Potter

This profile was evaluated by the participant.

APPENDIX B

TRANSCRIPTS OF RECORDINGS

Put-down Humor is printed in bold.

First Profile: Ashley

Ok...um...well, we have Ashley and she's 21, she's a junior and her major is sociology...um...I don't know, she has a lot of straps on her shoulders. It's kind of hippie-ish, I think. She's a bartender and a babysitter, so uh that's a nice combo...um...**I don't know if she's babysitting the drunks at the bar? (laughs)...anyway...um let's see, so...** Outgoing... How outgoing is this person? She talks on the phone as a hobby. And reading magazines? I don't know, she probably reads like US magazine or something like that when she's babysitting. So I mean I kinda picture her sitting at home...um... so I'm going to give her like a below average but I'll give her a 2 because she does work at the bar. Um...how friendly is this person? She's not smiling in her picture...so...ahem...um but she is a babysitter, so I guess that she has some kind of interpersonal skills, so we'll give her, um, a 2 but I still think she's below average because she's not smiling in the picture. How reliable? Ahem, babysitters are always reliable, so, um, it looks like she wants to be a teacher. You have to be able to trust a teacher. So, um, I'll give her a 3 on that. Um... how moody is this person? She doesn't look very moody, she really doesn't look like she has a lot of...um...fluctuation in her personality at all...**ha-ha...if you look at the picture so...ha.** Um we'll give her a two on that also. Um...and how open minded? Well, she is the democracy for America; she's also involved in the church...um...so I don't really know what to think about that. But she does work at the bar, so I'm sure she's seen a lot of different things...**like, people throwing up and probably the same thing for the kids that she babysits and what not,** so...uh we'll give her a 3, I guess, on that. **But she's probably gonna have to drop the bar job and become a housewife pretty soon I would imagine. Um... since she's getting married right out of graduation, it's like she went to school to get her misses degree (laughs).** Um, she likes Hilary Clinton so... we'll go ahead and give her a 3, she might have some kind of hidden personality... we can't see. Okay, that's it...I mean.

Second Profile: Megan

Alright, I have Megan and she's 20. She's a sophomore and her major is Psychology. She is in the Phi Beta Delta honor society, which is a little intimidating, **she looks a little intimidating. I think she's a bouncer at the bar that Ashley works at. (laughs)**

And...uh...she's also a member of the Gamma Phi Beta sorority. **Um, her favorite shows are Clueless, and she looks a little clueless so she'd fit right in there. Ha-ha.** So, that's about it, she lives in a sorority house. So, how outgoing is she? I would probably give her a 2. She is in a sorority, **but, ha, again the whole bouncer image is just kinda throwin' me off. She looks a little intimidating; I'd be a little scared to run into her walking around campus.** Uh, so I'd have to give her a 2 on that. How friendly? Again, she lives in a sorority so she's probably pretty friendly, and probably gets to know people pretty well and she does say that her hobbies are hanging out with friends and playing softball, so probably a 3. Yeah, we'll go with a 3 on that. Uh, reliable? I don't know. Um, I guess a 3, above average 'cause she's in an honor society but, so I guess you've got to be pretty reliable to be in that, and to live in the sorority house. I don't know, be pretty reliable. She wants to go to grad school, that's pretty high ambitions. **And, she's made the dean's list every semester so far, which is another scary thing about her 'cause she doesn't look very "dean's list" material.** So we'll say that. Moody? She doesn't strike me as very moody, she looks like she has one mood, **which is just like scary**. So I don't really think she is that moody, she doesn't strike me as someone who's constantly up and down. Um, so, I would say below average, I guess that is like less moody than anything else. And how open minded? She doesn't strike me as very open minded, she seems very, she has a sor..., you know she's in a sorority, and she's in a honor society, and she hangs out with friends, but she doesn't seem like she really branches out or has a lot of variety. So, I'd give her a 2 for open-mindedness. Yeah, that's it.

Third Profile: Kim

Ok, um, guess I'm gonna go. So, Kim here, she's 22, Bio-systems engineering senior. Hanging out with friends, I don't know, I think that she's probably below average for outgoing. And how friendly is she? Maybe if she smiled in her picture I would think she's a little friendlier...but...probably below average for friendly too. Umm, I love that her favorite T.V. show is The Muppet Show, by the way. **Ha, I didn't even know the Muppet show was still on...for real. Let's see, she volunteers at a Medical Center, like, I don't know, I thought working was something you get paid for, seriously, not volunteering**. Okay, how reliable is she? Um engineering, oh well, to be engineering and to study medicine you probably have to be pretty reliable, so she's probably above average for reliable. Um, by the looks of her, that's probably all she does actually. Goes to school, studies, and doesn't do a whole lot of anything else. And, oh let's see, **um, she wants to have a job that combines engineering and medicine? I don't know like what? Designing the bottles for prescriptions? (laughs)...or something?** Um, how moody is she? She looks ridiculously moody in her picture. She's like, "Please don't take this picture of me." So, I'd say she's well above average for moody. How open minded? Um...I don't have a clue. How about below average?

