Audience-Congruent Biases in Eyewitness Memory and Judgment
Influences of a Co-Witness’ Liking for a Suspect

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Abstract. In studies on biased eyewitness memory, the biasing information about the witnessed event is typically detailed and specific. We investigated the influence of global biasing information, such as a co-witness’ impression of a suspect. Student participants watched a video depicting a bar-brawl involving a male target person. After retelling the incident to a generic fellow student who presumably disliked (vs. liked) the target person, participants exhibited audience-congruent biases in memory and judgment: They remembered more negative information about the target, believed he was more responsible, and assigned him longer penalties. No such effects were found when participants were less motivated to create a shared view about the incident (with the audience being a student from a different study field).

Keywords: eyewitness memory, social influence, audience tuning, shared reality, extra-legal information

Introduction

Psychologists have long been fascinated by the possibility that people’s memories and cognitive representations of events can be influenced by other social agents. Whereas the investigation of social influence on memory is relatively new in social cognition research (e.g., Betz, Skowronski, & Ostrom, 1996; Bless, Strack, & Walther, 2001; Echterhoff, Higgins, & Groll, 2005; Echterhoff, Higgins, Kopietz, & Groll, 2008) susceptibility to external influences has a long tradition in the study of eyewitness memory (e.g., Binet, 1900; Loftus & Palmer, 1974; Münsterberg, 1908). This may be because inaccuracies in eyewitness memories can have severe consequences, such as unjustified indictments or wrongful convictions in court proceedings (Savage & Milne, 2007; Scheck, Neufeld, & Dwyer, 2000)

Research on social influence on eyewitness memory has predominantly investigated the impact of event-related information and event details communicated to an eyewitness by external sources. In studies employing the misinformation paradigm, participants receive false postevent information, for example, via narrative descriptions of the original event (e.g., Echterhoff, Hirst, & Hussy, 2005; McCloskey & Zaragoza, 1985), a defensive lawyer (Dodd & Bradshaw, 1980), a co-witness of the same event (e.g., Echterhoff, Groll, & Hirst, 2007; Gabbert, Memon, & Allan, 2003), or by the experimenter themselves (e.g., Loftus, 1975; Loftus & Palmer, 1974; for an extensive review of sources of misinformation see Davis & Loftus, 2007). An increasing emphasis on social-influence processes is also reflected in recent work on memory conformity (e.g., Gabbert, Memon, Allan, & Wright, 2004; Gabbert, Memon, & Wright, 2006; Wright, Self, & Justice, 2000), group remembering (e.g., Cuc, Ozu, Manier, & Hirst, 2006; Hirst, Manier, & Apetroaia, 1997; for a review see Hirst & Echterhoff, 2008), socially shared retrieval-induced forgetting (Coman, Manier, & Hirst, 2009; Cuc, Koppel, & Hirst, 2007), and collective memory (for a review see Hirst & Manier, 2008). In essence, these studies have looked at how people’s memory is biased by what others say about the event in question.

However, the procedures used in most of these studies (i.e., participants being recipients of event-related misinformation) fall short of capturing the reality of eyewitness memory in several aspects. Most importantly, it would be rare for one witness to directly approach another co-witness and start describing at length the tiny perceptual details that are usually presented in classic misinformation studies (e.g., “I saw it all! It was a Pepsi, not a Coke!”; McCloskey & Zaragoza, 1985). Rather, eyewitnesses often communicate about and share more global perceptions and impressions, like an attitude or feeling toward a person involved (e.g., Hyman, 1994). To our knowledge, there are no studies investigating such global effects of a co-witness’ attitude on eyewitness retellings and memory. Also, to the extent that eyewitnesses often engage in conversations about a witnessed incident with a co-witness (e.g., Gabbert et al., 2004, 2006), they are clearly not merely passive recipients of information but also active producers.
The only study that has studied both global social influences on eyewitness memory and eyewitnesses as active communicators was conducted by Marsh, Tversky, and Hutson (2005). The authors used different retelling instructions to simulate different communication settings or partners. Participants were instructed to retell a witnessed event with different communication goals. For example, they had to focus on emotional reactions vs. perceptual details of an experience (analogous to talking to a friend vs. police officer about a witnessed event). Notably, different communication goals led to differences in recall.

