THE UNIVERSITY OF CHICAGO

Impact of Language Modality on Empathy and Forgiveness

By

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ABSTRACT

Language modality, the form in which information is conveyed, has been found to influence perspective taking and theory of mind. Testing accidental and intentional harm stories from the harm doer's perspective, we broaden previous research by considering the role that language modality plays in feeling empathy towards the accidental and intentional harm doer. We presented 277 native English speakers with spoken or written accidental and intentional harm scenarios and measured their empathy towards the agent and the victim, as well as their willingness to forgive the agent, and their desire to socially connect with the agent. For accidental harm, spoken communication, as compared to written communication, resulted in lower empathy towards the accidental harm doer but similar empathy towards the victim, a lower level of forgiveness, and a decreased desire to connect with the agent. For intentional harm, spoken communication resulted in lower empathy towards the agent and higher empathy towards the victim, a lower willingness to forgive the agent, and a decreased desire to connect with the agent. Taken together, the results suggest that listening as compared to reading accidental and intentional harm systematically influences moral reasoning. This could have implications for how people choose to communicate their wrongdoings to a third party when attempting to win people to their side.

INTRODUCTION

Imagine someone tells you that they offered to drop off their friend's term paper at their professor's office but accidentally left it under the wrong door, resulting in the friend receiving the lowest grade in the class. Would you feel the same empathic concern towards the accidental harm-doer if you read or heard their story? If the content of the story is identical, you should react in the same way; however, there are reasons to believe that you might react differently depending on the communication mode in which you learn about the accidental harm. Will this modality effect be the same or different for intentional harm scenarios, for example, if the harm-doer had deliberately slipped the term paper under the wrong door?

Harm can be intentional or accidental. Observers judge intentional harm as worse than accidental harm (Young and Saxe, 2009). Accidental harm prompts a cognitive conflict between two processes: intuitive and analytical. The analytical process is agent-based and triggers an intent-driven response (innocent agent did not intend harm). The more intuitive, automatic process is victim-based and prompts an empathy-driven impulse (the victim was harmed). Whether the mind resolves this cognitive conflict more deliberately or more intuitively can have implications on the empathic concern felt towards the agent and/or the victim (Treadway et al., 2014). This study aims to examine how language modality (spoken, written) influences thinking and hence empathy and forgiveness of accidental and intentional harm.

Dual Process Theory of Moral Evaluations

Evaluating a third party's harmful behavior often involves the assessment of the intentions of the agent and the outcome the victim faces (Cushman, 2015). According to the dual process model, our moral judgements are formed based on both emotions and reason (e.g., Greene et al., 2001; Greene & Haidt, 2002; Greene et al., 2004). One process uses the automatic (intuitive, heuristic) thinking system while the other uses the cognitively effortful

(analytical, deliberative) thinking system (Stanovich, 1999). Accidental harm scenarios create a conflict between these two processes (Treadway et al., 2014; Young & Saxe, 2009; Patil et al., 2017a). The automatic, outcome-based process focuses on the empathic reaction towards the victim's outcome and the agent's causal role in driving this harmful outcome, increasing the severity of moral condemnation (Buon et al., 2014; Martin et al., 2021). The analytical, intent-based process instead caters to the innocent intentions of the agent, reducing the severity of moral judgements (Patil et al., 2017b).

Forgiving accidental harm, as opposed to intentional harm, is cognitively demanding because it involves using intentionality reasoning to override the automatic, emotional, empathy-based reaction towards the victim (Buon et al., 2014). Intuitive thinking reduces the ability to resolve this cognitive conflict between the dual automatic and analytical processes (Young & Saxe, 2009). It has been suggested that mentally representing innocent intentions of the agent in cases of accidental harm requires more executive resources (Wade et al., 2018). Differences in an individual's ability to reason and the availability of cognitive resources also seem to play a role in how this conflict is resolved (Patil & Tremoliere, 2021). Previous research has used cognitive load theory as an explanation, suggesting it is more cognitively demanding to solve this conflict (Buon et al., 2014; Greene et al., 2008). Overriding the potent emotional reaction (automatic, intuitive) to victim suffering with deliberative response (analytical) due to reasoning about intentionality is cognitively taxing (Buon et al., 2013). Therefore, enhancing automatic, intuitive thinking may either lower one's ability to downregulate empathy towards the victim's suffering (resulting in more empathy towards the victim and lower forgiveness for the agent) or lower empathy towards the accidental harm doer (resulting in lower empathy and forgiveness for the agent) (Treadway et al., 2014).

How Modality Influences Moral Evaluations

There are two theories on how voice may influence the resolution of this cognitive conflict (see Table 1). On one hand, some studies suggest that listening to problems increases intuitive responding as compared to reading the same problems. In one study, when different thinking and reasoning paradigms were presented in spoken form, participants responded more intuitively (Geipel & Keysar, 2021). This suggests that thinking based on spoken information is more grounded in intuition than thinking based on written information (Geipel & Keysar, 2021). This might be because reading and writing are more deliberate forms of communication than listening and speaking (Shen & Sengubta, 2018). If spoken as compared to written information increases the intuitive mode of thought, in cases of accidental harm, this could lead to more empathy felt towards the victim because people do not do the extra step to reason about the innocent intentionality of the agent or because they are unable to downregulate their emotional response towards the victim's suffering (Patil & Tremoliere, 2021). This would also result in lower empathy towards the innocent harm doer because people will focus more on the negative outcome than the neutral intention, which would also likely lead to lower forgiveness judgements when listening as opposed to reading. For intentional harm, there is no cognitive conflict to solve because both the intentions and outcomes are negative. Thus, this account predicts no significant difference between spoken and written modalities.

However, previous research has shown that emotional language in cases of intentional harm causes people to be less forgiving than if plain language is used (Treadway et al., 2014). It is possible that the spoken modality increases the emotionality of the intentional harm scenario, presumably due to relatively more paralinguistic cues than in the written modality. This might subsequently increase empathy towards the victim and lowers empathy towards the agent. This would result in lower forgiveness and a decreased willingness to connect with the harmful agent when intentional harm is heard compared to when it is read.

