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Two sides to every story: The influence of audience on autobiographical memory

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Two sides to every story: The influence of audience on autobiographical memory

by

Abby Boytos

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Major: Psychology

Program of Study Committee:
Kristi Costabile, Major Professor
Kevin Blankenship
Jason Chan

The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

2020

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ABSTRACT

Individuals describe their life experiences differently in response to their audience's verbal and behavioral cues, which in turn, influences how the teller connects the experiences to the self-concept (Weeks & Pasupathi, 2011). Research on audience tuning (Higgins, 1992) suggests that one reason audiences influence communication is that people are motivated to form a shared reality with their audience (Echterhoff, Higgins, & Groll, 2005). Combining research on autobiographical memory with that on audience tuning, the current project considers how communicating about personal memories with others can affect how individuals describe and reflect on their autobiographical memories, and how motivation to form a shared reality with others affects this process. Experiment 1 examined the effects of audience perspective on event memory descriptions, memory topic attitudes, and the self-typicality of the described memory. In this experiment, participants were asked to think about a personal memory related to a specific topic and then, were randomly assigned to write about that experience for an audience that had either a positive or negative perspective on the topic or for an audience whose perspective is unknown. Experiment 2 examined whether the audience-bias effect occurs as a function of memory elaboration. Contrary to predictions, results of both experiments indicated that participants' memory descriptions and self-typicality of the memories were not biased in the direction of their audience. However, as predicted, subsequent attitudes about the memory topic and event memory perceptions were biased in the direction of the audience's perspective. Moreover, results of Experiment 2 indicated that the audience-bias effect was observed only when communicators were permitted to elaborate on their memories, indicating the importance of elaboration to the biasing process. In addition, across both experiments, the audience-bias effect was more pronounced for individuals who experienced greater shared reality with their

audience. This project highlights the importance of audience perspective and shared reality in relation to communication about self-relevant experiences.

CHAPTER 1. LITERATURE REVIEW

Autobiographical memories are recollections about personal past experiences. Like other types of memory, autobiographical memories are influenced by social factors, such as audience, that are salient at the time of retrieval (Marsh & Tversky, 2004; Tversky & Marsh, 2000). Thus, autobiographical memories are episodic by nature, both in the sense that they represent a specific time and space from one's life and in the sense that each telling of the memory is influenced by the context in which it is told. When one describes an autobiographical event, the memory description becomes a product of the social interaction between the speaker and audience, which can then influence subsequent retellings of the described event (Pasupathi, 2001). The current project seeks to further understanding of the social aspects of autobiographical memory and how audience may influence how individuals come to perceive past experiences.

Audience Tuning

Good communicators consider the background knowledge, opinions, and attitudes of their audience and adjust their message accordingly (Higgins, 1992; Higgins, McCann & Fondacaro, 1982). The term audience refers to the message recipient(s) and may refer to a single or multiple individuals. At minimum, communicators must be able to establish a reference point with their audience and attempt to meet the audience's basic informational needs. People tend to be quite adept at this. For example, even young children who were asked to describe objects automatically adjusted their object descriptions for people depending on whether the individuals were wearing a blindfold or not (Higgins, 1977).

This process of audience tuning, or adjusting one's message according to the audience, can have lasting effects on the communicator's own perceptions of the message being communicated (Echterhoff, Higgins & Groll, 2005; Echterhoff, Kopietz & Higgins, 2013; Higgins, 1992). For instance, audience tuning has been shown to influence communicators' own

memory of the message. Higgins (1992) first demonstrated this effect in a pair of studies. In the first study, participants received ambiguous information about a target person, for example, behaviors that can be characterized as either ‘stubborn’ or ‘persistent.’ Participants were then asked to describe the target person to an audience who had either received the same information or different information about the target person as they did. When participants believed the audience received the same information, they were more likely to focus on *interpretation* of the information rather than on description; however, when participants believed the audience received different information, they were more likely to focus on *description* than on interpretation of the information. As a result, participants who focused more on interpretation of the information had less accurate memories about the message than did participants who focused on simply describing the information.

Higgins’ (1992) second study explored how the attitude of one’s audience may influence communication and thus, the communicator’s own beliefs. In a similar paradigm, participants received a list of ambiguous, positive, and negative behaviors performed by a target person and were asked to describe the target person to another student who ostensibly knew the target person. Participants were told that the student either liked or did not like the target person. Results of this study indicated that participants described the target person more positively when they believed their audience liked the target person than when they believed their audience disliked the target person. Consequently, participants’ own memory about the target person became more congruent with the view of their audience, an effect that was still apparent two weeks after the initial session. Taken together, these studies provide evidence that the process of audience tuning results in biasing of the communicators’ own memories and perceptions of the original information.

Shared Reality

One reason that people are so willing to adjust their messages for their audience is that people are motivated to create a shared reality (Echterhoff, Higgins & Levine, 2009). Inherent in human nature is the desire to share and validate our experiences with others. Many of the classic studies within social psychology hinge on the desire for social verification (Asch, 1955; Festinger 1950; Lewin, 1943; Sherif, 1937). One way that people fulfill this need for social verification is to create a shared reality with others. A shared reality is a product of the motivated process to experience commonality with others' inner states about the world (Echterhoff et al., 2009). Thus, a shared reality may occur during communication as people share information about their own inner states relating to some target referent and, learn information about others' inner states regarding the target referent (Hogg & Rinella, 2018).

Shared reality serves both epistemic (i.e., understanding the world) and relational needs (i.e., connecting with others, Echterhoff, Higgins, Kopietz, & Groll, 2008). It is through the sharing of internal states such as attitudes, feelings, and emotions that people are able to take subjective experiences and create objective meaning and reality. According to Hardin and Higgins (1996), "When an experience is recognized and shared with others in the process of social interaction, it achieves reliability, validity, generality, and predictability" (p. 35-36). Just as a scientific discovery lacking in reliability, validity, generality, or predictability would not be upheld, it is argued that social experiences without a shared reality tend to be transitory and ephemeral (Hardin and Higgins, 1996).

Memory Biases

Due to the innate desire to establish commonality, as described above, individuals often express ideas that are contradictory to what they actually believe to be true (Asch, 1955; Larsen, 1974). Moreover, people tend to believe what they say even when it lacks truthfulness, an effect

that Higgins (1999) termed the saying-is-believing effect. This effect is demonstrated in the classic audience tuning experiments described previously, where after describing a target person to an audience that either likes or dislikes the target person, the communicator's own memory of the original information about the target person becomes biased toward the view of the audience. Audience tuning effects on memory have been consistently demonstrated across a number of studies (Echterhoff et al., 2005; Echterhoff et al., 2008; Echterhoff, Kopietz & Higgins, 2013; Higgins, 1992; Higgins, 1999).

Audience tuning is also consistent with previous research that indicates that elaboration of one's beliefs through writing can alter one's mental representations about the message (Echterhoff et al., 2009) and can increase belief perseverance (Anderson, Lepper, & Ross, 1980). To examine whether message elaboration (i.e., a coherent description of the message to the audience) is necessary for the audience-bias effect to occur, participants read an ambiguous passage about a target person and were told that they would be asked to describe the target person to another student who ostensibly either liked or did not like the target person (Higgins, Echterhoff, Crespillo, & Kopietz, 2007). They were told that their oral descriptions would be recorded. However, only half of the participants actually described the target person and the other half of participants were told that the voice recorder was being used by another experimenter and that the study could go on without the description. Results demonstrated an audience-bias effect only for participants who elaborated such that for those who actually described the target person, more positive information was recalled when the audience liked the target person than when the audience did not like the target person, an effect that was not observed for those who did not provide oral descriptions.

The importance of message elaboration is also consistent with the elaboration likelihood model of persuasion, which posits that the more people elaborate on an opposing argument, the more likely the argument is to influence their attitudes (Petty & Cacioppo, 1986). However, unlike persuasion, audience tuning effects occur without an explicit attempt to change people's attitudes. Rather, one explanation for the saying-is-believing effect is that it represents a source monitoring error (Johnson, Hashtroudi, & Lindsay, 1993; Schachter & Singer, 1962), or a misattribution of an outcome to something other than the legitimate source. Research shows that misattribution of information can impair and distort memories (Belli, Lindsay, Gales & McCarthy, 1994; Foley, Bays, Foy & Woodfield, 2015; McCabe & Geraci, 2009; Schacter, 1999). In the case of audience tuning, people may misattribute the biased message as stemming from their own memory rather than stemming from the opinions of their audience (Higgins, 1998).

However, studies have also shown that the saying-is-believing effect is diminished under conditions that undermine a successful shared reality (Echterhoff, Higgins, & Groll, 2005). For instance, in one study participants were told that it was their audience's task to identify a target person, whom the audience ostensibly already knew, based on the participant's description of that target person. When communicators received feedback that the audience was not able to identify the target person based on the description, indicating that a shared reality was not achieved, communicators' memories were not impacted by their audience. Therefore, it appears that audience is most likely to alter subsequent perceptions about a message under circumstances in which shared reality is created. Together, this evidence suggests that the audience-bias effect results from a source-monitoring error that is most likely to occur when individuals are also able to achieve shared reality.

Autobiographical Memories

Audience tuning has been applied primarily to communication about social attitudes, rather than to topics directly related to the self-concept. However, autobiographical memories are also often recounted with others. Applying audience tuning to the study of autobiographical memories can increase understanding of the processes through which people come to make sense of their own life experiences. Autobiographical memories have important implications for how people conceive who they are and how they came to be (Bluck, & Habermas, 2000). These memories function to provide individuals with self-definition, social connection, and direction for future behavior (Bluck, Alea, Habermas, & Rubin, 2005), functions that have been linked to an increased sense of purpose and positive social relationships (Waters, 2014). In addition, the manner in which people describe and reflect on their autobiographical memories has important implications for development and well-being (Adler, Lodi-Smith, Philippe & Houle, 2016; Bauer & McAdams, 2004). For instance, including descriptions of growth related goals when asked to describe important autobiographical memories was indicative of higher levels of maturity and personality development (Bauer & McAdams, 2004). Therefore, it is important for researchers to carefully examine the factors that influence the formation, communication, and perception of autobiographical memories.

Social Influences of Autobiographical Memories

Despite the intuitive notion that communication about one's own personal past should be less susceptible, than communication about attitudes or social judgments, to the influence of social factors described above, research has shown that these memories are vulnerable to social influences. For instance, research on flashbulb memories shows that even the most vivid and traumatic memories can be distorted by subsequent information such as exposure to media or conversations after the event (Hirst & Phelps, 2016). Similarly, research on eyewitnesses to a

crime has shown that early recall of the event can increase later susceptibility to misinformation (Chan & Langley, 2011; Chan, Thomas, & Bulevich, 2009) and, in the case of identifying a suspect, post-identification feedback that the correct suspect was identified alters subsequent confidence and descriptions of the eyewitness's memory (Wells & Quinlivan, 2009). Taken together, research indicates that there are various ways in which external influences may reduce accuracy and consistency of autobiographical descriptions over time, even when the memory was vivid and experienced first-hand.

Co-Construction

Autobiographical memory scholars have begun to explore how audience influences the conversational retellings of autobiographical memories. Pasupathi (2001) proposed the principle of co-construction, which posits that both audience and communicators influence the way events are recounted in conversation. This process is also influenced by the social context in which the conversation occurs and is further constrained by prior tellings of the event. Moreover, the process of co-construction has long-term implications on how the memory is subsequently perceived and retold. To demonstrate the impact of audience on autobiographical retelling, Marsh and Tversky (2004) conducted a daily diary study where participants recorded what, when, and how they recounted events from their lives with others over a period of four weeks. Participants reported details about the original event along with details about the retelling. In this study, people reported naturally distorting sixty-one percent of their memory descriptions in some way, and they distorted their memory descriptions in different ways depending on the audience and the goal for telling.