An impressive case exemplifying both global social influences and the impact of active communication on memory can be found in research employing the saying-is-believing paradigm (Higgins & Rholes, 1978; for reviews see Echterhoff, Higgins, & Levine, in press; McCann & Higgins, 1992). This research suggests that communicating about an experience to an audience may indeed have an important impact on later representations of the communicated information: In this paradigm participants (in the role of communicators) are asked to describe a target person based on a short essay that contains evaluatively ambiguous behaviors (such as a behavior that can be labeled as either “thrifty” or “stingy”). After learning that their audience either likes or dislikes the target person, participants typically “tune” their messages to their audience’s attitude (i.e., they create evaluatively positive messages for an audience with a positive attitude and vice versa for an audience with a negative attitude). Importantly, communicators’ subsequent memory for the original information about the target as well as their attitude toward him is often consistent with the evaluative tone of their previous message. Thus, communicators end up believing and remembering what they said rather than what they originally learned about the target person’s behaviors—the audience-congruent memory bias.

Recent research on audience tuning suggests some conditions for the occurrence of audience-congruent biases on memory and judgment: For instance, people have to be motivated to reduce uncertainty about the target (e.g., Kopietz, Hellmann, Higgins, & Echterhoff, in press; also see Hardin & Higgins, 1996). Thus, to elicit uncertainty the target object (usually a person) needs to be sufficiently ambiguous. Furthermore, audience-congruent biases only occur with an appropriate audience (Echterhoff et al., 2005, 2008; Festinger, 1950). To be appropriate the audience has to be sufficiently similar to the communicator, for example, they both belong to the same in-group (e.g., Echterhoff et al., 2005, 2008). Although communicators usually tune their message even to an inappropriate audience, they will exhibit only an audience-congruent memory bias and thus use their audience’s attitude to create a joint view of the target, if these preconditions are met (Echterhoff et al., 2008, in press; Higgins, Echterhoff, Crespillo, & Kopietz, 2007; Hirst & Echterhoff, 2008).

This research is clearly relevant to investigations of biases in eyewitness memory. Eyewitnesses often perceive events under less than ideal conditions (e.g., Yarmey, 1986) that elicit uncertainty. For example, the witnessed event can be rather surprising and brief (e.g., a car crash), or it can be very stressful and disturbing (e.g., a robbery). One way of reducing ambiguity and uncertainty about one’s understanding of a witnessed incident (Schacter, 2001) is to retell the incident to others (Memon & Wright, 1999; Paterson & Kemp, 2006) and thus share one’s experiences with someone.

To investigate audience and audience-attitude effects on eyewitnesses’ memory, we adapted the saying-is-believing paradigm for our experiment (Higgins & Rholes, 1978). While the initially mentioned work on social influences on eyewitness memory was directly applied to legal settings, the research on effects of active and globally biased communication in the saying-is-believing paradigm was not. The main goal of the present research was to remedy this shortcoming. All participants saw a video depicting a bar-brawl between two characters, A and B. The video was created in a way that makes it difficult to decide who of the two is responsible for the brawl, that is, it elicits uncertainty. Participants were told they would communicate with a witness to the incident. To follow-up on effects of a more global attitude of a co-witness on eyewitness’ memory reports participants received only the information that their audience seems to like (vs. dislike) Target Person A, that is, a likability judgment. No further information concerning the event (e.g., information about guilt or responsibility), or about specific behavior of the target persons, was given.

Importantly, audience attitude should only affect participants’ memory when their audience is perceived as appropriate. Thus, half of the participants were told that the witness (their audience) is a fellow student, whereas the other half was told the witness is a law student. Previous audience-tuning research indicates that participants associate a fellow, generic student with their in-group, and thus, the psychological proximity toward their audience should be high. Furthermore, the information that the audience is a fellow, generic student reliably elicited audience-congruent biases in the past (e.g., Echterhoff et al., 2005, 2008; Higgins & Rholes, 1978; Kopietz et al., in press; Sedikides, 1990). In contrast, when the audience’s field of study is specified and different from their own, participants should perceive the audience as a member of a subordinate group to which they do not belong—or more specifically, as an out-group member (Wenzel, Mummendey, Weber, & Waldzus, 2003). Therefore, psychological proximity toward their audience should be low. Importantly, although the participants’ psychological proximity toward generic-student and law-student audiences should differ, they should perceive both audiences as similarly competent.

It is a robust finding that communicators usually take into account their audience’s attitude—if only to comply with politeness norms (e.g., Echterhoff et al., 2005, 2008). Thus, we expected participants in both conditions to tune their message to their audience, that is, describe Target Person A more favorably toward an audience who likes (vs. dislikes) him.

However, we predicted that only participants in the generic-student condition would later exhibit an audience-
congruent recall bias. Their biased representation of Target Person A should then lead to biased judgments as well. Specifically, it should bias their perception of his responsibility for the event, and the penalty they believe is appropriate for him.