On the other hand, listening as compared to reading might lead to greater empathy towards the accidental harm doer. This idea is based on research showing that voice increases the ability to understand feelings and thoughts, and subsequently, increase empathic accuracy (e.g., Hall & Schmid Mast, 2007). Research has shown the importance of voice when making inferences about another person's mental capacities of reasoning, thoughtfulness, and intellect (Schroeder & Epley, 2015). Paralinguistic cues in voice, like intonation, cadence, and amplitude, are more than supplementary information (Kruger et al., 2005). Furthermore, observers who listen are better at understanding and guessing the actual thoughts and feelings of the speakers compared to the observers who read the exact same words (Hall & Schmid Mast, 2007). Another study testing the difference between written and verbal job candidate pitches found that the hypothetical employers had a more favorable impression of candidates who gave verbal pitches, judging them as more humanlike, intelligent, mindful, and likely to be hired than the candidates with written pitches (e.g., Schroeder & Epley, 2015).

Based on these findings it is possible that listening to the perspective of the accidental harm doers as compared to reading a transcript of their accidental harm will enhance the ability to represent the mental states of the agent. This would lead to greater empathy towards the agent when listening as compared to reading. This is because in cases of accidental harm, the intentions of the agent are neutral, which consequently result in higher forgiveness when listening rather than reading. For intentional harm, this hypothesis predicts that the spoken condition would reduce empathy towards the agent because the intentions are negative, which will in turn lead to lower forgiveness when listening. This hypothesis makes no clear predictions about empathy towards the victim.

Table 1.

Summary of theoretical accounts

Harm Type	**Enhanced Intuitive Processing**	**Focus on Mental States**
ACCIDENTAL	Voice will ↓ empathy towards agent Voice will ↑ empathy towards victim *Lower forgiveness of agent*	Voice will ↑ empathy towards agent No clear prediction about victim *Higher forgiveness of agent*
INTENTIONAL	If voice enhances emotionality, voice will ↓ empathy towards agent and ↑ empathy towards victim *Lower forgiveness of agent*	Voice will ↓ empathy towards agent No clear prediction about victim *Lower forgiveness of agent*

Current Study

This study will be the first to investigate how the modality of language—spoken or written—influences moral evaluations about accidental and intentional harm. The findings will help to bring forward current theorizing on how voice as compared to written words can influence mental state reasoning in moral evaluations. We conduct one experiment to evaluate the impact of language modality on empathy towards both the agent and victim, forgiveness judgements concerning the agent, and desire for social distance from the agent in both accidental and intentional harm scenarios. Depending on their modality assignment, participants were presented with two scenarios (intentional and accidental) in their respective format (spoken or written) and asked to indicate their level of empathy towards the harm doer as well as towards the victim, their likelihood to forgive the harm doer, and their desire to socially connect with the harm doer.

METHODS

Participants

We recruited 301 native English speakers (49.8% female, 48.2% male, 1.7% non-binary, 0.3% unknown, M_{age} = 25.4 years, age range = 18 to 72) online on Prolific (prolific.co). Participants were compensated $1.30 for their time. Demographic information was collected on their age, gender identity, and native language. At the beginning of the study, participants were randomly assigned to either the spoken condition (n = 136) or the written condition (n = 165). We excluded 24 participants (8%), due to a failure of one (5.3%) or both (2.7%) attention checks. The results presented below are based on the remaining 277 participants (n_{Spoken} = 127, $n_{Written}$ = 150). Note that the results remain similar after including these exclusions in the dataset.

Materials

Four harm scenarios were created (see Appendix), with two versions of each. The two versions of each scenario were almost identical except for the intention behind the act (accidental vs. intentional). See Table 2 below for an example scenario.

Participants were presented with one accidental and one intentional harm scenario, either audio-recorded or text-based, depending on which condition the participant was randomly assigned to. We randomized the presentation order of the two scenarios. The actions in the scenarios were described from a first-person perspective and were in the past tense. All participants were given the following instructions in the spoken form: “Starting on the next page, you will read [you will hear a voice actor reciting] transcripts of people’s life stories. For the purpose of this study, we shortened and structured the stories. Your job is to pay close attention to each story and, as soon as it ends, make some evaluations. Thank you very much!”

Table 2.

Example of accidental and intentional scenario versions used in study

ACCIDENTAL HARM	INTENTIONAL HARM
During last winter quarter, I offered to drop off my friend's term paper at her professor's office, as I was already going to the department anyway. I planned to turn in the paper on time. But when I got there, I saw the professor's name was printed on two doors. On one door there was a sign to deliver term papers, *which I had overlooked. I ended up accidentally slipping* my friend's term paper under the wrong door, and the professor never received it. My friend got the lowest grade in the class because the term paper was worth 40% of the grade.	During last winter quarter, I offered to drop off my friend's term paper at her professor's office, as I was already going to the department anyway. I planned to turn in the paper on time. But when I got there, I saw the professor's name was printed on two doors. On one door, I *noticed* there was a sign to deliver term papers. *Having just gotten into a fight with my friend on the phone, I deliberately slipped* my friend's term paper under the wrong door, and the professor never received it. My friend got the lowest grade in the class because the term paper was worth 40% of the grade.

In the spoken condition, all stories were recorded by two male voice actors that were native English speakers with a standard American accent and unaware of the predictions of the study. Voice actors were instructed to record the stories in a neutral manner. The audio recordings were normalized for amplitude and loudness with the software Audacity (Audacity Team, 2020). In the written condition, the text was broken into three natural blocks and presented in self-paced waves, simulating the spoken transient version. With each part disappearing when the participant clicked "Next", participants were forced to keep the different parts of the scenarios in their memory. They were not given the ability to go backwards and see this information again. This structure ensured the written and spoken conditions would be kept as similar as possible.

Measures

Empathy

Empathy towards both the victim and agent was measured using the same 5-item scales adapted from Ministero et al. (2018) and Batson, Fultz, & Schoenrade (1987).

Responses for both were rated on a scale ranging from 1 (*not at all*) to 7 (*extremely*). These five items were as follows:

1. How *sympathetic* do you feel toward the [victim, harm doer]?
2. How *warm* do you feel toward the [victim, harm doer]?
3. How *compassionate* do you feel toward the [victim, harm doer]?
4. How *touched* were you by the [victim, harm doer]?
5. How *moved* were you by the [victim, harm doer]?