APPENDIX C

QUESTIONNAIRES

Items are listed in the same order as in the studies.

Mood (PANAS, Watson, Clark, & Tellegen, 1988)
Answer options: 1: very slightly, 2: a little, 3: moderately, 4: quite a bit, 5: extremely
Items:

- Right now, I feel interested.
- Right now, I feel distressed.
- Right now, I feel excited.
- Right now, I feel upset.
- Right now, I feel strong.
- Right now, I feel guilty.
- Right now, I feel scared.
- Right now, I feel hostile.
- Right now, I feel enthusiastic.
- Right now, I feel proud.
- Right now, I feel irritable.
- Right now, I feel alert.
- Right now, I feel ashamed.
- Right now, I feel inspired.
- Right now, I feel nervous.
- Right now, I feel determined.
- Right now, I feel attentive.
- Right now, I feel jittery.
- Right now, I feel active.
- Right now, I feel afraid.

Shared Experiences
Answer options: 1: not at all – 7: very much

- I feel like I have shared some experience with other group members.
- I feel like we have started to have some shared experience together.
- The discussion so far has created a shared experience for us.

Psychological Safety (Team Psychological Safety scale, Edmondson, 1999)
Answer options: 1: very inaccurate – 7: very accurate

- If you made a mistake on this group, it would be held against you.
- Members of this group would be able to bring up problems and tough issues.
- People of this group sometimes reject others for being different.

- It is safe to take a risk on this group.
- It would be difficult to ask other members on this group for help.
- No one on this group would deliberately act in a way that undermines my efforts.
- Working with members on this group, my unique skills and talents would be valued and utilized.

Psychological Safety (Own scale)
Answer options: 1: not at all – 7: very much

- How safe do you feel in the group?
- How threatening is this group discussion for you?
- How relaxed do you feel among other group members?
- How comfortable do you feel with the other group members?
- How much do you trust the other group members?

Perceived Intentions of Speakers
Answer options: 1: not at all – 7: very much

- The speakers you have heard so far wanted to show how much they cared about the group interaction.
- The speakers you have heard so far intended to create a relaxing atmosphere.
- The speakers you have heard so far wanted to make the other group members laugh.
- The speakers you have heard so far wanted to amuse the other group members.
- The speakers you have heard so far wanted to make the other group members angry.
- The speakers you have heard so far wanted to insult the other group members.
- The speakers you have heard so far wanted to distract group members from the personality evaluation task.

Perceived Similarity to Others
Answer options: 1: not at all – 7: very much

- How similar are you to the other group members in: your perception of the situation?
- How similar are you to the other group members in: your feelings in the situation?
- How similar are you to the other group members in: your thoughts about the situation?
- How similar are you to the other group members in: your behavior in the situation?
- How similar are you to the other group members in: your goals for this interaction?
- How similar are you to the other group members in: your sense of humor?

Experienced Personal Cohesion (Perceived Cohesion Scale, Bollen & Hoyle, 1990)
Answer options: 1: strongly disagree – 7: strongly agree

- I feel a sense of belonging to this group.

- I feel that I am a member of this group. (not recorded in Study 1 due to technical error)
- I see myself as part of this group.
- I am enthusiastic about this group.
- I am happy to belong to this group.
- This group is one of the best groups in this study.

Experienced Personal Cohesion (Group Environment Questionnaire, Carron, Widmeyer, & Brawley, 1985)

Answer options: 1: strongly disagree – 7: strongly agree

- I would not enjoy being part of the social activities of this group.
- I am not going to miss the members of this group when the experiment ends.
- I am unhappy with my group's lever of desire to work on the task.
- I could become friends with some people in this group.
- I do not like the style of work in this group.
- For me, this group could become an important social group to which I belong.
- Our group is united in trying to reach its goal.
- Members of the group would rather go out on their own then get together as a group.
- We all take responsibility for any poor performance by our group.
- Our group members would party together.
- Our group members have conflicting aspirations for the group's performance.
- Our group would like to spend time together after the experiment is over.
- If members of our group had problems during the task, everyone would want to help them so we can get back on track again.

Experienced Identification with the Group (Group Identification Scale, Hinkle, Taylor, Fox-Cardamone, & Crook, 1989)

Note: only used in Study 2

Answer options: 1: strongly disagree – 7: strongly agree

- I identify with this group.
- I am glad to belong to this group.
- I feel held back by this group.
- I think this group will work well together.
- I see myself as an important part of this group.
- I do not fit in well with the other members of this group.
- I do not consider the group to be important.
- I feel uneasy with the members of this group.
- I feel strong ties to the members of this group.

Perceived Mood of Other Group Members (PANAS, Watson, Clark, & Tellegen, 1988)

Answer options: 1: very slightly, 2: a little, 3: moderately, 4: quite a bit, 5: extremely

- Right now, the average other group member feels interested.