**Method**

**Participants and Design**

Participants were 80 undergraduate students (53 female, 27 male; mean age = 23.01, \(SD = 4.52\)) from Bielefeld University, Germany. Participants were tested individually and received a reimbursement of EUR 4 or course credit. In final suspicion checks, seven participants guessed the aim of the experiment or did not believe the audience really existed and were therefore excluded from further analyses, resulting in the sample described above.

We used a 2 (Audience attitude toward Target Person A: positive vs. negative) \(\times\) 2 (Audience: generic student vs. law student) between-participants factorial design. The main dependent variables (DV) were the valence (evaluative tone) of the message and recall protocols, the perceived relative responsibility for the brawl of Target Person A, and the relative penalty assigned to Target Person A.

**Procedure**

The experiment is an adaptation of the original saying-is-believing paradigm (see Higgins & Rholes, 1978) with forensically relevant complex visual material. Participants were told that the study is ostensibly about the appropriateness of forensic videos used in police trainings or in the media. Analogous to the text material used in standard audience-tuning studies, the target video was constructed in an ambiguous way so that the behavior of the target persons could be perceived and described in different ways, that is, in a positive (vs. negative) way depending on the audience’s attitude toward Target Person A.

Before participants watched the video, they were told that they would need to describe the event depicted in the video to a witness and send the message electronically via a computer-based intercom system. They were told that their audience was a witness who had been in the bar while the real incident occurred. The witness was able to observe what had happened but had not been involved in the construction process of the video and has not seen the video yet. Participants were instructed to describe the event to the witness whose task it would be to judge the appropriateness for the event, and the penalty they believe is appropriate for him.

The video features two male target persons (participants were asked to refer to them as Target Person A and Target Person B), who consume alcohol throughout the video and who both have reasons to be frustrated: Target Person A, for instance, has an argument with a female friend, while Target Person B watches his favorite soccer team lose a match on TV. The scenes finally lead to a physical conflict between the two target persons. The video lasts 4 minutes 51 seconds. (For descriptions of the different scenes from the video clip used in the present study, see the Appendix.)

After participants had watched the video, they were informed about the witness (i.e., their audience) and his attitude toward Target Person A. Thus, in contrast to studies employing the original saying-is-believing paradigm (e.g., Echterhoff et al., 2005, 2008; for a review, see Higgins, 1999), the audience attitude was manipulated after the encoding of the video. In standard audience-tuning studies the communication object is always a target person (vs. event), and thus the audience-attitude manipulation may be employed before as well as after encoding of the original target information (Kopietz et al., in press; also see Sedikides, 1990). Both scenarios are plausible and happen frequently in everyday life. For instance, a professor may learn about a colleague’s attitude toward a graduate student before meeting him or her in a course, but it is just as likely that the professor would meet the graduate student in the course and only later on learns about the colleague’s attitude toward this graduate student. However, in an eyewitness context only a postencoding audience-attitude manipulation is ecologically valid and realistic. After all, it is highly unlikely that a witness would be able to talk about an event to a co-witness before the event even took place.

After watching the video, participants were asked to communicate either with a 25-year-old generic student or with a 25-year-old law student. To provide the participants with postevent information about their audience’s attitude toward Target Person A, participants heard the following audio instructions on the PC speakers:

“No we ask you to describe to your audience what happened in the bar. Remember that your audience witnessed the incident.”

For the experimental manipulation, the instruction continued with the crucial sentence:

“It may be helpful to know that your audience seems to like [vs. does not seem to like] Target Person A.”

By using a prerecorded audio instruction, we could keep constant the subtlety of delivering the information about the audience’s attitude (for the role of subtle delivery, see Echterhoff et al., 2008, Exp. 3; also see Todorov, 2002).

Participants then entered their message to the audience into a text area within an HTML-form and were asked to send this message to their audience by pressing a Send-button. In fact, this message was not sent to the audience but

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1 We use the term “postevent information” in a strictly verbatim manner (i.e., information that was given after the event took place), and it is not to be confused with the predominant use as synonym to misinformation.
written into a data file. After an unrelated 15-min filler task, participants indicated their psychological proximity toward the audience, their perceived competence of the audience, as well as their motivation for sharing inner states with the audience, on various rating items (see Measures section).

Next, participants were asked to remember the original event depicted in the video in a free-recall format. Participants were instructed to recall as many details as possible, preferably in the original order. After the recall task participants were asked to indicate each target person’s responsibility for the event, and what kind of penalty, if any, each target person should receive. In addition to the free-recall task, we also presented a distractor item in a recognition-task format to the participants.

Finally, we asked participants to indicate the true purpose of the experiment, and what they believed the audience had done with their message. Participants were then compensated for their participation and fully debriefed by the experimenter.