Pasupathi and colleagues have shown that the behavior of the audience can also have important consequences on the memory recollection (e.g., Pasupathi & Billitteri, 2015; Pasupathi & Oldroyd, 2015; Pasupathi & Hoyt, 2009). For example, people tend to elaborate more when

describing a memory to an attentive audience than when describing a memory to a distracted audience (Pasupathi & Billitteri, 2015; Pasupathi & Oldroyd, 2015; Pasupathi & Hoyt, 2009). People are also more likely to include interpretive information when telling stories to an attentive audience and are more likely to include factual information when telling stories to a distracted audience (Pasupathi & Hoyt, 2009). These differences in retellings also lead to differences in subsequent memory recall. For instance, in one study participants watched film clips in the laboratory and then discussed the films with either attentive listeners or distracted listeners (Pasupathi, Stallworth, & Murdoch, 1998). Participants who discussed with attentive listeners elaborated more about the film clips, and also, remembered more information about the film clips even after a three-week delay, as compared to participants who discussed with distracted listeners.

An audience not only influences how memories are told but can also influence how people connect past experiences to their current self. In one study, Jennings, Pasupathi, and McLean (2014) examined conversations between romantic partners in which one person revealed a previously undisclosed meaningful autobiographical memory to the other. The more responsive the audience was, the more connections the speaker made between the events in the memory and their current self (e.g., “I am a very compassionate person, which is why I helped my friend after her break-up”). In another study, Pasupathi and Rich (2005) found that speakers evaluated an experience that they initially reported as interesting to be less interesting after telling the experience to a distracted friend than after telling the experience to a responsive friend. The researchers concluded that a distracted audience undermined self-verification of the experience. In addition, Weeks and Pasupathi (2011) found that audience responsiveness predicts story elaboration, and that story elaboration is positively associated with self-integration, or the ability

to connect past events to the current self. Together, this work suggests that more engaged audiences elicit more elaboration which in turn, prompts the speaker to make more connections between the past experience and current self-perceptions.

By applying what is known about the process of audience tuning to communication about self-relevant experiences, we may be able to better understand how the underlying processes of interpersonal communication helps shape autobiographical memories. Previous work on audience effects related to autobiographical memory has primarily focused on the observable behavior of audience, yet it is possible that there are various other ways in which an audience can influence the telling of a memory. It is also important to consider the ways in which describing memories to others shapes how individuals come to make sense of those experiences and how they might relate the experiences to the self-concept. The current project sought to explore how the process of audience tuning might apply to autobiographical memories and how audience perspective influences perceptions of real-life experiences.

The Present Research

The literature discussed thus far suggests that when communicating about an attitude topic, communicators are often motivated to achieve a shared reality with their audience, and one way they do this is by tuning their message to be more consistent with the perspective of the audience (Echterhoff et al., 2009; Higgins, 1992; Higgins, McCann & Fondacaro). Moreover, research has shown that message elaboration via written or verbal methods can influence mental representations about the message (Echterhoff et al., 2009) and belief perseverance (Anderson et al., 1980). More specifically, message elaboration to an audience whose perspective is known leads to biases in the speaker's own memory about the original message (Echterhoff et al., 2005; Echterhoff et al., 2013; Higgins, 1992).

The present project consisted of two experiments designed to examine whether similar processes operate when individuals describe their personal autobiographical memories to an audience. Experiment 1 examined whether audience perspective influences memory descriptions and subsequent perceptions related to the memory and self. Experiment 2 explored the underlying mechanism through which audience perspective may impact subsequent perceptions by assessing whether both awareness of the audience's perspective and elaborative writing in a manner consistent with the audience's perspective are necessary for the audience-bias effect to occur.

In the first experiment, participants were asked to provide a written description of a personal memory to an audience who either had a positive or negative perspective about the topic, or whose perspective was unknown. It was predicted that people would tune their message (i.e., frame their description of their own life experience) to be consistent with the perspective of their audience. In particular, it was hypothesized that people would portray the experience more positively when writing for an audience with a positive attitude about the topic than when writing for an audience with a negative attitude about the topic. It was also hypothesized that people would rate the experience as more positive and self-typical after describing it to an audience with a positive perspective than when describing it to an audience with a negative perspective.

The goal of Experiment 2 was to test the mechanism through which one's audience influences perceptions of one's own life experiences. Previous work on audience tuning suggests that mere awareness of the audience's attitude is not sufficient to induce memory biases; rather, communicators must actively elaborate on the message either verbally or through writing (Higgins & Rholes, 1978). Therefore, Experiment 2 examined whether such conditions are also

necessary for individuals who are describing their own autobiographical experiences. It was hypothesized that audience would be less likely to influence perceptions of the memory when the communicator does not actually engage in the elaborative tuning process (i.e., exert the effort to coherently describe the message to the audience). The importance of elaboration on one's own perceptions is consistent with research both on audience tuning (Higgins & Rholes, 1978) and on co-construction of memory (Pasupath & Rich, 2005). In addition, it was hypothesized that the relationship between elaboration and perceptions of the event would be mediated by perceived shared reality such that those who elaborated in a manner consistent with that of their audience would perceive greater shared reality with their audience which would in turn, lead to perceptions of the memory that are consistent with the audience.

To be consistent with previous studies on audience tuning, it was important for the present project to utilize topics deemed evaluatively ambiguous (Echterhoff, Kopietz, Higgins, & Groll, 2008). Therefore, a pilot study was conducted to identify participants' attitudes on various topics and the extent to which participants could easily think of an autobiographical experience related to each topic. In previous studies on audience tuning, researchers selected messages that elicited mean ratings close to the midpoint on evaluative attitudes, and the current project used a similar procedure for determining memory topics.

CHAPTER 2. PILOT STUDY

Method

Participants

Participants were 89 undergraduate students from Iowa State University who received course credit for participation. To be eligible to participate in this study, participants were required to be at least 18 years of age. The sample included 53 women and 35 men. The majority of the sample (75.3%) identified as Caucasian (1.1% Native American, 3.4% African-American, 10.1% Latino/Hispanic, 13.5% Asian/Pacific Islander, 1.1% Indian, and 2.2% identified as Other), with a mean age of 19.81 years, $SD = 1.48$.

Procedure

Participants were seated at individual cubicles in the research laboratory. All measures were completed on a computer. After consenting to participate in the study, participants were asked a series of questions regarding their experiences related to six different topics. The topics were procrastination, social media, multitasking, lying, bragging, and group work, and they appeared in a randomized order. For each topic, participants were first provided with a definition of the topic and then were asked questions assessing their own and others' attitudes on the topic. Because the primary experiments in this project examine how individuals might differentially reflect on a specific life experience, participants in the pilot study were asked about their own experiences with the topic such as the ease of which they could think of and describe a specific experience related to the topic, the positivity of their experiences related to the topic, the negativity of their experiences related to the topic, and the ease with which they can think of positive, and separately, negative consequences related to the topic. Questions were grouped by topic, with attitudes assessed first and personal experiences assessed second. After completing

measures for one topic (e.g., procrastination), participants were then presented with the next topic. After completing the dependent measures, participants were asked demographic questions (e.g., age, gender, racial/ethnic identity). After all measures were completed, participants were thanked for their participation and debriefed.

Materials

Piloted memory topics. The memory topics were procrastination, social media, multitasking, lying, bragging, and group work. For each topic, participants were provided with a definition and were then asked a series of questions, described more fully below. The definitions provided for the topics were as follows: a) Procrastination was defined as when a student delays or postpones doing an academic assignment until a later time, b) Social media was defined as any websites or applications that enable a person to create and share content or to participate in social networking, c) Multitasking was defined as when a person tries to do more than one task at a time, d) Lying was defined as purposefully communicating an untrue statement, e) Bragging was defined as talking about accomplishments in an arrogant or prideful manner, and f) Group work was defined as a product of working with others to collaborate on a project or assignment.

Attitudes. Attitudes about each memory topic were measured by having participants indicate their response using a semantic differential scale assessing each topic. Scale endpoints were: positive/negative, like/dislike, good/bad, desirable/undesirable, beneficial/harmful, wise/foolish (Crites, Fabrigar, & Petty, 1994). For each word pair, participants rated the memory topic on a 7-point bipolar continuum. Responses were averaged to create a total attitude score for each topic ($\alpha = .88$), with higher scores indicating a *less* favorable attitude toward the topic.

Because the subsequent experiments will involve participants writing about these topics to others, it was also important to examine perceptions of others' attitudes about these topics.

Therefore, using the same semantic differential scale, participants were also asked to indicate how they perceived: a) a typical university student's attitude toward each memory topic, and b) a typical university professor's attitude toward each memory topic. Scores were averaged across items to create an overall perceived student attitude score for each topic and an overall perceived professor attitude score for each topic.

Personal experience measures. To ensure that memory prompts used in the primary studies would elicit experiences that participants could easily bring to mind, participants were asked to indicate the degree to which they were able to recall a specific personal experience related to each memory topic. First, participants were asked if they had personal experience with the topic using a dichotomous yes/no response (e.g., Have you ever procrastinated on an assignment?). Then, participants were asked to rate their ease of recollection (e.g., How easily can you bring to mind a specific experience in which you engaged in procrastination?) and their ease of description (e.g., How easy would it be for you to write a description of this experience for an experimenter to read?), both items were assessed on a scale from 1 (not easily at all or very difficult) to 7 (very easily or very easy).

Moreover, because the primary studies would manipulate whether the audience has a positive or negative perspective on each topic, it was important to also ensure that selected memory prompts would have the potential to elicit both positive and negative responses in the research participants. Thus, participants also rated the positivity of their experience with the topic (e.g., When you think of a time that you procrastinated on an academic assignment, how positive is the memory?) on a scale from 1 (not at all positive) to 7 (extremely positive) and the negativity of the experience was on a scale from 1 (not at all negative) to 7 (extremely negative). Participants were then asked to list as many positive consequences that they could think of

related to each topic and as many negative consequences that they could think of related to each topic, five free response boxes were provided for each type of consequence. Participants then rated the ease with which they could think of positive consequences on a scale from 1 (very difficult) to 7 (very easy) and the ease with which they could think of negative consequences on a scale of 1 (very difficult) to 7 (very easy). After completing all measures for one topic, participants would then move on to the next topic.

Results

Descriptive analyses were conducted for each memory topic to assess participants' attitudes associated with each topic, and the ease with which participants were able to recall and describe specific experiences related to the topics, and the degree to which participants assessed their own experiences as positive or negative experiences.

Attitudes. The attitude scores for all memory topics are listed in Table 1. The topics that had mean ratings closest to the midpoint (4.00) were considered to be more evaluatively ambiguous or neutral topics, than were those that were closest to the scale endpoints. The most neutral topics were group work, social media, and multitasking.

Table 1

Attitude scores from pilot study on all memory topics.