The presentation order of these victim and harm doer empathy scales was randomized.

Forgiveness

Forgiveness was measured with a single question that asked participants to indicate from 1 (*not at all likely to forgive*) to 101 (*very likely to forgive*) if they would personally forgive the person who acted in this harmful manner ("Would you forgive the person who [action]?"). Higher scores indicated participants believed the agent could be trusted in the future.

Desire to socially connect with the agent

Desire to socially connect with the agent was measured using a 5-item scale adapted from Pescosolido et al. (2010), in which participants indicated their interest in social interaction with the agent. The question posed was: "How much would you like to have each of the five types of social interaction with the person who [description of harmful action]?" The five interactions were: working closely together on a job, living next door to each other, spending an evening together socializing, becoming relatives by marriage, and becoming friends. Participants indicated their willingness on a 7-point Likert scale from 1 (*not at all*) to 7 (*very much*). Higher scores indicated a higher desire to socially connect with the agent and lower average scores indicated a lower desire to socially connect with the agent.

Intentionality

Finally, for each of the two given scenarios, participants were asked to indicate how intentional the agent's action was by responding to the question ("How much did the person intend to [harmful action]?") on a slider scale ranging from 1 (*not at all*) to 101 (*very much*).

Additional Measures

Lastly, participants were asked about the processing difficulty of the task using three questions ("Overall, how easy was it for you to read [listen to] the stories?", "Overall, how enjoyable was it to read [listen] the stories?", "Overall, how interesting was it to read [listen to] the stories?"; slider scale: 1 = *not at all* to 101 = *very*). Finally, participants in both modality conditions were asked to complete an individual difference measure of empathic concern in a written format (see Appendix for full details). Two example items were as follows: "I would describe myself as a pretty soft-hearted person" and "When a friend tells me about his good fortune, I feel genuinely happy for him." Participants indicated their agreement with these statements on a scale ranging from 0 (*does not describe me well*) to 4 (*describes me very well*).

Procedure

At the beginning of the study, native English speakers living in the United States were randomly assigned to either read or hear a series of two stories randomly selected from a set of four scenarios. Participants in both modality conditions were only eligible to participate if they passed an audio check at the beginning of the study to ensure that they could listen to the information. Once they passed the audio check, all participants of both conditions were informed by voice that they would have to read [listen to] life stories that were structured and shortened for the purpose of the study (for the full information, see the Appendix). Participants in the spoken condition were also informed that voice actors were the ones reciting the stories. Following the introduction, each participant was presented with two

different scenarios. One accidental harm scenario was selected from a set of four scenarios, and one intentional harm scenario was selected from the remaining 3 scenarios. The presentation order of these two items was randomized for each participant. Showing only two stories to participants avoided the participants realizing the structure of the stories. We rotated the scenarios across participants, resulting in 12 groups.

For the spoken condition, once the participant passed the audio check and heard the introduction, the audio clip for the first of the two scenarios began to play. The participant was not able to stop the audio, rewind, or listen to the audio again. Once the "Next" button appeared, the participant was able to move on to the empathy (agent, victim), forgiveness, and social connectedness measures. After completing these measures, the participant repeated the process for the second scenario before ending the study with the individual empathy measure and processing difficulty questions.

For the written condition, the participant similarly needed to pass the audio check and listen to the introduction. After this, they were presented with the text for the first scenario. While identical in content to the spoken scenarios, the written scenarios had been split into three natural chunks based on the background, harmful act, and outcome. To simulate the transient nature of the spoken condition, the "Next" button only appeared after several seconds. This took away the option for the participant to go backwards to see previous text or to jump ahead out of order. Just like in the case of the spoken condition, once the scenario was presented, the participant moved on to the measures and repeated the process for the second scenario before finishing with the individual questions.

Two attention checks were also used during the questionnaires to make sure participants were reading the questions carefully, and participants who failed one or both attention checks (24 participants, 8%) were excluded from the dataset. One of these checks was delivered while the participants were filling out the measurement scales. For one of these

scales, the participants were told which value to pick to prove they read the question properly. The other check was delivered after a scenario was given, asking about the content of the scenario, and having the participant pick from the one correct answer and two foils.

RESULTS

The data was analyzed using the statistical software JASP.

Manipulation Check

Intentional harmful actions were perceived as significantly more intentional (M = 72.05, 95% CI [67.45, 76.65]) than accidental harmful actions (M = 7.90, 95% CI [6.13, 9.66]), $t(268) = 26.03$, $p < .001$, $d_{Cohen} = 2.19$. Language modality had no significant influence on intention ratings, $F(1, 267) = 3.25$, $p = .073$, $\eta_p^2 = 0.01$.

Empathy (individual difference measure)

We tested whether participants across the two modality conditions differ in terms of how empathic they feel about others in general. The Cronbach's alpha across the 14 items was high ($\alpha = .888$), hence we used the average score across the 14 items as an index of empathic concern. Participants assigned to the spoken condition felt similarly empathic about others (M = 3.89, SD = 0.66) as participants assigned to the written condition (M = 4.01, SD = 0.62), Welch's $F(1, 261.1) = 2.46$, $p = .118$, $d_{Cohen} = 0.19$, 95% CI [–0.05, 0.43].