Materials

The video depicts a bar brawl between two target persons (A and B) and consists of 12 ambiguous scenes. The scenes and their sequence were selected in a pretest, in which students from Bielefeld University (N = 80) were presented with one of four variations of the video (varying in the combination and length of scenes). Participants were asked to rate the ambiguity of the videos. The highest ratings for ambiguity were obtained for the present video. Thus, it was confirmed that the video could evoke favorable as well as unfavorable interpretations of the behavior for both Target Person A and Target Person B, that is, different degrees of likability and responsibility depending on the audience’s attitude.

Measures

Message and Recall Valence

Two coders blind to the experimental conditions rated the overall likability of Target Person A in the message and recall protocols on an 11-point scale from –5 (extremely negative) to +5 (extremely positive). Analagous to the standard valence rating procedure employed in other audience-tuning studies (e.g., Echterhoff et al., 2005), we developed a new coding scheme to rate the overall valence of participants’ protocols. Coders were instructed to read each protocol and then decide if Target Person A was described as more or less likable. Coders then had to decide for each scene the extent to which the behavior of Target Person A was described in a positively or negatively distorted way. Based on these ratings coders gave their judgments on the 11-point scale.

The first 20 message and recall protocols were rated by both coders to assess intercoder reliability based on these probes. Intercoder correlations were sufficiently high, \( r(18) = .79, p < .001 \), and \( r(18) = .91, p < .001 \), for message and recall protocols, respectively. Each coder then rated half of the message and half of the recall protocols that were randomly assigned to them. For the first 20 message and recall protocols the mean of the two coders was used.

Recall Accuracy

The above described valence bias in communicator’s memory could be related to their recall accuracy; for instance, the more accurate a participant’s recall the lower could be the valence bias (e.g., Echterhoff et al., 2008; Kopietz et al., in press). Thus, we also coded the recall protocols for accurate reproductions based on an accuracy-coding scheme (adapted from the coding procedure used by Memon, Wark, Holley, Köhnken, & Bull, 1996). Idea units from participants’ recall protocols were classified as either correct reproductions (i.e., units representing details or elements that were clearly present in the video), errors (i.e., units representing details or elements that were clearly not present in the video), or as subjective distortions (i.e., inferences or abstractions based on details or elements that were present in the video, such as the actors’ actual behaviors in the video). For the analyses, we used the raw frequencies obtained for each of these three categories.

Two independent and blind coders each rated 20 recall protocols that had been randomly assigned to these coders to establish intercoder reliability. The intercoder reliability based on these probes was satisfactory, \( r_s > .73, p_s < .01 \) (one-tailed). Thus, only one coder coded the remaining recall protocols, so that the codings from only this coder were used for all further analyses.

Psychological Proximity

Participants indicated their psychological proximity toward the audience on three separate measures:

1) “To what extent could you empathize with your audience’s perception of the target?”

2) “Would you like to get to know your audience personally?”

For the accuracy coding we counted raw frequencies for each of the three categories. For example, the phrase “Person A was sitting alone at a table” contains four idea units that correctly reproduce details or elements from the video. The phrase “Person A started to push B first” was coded as an error because it was in fact Person B who first pushed the other one). The phrase “Person B was already annoyed by the game” was counted as a subjective distortion because the attribution of annoyance to the person is an inference that can be related to behaviors shown in the video.
3) “Do you think the audience is a likable person?”
   [ranging from 1 = not at all to 8 = very much].

These measures were combined into a single measure for further analyses (Cronbach’s $\alpha = .63$).

**Epistemic Confidence**

The perceived epistemic competence of the audience was measured with the following two items:
1) “The audience was probably able to judge the event competently.”
2) “The audience was probably able to judge Target Person A competently.”
   [ranging from 1 = not at all to 8 = very much].

These measures were combined into a single measure for further analyses (Cronbach’s $\alpha = .80$).

**Motivation for Sharing**

We used the following two items to measure participants’ motivation for sharing:
1) “To what extent was it important for you to agree with your audience’s perception?”
2) “To what extent do you agree with your audience’s perception of Target Person A?”
   [ranging from 1 = not at all to 8 = very much].

These two items were combined into a single measure for further analyses [Cronbach’s $\alpha = .71$].

**Responsibility Judgments**

Measures for participants’ perceived responsibility in the video material for both target persons were as follows:
1) “Does the video depict Target Person [A or B] as responsible or as not responsible for the incident?”
   [all ranging from 0 = not responsible to 10 = very responsible].

For these items difference measures were computed: Participants’ responses for Target Person A were subtracted by their responses for Target Person B, resulting in a new scale ranging from –10 to 10. Thus, higher values for these new measures capture the relative perceived responsibility of Target Person A.