	Self-Attitudes		Attitudes of a typical student		Attitudes of a typical professor	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Group Work	3.42	1.49	3.30	1.63	2.10	0.96
Social Media	3.26	1.13	2.17	0.96	4.63	1.21
Multitasking	3.11	1.10	2.43	1.01	4.19	1.68
Lying	6.08	1.00	5.87	1.05	6.75	0.43
Bragging	5.79	0.95	5.66	1.25	5.81	1.18
Procrastination	6.15	0.90	5.74	1.09	6.85	0.46

Experience Measures. The majority of participants reported having experiences related to group work ($N = 86, 96.63\%$), multitasking ($N = 88, 98.88\%$), bragging ($N = 85, 95.51\%$), and procrastination ($N = 88, 98.88\%$). All participants ($N = 89, 100\%$) reported experiences with social media and lying. Additionally, all participants were able to list at least one positive and at least one negative consequence for all topics.

Results on all topics for ease and valence of recall are presented in Table 2. Participants indicated that they could also easily bring to mind and describe in detail experiences related to group work, social media, and multitasking. Independent sample t-tests were conducted to examine whether scores on these topics were statistically above the scale midpoint. The ease at which participants could bring to mind a specific memory was significantly above the scale midpoint (4.00) for group work ($M = 6.10, SD = 1.51, t(88) = 13.15, p < .001$), social media ($M = 6.75, SD = 0.59, t(88) = 44.07, p < .001$), multitasking ($M = 5.36, SD = 1.53, t(88) = 8.37, p < .001$), lying ($M = 4.85, SD = 1.89, t(88) = 4.27, p < .001$), and procrastination ($M = 6.25, SD = 1.19, t(88) = 17.82, p < .001$). The ease at which participants could bring to mind a specific memory was significantly below the scale midpoint for bragging ($M = 3.56, SD = 1.93, t(88) = -2.14, p = .035$). Similarly, the ease at which they reported being able to actually describe an experience related to the topic was statistically above the scale midpoint for group work ($M = 5.96, SD = 1.46, t(88) = 12.63, p < .001$), social media ($M = 6.31, SD = 1.10, t(88) = 19.79, p < .001$), multitasking ($M = 5.04, SD = 1.65, t(88) = 5.97, p < .001$), lying ($M = 4.52, SD = 2.06, t(88) = 2.36, p = .020$), and procrastination ($M = 6.00, SD = 1.33, t(88) = 14.17, p < .001$), but was again, significantly below the scale midpoint for bragging ($M = 3.53, SD = 1.94, t(88) = -2.30, p = .024$).

Overall, the pilot study provided information about participants' attitudes and personal experiences related to each of the topics. To be consistent with previous studies on audience tuning (Echterhoff, Kopietz, Higgins, & Groll, 2008), we chose to include the topics that participants rated attitudes as being closest to the scale midpoint. Additionally, it was important to choose topics for which participants reported being able to easily think of related experiences, for which they reported being able to easily describe related experiences, and for which they were able to think of both positive and negative consequences. Therefore, the topics that were chosen to be included in Experiment 1 were group work, social media, and multitasking.

Table 2

Descriptive results from pilot study on experience related measures for all memory topics.

	Group work		Social media		Multitasking		Lying		Bragging		Procrastination		Range
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Easily bring to mind	6.10	1.51	6.75	0.59	5.36	1.53	4.85	1.89	3.56	1.93	6.25	1.19	1 to 7
Easily describe	5.96	1.46	6.31	1.10	5.04	1.65	4.52	2.06	3.53	1.94	6.00	1.33	1 to 7
Positive experience	4.18	1.66	5.40	1.25	4.56	1.29	2.90	1.60	3.61	1.46	2.85	1.66	1 to 7
Negative experience	4.16	1.62	3.35	1.67	3.84	1.28	5.26	1.47	3.99	1.43	5.34	1.39	1 to 7
Ease of Positive Consequences	4.99	1.61	5.54	1.23	4.04	1.59	2.92	1.69	2.86	1.46	2.72	1.75	1 to 7
Ease of Negative Consequences	5.38	1.68	5.38	1.44	5.07	1.25	5.80	1.21	4.90	1.64	6.19	0.99	1 to 7

CHAPTER 3. EXPERIMENT 1

Overview

The goal of Experiment 1 was to examine the effects of audience perspective on memory descriptions and subsequent event memory perceptions, attitudes, and self-typicality. Experiment 1 also examined how communicator's perceptions of developing a shared reality with the audience is related to these outcomes.

In this experiment, participants were asked to think of a previous life experience related to a specific topic and to write a description of this experience for the study researchers. After selecting their memory, but before writing the description, participants were randomly assigned to one of three audience conditions: 1) the study researchers were described as having a positive perspective of the memory topic (e.g., They believe that multi-tasking can be a positive and beneficial experience for undergraduate students.), 2) the study researchers were described as having a negative perspective of the memory topic (e.g., They believe that multi-tasking can be a negative and harmful experience for undergraduate students.), or 3) the perspective of the study researchers was not provided. After providing a written description of their experience, shared reality, event memory perceptions, attitudes toward the general topic, and self-typicality of the memory were assessed.

Based on the audience tuning literature, it was expected that participants writing for an audience with a positive perspective would describe their memory more positively and recall the experience as being more positive and more typical of how they usually behave than participants writing for an audience with a negative perspective. Additionally, it was expected that participants writing for the audience with a positive perspective would have more positive attitudes about the memory topic than participants writing for the audience with a negative

perspective. Lastly, it was expected that perceptions of achieving a shared reality would be greater when the perspective of the audience is known than when the perspective of the audience is not known. Additional variables related to the characteristics of each participant's memory (e.g., how long ago the memory occurred, importance of memory, emotional intensity of memory, etc.) were also measured along with measures assessing the degree to which participants thought about the audience while writing the memory, included details they thought the audience would like, and believed their essay would confirm the beliefs of the audience. Although there were no predictions related to these measures, they were included to examine whether memory characteristics and perceived audience influence may have differed by topic or audience condition. Experiment 1 was preregistered on open science framework (<https://osf.io/xpv7d>).

Method

Power Analysis and Participants

To control for Type II error, or the probability of overlooking an existing effect, a power analysis was conducted using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). Previous research has reported a large effect size of audience perspective on memory perceptions, Cohen's $d = 1.2$ (Todorov, 2002). A total sample size required to detect main effects in an Analysis of Variance (ANOVA) was calculated at an effect size of $f = 0.40$ and an observed power of 0.80. The power analysis revealed a necessary sample size of 64 participants. However, given the possibility of inflated effect sizes due to publication bias (Earp & Trafimow, 2015), a power analysis was also conducted using a more conservative effect size of $f = 0.25$ (Cohen's $d = 0.5$), to detect main effects in an ANOVA, with an observed power of .80. The power analysis revealed a necessary sample size of 158 participants. We aimed to recruit 200 participants, in

order to allow for the removal of participants who fail the attention check, and data collection was terminated once all remaining participants who signed up were able to participate.

Experiment 1 recruited 226 participants in total. However, forty-four participants were removed from all analyses due to failing the attention check.

Participants were undergraduate students from Iowa State University enrolled in an introductory psychology or communication studies course. Participants received course credit for study participation. To be eligible for this study, participants were required to be at least 18 years of age. The average age of the final sample ($N = 182$) was 19.12 years old ($SD = 1.60$). The sample consisted of 138 women, 42 men, and one transgender individual. The majority of the sample identified as Caucasian (85.7%), (0.5% Native American, 5.5% African-American, 7.7% Latino/Hispanic, 6% Asian/Pacific Islander, 0.5% Indian, and 0.5% identified as Other). The majority of participants (96.8%) also reported English as being their primary language spoken at home.

Design

Experiment 1 used a 3 (memory topic) x 3 (audience perspective) between-subjects factorial design. Participants were randomly assigned to write about a memory related to one of three topics (multitasking, group work, or social media) and were also randomly assigned to one of three audience conditions: 1) audience with positive perspective, 2) audience with negative perspective, or 3) an audience for whom no information was given about their perspective on the topic. After writing a description of the memory, all participants then completed measures assessing shared reality, event memory perceptions, attitudes toward the topic, and self-typicality of the memory.

Procedure

Participants completed all measures on a computer in the research laboratory. After consenting to participate in the study, participants were asked to think of a particular memory related to their assigned topic. They were asked to write four words related to the memory.

Next, participants were randomly assigned to one of the three audience conditions which stated that the researchers in charge of the project had either a positive perspective, a negative perspective, or the researchers' perspective on the topic was not provided. Next, participants completed the attention check asking about the audience's perspective and then were asked to write a description of their memory to their assigned audience.

After writing about the memory, participants then completed the shared reality measures followed by measures assessing the remaining dependent variables (i.e., self-typicality, event memory perceptions, attitudes related to their assigned topic, and the manipulation check) which were randomized in order. Please note that shared reality was not randomized because it was expected that people would become less accurate at recalling their experience of shared reality as the time between communication and recall increased. At the end of the experiment, participants completed measures assessing memory characteristics, perceived audience influence, and demographic information. They were then thanked for their participation and debriefed.

Manipulations

Positive audience prompt. In the positive audience condition, participants were given the following prompt: "The researchers in charge of this project are very interested in students' experiences of [memory topic]. They believe that [memory topic] can be a positive and beneficial experience for undergraduate students and they encourage students to do it frequently to reap these rewards. They are eager to read your essay about a time when you engaged in

[memory topic] because they want to learn more about your experiences with this topic that they feel is beneficial for students. Take a few moments to think about your specific experience. In the space below, please write a thoughtful description of your experience.”

Negative audience prompt. In the negative audience condition, participants were given the following prompt: “The researchers in charge of this project are very interested in students’ experiences of [memory topic]. They believe that [memory topic] can be a negative and harmful experience for undergraduate students and they encourage students not to do it frequently to avoid these negative consequences. They are eager to read your essay about a time when you engaged in [memory topic] because they want to learn more about your experiences with this topic that they feel is harmful for students. Take a few moments to think about your specific experience. In the space below, please write a thoughtful description of your experience.”

No information prompt. In the no information condition participants were told: “The researchers in charge of this project are very interested in students’ experiences of [memory topic]. They are eager to read your essay about a time when you engaged in [memory topic] because they want to learn more about your experiences with this topic. Take a few moments to think about your specific experience. In the space below, please write a thoughtful description of your experience.”

Attention Check. As an attention check, immediately after receiving the audience prompt participants were asked, “What is the researcher’s opinion about the topic that you were assigned to write about?” Participants were asked to select among three options: a) The researcher has negative views about the topic, b) The researcher has positive views about the topic, or c) It was not mentioned. Participants who answered this question incorrectly were removed from analyses. Overall, 44 (19.47%) participants answered this question incorrectly. Of

those who answered incorrectly, 17 (38.64%) were in the positive audience condition, 17 (38.64%) were in the negative audience condition, and 10 (22.73%) were in the no information audience condition. Failed attention checks did not differ by audience condition, $\chi^2 (2, N = 226) = 2.91, p = .234$.

Manipulation Check. To examine whether the audience manipulation had the intended effects on perceptions of the researcher's attitudes, participants were asked to rate their perceptions of researcher's attitudes of the assigned topic among the following evaluative word pairs: positive/negative, like/dislike, good/bad, desirable/undesirable, beneficial/harmful, wise/foolish (Crites, Fabrigar, & Petty, 1994). For each word pair, participants rated their perceptions of the researchers view on the memory topic on a 7-point bipolar continuum with high scores indicating more positive attitudes.

Measures

Event Memory Perceptions. Event memory perceptions included the following four items: 1) How favorable would you rate yourself in this event?, 2) How likeable would you say you were in this event?, 3) How positive was this event?, and 4) How negative was this event?, with reverse-scoring on the final question. Participants responded to these items on a 7-point scale from 1 (not at all) to 7 (extremely). Items were averaged to create an overall event memory score, Cronbach's $\alpha = .866$.