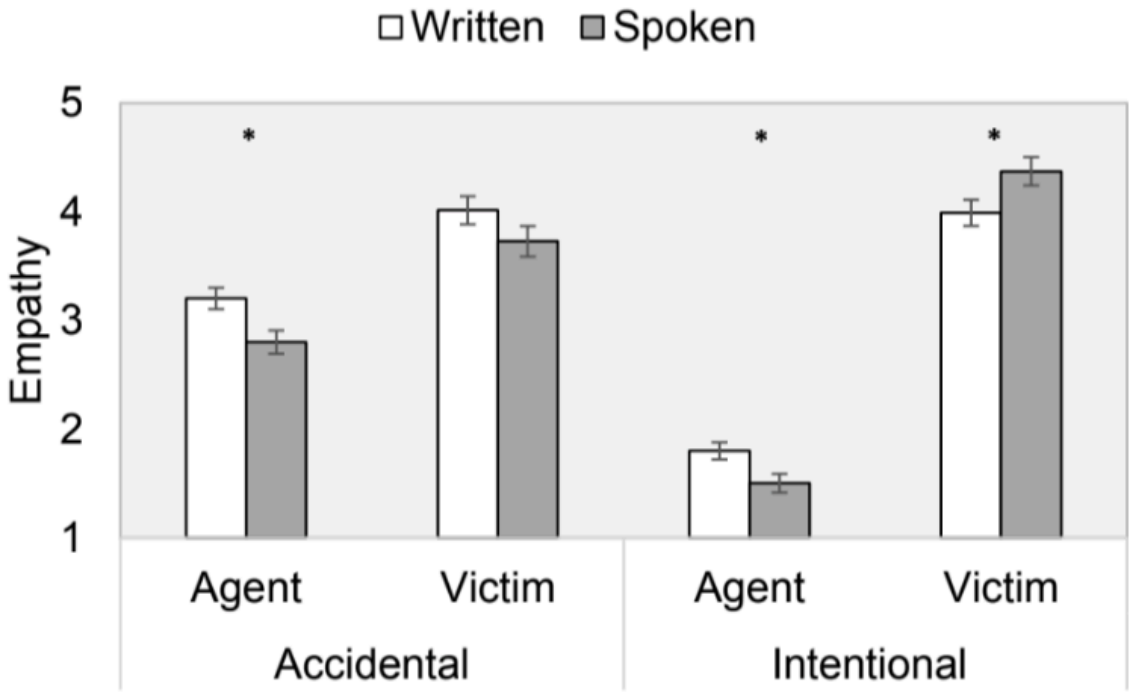
Empathy towards Agent and Victim for Accidental Harm

Participants listening to accidental harm emphasized significantly less with the agent and victim (M = 3.26, 95% CI [3.07, 3.46]) than participants reading accidental harm (M = 3.61, 95% CI [3.43, 3.79]), $F(1, 275) = 6.68$, $p = .010$, $\eta_p^2 = 0.02$. Planned comparisons showed that participants listening felt significantly less empathy towards the agent (M = 2.80, 95% CI [2.59, 3.01]) than participants reading (M = 3.20, 95% CI [3.01, 3.40]), $F(1, 275) = 7.64$, $p = .006$, $\eta_p^2 = 0.03$. However, participants listening felt similarly empathic towards the

victim (M = 3.73, 95% CI [3.45, 4.00]) as participants reading (M = 4.01, 95% CI [3.76, 4.27]), $F(1, 275) = 2.25$, $p = .135$, $\eta_p^2 = 0.01$. There was no significant Modality × Harm type interaction, $F(1, 275) = 0.31$, $p = .579$, $\eta_p^2 < 0.01$. Figure 1 illustrates the main effect of modality for accidental harm.

Figure 1.

Mean Empathy by Modality and Harm Type. Error bars illustrate standard errors of the mean



Empathy towards the Agent

Participants listening to harm felt significantly less empathic towards the agent (M = 2.15, 95% CI [2.01, 2.29]) than participants reading the harm (M = 2.50, 95% CI [2.37, 2.63]), $F(1, 275) = 13.45$, $p < .001$, $\eta_p^2 = 0.05$. Figure 1 illustrates this main effect of modality. Overall, participants felt significantly more empathic towards the agents that performed accidental harm (M = 3.00, 95% CI [2.86, 3.15]) than agents that performed intentional harm (M = 1.65, 95% CI [1.54, 1.77]), $F(1, 275) = 219.79$, $p < .001$, $\eta_p^2 = 0.44$.

This effect was not qualified by a Modality × Harm type interaction, $F(1, 275) = 0.33$, $p = .565$, $\eta_p^2 < .01$.

Empathy towards the Victim

There was a significant Modality × Harm type interaction, $F(1, 275) = 7.20$, $p = .008$, $\eta_p^2 = 0.03$ (see Figure 1). Participants listening to intentional harmful actions felt significantly more empathy towards the victim ($M = 4.37$, 95% CI [4.12, 4.63]) than participants reading the intentional harmful actions ($M = 3.99$, 95% CI [3.75, 4.23]), $F(1, 275) = 4.68$, $p_{Bonferroni} = .031$, $\eta_p^2 = 0.02$. There was no modality effect for accidental harmful actions ($M_{Spoken} = 3.73$ vs. $M_{Written} = 4.01$), $F(1, 275) = 2.25$, $p = .135$, $\eta_p^2 = 0.01$. Overall, participants felt significantly more empathic towards the victim for intentional ($M = 4.18$, 95% CI [4.01, 4.36]) than accidental harmful actions ($M = 3.87$, 95% CI [3.68, 4.06]), $F(1, 275) = 6.20$, $p = .013$, $\eta_p^2 = 0.02$.

Forgiveness

Participants listening to the harmful actions were significantly less likely to forgive ($M = 44.30$, 95% CI [40.62, 47.99]) than participants reading the same harmful actions ($M = 53.06$, 95% CI [49.69, 56.42]), $F(1, 273) = 11.94$, $p = .001$, $\eta_p^2 = 0.04$ (truncating the four outliers [i.e., taking the mean minus 2.5 x SD] does not change the result). Figures 2 and 3 illustrate this modality effect on forgiveness. Participants were significantly more likely to forgive accidental harm ($M = 64.54$, 95% CI [61.38, 67.70]) than intentional harm ($M = 32.82$, 95% CI [29.49, 36.16]), $F(1, 273) = 225.68$, $p < .001$, $\eta_p^2 = 0.45$. However, this effect was not qualified by a Modality × Harm type interaction, $F(1, 273) = 0.09$, $p = .759$, $\eta_p^2 < 0.01$. Speaker type did not influence forgiveness ratings, $F(1, 123) = 0.49$, $p =$, $\eta_p^2 < 0.01$, hence we omitted this factor from the analysis.

Figure 2.

Mean forgiveness plotted by modality and type of harm.