**Penalty**

Participants indicated their preferred penalty for each of the target persons on two measures. They answered the question “Which punishment would you suggest for Target Person [A or B]?” both in a free format (where participants entered their preferred penalty in months in a text field), and on ratings scales ranging from 1 = acquittal to 12 = maximum penalty, respectively. The two measures for each target person were combined into two single measures [Cronbach’s $\alpha s > .91$], and, analogous to the responsibility measures, computed into a single difference measure, capturing the relative penalty, ranging on a scale from –12 to 12. Again, higher values in this new measure indicate a higher penalty for Target Person A.

For the recognition task participants were asked “Did Target Person A threaten the person that bumped into him at the bar with his fist?” [yes or no].

**Results**

We report all results as 2 × 2 – ANOVAs with Audience (generic student vs. law student) and Audience attitude (audience attitude toward Target Person A: positive vs. negative) as the independent variables. All results are reported two-tailed, except when noted otherwise. For the ANOVAs we report partial eta-squared ($\eta^2_p$) as an effect size measure. For the judgment measures we explore ANOVA effects of the independent variable first and then associations with the main DV recall valence.

**Manipulation Checks**

Confirming the expected differences in the appropriateness of the audience, participants communicating with a generic student reported a greater psychological proximity toward their audience ($M = 3.62, SD = 1.18$) than did participants communicating with a law student ($M = 3.18, SD = 1.05$) as indicated by a marginal significant main effect of audience, $F(1, 76) = 3.14, p = .08, \eta^2_p = .04$. Of only minor interest, the Audience × Audience attitude interaction was significant, $F(1, 76) = 4.76, p < .05, \eta^2_p = .06$. There was no effect of audience attitude, $F < 1$.

Importantly, regardless of the difference in psychological proximity there was no difference in participants’ perceived epistemic competence of the audience, $F < 1$. If anything, participants in the law-student condition were more confident in their audience’s perspective ($M = 4.48, SD = 1.39$ vs. $M = 4.13, SD = 1.40$, for the law-student vs. ge-
neric-student condition, respectively). Also, of only minor interest, there was a main effect for audience attitude, $F(1, 76) = 5.67, p < .05, \eta^2_p = .07$; $M = 4.66, SD = 1.43$ vs. $M = 3.94, SD = 1.28$, for the positive vs. negative-attitude condition, respectively. There was no interaction, $F < 1$.

Message Valence and Recall Valence

As expected, participants who communicated with an audience who disliked Target Person A described him more negatively than those who communicated with an audience that liked Target Person A (see Figure 1, top panel), as indicated by a main effect of audience attitude for message valence, $F(1, 76) = 5.80, p < .05, \eta^2_p = .07$. No other effects reached significance, $F_s < 1$. Thus, participants tuned to both audiences.

As expected, recall valence was biased in the direction of the audience's attitude only in the generic-student condition (see Figure 1, bottom panel), as indicated by a significant Audience $\times$ Audience attitude interaction, $F(1, 76) = 4.89, p < .05, \eta^2_p = .06$. As revealed by planned contrasts, participants in the generic-student condition recalled more likable aspects about Target Person A when he was liked (vs. disliked) by the audience, $F(1, 76) = 5.90, p < .05, \eta^2_p = .13$, whereas, if anything, the opposite effect was found in the law-student condition (but did not reach significance, $F < 1.25$). As a result of the simple main effect of audience attitude in the generic-student condition, there was a significant main effect of audience, $F(1, 76) = 4.26, p < .05, \eta^2_p = .05$, indicating that participants in the generic-student condition recalled less likable aspects about Target Person A than participants in the law-student condition. There was no effect of audience attitude in the law-student condition. There was also no main effect of audience attitude, $F < 1$.

Recall Accuracy

There were no main or interaction effects on the amount of participants' correct reproductions, errors, or subjective distortions (all $F_s < 1, p_s > .39$). Furthermore, there were no significant associations between any of the content measures and our main DV recall bias (all $r_s < .04, p_s > .49$).

Perceived Responsibility in the Video Material and Audience-Congruent Memory Errors

Participants felt the video depicted Target Person A as relatively more responsible than Target Person B, when the audience disliked (vs. liked) Target Person A, $F(1, 76) = 4.16, p < .05, \eta^2_p = .05$ (see Figure 2). Importantly, as indicated by an interaction approaching significance, $F(1, 76) = 3.67, p = .059, \eta^2_p = .05$, this was only true for participants in the generic-student (vs. law-student) condition, $F(1, 76) = 7.82, p < .01, \eta^2_p = .09$ vs. $F < 1$, respectively.