Attitude toward topic. Attitudes about the assigned memory topic were measured via six items using a semantic differential scale with endpoints of: positive/negative, like/dislike, good/bad, desirable/undesirable, beneficial/harmful, wise/foolish (Crites, Fabrigar, & Petty, 1994). For each word pair, participants rated the memory topic on a 7-point bipolar continuum with high scores indicating more positive attitudes. The scores for each of the six word pairs

were averaged to create a total attitude score, Cronbach's $\alpha = .899$.

Self-typicality. Memory self-typicality is the degree to which an individual perceives a memory to represent how he/she typically thinks and acts (Pasupathi & Rich, 2005). Participants reported the extent to which the talked-about event is typical for them along three Likert-scale items ("How typical is this event for how you usually are?", "How consistent were your thoughts/reactions with how you usually think/react?", "How consistent were your actions with how you usually think/react?"). Participants rated self-typicality of the event on a 7-point scale ranging from 1 (not at all) to 7 (very much). These variables were averaged to create a total self-typicality score, Cronbach's $\alpha = .748$.

Shared Reality. Shared reality was measured with the shared reality scale recently established by Schmalback, Rossignac-Milon, Keller, Higgins, and Echterhoff (2019, February; for German scale validation see Schmalbach, Hennemuth & Echterhoff, 2019). The scale included 5 items assessing the degree to which people perceived a successful shared reality with the researchers about a particular target subject (Y); ("I feel the same way about Y as the researcher does", "I think that the researcher and I are on the same wavelength with regard to Y", "I agree with the researcher's point of view of Y", "The researcher and I see Y in the same way", "I agree with the researcher's perception of Y"). In this case, Y was replaced with "multitasking," "group work," or "social media". Participants answered the items on a scale from 1 (strongly disagree) to 7 (strongly agree). Items were averaged, Cronbach's $\alpha = .963$.

Memory Characteristics. Participants answered questions relating to characteristics of their memory including how long ago the memory occurred, how important the memory was to the self, and the emotional intensity of the event. Participants also answered questions about how much they enjoyed writing about the memory, how easily the memory came to mind, and how

much they talked about the memory with others.

Perceived Audience Influence. Participants answered questions about how much they thought about the audience while writing the memory, how much they included details they thought the audience would like, and how much they believed their essay would confirm the beliefs of the audience. Participants answered the items on a scale from 1 (not at all) to 7 (very much). Items were averaged, Cronbach's $\alpha = .565$.

Demographics. Participants were asked to provide information regarding their age, gender, ethnicity, first language learned, and language spoken at home.

Essay Coding Procedures

Essay Valence. All essays were coded both by using the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, Booth, Boyd & Francis, 2015) and also, by two independent coders. The LIWC software calculates the percentage of words that reflect positive emotion words (e.g., care, interesting, smile) and the percentage of words that reflect negative emotion words (e.g., bore, disturb, problem).

Two coders blind to experimental conditions coded each essay for valence on eight dimensions. Coders rated the essays on essay positivity, essay negativity, end of essay positivity and end of essay negativity on a scale ranging from 0 = not at all to 2 = very much. Intercoder correlations were .68, .74, .76, and .83, respectively. The coders also rated each essay on overall valence of the essay and overall valence of the end of the essay on a scale ranging from -2 = very negative to 2 = very positive ($r_s = .76, .81$). Lastly, the coders rated each essay for whether they mentioned positive or negative consequences as 0 = no or 1 = yes, ($r_s = .73, .77$). Each essay was also coded for essay topic. All participants were found to have written about their assigned topic. Means of the coders' ratings served as DVs in the analyses.

Results

Analyses Overview

The results from the manipulation check were examined first to ensure that the manipulation had the intended effect. Next, memory characteristics and audience measures were examined by both audience condition and by topic to determine whether essays differed across conditions. Descriptive analyses are also presented for all main dependent measures, followed by the main analyses for each outcome measure. A two-way univariate ANOVA was conducted for each dependent variable with audience condition and memory topic as between-subject factors. Lastly, exploratory moderation analyses are reported to examine whether shared reality moderated the effects of audience condition on the main dependent variables.

Manipulation Check

As a manipulation check, participants rated their perceptions of the researcher's attitudes towards their assigned topic. A two-way ANOVA of audience perspective and memory topic on perceived researchers' attitudes of the memory topic revealed the expected main effect of audience perspective, $F(2, 179) = 373.59, p < .001, \eta_p^2 = .81, 95\% \text{ CI } [.76, .84]$. Planned comparisons indicated that as expected, participants rated the researcher's attitudes on the topics to be more positive in the positive audience condition ($M = 6.47, SD = .63$) than in both the negative audience condition ($M = 1.80, SD = .92, p < .001, d = 5.91, 95\% \text{ CI } [5.04, 6.75]$) and the no information audience condition ($M = 4.61, SD = 1.13, p < .001, d = 2.00, 95\% \text{ CI } [1.57, 2.43]$). Participants also rated the researchers' attitudes more positively in the no information audience condition than in the negative audience condition, $p < .001, d = 2.71, 95\% \text{ CI } [2.22, 3.20]$. These results suggest that the manipulation was successful in manipulating participants' perceptions of the researchers' perspectives.

There was also a main effect of memory topic, $F(2, 179) = 4.34, p = .014, \eta_p^2 = .05, 95\%$ CI [.002, .11]. Planned comparisons indicated that participants rated the researchers' attitudes on the memory topic to be more positive in the group work condition ($M = 4.59, SD = 2.18$) than in the multitasking ($M = 4.14, SD = 2.15, p = .006, d = 0.21, 95\%$ CI [-.15, .57]) and social media conditions ($M = 4.22, SD = 1.96, .026, d = 0.18, 95\%$ CI [-.18, .54]). The difference between multitasking and social media conditions was not statistically significant, $p = .595, d = 0.04, 95\%$ CI [-.31, .39]. Lastly, the interaction of audience perspective and memory topic was not statistically significant, $F(4, 173) = 2.38, p = .054, \eta_p^2 = .052, 95\%$ CI [.00, .10].

Memory Characteristics and Perceived Audience Influence

There were no effects of audience condition on any of the measured memory characteristics (i.e., word count, time since the event occurred, importance of memory, emotional intensity of memory, enjoyment experienced when writing about the memory, ease of recall, or frequency of event disclosure), see Table 3. However, there were effects of memory topic on 3 of the characteristics: time since the event occurred, importance of memory, and frequency of event disclosure.

Post hoc comparisons indicated that participants reported multitasking memories ($M = 1.41, SD = 0.89$) as having occurred more recently than group work memories ($M = 2.09, SD = 0.99, p = .001, d = 0.72, 95\%$ CI [0.36, 1.09]) and social media memories ($M = 1.98, SD = 1.41, p = .005, d = 0.48, 95\%$ CI [0.16, 0.83]). There was no difference of time since event between group work and social media memories, $p = .611, d = 0.09, 95\%$ CI [-0.27, 0.45].

Participants reported social media memories as more important ($M = 4.04, SD = 2.01$) than group

work memories ($M = 3.09$, $SD = 1.81$), $p = .005$, $d = 0.50$, 95% CI [0.16, 0.86] and multitasking memories ($M = 2.54$, $SD = 1.62$), $p < .001$, $d = 0.83$, 95% CI [0.46, 1.19]. Lastly, participants reported having previously disclosed social media memories ($M = 4.21$, $SD = 1.83$) more often than group work memories ($M = 3.02$, $SD = 2.01$), $p = .001$, $d = 0.62$, 95% CI [0.25, 0.99] and multitasking memories ($M = 2.37$, $SD = 1.77$), $p < .001$, $d = 1.02$, 95% CI [0.65, 1.39]. The difference between frequency of event disclosure between group work memories and multitasking memories was not statistically significant, $p = .055$, $d = 0.34$, 95% CI [-0.02, 0.71].

Additionally, there were no main effects of audience condition or memory topic on the degree to which participants reported thinking about their audience, including details for their audience, and believing their essay would confirm the perspective of the audience, which were averaged for a total score. However, there was an interaction effect of audience condition and topic such that there was no effect of memory topic in the negative audience condition, $p = .168$, $\eta_p^2 = .020$, 95% CI [.000, .071], or in the no information audience condition, $p = .872$, $\eta_p^2 = .002$, 95% CI [.000, .020], but there was an effect of topic in the positive audience condition, $p = .006$, $\eta_p^2 = .057$, 95% CI [.005, .129] with participants writing about group work indicating more perceived audience influence ($M = 4.69$, $SD = 1.18$) than participants writing about multitasking ($M = 3.51$, $SD = 1.38$), $p = .008$, $d = 0.92$, 95% CI [0.23, 1.59], or social media ($M = 3.73$, $SD = 1.30$), $p = .025$, $d = 0.77$, 95% CI [0.11, 1.42].

Table 3

Experiment 1 Means of Memory Characteristics and Audience Measures across Topics and Audience Conditions

Topic:	<u>Positive Audience</u>			<u>Negative Audience</u>			<u>No Information Audience</u>			<u>Audience</u>	<u>Topic</u>	<u>Interaction</u>
	Multitasking	Group work	Social media	Multitasking	Group work	Social media	Multitasking	Group work	Social media	η_p^2	η_p^2	η_p^2
Word Count	165.11	183.47	185.65	146.41	206.24	192.73	167.04	178.75	166.21	.005	.032	.020
Time since event	1.53	2.06	2.19	1.39	2.00	1.73	1.35	2.20	2.05	.007	.065**	.007
Importance of memory	2.95	3.61	3.81	2.72	2.56	4.27	2.12	3.10	4.05	.008	.105**	.028
Emotional Intensity of memory	4.11	3.56	4.43	3.89	3.18	4.41	3.42	4.25	4.05	.003	.032	.042
Enjoyment from writing	4.53	4.61	4.57	3.83	3.82	4.45	4.08	3.45	4.15	.032	.012	.012
Ease of recall	5.53	5.33	5.24	5.94	5.29	5.91	5.85	5.20	5.50	.009	.019	.008
Frequency of disclosure	2.16	3.11	3.86	3.44	2.61	4.41	1.77	3.30	4.35	.011	.145**	.053
Perceived Audience Influence	3.51	4.69	3.73	4.54	3.81	4.05	4.04	4.20	4.03	.003	.011	.067*

Note. Results are based on two-way ANOVAs. * $p < .05$, ** $p < .01$. Time since event occurred was measured on a scale from 1 (less than 1 month ago) to 7 (more than 10 years ago). Importance of memory, emotional intensity, enjoyment, and ease of recall were all measured on a scale of 1 (strongly disagree) to 7 (strongly agree). Frequency of disclosure was measured on a scale of 1 (not at all) to 7 (more than most events that have happened to me).

Descriptive results for main dependent variables. Descriptive statistics for all dependent variables are provided in Table 4. Additionally, a correlational analysis was conducted to examine the relationships among dependent variables and is provided in Table 5. As illustrated in the table, attitude toward topic, event memory perceptions, self-typicality, and essay valence were all positively associated with one another. Shared reality was positively associated with attitude toward topic, but there was no significant association between shared reality and the other variables.