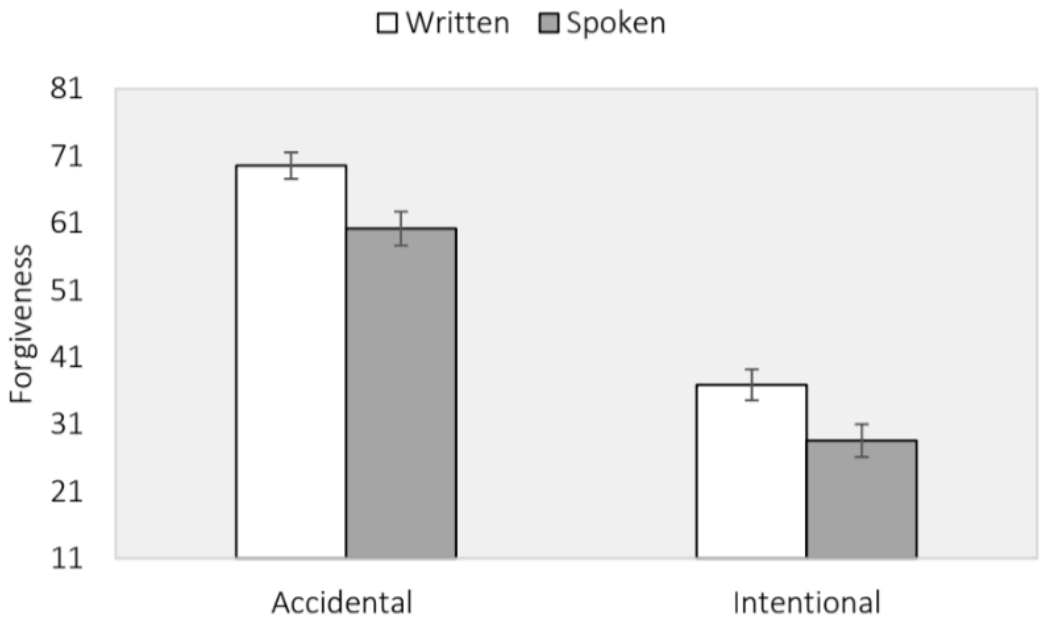
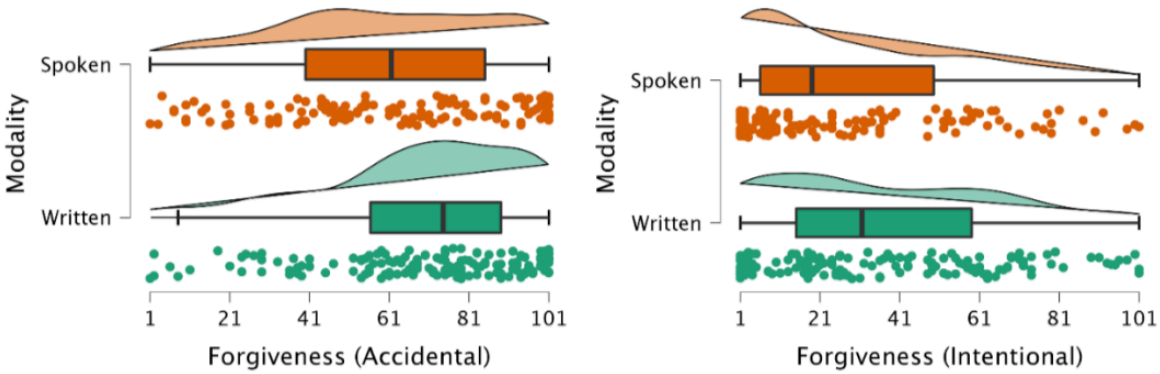


Figure 3.

Mean forgiveness by modality and harm type.



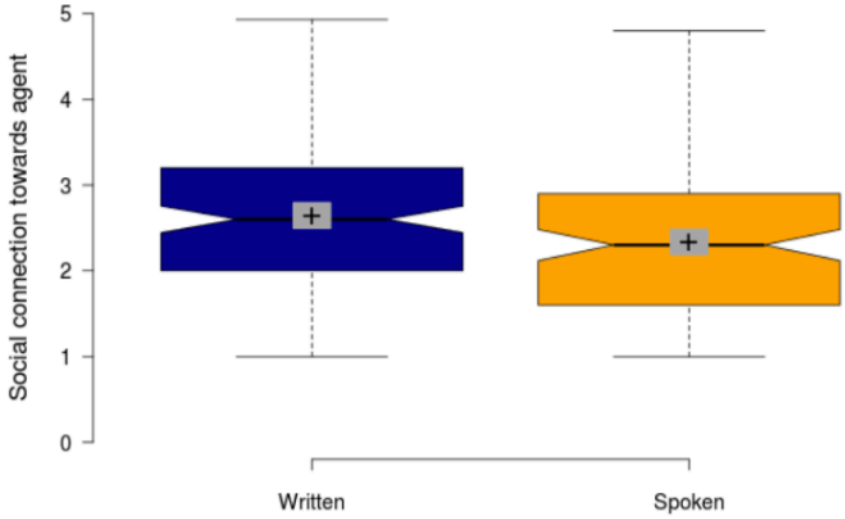
Willingness to Socially Connect with Agent

Participants listening to harm felt significantly less willing to socially connect with the agent (M = 2.34, 95% CI [2.18, 2.50]) than participants reading harm (M = 2.65, 95% CI [2.50, 2.80]), $F(1, 275) = 7.82$, $p = .006$, $\eta_p^2 = 0.03$. Figure 4 illustrates this main effect of

modality. Participants were also significantly more willing to socially connect with the accidental harm doer (M = 3.12, 95% CI [2.97, 3.27]) than with the intentional harm doer (M = 1.87, 95% CI [1.73, 2.01]), $F(1, 275) = 169.45$, $p < .001$, $\eta_p^2 = 0.38$. There was no Modality × Harm type interaction, $F(1, 275) = 1.35$, $p = .247$, $\eta_p^2 = 0.01$.

Figure 4.