A significant negative correlation between participants' recall valence and the perceived responsibility of Target Person A may suggest that participants formed their re-

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Footnote 3: The main effect of audience attitude again reflects the asymmetries between the positive vs. negative-attitude conditions (see Footnote 3). Apparently, an audience with a negative attitude is judged as less competent as an audience with a positive attitude toward the target.
sponsibility judgments based on their audience-biased representation of Target Person A, \( r(78) = -0.33, p < .01. \)

Analogous to this biased representation of the video material, in the generic-student condition, participants talking to an audience with a negative (vs. positive) attitude toward Target Person A erroneously remembered more often (45% vs. 15%; see Table 1) that Target A threatened the person who bumped into him at the bar with a hand gesture, \( \chi^2 (1; N = 40) = 4.29, p < .05. \) In the law-student condition, this pattern was exactly reversed!

**Relative Penalty**

As can be seen in Figure 3, a significant interaction indicates that after they have communicated with an audience who did not like (vs. did like) Target Person A only participants in the generic-student (vs. law-student) condition believed that a higher penalty was justified for Target Person A compared to Target Person B, \( F(1, 76) = 6.11, p < .05, \eta^2_p = .07. \) Planned contrasts confirmed that the marginal significant main effect of audience, \( F(1, 76) = 2.84, p = .10, \eta^2_p = .04, \) was driven by a simple main effect of audience attitude in the generic-student condition, \( F(1, 76) = 5.46, p < .05, \eta^2_p = .07. \) There was no effect of audience attitude in the law-student condition, \( F < 1. \) No other effects reached significance, \( F_s < 2.84, p_s > .10. \)

**Motivation for Sharing**

As can be seen in Figure 3, a significant interaction indicates that after they have communicated with an audience who did not like (vs. did like) Target Person A only participants in the generic-student (vs. law-student) condition believed that a higher penalty was justified for Target Person A compared to Target Person B, \( F(1, 76) = 6.11, p < .05, \eta^2_p = .07. \) Planned contrasts confirmed that the marginal significant main effect of audience, \( F(1, 76) = 2.84, p = .10, \eta^2_p = .04, \) was driven by a simple main effect of audience attitude in the generic-student condition, \( F(1, 76) = 5.46, p < .05, \eta^2_p = .07. \) There was no effect of audience attitude in the law-student condition, \( F < 1. \) No other effects reached significance, \( F_s < 2.84, p_s > .10. \)

**Moderation Analyses**

Since motivation for sharing can be seen as a precondition for audience-tuning effects on eyewitness memory (Echterhoff et al., in press), we used it in moderation analyses within standard hierarchical multiple regression analyses for the three main dependent variables. Following the procedure proposed by Aiken and West (1991), we first centered the potential moderator motivation for sharing. We then entered audience attitude [contrast coded: -1 = negative; +1 = positive], and motivation for sharing into the regression for the main effects, followed by the product for the interaction as predictors.

For the criterion perceived responsibility no main effects were obtained, \( p_s > .18, \) but the interaction was significant, \( \beta = -.23, t(76) = 2.05, p < .05. \) As can be seen from Figure 5 (left panel), only when participants’ motivation for sharing was high did the audience’s negative attitude lead to a higher perceived responsibility of Target Person A for the brawl, \( b = -2.28, t = 3.98, p < .001. \) There was no effect of audience attitude under low motivation for sharing, \( t < 1, \) ns. Although the interaction was only marginally signifi-
cant for recall valence (see Figure 5, right panel; \(t(76) = 1.73, p < .09\)) and did not reach significance for relative penalty (\(t < 1, \text{ns}\)), there was a consistent pattern of results for motivation for sharing as a moderator variable.

**Mediation Analyses**

Correlations between the audience-congruent memory bias and the two judgment measures (perceived responsibility and the assigned penalty) indicate that participants may have drawn on their representation of the target when forming these judgments. To further investigate this possibility, we examined a possible mediation of the audience-attitude effect on our judgment measures by recall valence in the generic-student condition.

For relative penalty, all four conditions for mediation, as suggested by Baron and Kenny (1986), were met: Audience attitude predicted both relative penalty, \(\beta = –.32, t(38) = 2.08, p < .05\), and recall valence, \(\beta = .37, t(38) = 2.43, p < .05\); recall valence predicted relative penalty, \(\beta = –.53, t(38) = 3.87, p < .001\); and when both audience attitude and recall valence were included as predictors, only recall valence remained significant, \(\beta = –.48, t(38) = 3.23, p < .01\), whereas the effect of audience attitude was reduced to nonsignificance, \(\beta = –.15, t < 1, \text{ns}\). The indirect effect of audience attitude on relative penalty via recall valence was significant in a Sobel test, \(z = 1.89, p < .05\) (one-tailed) and in a bootstrapping procedure which yielded a 95% confidence interval around the indirect effect \((ab = –.48)\) excluding zero \((-0.015\) to \(-1.118\)). These findings suggest that the effect of audience attitude on relative penalty was mediated by participants’ recall valence (see Figure 6).