Table 4

Descriptives for Experiment 1 Outcome Variables

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Shared reality	182	4.43	1.32	1 to 7
Attitude toward topic	182	4.38	1.28	1 to 7
Event memory perceptions	182	4.05	1.32	1 to 6
Self typicality	182	5.19	1.15	1 to 7
Essay valence	182	-0.06	1.09	-2 to 2

Table 5

Correlations among Experiment 1 Outcome Variables

	1.	2.	3.	4.	5.
1. Shared reality	-				
2. Attitude toward topic	.20**	-			
3. Event memory perceptions	.11	.56**	-		
4. Self typicality	.07	.16*	.26**	-	
5. Essay valence	-.07	.34**	.66**	.17*	-

Note. * $p < .05$, ** $p < .01$.

Main Analyses

Shared Reality. According to shared reality theory which indicates that knowledge about the audience's attitude is necessary for shared reality to occur (Echterhoff, Higgins & Levine, 2009), it was predicted that participants in the no information condition would report achieving less of a shared reality than participants in both the positive and negative audience conditions. A two-way ANOVA of audience perspective and topic on shared reality revealed a marginal effect of audience on perceptions of shared reality, $F(2, 173) = 2.98, p = .053, \eta_p^2 = .033, 95\% \text{ CI } [.00, .09]$. As expected, participants in the positive audience condition ($M = 4.75, SD = 1.59$) reported greater shared reality than participants in the no information audience ($M = 4.25, SD = 0.65$), $p = .026, d = 0.42, 95\% \text{ CI } [.07, .78]$, but was not statistically different from those in the negative audience condition ($M = 4.33, SD = 1.54$), $p = .070, d = 0.27, 95\% \text{ CI } [-.10, .63]$. Contrary to expectations, there was no difference between the negative audience condition and the no information audience condition, $p = .710, d = 0.07, 95\% \text{ CI } [-.28, .42]$. The inconsistency of these results suggest that participants *might* make assumptions about the audience's attitudes, even when they are not directly informed about their perspective. These results are displayed in Figure 1.

There was no main effect of memory topic on perceptions of shared reality, $F(2, 173) = 0.96, p = .384, \eta_p^2 = .011, 95\% \text{ CI } [.00, .05]$. However, there was an unexpected interaction effect of audience and memory topic on shared reality, $F(4, 173) = 5.93, p < .001, \eta_p^2 = .120, 95\% \text{ CI } [.03, .20]$. The interaction between audience condition and memory topic suggests that there was a significant effect of topic within the positive audience condition, $F(2, 173) = 5.65, p = .004, \eta_p^2 = .061, 95\% \text{ CI } [.01, .13]$ and the negative audience condition, $F(2, 173) = 6.45, p = .002, \eta_p^2 = .069, 95\% \text{ CI } [.01, .15]$, but topic was not significant in the no information audience condition, $F(2, 173) = 0.73, p = .482, \eta_p^2 = .008, 95\% \text{ CI } [.00, .05]$. Although unexpected, the

interaction effects suggest that the degree to which individuals experience a shared reality is dependent on both the referent of the shared reality and the opinion of the audience on the referent.

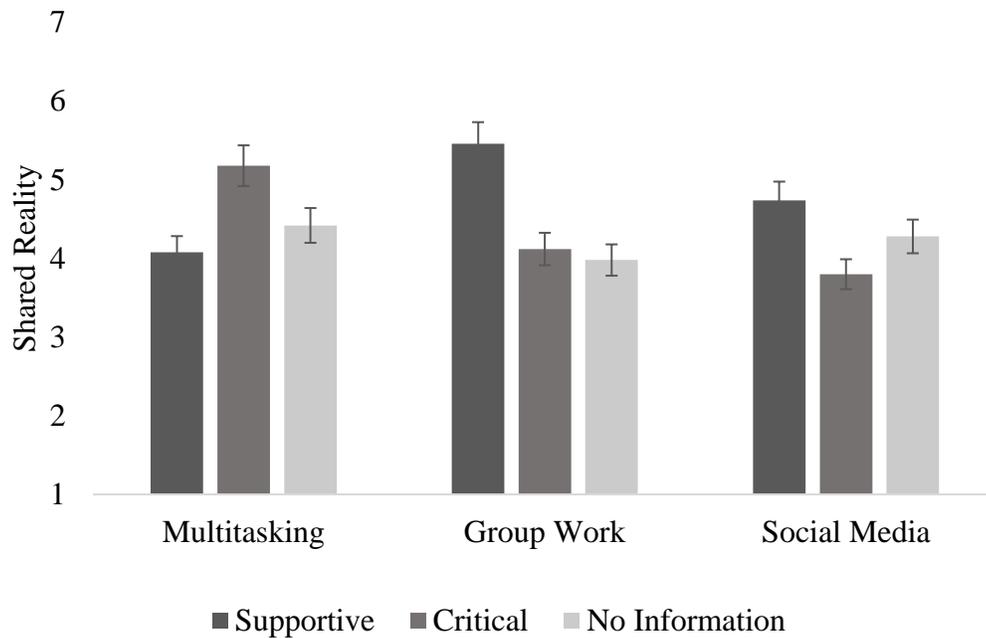


Figure 1. Experiment 1: Effects of audience perspective and memory topic on shared reality.

Attitude toward topic. It was predicted that participants in the positive audience condition would report more positive attitudes about the memory topic than participants in the negative audience condition. A two-way ANOVA revealed that there was a main effect of audience perspective on attitudes of the memory topic, $F(2, 173) = 8.92, p < .001, \eta_p^2 = .093$, 95% CI [.02, .18]. Participants in the positive audience condition reported more positive attitudes ($M = 4.78, SD = 1.36$) about the memory topics than participants in the negative audience

condition ($M = 3.93$, $SD = 1.28$), $p < .001$, $d = 0.64$, 95% CI [.27, 1.01], and participants in the negative audience condition reported more negative attitudes than participants in the no information audience condition ($M = 4.44$, $SD = 1.07$), $p = .015$, $d = 0.44$, 95% CI [.08, .80]. There difference between participants in the positive audience condition and participants in the no information audience condition was not statistically significant, $p = .116$, $d = 0.28$, 95% CI [- .08, .63].

There was also a main effect of memory topic on subsequent attitudes of the memory topics, $F(2, 173) = 7.19$, $p = .001$, $\eta_p^2 = .077$, 95% CI [.01, .15]. Participants in the multitasking condition reported less positive attitudes ($M = 3.97$, $SD = 1.47$) than both participants in the social media condition ($M = 4.64$, $SD = 0.93$), $p = .002$, $d = 0.54$, 95% CI [0.18, 0.90] and participants in the group work condition ($M = 4.56$, $SD = 1.29$, $p = .008$, $d = 0.42$, 95% CI [.06, .78]. The difference between participants in the social media condition and participants in the group work condition was not statistically significant, $p = .698$, $d = 0.07$, 95% CI [-.29, .44]. Lastly, there was a significant interaction between audience and memory topic on subsequent attitudes, $F(2, 173) = 3.27$, $p = .013$, $\eta_p^2 = .070$, 95% CI [.003, .13]. Audience perspective had a significant effect on attitudes for participants in the multitasking, $F(2, 173) = 8.51$, $p < .001$, $\eta_p^2 = .090$, 95% CI [.02, .17] and group work, $F(2, 173) = 6.13$, $p = .003$, $\eta_p^2 = .066$, 95% CI [.01, .14] conditions, but the effect of audience for participants in the social media condition was not statistically significant, $F(2, 173) = 0.34$, $p = .967$, $\eta_p^2 = .000$, 95% CI [.000, .003]. This interaction is presented in Figure 2.

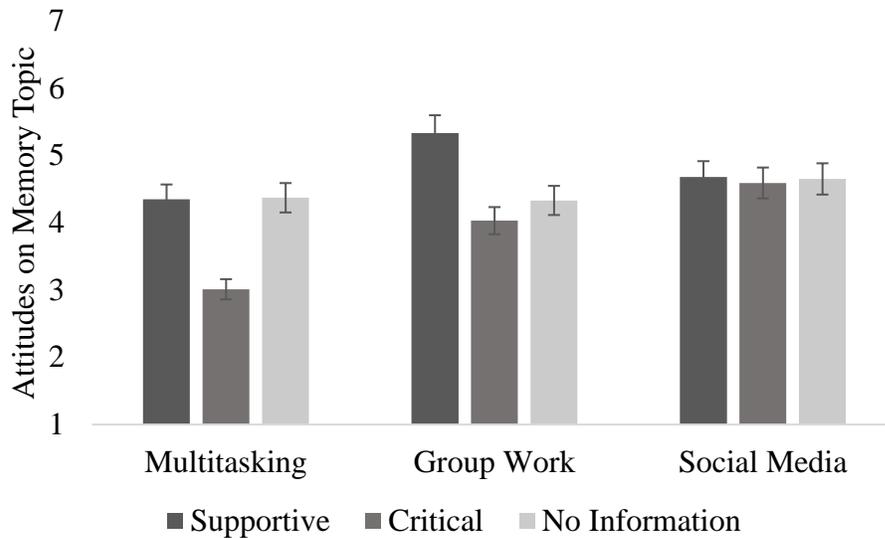


Figure 2. Experiment 1: Effects of audience perspective and memory topic on subsequent attitudes of the memory topic.

Event Memory Perceptions. It was predicted that participants in the positive audience condition would report more positive event memory perceptions than participants in the negative audience condition. As hypothesized, a two-way ANOVA of audience perspective and topic on event memory perceptions revealed a main effect of audience perspective, $F(2, 173) = 4.04, p = .019, \eta_p^2 = .045, 95\% \text{ CI } [.001, .111]$. Participants in the positive audience condition ($M = 4.41, SD = 1.24$) reported their memories as being more positive than did participants in the negative audience condition ($M = 3.83, SD = 1.38$), $p = .014, d = 0.44, 95\% \text{ CI } [.07, .81]$, and participants in the no information audience condition ($M = 3.94, SD = 1.28$), $p = .040, d = 0.37, 95\% \text{ CI } [.19, .56]$. The difference between participants in the negative audience condition and participants in the no information audience condition was not significantly different, $p = .634, d = 0.08, 95\% \text{ CI } [.04, .12]$.

There was also an unexpected main effect of memory topic on self-reported memory valence, $F(2, 173) = 3.73, p = .026, \eta_p^2 = .041, 95\% \text{ CI } [.00, .12]$ and a significant interaction of

audience perspective and memory topic on self-reported memory valence, $F(4, 173) = 2.85$, $p = .025$, $\eta_p^2 = .062$, 95% CI [.00, .12]. Participants who wrote about group work rated their memories as more positive ($M = 4.38$, $SD = 1.04$) than participants who wrote about multitasking ($M = 3.79$, $SD = 1.29$), $p = .012$, $d = 0.50$, 95% CI [.13, .86]. However, the difference was not significantly different between participants who wrote about group work and participants who wrote about social media ($M = 4.02$, $SD = 1.50$), $p = .118$, $d = 0.28$, 95% CI [-.08, .64] or between participants who wrote about multitasking and participants who wrote about social media, $p = .323$, $d = 0.16$, 95% CI [-.19, .51].

Additionally, the interaction between audience perspective and topic indicates that there was the predicted difference of memory valence between participants in the positive audience condition and the negative audience condition for both multitasking memories, $p = .005$, $d = 1.00$, 95% CI [.30, 1.68] and group work memories, $p = .011$, $d = 0.90$, 95% CI [.21, 1.58]; however, the difference was not statistically significant for participants writing about their social media memories, $p = .718$, $d = 0.11$, 95% CI [-.49, .71]. These results are presented in Figure 3.