Mean willingness to socially connect with harm doer by modality collapsed across harm type



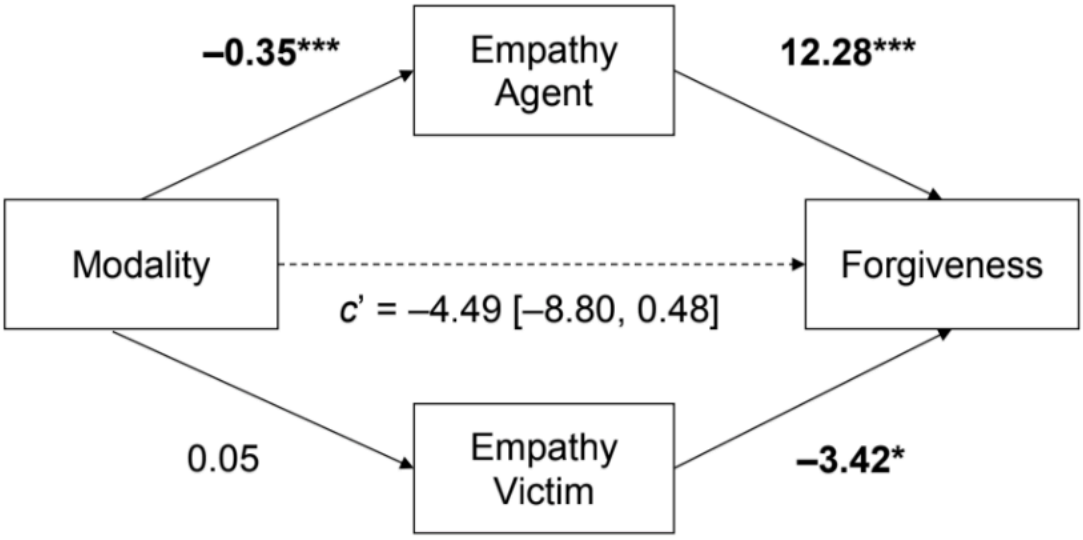
Explaining the Modality Effect on Forgiveness of Harmful Actions by Empathy towards the Agent and Victim (across accidental and intentional harm)

We conducted a mediation analysis with 5,000 bootstrapped resamples (Preacher & Hayes, 2008) to test whether the effect of modality on forgiveness judgments is explained by empathy towards the agent and victim. We found a significant total indirect effect (–4.49, 95% CI [–7.01, –2.17]). The effect of modality on forgiveness was reduced (from b = –8.65, 95% CI [–13.70, –3.60] to b = –4.16 [–8.80, 0.48] when controlling for empathy towards the agent, consistent with a full mediation. Only empathy towards the agent was a single significant mediator (b = –4.32 [–6.85, –2.04]), empathy towards the victim was not a single significant mediator (b = –0.17, [–1.17, 0.82]). Figure 5 illustrates this mediation model. This

analysis suggests that listening to harmful actions is associated with lower empathy towards the agent which is associated with lower forgiveness judgments.

Figure 5.

Mediation model explaining the modality effect on forgiveness judgments.



Modality Influences Willingness to Socially Connect through Empathy towards the Agent and Forgiveness (across accidental and intentional harm)

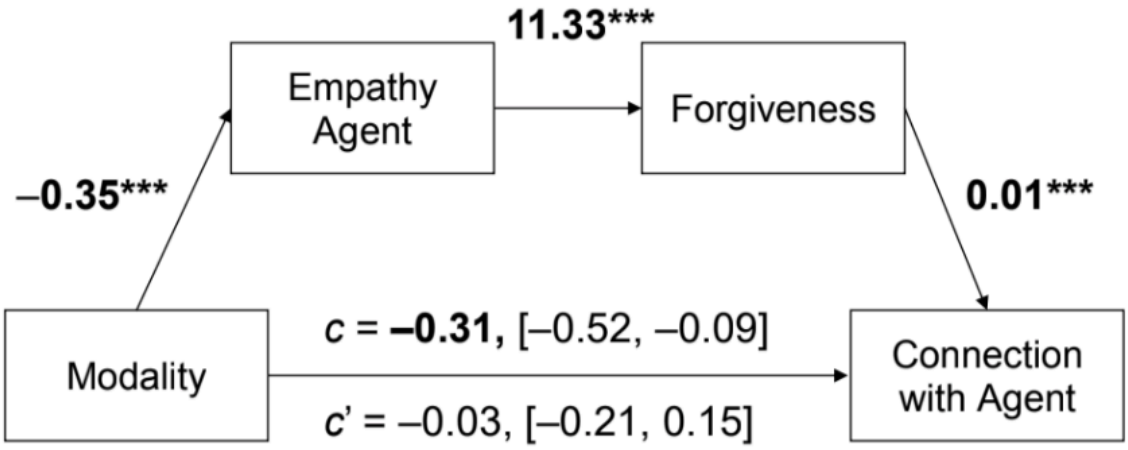
We conducted a serial mediation analysis with 5,000 bootstrapped resamples (Preacher & Hayes, 2008) to test whether spoken modality reduced empathy towards the agent which reduced forgiveness which reduced the willingness to socially connect with the agent (see Figure 6). There was a significant indirect effect from modality to empathy to forgiveness to willingness to connect (indirect effect = –0.28, 95% CI [–0.42, –0.15]).

The serial mediation path reflected three component paths: from modality to empathy, b = –0.35, 95% CI [–0.54, –0.17]; from empathy to forgiveness, b = 11.33, 95% CI [8.40, 14.26]; and from forgiveness to willingness to connect, b = 0.01, 95% CI [0.01, 0.02]. The

effect of modality on willingness to socially connect with the agent was significantly reduced (from b = –0.31, 95% CI [–0.52, –0.09] to b = –0.03, 95% CI [–0.21, 0.15]) when controlling for empathy and forgiveness, consistent with full mediation (Baron & Kenny, 1986).

Figure 6.

Serial mediation model explaining the modality effect on willingness to connect.