Whereas in analogous analyses for perceived responsibility the first three conditions were also met (\(ts > 1.84, ps < .07\)), the effect of audience attitude remained significant after inclusion of recall valence and the indirect effect \((ab = –.42)\) was only marginally significant in a Sobel test, \(z = 1.39, p = .08\) (one-tailed). Nevertheless, taken together, these analyses suggest that participants based their judgments concerning the responsibility of Target Person A, and their idea of an appropriate penalty for his behavior on their audience-biased representation of him.

**Discussion and Conclusions**

The current experiment investigated if (1) rather global perceptions and interpretations, such as a co-witness’ liking for a suspect, can impact eyewitness memory for a forensically relevant incident, and (2) if this impact may depend on features of the audience. We found that information that was not directly related to the incident, in contrast to the information given in classic misinformation studies (for a review see Loftus, 2005), had a strong effect on participants’ representation of the event. After learning that their audience liked (vs. disliked) Target Person A, participants not only remembered him in a more favorable manner, but also believed that he was less responsible for the incident – and assigned a weaker penalty to him. Thus, a simple likability judgment by their audience was sufficient to elicit audience-congruent biases on eyewitnesses’ memory and judgment.
Importantly, the above-described effects depended on the audience’s characteristics: Only when participants communicated with a generic student (vs. law student) did they exhibit an effect. A further measure indicates dimensions on which the two audiences differed: Participants felt rather close (vs. distant) to and were more (vs. less) motivated to create a shared view with the generic student (vs. law student). Separate moderation analyses yielded further support for the role of motivation for sharing: The stronger participants’ motivation for sharing was, the stronger was the effect of audience attitude on participants’ recall, responsibility judgments, and the penalty they assigned to Target Person A.

In addition, for those participants who communicated with a generic student (vs. law student), mediation analyses revealed that audience-attitude effects on the assigned penalty and perceived responsibility were mediated (or partially mediated in the latter case) by participants’ audience-biased representation of Target Person A. These results clearly demonstrate the potentially far-reaching consequences of audience-congruent biases in an eyewitness context: Once a representation of a target person or event is biased, further judgments may be made based on this biased representation.

A perhaps surprising result is that the relatively subtle manipulation of the audience has such a large impact on participants’ representations and judgments. Simply giving participants information regarding their audience’s field of study led participants to discount the audience’s attitude and thus to a relatively unbiased perspective on the event. Even though the law student could be regarded as an expert for this specific incident – and participants saw him, if anything, as at least as competent as the generic student – there were no effects of audience attitude for participants communicating with a law student. So how is this possible?

Social impact theory (Latané, 1981; Latané & Wolf, 1981) postulates that the impact of any social influence is a multiplicative function of the strength, number, and immediacy of sources present. If, in the present context, the strength of influence is defined based on the source’s competence or domain-specific expertise, our measure of epistemic competence indicated no difference between the audiences, if anything, the law student received higher competence ratings. Clearly, the number of potentially influencing sources was constant in our study. Arguably, our manipulation of the audience affected immediacy (i.e., the psychological closeness) of the social source, with a greater immediacy of the generic-student (vs. law-student) audience. The lower impact of the law student’s attitude would then be a result of the lesser immediacy.

However, social impact theory faces limits with regard to our results. Latané (1981) explicitly states that his model views people as passive recipients of social impact. But our results for psychological proximity and, in particular, those for participants’ motivation for sharing strongly indicate that motivational processes play an important part in the biasing of eyewitnesses’ memory and judgment. So in contrast to Latané’s (1981) notion of passive recipients of social influence, participants in our experiment actively searched information they could use for the creation of a reliable and valid view of the target. This behavior is much more in line with assumptions of shared-reality theory (Echterhoff et al., in press; Hardin & Higgins, 1996). Importantly, they did not just use any information available to them, but only information provided by an appropriate audience (e.g., Echterhoff et al., 2005, 2008, in press; Higgins, 1999; also see Festinger, 1954).

But what kind of information will be used? While prior research on eyewitness memory has almost exclusively focused on providing participants with rather specific (mis)information on the event to be remembered (e.g., M. Closkey & Zaragoza, 1985; see Köhnken & Brockmann, 1987), participants in our experiment received a relatively global information about their audience’s attitude concerning the likability of a perpetrator. Therefore, this is the first study to show that participants actually do use such information when forming a view about a forensically relevant event. However, one important question remains: Which mechanisms are involved in audience-tuning effects on eyewitness memory?