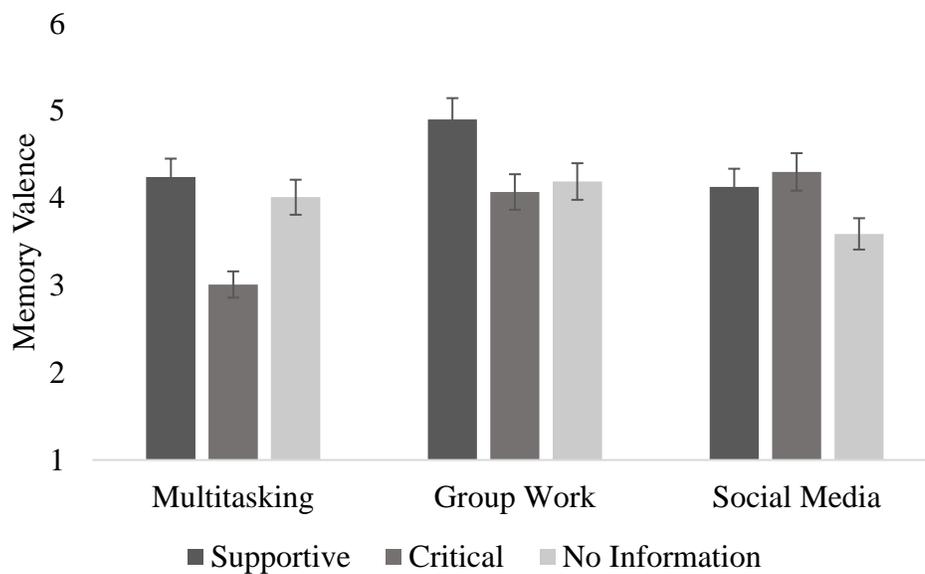


Figure 3. Experiment 1: Effects of audience perspective and memory topic on event

memory perceptions. Error bars represent the standard error of the mean.

Self-typicality. It was predicted that participants in the positive audience condition would perceive their memories to be more self-typical than participants in the negative audience condition. However, a two-way ANOVA revealed that there was no main effect of audience on self-typicality, $F(2, 173) = 2.10, p = .126, \eta_p^2 = .024, 95\% \text{ CI } [.00, .08]$, neither was there a main effect of memory topic on self-typicality, $F(2, 173) = 0.55, p = .581, \eta_p^2 = .006, 95\% \text{ CI } [.00, .04]$. Participants in the positive audience condition ($M = 5.41, SD = 1.13$) reported their memories as slightly more self-typical than participants in the no information audience condition ($M = 5.01, SD = 1.23$), $p = .052, d = 0.34, 95\% \text{ CI } [-.02, .69]$ but there was no difference between the positive audience condition and the negative audience condition ($M = 5.18, SD = 1.05$), $p = .271, d = 0.22, 95\% \text{ CI } [-.15, .58]$, or between the negative audience condition and the no information audience condition, $p = .417, d = 0.15, 95\% \text{ CI } [-.21, .50]$. These results are presented in Figure 4. There was no interaction between audience and memory topic, $F(2, 173) = 0.80, p = .528, \eta_p^2 = .01, 95\% \text{ CI } [.00, .01]$.

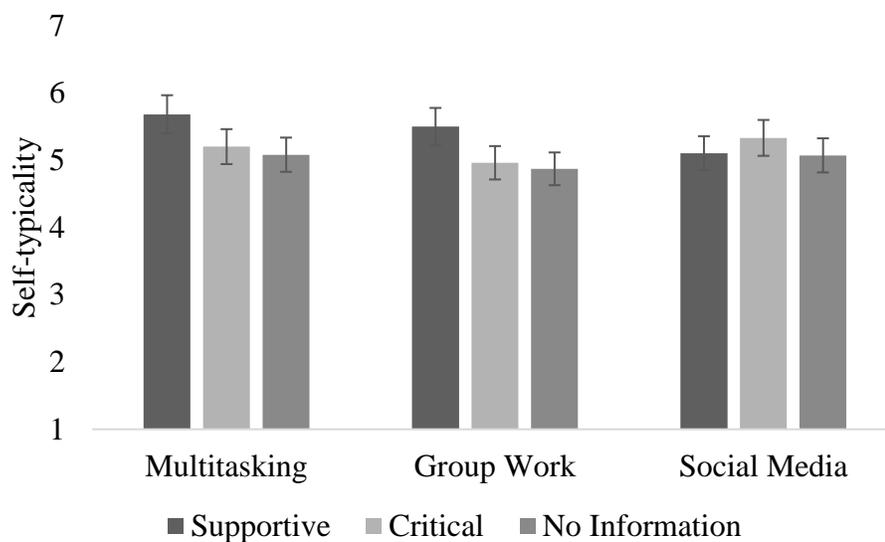


Figure 4. Experiment 1: Effects of Audience perspective and memory topic on self-typicality.

Essay Valence. It was predicted that participants in the positive audience condition would include more positive emotion words and fewer negative emotion words, as calculated using the LIWC software, than participants in the negative audience condition. A two-way ANOVA revealed a non-significant effect of audience on the inclusion of positive emotion words in the essays, $F(2, 167) = 0.18, p = .835, \eta_p^2 = .002, 95\% \text{ CI } [.00, .02]$. However, results indicated that there was a significant effect of topic on positive emotion words, $F(2, 167) = 6.98, p = .001, \eta_p^2 = .077, 95\% \text{ CI } [.01, .16]$, such that memories about social media ($M = 3.38, SD = 2.33$) included more positive emotion words than both memories about multitasking ($M = 2.14, SD = 1.48$), $p < .001, d = 0.63, 95\% \text{ CI } [.27, 1.00]$ and memories about group work ($M = 2.73, SD = 1.43$), $p < .001, d = 0.34, 95\% \text{ CI } [-.03, .70]$. There was no difference in positive emotion words between memories about multitasking and memories about group work, $p = .089, d = 0.40, 95\% \text{ CI } [.03, .77]$. Furthermore, there was no interaction between audience and topic on positive emotion words, $F(4, 167) = 0.44, p = .778, \eta_p^2 = .010, 95\% \text{ CI } [.00, .03]$. These results are presented in Figure 5.

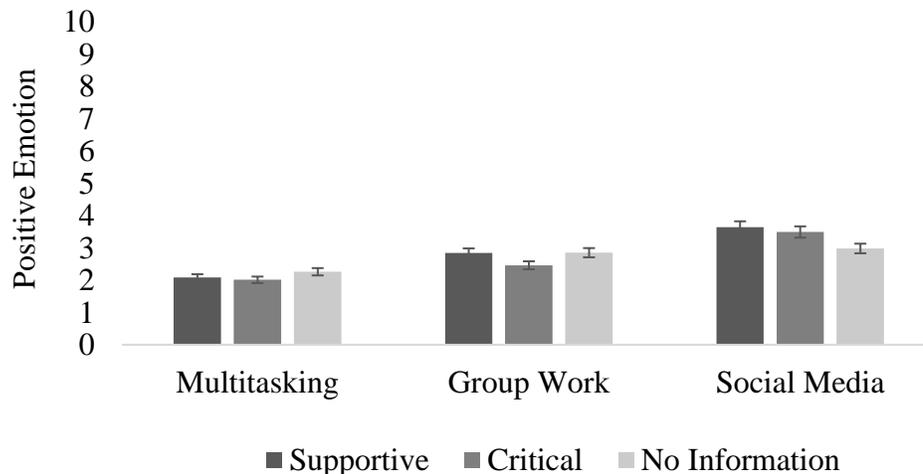


Figure 5. Experiment 1: Effects of Audience perspective and memory topic on inclusion of

positive emotion words in memory essay.

Next, a two-way ANOVA revealed no effect of audience on the inclusion of negative emotion words in essays, $F(2, 167) = 0.12, p = .883, \eta_p^2 = .001, 95\% \text{ CI } [.00, .02]$. However, results indicated an effect of memory topic, $F(2, 167) = 3.89, p = .022, \eta_p^2 = .04, 95\% \text{ CI } [.00, .11]$. Again, participants in the social media condition ($M = 1.38, SD = 1.32$) included more negative emotion words than participants in the multitasking ($M = 0.90, SD = 0.94$), $p = .015, d = 0.42, 95\% \text{ CI } [.06, .78]$ and group work conditions ($M = 0.90, SD = 0.86$), $p = .018, d = 0.43, 95\% \text{ CI } [.05, .80]$. There was no difference in negative emotion words between memories about multitasking and memories about group work, $p = .996, d = .001, 95\% \text{ CI } [-.05, .05]$. There was no interaction between audience and memory topic, $F(4, 173) = 0.66, p = .622, \eta_p^2 = .016, 95\% \text{ CI } [.00, .05]$. These results are presented in Figure 6.

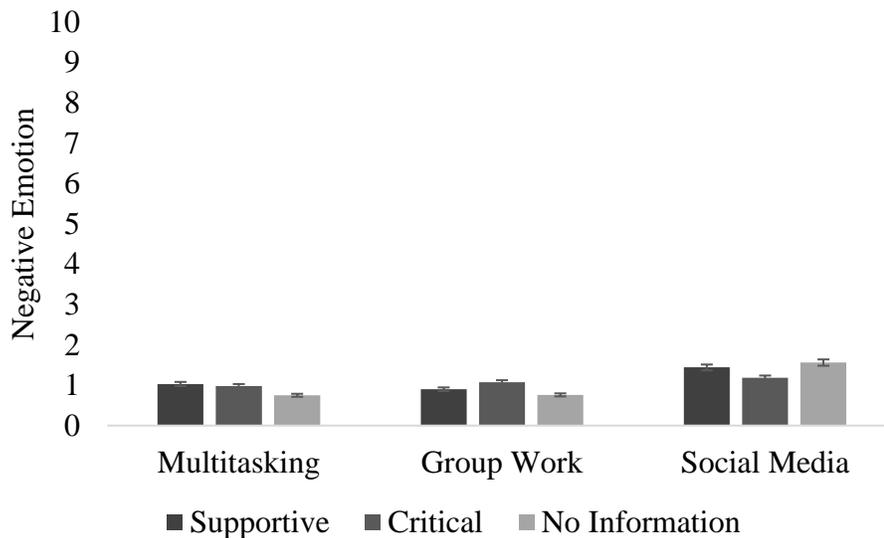


Figure 6. Experiment 1: Effects of Audience perspective and memory topic on inclusion of negative emotion words in memory essay.

Essay valence was also assessed using ratings from two independent coders. Essays were coded in eight ways. Because statistical analyses indicated similar patterns for each coded

dimension, only results for *overall essay valence* are reported here. See Appendix A for additional analyses and the correlation matrix for all coded variables. Contrary to expectations, results did not indicate a statistically significant effect of audience condition on essay valence, $F(2, 173) = 0.84, p = .433, \eta_p^2 = .010, 95\% \text{ CI } [.00, .08]$ nor an effect of topic on essay valence, $F(2, 173) = 2.97, p = .054, \eta_p^2 = .033, 95\% \text{ CI } [.00, .10]$. The interaction effect of audience and topic was not statistically significant, $F(4, 173) = 0.45, p = .772, \eta_p^2 = .010, 95\% \text{ CI } [.00, .03]$. Taken together, these results indicate no apparent audience tuning as measured via valence coding of written essays.