- Right now, the average other group member feels distressed.
- Right now, the average other group member feels excited.
- Right now, the average other group member feels upset.
- Right now, the average other group member feels strong.
- Right now, the average other group member feels guilty.
- Right now, the average other group member feels scared.
- Right now, the average other group member feels hostile.
- Right now, the average other group member feels enthusiastic.
- Right now, the average other group member feels proud.
- Right now, the average other group member feels irritable.
- Right now, the average other group member feels alert.
- Right now, the average other group member feels ashamed.
- Right now, the average other group member feels inspired.
- Right now, the average other group member feels nervous.
- Right now, the average other group member feels determined.
- Right now, the average other group member feels attentive.
- Right now, the average other group member feels jittery.
- Right now, the average other group member feels active.
- Right now, the average other group member feels afraid.

Perceived Shared Experiences Among Other Group Members
Answer options: 1: not at all – 7: very much

- The average other group member has shared some experience with the group.
- The average other group member has started to have some shared experience with the group.
- The discussion so far has created a shared experience for the average other group member.

Perceived Psychological Safety (Own Scale)
Answer options: 1: not at all – 7: very much

- How safe does the average other group member feel in the group?
- How threatening is the group discussion for the average other group member?
- How relaxed does the average other group member feel in the group?
- How comfortable does the average other group member feel in the group?
- How much does the average other group member trust the group?

Perceived Similarity Among Other Group Members
Answer options: 1: not at all – 7: very much

- How similar are the other group members in their perception of the situation?
- How similar are the other group members in their feelings in the situation?
- How similar are the other group members in their thoughts about the situation?
- How similar are the other group members in their behavior in the situation?
- How similar are the other group members in their goals for this interaction?
- How similar are the other group members in their sense of humor?

Perceived Group Cohesion (Perceived Cohesion Scale, Bollen & Hoyle, 1990)
Answer options: 1: strongly disagree – 7: strongly agree

- The average other group member feels a sense of belonging to this group.
- The average other group member feels that she is a member of this group. (not recorded in Study 1 due to technical error)
- The average other group member sees herself as part of this group.
- The average other group member is enthusiastic about this group.
- The average other group member is happy to belong to this group.
- The average other group member thinks that this group is one of the best groups in this study.

Perceived Group Cohesion (Group Environment Questionnaire, Carron, Widmeyer, & Brawley, 1985)
Answer options: 1: strongly disagree – 7: strongly agree

- The average other group member would not enjoy being part of the social activities of this group.
- The average other group member is not going to miss the members of this group when the experiment ends.
- The average other group member is unhappy with the groups level of desire to work on the task.
- The average other group member could become friends with other group members.
- The average other group member does not like the style of work in this group.
- For the average other group member, this group could become and important social group to which she belongs.
- For the average other group member, this group is united in trying to reach its goal.
- The average other group member would rather go out on her own, then get together as a group.
- The average other group member takes responsibility for any poor performance by the group.
- The average other group member would party with this group.
- The average other group member thinks that there are conflicting aspirations for the group's performance.
- The average other group member would like to spend time with the group after the experiment is over.
- If members of this group had problems during the task, the average other group member would want to help them so the group can get back on track again.
- The average other group member believes that the group is not likely to stick together after the experiment.

Perceived Identification of Others with the Group (Group Identification Scale, Hinkle, Taylor, Fox-Cardamone, & Crook, 1989)
Note: only used in Study 2

Answer options: 1: strongly disagree – 7: strongly agree

- The average other group member identifies with this group.
- The average other group member is glad to belong to this group.
- The average other group member feels held back by this group.
- The average other group member thinks this group will work well together.
- The average other group member sees herself as an important part of this group.
- The average other group member does not fit in well.
- The average other group member does not consider the group to be important.
- The average other group member feels uneasy with the members of this group.
- The average other group member feels strong ties to the members of this group.

Manipulation Check Items

- In your own words, what do you think this study is about?
- How was the interaction with the other participants?
- Was there anything in the study that seemed strange or unusual to you?
- Who were the people in the profiles? (Answer options: girls on a dating website, students from the University of Michigan, students from Michigan State University, girls in this group)
- Who was the recorder in this group? (Answer options: I was the recorder. Someone else was the recorder.) (only used in Study 2)
- How much humor did the other group members use? (1: none at all – 7: very much)
- How much did the group members laugh during the interaction? (1: not at all – 7: very much)
- If there was any humor in the group interaction, what or who was it about? (Answer options: about unrelated issues, about each other, about the students in the profiles, about themselves)
- How funny, do you think, were the comments by other participants? (1: not funny at all – 7: very funny)
- How often, do you think, did you smile during this experiment? (1: not at all – 7: very much)
- How often, do you think, did you laugh during this experiment? (1: not at all – 7: very much)

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