The lack of any statistical relation between accurate reproductions and the audience-congruent memory bias is consistent with recent findings by Echterhoff and colleagues (2008). In a series of four experiments, investigating audience-tuning effects on memory, these authors examined various cognitive mechanisms (e.g., selective rehearsal, selective retrieval, source discrimination) that may play a role in audience tuning. However, none of these mechanisms were in any way associated with the size of participants’ memory bias.

Apart from recall accuracy there are still other mechanisms that may be involved in audience-tuning effects on (eyewitness) memory. For example, participants in our paradigm could use the audience’s attitude as a simple valence schema (for related research using a schema approach see, e.g., Greene, 1981; or Tversky & Marsh, 2000). Following this notion, participants in our study would simply use their audience’s attitude as a heuristic cue to reconstruct the memorial representation of the target person (also see Tuckey & Brewer, 2003). This would perfectly explain why so many participants in the generic-student and negative-attitude condition erroneously remembered that Target Person A had threatened the guy who bumped into him at the bar with his hand – it fitted their schema of him. This approach is insufficient to account for the complete pattern of results presented here. A schema account per se (e.g., Greene, 1981; or Tversky & Marsh, 2000) – and other alternative accounts as well, like, for instance, an availability account (for a review see Schwarz & Vaughn, 2002) – cannot explain why we find the audience-congruent memory bias only with a generic-student audience, but not with the law-student audience. Our data strongly suggest that simply activating a valence schema is simply not sufficient to produce audience-tuning effects on memory: Supporting a
shared-reality account (Echterhoff et al., in press; Hardin & Higgins, 1996) participants in our study also have to be motivated to use the information provided by their audience - this is only the case when their audience is regarded as appropriate; that is, when participants' motivation for sharing is high.

The likability judgment by the audience we used is closely related to extralegal information in judicial decision-making (for an overview see Sporer & Goodman-Delahunty, 2008). Extralegal factors may vary from jurisdiction to jurisdiction, but can broadly be defined as information that goes beyond formal legal factors that ideally determine an appropriate penalty (Sporer & Goodman-Delahunty, 2008). For instance, previous research could demonstrate that descriptions of the defendant as warm and friendly under certain conditions can have an impact on participants' judgments. In a study by Izzett and Fishman (1976) participants sentenced characterological attractive defendants more leniently when external justification for the crime was high (vs. low). (The term characterological refers to the perpetrator's character, e.g., traits.) Notably, our target video was explicitly constructed such that, depending on perspective, the target persons' aggressive behavior was - at least partially - justified. Thus, as in the classic study by Izzett and Fishman (1976), participants in our study judged Target Person A more leniently when he was (vs. was not) a likable guy, that is, when he was portrayed as attractive.

In conclusion, our experiment demonstrates audience-congruent biases on eyewitnesses' memory and judgment, based solely on relatively global impression of a co-witness. Our findings suggest that such biases do not just occur when participants are exposed to such information, but that depending on features of their audience, participants are motivated to actively (see Latané, 1981) use such information to create a subjectively reliable and valid view of an incident and the involved suspect.

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Appendix

Target video (brief description of the scenes in chronological order)

1) Person A sits at a table in a bar, drinks beer, and texts a message on his mobile phone.
2) A young woman enters the bar.
3) As the woman arrives in front of the table of Target Person A she asks him something. He answers and she sits down opposite to him. They talk to each other and start an argument.
4) Three young men enter the bar.
5) The couple is still arguing. The three young men pass the couple’s table and take seats at a table to the right of the bar. One of the men gets three beers from the bar for the group.
6) The couple is seen in the foreground again. The argument gets worse, the woman gestures wildly and finally stands up, turns around, and leaves the bar. Person A follows her.
7) Soon, Person A comes back into the bar and returns to his table.
8) The three men watch soccer on TV and drink beer. They are worried about the way their team is playing. Person B gets upset and punches on the table with his fist.
9) Now Person A finishes his fourth beer.
10) Person A orders a new beer at the bar. When he takes his wallet out of his trousers a man bumps into him. Person A loses his balance and complains with a lifted arm. The man who bumped into him apologizes to Person A.
11) An unknown man is in a toilet. After washing his hands he shakes his hands and sprays water at Person B. Person B angrily steps back. The “sprayer” apologizes to Person B.
12) Person A goes to the bar to order a new beer. Person B also steps to the bar. While Person A looks for money in his wallet, Person B talks to his friends at the table. The waitress accidentally spills some beer over Person A. Persons A and B have not seen what had happened and turn to each other quickly. They engage in a short argument. Both of them push each other. Other guests step in between the two and separate them.