Exploratory Analyses

It was surprising that participants did not tune their memories to be more aligned with the perspective of their audience, yet audience perspective still resulted in biased perceptions of the memory. Previous research would suggest the tuning leads to the audience-bias effect, however, it is possible that autobiographical memories are not as susceptible to tuning as is communication about others' behavior. It is possible that the audience-bias effect may instead depend on the degree to which communicators achieve a shared reality with their audience (Echterhoff et al., 2008). Thus, I examined whether the degree to which participants perceived shared reality with the audience would moderate the effects of audience perspective on subsequent attitudes and event memory perceptions.

Exploratory analyses were conducted to determine whether the observed relationship between audience perspective and participant a) post-essay attitudes and b) post-essay memory perceptions would be more pronounced for those individuals who reported achieving greater shared reality with the audience as compared to those who reported achieving less shared reality with the audience. I used Model 1 of Hayes' (2017) PROCESS macro to examine these effects.

Moderation of Shared Reality on Attitudes. If shared reality contributes to the audience-bias effect, it would be expected that participants who reported greater shared reality would demonstrate more pronounced effects, such that those in the positive audience condition would report more positive memory attitudes and those in the negative audience condition would report more negative memory attitudes, as compared to participants who reported less shared reality. Since the independent variable is categorical and has more than two categories, audience condition was dummy coded using zeroes and ones (see Table 6 for dummy coded variables).

The positive audience condition was chosen as the reference group in order to compare 1) the difference between the positive and negative audience conditions and 2) the difference between the positive and no information audience conditions. Therefore, the first dummy coded variable (Positive Audience vs. Negative Audience) shows the difference on memory attitudes between participants in the positive audience condition and participants in the negative audience condition. The beta value describes the change in attitudes due to a unit increase in the predictor, which represents a change from the positive audience condition (coded as 0) to the negative audience condition (coded as 1). The interaction of the first dummy coded variable (Positive Audience vs. Negative Audience) by shared reality represents the change in attitudes between the positive audience condition and the negative audience condition as a function of shared reality.

Results revealed a significant interaction between the negative audience condition and shared reality, $b = -.136$, $t(176) = -13.45$, $p < .001$, suggesting that shared reality does moderate the effects of audience on attitudes between participants in the positive and negative audience conditions. To interpret the moderation effect, conditional effects were calculated at one standard deviation above and below the mean of shared reality. Conditional effects at one standard deviation above the mean of shared reality indicated the expected effect of audience condition on

Table 6

Dummy Coding for Moderation Analyses

Audience Condition	Dummy coded variable 1 (Positive vs. Negative Audience)	Dummy coded variable 2 (Positive vs. No Information Audience)
Positive Audience	0	0
Negative Audience	1	0
No Information Audience	0	1

attitudes at higher levels of shared reality, $b = -2.46$, $t(176) = -12.29$, $p < .001$, with participants reporting more negative attitudes in the negative audience condition than participants in the positive audience condition. Additionally, conditional effects at one standard deviation below the mean of shared reality indicated a significant effect in the opposite direction, $b = 1.12$, $t(176) = 5.26$, $p < .001$, such that participants reported more positive attitudes in the negative audience condition than in the positive audience condition.

The second dummy coded variable (Positive Audience vs. No Information Audience) represents the difference of memory attitudes between participants in the positive audience condition and participants in the no information condition. The beta value describes the change in attitudes due to a unit increase in the predictor, which is a change from the positive audience condition (coded as 0) to the no information condition (coded as 1). Therefore, the interaction of the second dummy coded variable (Positive Audience vs. No Information Audience) by shared reality represents the change in attitudes between the positive audience condition and the no information condition as a function of shared reality. The interaction between the no information audience condition and shared reality was non-significant, $b = .04$, $t(176) = 0.21$, $p = .830$,

suggesting that the difference in attitudes between participants in the positive audience condition and the no information condition is not moderated by shared reality. The overall interaction of audience condition and shared reality resulted in a significant increase in variance explained as compared to a model with only main effects, $\Delta R^2 = .47$, $F(2, 176) = 98.96$, $p < .001$. These results are reported in Table 7 and displayed in Figure 7.

Given the unpredicted effects of memory topic on memory attitudes reported above, additional analyses were conducted to explore if the moderation of shared reality on attitudes differed by memory topic. I used Model 3 of Hayes' (2017) PROCESS macro to examine these effects. For this model, audience condition and memory topic were both dummy coded and shared reality was mean-centered. Results revealed that the moderation of shared reality on the effect of audience perspective on attitudes did not significantly differ by memory topic, $\Delta R^2 = .02$, $F(4, 164) = 1.81$, $p = .130$.

Table 7

Regression analysis of shared reality and audience on attitudes

	<i>b</i> 95% CI	<i>SE</i>	<i>T</i>	<i>P</i>
Constant	4.53 [4.31, 4.76]	.11	40.22	<.001
Negative Audience	-0.67 [-0.98, -0.36]	.16	-4.23	<.001
No Information Aud.	0.06 [-0.25, 0.37]	.16	0.38	.701
Shared Reality (centered)	0.77 [0.63, 0.91]	.07	10.95	<.001
Negative Aud. x SR	-1.36 [-1.56, -1.16]	.10	-13.45	<.001
No Information x SR	.04 [-.31, 0.38]	.18	0.21	.830

Note. Overall model, $R^2 = .58$, $\Delta R^2 = .47$.

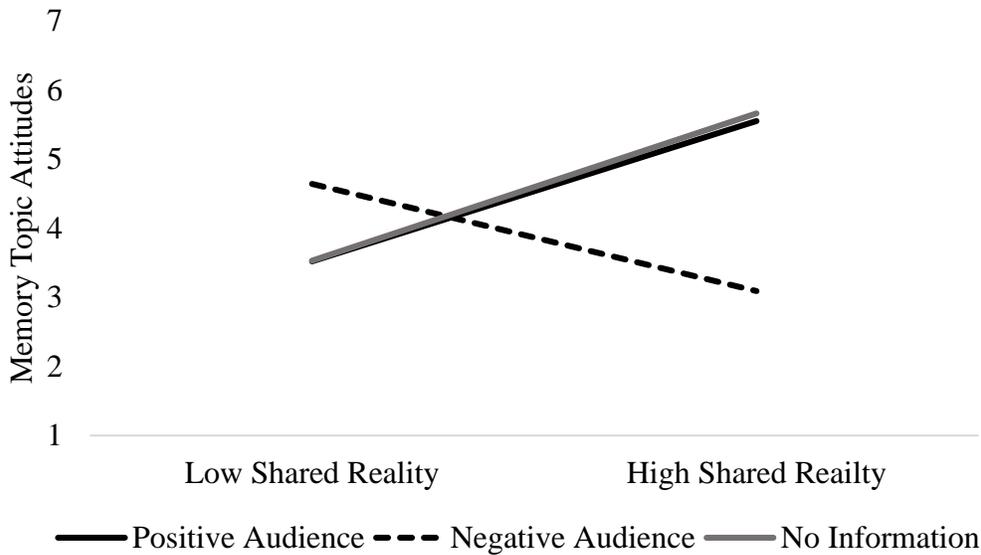


Figure 7. Interaction of Shared Reality and Audience on Attitudes

Moderation of Shared Reality and Audience on Event Memory Perceptions. If

shared reality contributes to the audience-biasing effect, it would be expected that participants who reported greater shared reality would demonstrate more pronounced effects such that those in the positive audience condition would report more positive event memory perceptions and those in the negative audience condition would report more negative event memory perceptions as compared to participants who reported less shared reality. Audience condition was again dummy coded and the positive audience condition was chosen as the reference group. Therefore, the first dummy coded variable (Positive Audience vs. Negative Audience) shows the difference between event memory perceptions between participants in the positive audience condition and participants in the negative audience condition. The beta value describes the change in event memory perceptions due to a unit increase in the predictor, which is a change from the positive audience condition (coded as 0) to the negative audience condition (coded as 1). The interaction of the first dummy coded variable (Positive Audience vs. Negative Audience) by shared reality

represents the change in event memory perceptions between the positive audience condition and the negative audience condition as a function of shared reality.

Results revealed a significant interaction between the negative audience condition and shared reality, $b = -.98$, $t(176) = -7.16$, $p < .001$, indicating that shared reality does moderate the effects of audience on event memory perceptions between participants in the positive and negative audience conditions. To interpret the moderation effect, conditional effects were calculated at one standard deviation above and below the mean of shared reality. Conditional effects at one standard deviation above the mean indicated the expected effect of audience condition at higher levels of shared reality, $b = -1.75$, $t(176) = -6.47$, $p < .001$, with participants reporting more negative memories in the negative audience condition compared to the positive audience condition. Additionally, conditional effects calculated at one standard deviation below the mean of shared reality indicated a significant effect in the opposite direction, $b = .82$, $t(176) = 2.86$, $p = .005$, such that participants reported more positive memories in the negative audience condition compared to the positive audience condition.

The second dummy coded variable (Positive Audience vs. No Information Audience) shows the difference between event memory perceptions between participants in the positive audience condition and participants in the no information condition. The beta value describes the change in event memory perceptions due to a unit increase in the predictor, which is a change from the positive audience condition (coded as 0) to the no information condition (coded as 1). The interaction between the no information condition and shared reality was non-significant, $b = .01$, $t(176) = 0.03$, $p = .973$, suggesting that the effect of audience condition on event memory conditions is not moderated by shared reality for participants in the no information condition compared to participants in the positive audience condition. The overall interaction of audience

condition and shared reality resulted in a significant increase in variance explained as compared to the model with only main effects, $\Delta R^2 = .23$, $F(2, 176) = 27.85$, $p < .001$. These results are reported in Table 8 and displayed in Figure 8.

Additional analyses were again conducted to explore if the moderation of shared reality on event memory perceptions differed by memory topic. I used Model 3 of Hayes' (2017) PROCESS macro to examine these effects. For this model, audience condition and memory topic were both dummy coded and shared reality was mean-centered. Results revealed that the moderation of shared reality on the effect of audience perspective on event memory perceptions did not significantly differ by memory topic, $\Delta R^2 = .01$, $F(4, 164) = 0.43$, $p = .787$.

Table 8

Regression analysis of shared reality and audience on event memory perceptions

	<i>b</i> 95% CI	<i>SE</i>	<i>T</i>	<i>P</i>
Constant	4.24 [3.94, 4.54]	0.15	27.83	<.001
Negative Audience	-0.46 [-0.88, -0.04]	0.21	-2.17	.032
No Information Audience	-0.21 [-0.63, 0.21]	0.21	-0.99	.322
Shared Reality (centered)	0.51 [0.33, 0.70]	0.10	5.41	<.001
Negative Audience x SR	-0.98 [-1.25, -0.71]	0.14	-7.16	<.001
No Information x SR	0.01 [-0.46, 0.48]	0.24	0.03	.973

Note. Overall model, $R^2 = .27$, $\Delta R^2 = .23$.