Explaining the Modality Effect on Forgiveness for Accidental Harm by Empathy towards the Agent and Victim

We repeated the mediation analysis testing whether the modality effect on forgiveness judgment for accidental harm is explained by empathy towards the agent and victim. We found a significant total indirect effect (–4.49, 95% CI [–7.01, –2.17]). The effect of modality on forgiveness was reduced but not significantly (b = –9,39, 95% CI [–13.70, –3.60] and b = –5.99 [–11.62, –0.36] when controlling for empathy towards the agent and victim, consistent with a partial mediation. Only empathy towards the agent was a significant mediator (b = –4.32 [–6.85, –2.04]). Empathy towards the victim was not a significant mediator (b = –0.17, [–1.17, 0.82]). Figure 6 illustrates this mediation model.

Explaining the Modality Effect on Forgiveness for Intentional Harm by Empathy towards the Agent and Victim

We repeated the mediation analysis testing whether the modality effect on forgiveness for intentional harm is explained by empathy towards the agent and victim. We found a significant total indirect effect (–5.57, 95% CI [–9.37, –1.75]). The effect of modality on forgiveness was significantly reduced (from b = –8.32, 95% CI [–14.97, –1.67] to b = –2.75 [–8.17, 2.67] when controlling for empathy, consistent with a full mediation. However, only empathy towards the agent was a significant mediator (indirect effect: b = –4.84 [–8.51, –1.16]), empathy towards the victim was not a significant mediator *(*b = –0.73, [–1.92, 010]).

Additional Analyses

Processing Difficulty. We tested whether participants across the two modality conditions differ in terms of processing difficulty. The Cronbach's alpha across the three items was high (α = .706), hence we used the average score across the three items as an index of processing difficulty. Participants in the spoken condition found the task as difficult as participants in the written condition, Welch's $F(1, 262.45) = 2.37$, $p = .125$, $d_{Cohen} = 0.19$.

Speaker Characteristics. Speaker A was similarly well understood (M = 5.79, 95% CI [5.66, 5.92]) as Speaker B (M = 5.86, 95% CI [5.76, 5.96]) by participants in the spoken condition, Welch's $F(1, 116.18) = 0.66$, $p = .420$, $d_{Cohen} = 0.15$. Speaker A was significantly liked more (M = 4.84, 95% CI [4.58, 5.11]) than Speaker B (M = 4.38, 95% CI [4.10, 4.65]), Welch's $F(1, 124.85) = 5.94$, p = .016, $d_{Cohen} = 0.43$.

DISCUSSION

The results of this study suggest that listening to rather than reading the same information systematically influences moral evaluations about accidental and intentional harm. When compared to reading about accidental harm, listening to the same spoken accidental harm was found to reduce empathy felt towards the agent, as well as to lower forgiveness judgements and to lessen willingness to socially connect with the agent. This finding is closely aligned with the intuitive thinking account, which suggested that the spoken modality decreases the focus on the accidental, neutral intentions of the agent and instead increase the focus on the harmful outcome for the victim.

Listening to spoken intentional harm scenarios was also found to increase empathy towards the victim and reduces empathy towards the agent, as compared to reading the same scenarios. This, in turn, also reduced forgiveness and willingness to connect with the agent. While this is in line with the intuitive thinking account, this finding suggests that processing spoken information for intentional harm might also follow the mental state consideration account, in which the spoken modality increases the focus on the negative intentions of the agent. As the intentions were negative, this would lead to an elevated emotional reaction to the victim's suffering, which has been shown to reduce forgiveness (Treadway et al., 2014).

Taken together, while the findings for accidental harm support the intuitive thinking account, the findings for intentional harm do not more clearly align with either the intuitive thinking or the enhanced mental state consideration account. For accidental harm, the enhanced mental state consideration account predicts that voice would lead to greater empathy towards the accidental harm doer and, hence, a greater forgiveness and willingness to connect with the agent. This is because voice is believed to enhance the focus on the neutral intentions of the agent more so than the harmful outcomes. In the current study, this was not the case, supporting the intuitive thinking account for accidental harm.

For intentional harm, our findings may in fact support the enhanced mental state consideration account. The spoken modality was found to reduce empathy towards the harm doer and, in turn, forgiveness and the willingness to socially connect with the agent as well, just as predicted by this account. This could be because listeners might have focused relatively more on the negative mental states of the agent. Because both the intention and outcome are negative, one important point to note here is that this reduced empathy could stem from either the intention-based focus on the harmful intentions of the agent (enhanced mental state consideration account) or the outcome-based focus on the suffering of the victim (intuitive thinking account). The present study design does not allow us to definitively conclude the cause of this reduced empathy. Hence, while our accidental harm findings align with the predictions from the intuitive thinking account, our findings for intentional harm do not align with one theoretical account more than the other.

Limitations and Future Directions

Besides the consideration of outcomes and intentions, people also consider negligence when evaluating accidentally harmful actions (Nobe et al., 2017). Because voice is believed to enhance attention to the agent's mental beliefs (Schroeder et al., 2017), it is possible that listening to accidental harm increased the likelihood of listeners attending to the role of negligence. For example, in one of the four scenarios (Scenario 1 Accidental, see Appendix), the agent accidentally slipped a term paper under the wrong door by overlooking the sign that stated where to drop off the paper. Perhaps if the agent had paid more attention and focused more, the outcome might have been prevented. In other words, it is possible that voice enhanced the third party's focus on the agent's negligent mental state and how they should have known better and acted less careless. This could explain why voice reduced empathy towards the agent and forgiveness for accidents. The scenarios used in the present study confound negative outcomes and negligence, thus we cannot rule out this possibility.

To better distinguish between the two theoretical accounts, it could be valuable to test how modality influences moral evaluations of attempted harm (i.e., negative intentions but neutral outcomes). The enhanced mental state consideration account would predict voice increases the focus on the agent's negative intentions and hence reduces empathy towards the agent and increases empathy towards the victim, which would result in lower forgiveness. The intuitive thinking account on the other hand would predict that voice reduces the weight of the negative intentions and increases the weight of the neutral outcome, which would result in higher empathy towards the agent and lower empathy towards the victim, which in turn would increase forgiveness when attempted harm is heard than read.

Additionally, future work may want to manipulate the familiarity of the victim with either or both individuals in the scenarios. For example, it could be interesting to see how the empathy, forgiveness, and social connectedness measures differ if the participant is told that the victim is their close friend compared to if they are told the agent is their close friend or if both are their close friends. With the introduction of loyalty in such a scenario, having a victim as a close friend may result in even lower ratings of empathy, forgiveness, and willingness to connect with the agent across both modality conditions. This may change, however, if the harm-doer is a close friend, as this evokes higher empathy, ease of forgiveness, and willingness to connect socially with the agent, while having relatively lower scores for the victim. Having both the victim and the agent as close friends may complicate the situation further and it is likely that while empathy may vary based on individual relationships, the ability to forgive and a willingness to connect socially may still be softened between close friends across the modality conditions. The modality effects that were found from the accidental and intentional harm scenarios would likely not remain if either or both the victim and agent are friends of the participant, as pre-harm social closeness has been

shown be associated with greater measures of forgiveness and closeness post-harm (Osterman & Hecmanczuk, 2019).

CONCLUSION

Our findings are important in furthering the understanding of the processes that underlie forgiveness and moral reasoning in harm scenarios. Observers intuitively judge harm based on the outcome while additional cognitive load is required to consider the intentions (accidental or intentional). We investigated the impact of language modality on evaluating harm, and for both accidental and intentional harm, we found that spoken as opposed to written scenarios lowered empathy towards the harm doer, increased empathy towards the victim, lessened forgiveness judgements, and created more desire for social distance from the harm doer. Next time you accidentally (or intentionally) harm someone, you might consider texting your friend the story instead of communicating it over the phone to prompt greater levels of empathy and forgiveness towards you.

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APPENDIX

Introduction Description Used in the Study

Spoken condition:
Welcome to this study! Starting on the next page, you will hear a voice actor reciting transcripts of people's life stories. For the purpose of this study, we shortened and structured the stories. Your job is to pay close attention to each story and, as soon as it ends, make some evaluations. Thank you very much!

Written condition:
Welcome to this study! Starting on the next page, you will read transcripts of people's life stories. For the purpose of this study, we shortened and structured the stories. Your job is to pay close attention to each story and, as soon as it ends, make some evaluations. Thank you very much!

Scenario 1

Accidental:

During last winter quarter, I offered to drop off my friend's term paper at her professor's office, as I was already going to the department anyway. I planned to turn in the paper on time. But when I got there, I saw the professor's name was printed on two doors. On one door there was a sign to deliver term papers, which I had overlooked. I ended up accidentally slipping my friend's term paper under the wrong door, and the professor never received it. My friend got the lowest grade in the class because the term paper was worth 40% of the grade.

Intentional:

During last winter quarter, I offered to drop off my friend's term paper at her professor's office, as I was already going to the department anyway. I planned to turn in the paper on time. But when I got there, I saw the professor's name was printed on two doors. On one door, I noticed there was a sign to deliver term papers. Having just gotten into a fight with my friend on the phone, I deliberately slipped my friend's term paper under the wrong door, and the professor never received it. My friend got the lowest grade in the class because the term paper was worth 40% of the grade.

Scenario 2

Accidental:

Last year, I asked my friend if I could use his laptop to print my homework before class. He gave it to me and went to go refill his water. The iMessage window was open in the background, and before closing it, I briefly saw the beginning of a text from a girl, Jessica, automatically pop up about seeing my friend the night before in a bar. Later that day, in a group conversation, I teased my friend about this Jessica he was out with. I did not know that the girl next to him was his girlfriend from home who was visiting him for the weekend. He had not told her he was going out last night, so she thought he was cheating, broke up with him, and flew back without letting him explain.

Intentional:

Last year, I asked my friend if I could use his laptop to print my homework before class. He gave it to me and went to go refill his water. The iMessage window was open in the background, and before closing it, I briefly saw the beginning of a text from a girl, Jessica, automatically pop up about seeing my friend the night before in a bar. In a group conversation later that day, wanting to stir up a little drama, I teased my friend about this Jessica he was out with. I knew that the girl next to him was his girlfriend from home who was visiting him for the weekend. He had not told her he was going out last night, so she thought he was cheating, broke up with him, and flew back without letting him explain.

Scenario 3

Accidental:

Over the weekend, I met with a friend of mine for dinner at a restaurant a few towns away. While eating, we discussed gossip about our jobs. I had a new supervisor. I told my friend all the nasty names my new supervisor calls our boss and how much he complains about him. When I got up to use the bathroom, I was shocked to discover that not only was my boss at this same restaurant so far from our office but also that he was seated within earshot of our table. My boss undoubtedly overheard the conversation, and my supervisor did not receive his deserved bonus, and he was in fact made to work weekends for the next month.

Intentional:

Over the weekend, I met with a friend of mine for dinner at a restaurant a few towns away. While eating, we discussed gossip about our jobs. I had a new supervisor, and I didn't like him as much as my old one. When I got up to use the bathroom, I was shocked to discover that not only was my boss at this same restaurant so far from our office but also that he was seated within earshot of our table. So, I told my friend all the nasty names my new supervisor calls our boss and how much he complains about him. My boss undoubtedly overheard the conversation, and my supervisor did not receive his deserved bonus, and he was in fact made to work weekends for the next month.

Scenario 4

Accidental:

Last month, my roommate had an interview for his dream job, so he woke up extra early to prepare for it. I was walking him to the interview, and he wanted to stop at Starbucks because he was feeling low energy. All he had done for the past few months was talk about how he was such a shoo-in for this job. While sitting at Starbucks, I swung my backpack to my side to put my wallet back in, and I accidentally knocked over the coffee cup my friend was holding. It spilled all over his white shirt. He didn't have time to change because the interview was starting in five minutes. Rushed and disheveled, he did not make a good first impression on the interviewer.

Intentional:

Last month, my roommate had an interview for his dream job, so he woke up extra early to prepare for it. I was walking him to the interview, and he wanted to stop at Starbucks because he was feeling low energy. All he had done for the past few months was talk about how he was such a shoo-in for this job. Fed-up and irritated, while sitting at Starbucks, I swung my backpack to my side to put my wallet back in, and I purposefully knocked over the coffee cup my friend was holding. It spilled all over his white shirt. He didn't have time to change because the interview was starting in five minutes. Rushed and disheveled, he did not make a good first impression on the interviewer.