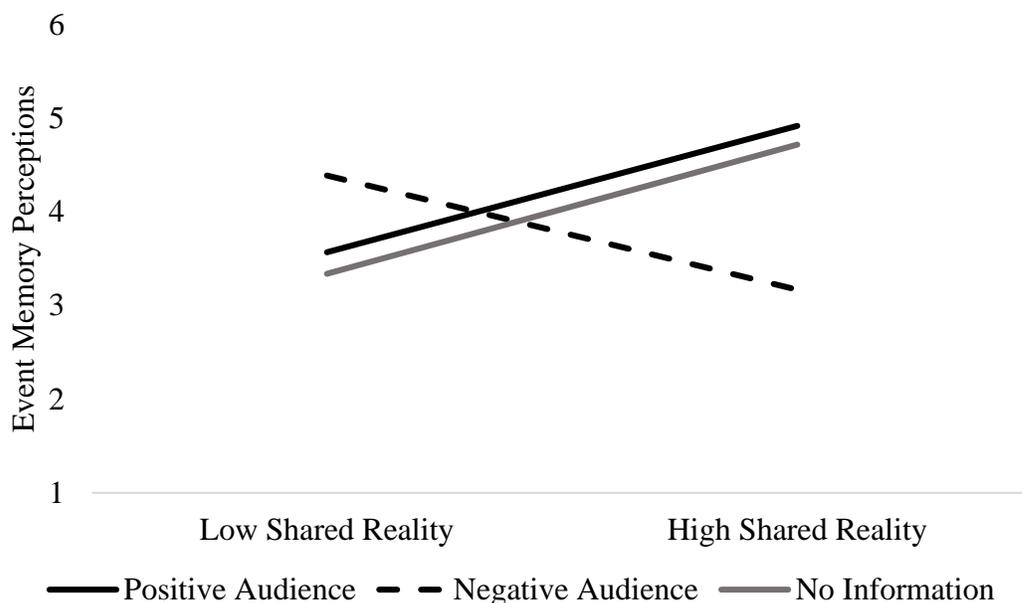


Figure 8. Interaction of Shared Reality and Audience on Event Memory Perceptions

Experiment 1 Discussion

Experiment 1 endeavored to examine how elaborating on a life experience to an audience may influence subsequent perceptions about the memory, attitudes about the memory topic, and self-typicality. It was hypothesized that after elaborating on a memory to an audience with a positive perspective on the topic, participants would view the memory more positively, have more positive attitudes about the memory topic, and view the memory as more typical of the self than after elaborating on a memory to an audience with a negative perspective on the topic. It was also hypothesized that participants would describe their memory more positively for the audience with a positive perspective on the topic and more negatively for the audience with a negative perspective to create a shared reality with the audience.

The results partially supported these hypotheses. When averaged across all memory topics, elaborating on a memory to an audience who held a positive perspective led participants

to have more positive perceptions of the memory and more positive attitudes about the memory topic themselves than elaborating about a memory to an audience who held a negative perspective, consistent with my predictions. However, results indicated an unexpected interaction of audience perspective and memory topic in which the effects of audience perspective on memory valence and attitudes were not consistent across all memory topics. In particular, the audience-bias effect was not observed among participants who elaborated on an experience related to social media. Although the pilot study found that undergraduate research participants have evaluatively similar attitudes toward social media, group work, and multi-tasking, results from the present study indicated that recalled events involving social media differed from the other topics on a number of dimensions including importance of the memory, frequency of disclosure, and emotionality of the written essay. It is possible, then, that the audience-biasing effect has an unpredicted moderator, such as memory emotionality or importance of the memory. Future work should examine these possibilities. Additionally, the hypotheses for self-typicality were not supported such that audience perspective did not influence subsequent perceptions of self-typicality.

It was surprising that audience perspective did not bias self-typicality of the memories. However, there are several possibilities for why this may have occurred. Previous literature has shown that people tend to be self-enhancing by viewing positive events as highly typical of the self (Greenwald, 1980; Pasupathi & Rich, 2005) and maintain optimism and high self-esteem by viewing negative memories as more atypical (Libby & Eibach, 2002). However, the current study included memories that were intentionally non-emotional. Therefore, it is possible that these memories were not perceived as either self-enhancing enough or threatening enough to influence perceptions of the self-concept. Future studies should explore this further by

investigating the audience-biasing effect in relation to memories that are more emotional in nature.

It was also predicted that participants would describe their memories in a manner that is aligned with the perspective of their audience in order to create a shared reality. However, there was no overall effect of audience perspective on the positivity or negativity of the memory descriptions. Previous studies have measured tuning by comparing post-audience manipulation descriptions to the original ambiguous message. However, this is not possible with the current paradigm and it is likely that participants' original memories varied in the degree of positivity and negativity at the start of the study. Therefore, the current project cannot assess the degree to which the memory description has been tuned according to the original memory. Conversely, these results may suggest that elaboration of the memory is not driving the audience-bias effect as previous research would suggest that it should (Echterhoff, et al., 2013). Experiment 2 will examine the role of elaboration more closely to determine whether message production is necessary for the audience-biasing effect to occur, despite the lack of evidence for tuning.

Relatedly, the effects of audience perspective on perceptions of a shared reality were not consistent with predictions that participants who learned the perspective of their audience would achieve greater shared reality than those who did not receive information about audience perspective. It is possible that participants assumed a shared reality with their audience even when explicit information about audience perspective was not received. Regardless, exploratory analyses revealed that shared reality is an important component of the audience-biasing effect. Results indicated that participants who experienced a shared reality with the audience had more positive event memory perceptions and attitudes after elaborating on the memory for the positive audience and had more negative event memory perceptions and attitudes after elaborating on the

memory for the negative audience than did participants who did not experience a shared reality. Taken together, these results suggest that when people perceive a shared reality with their audience, communication with that audience may be more likely to result in biased perceptions that are aligned with their audience's perspective. These results are consistent with previous literature suggesting that the audience biasing effect depends on the goals driving communication (Echterhoff et al., 2008). Shared reality has been found to contribute to this effect more so than other nonshared-reality goals such as compliance or politeness.

CHAPTER 4. EXPERIMENT 2

Study Overview

Experiment 2 was designed to examine the underlying mechanism through which the audience-bias effect occurs. Research on audience tuning typically entails two distinct stages: 1) speaker is made aware of the audience's perspective, and 2) message is elaborated in a manner consistent with that perspective. It is often assumed that the audience's effect on the speaker's perceptions is driven by the speaker's elaboration of events (Echterhoff et al., 2013). In fact, the saying-is-believing effect has been shown to disappear when participants do not actually produce the message for their anticipated audience (Higgins & Rholes, 1978). However, other research has suggested that mere knowledge about the attitude of an anticipated audience can affect what participants remember about an ambiguous stimulus (Schramm & Danielson, 1958; Zimmerman & Bauer, 1956). Similarly, research on response bias and demand characteristics finds that individuals regularly provide responses to be consistent with what they believe their audience expects or desires (Furnham, 1986). Thus, Experiment 2 aimed to untangle these two elements to better understand whether elaboration regarding one's life events for the audience is necessary or whether mere knowledge of another's perspective is sufficient to alter one's perceptions of a past experience.

For Experiment 2, participants were asked to think of a specific memory related to either multitasking or group work. The social media condition was removed from Experiment 2 given the unexpected differences in reported memory characteristics for social media memory descriptions, as compared to memory descriptions related to group work or multitasking. After thinking of a specific memory, participants were then randomly assigned to one of the same audience conditions used in Experiment 1. Participants then either wrote about their memory as

in Experiment 1, or, they were not asked to write about their memory before answering questions assessing the same dependent measures from Experiment 1.

Replicating Experiment 1, it was predicted that for those who elaborate on their memory, participants writing for an audience with a positive perspective would recall the experience as being more positive and would demonstrate more positive attitudes about the memory topic than participants writing for an audience with a negative perspective. It was also predicted that participants writing for an audience with a positive perspective would describe their memories more positively and would rate them as more typical than participants writing for an audience with a negative perspective. However, given that the predictions for memory descriptions and self-typicality were not supported in Experiment 1, it was expected that the original predictions for these would again not be supported. Additionally, if elaboration is a necessary component of the audience-bias effect, then there should be a significant interaction of audience perspective and elaboration such that when elaboration via writing occurs, audience perspective leads to corresponding perceptions of the memory and attitudes. However, when elaboration does not occur, audience perspective should have a weaker effect on subsequent perceptions related to the memory and attitudes. If elaboration is not a necessary component of the audience-bias effect, then audience perspective should have similar effects across both, the elaboration and no elaboration conditions.

It was also originally predicted that within the elaboration condition, shared reality would mediate the effects of audience perspective on subsequent attitudes and memory perceptions. However, given the lack of a causal relationship of audience perspective on shared reality in Experiment 1, moderation analyses were conducted instead in an attempt to replicate the findings from Experiment 1. Therefore, it was expected that within the elaboration condition, participants

who report greater shared reality would demonstrate more pronounced audience-bias effects such that those in the positive audience condition would report more positive event memory perceptions and attitudes than those in the negative audience condition. As in Experiment 1, additional variables related to the characteristics of each participant's memory (e.g., how long ago the memory occurred, importance of memory, emotional intensity of memory, etc.) were also measured along with measures assessing the degree to which participants thought about the audience while writing the memory, included details they thought the audience would like, and believed their essay would confirm the beliefs of the audience. Although there were no predictions related to these measures, they were included to examine whether memory characteristics and audience influence may have differed by topic or audience condition. Experiment 2 was preregistered on open science framework (<https://osf.io/dz9xj>).

Method

Power Analysis and Participants

A power analysis was conducted using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007). Previous research on audience tuning suggests that there should be a large effect size of message elaboration on memory perceptions, ($d = 2.11$), and a medium sized interaction of elaboration and audience perspective on memory perceptions, ($\eta^2 = 0.11$), (Higgins, Echterhoff, Crespillo, & Kopietz, 2007). Therefore, a power analysis was conducted assuming a medium effect size ($f = 0.25$). The power analysis revealed a necessary sample size needed for an ANOVA to obtain a power of .80 is 158 participants to test for main effects and interactions. However, given the possibility of inflated effect sizes due to publication bias (Earp & Trafimow, 2015), a power analysis was also conducted using a more conservative effect size of $f = 0.20$, which revealed a necessary sample size of 245 participants. We aimed to recruit 300 participants

to allow for the removal of participants who fail the attention check and stopped data collection once all remaining participants who signed up were able to participate. A total of 327 participants were recruited for Experiment 2. Twenty-nine participants were removed from all analyses for failing the attention check.

Participants were undergraduate students from Iowa State University who were enrolled in introductory psychology or communication studies courses and received course credit for study participation. To be eligible for this study, participants were required to be at least 18 years of age. The average age of the remaining sample ($N = 298$) was 19.04 ($SD = 1.39$). The sample consisted of 184 women, 113 men, and one person who identified as non-binary. The majority of the sample (81.2%) identified as Caucasian (1.7% Native American, 5.7% African-American, 6.4% Latino/Hispanic, 6.4% Asian/Pacific Islander, 1.0% Indian, and 2.0% Other). The majority of participants (92.9%) of participants also reported English as being their primary language spoken at home.

Study Design

In Experiment 2, a 3 (audience perspective: positive, negative, or unmentioned) x 2 (memory elaboration: written description of memory or no written description of memory) x 2 (memory topic: multitasking or group work) between-subjects factorial design was conducted. Similar to Experiment 1, participants were first randomly assigned to think of a specific memory related to one of two topics (multitasking or group work) and then, were randomly assigned to one of three audience conditions: 1) a positive audience 2) a negative audience or 3) an audience for whom no information was given about their perspective on the topic. Next, participants were then assigned to either: 1) elaborate on their memory by writing about it to their assigned audience or 2) to not elaborate on their memory. All participants then completed measures

assessing shared reality followed by measures assessing attitudes, event memory perceptions, and self-typicality, which were randomized in order. Lastly, participants completed measures related to memory characteristics, perceived audience influence, and demographics before being thanked and debriefed.

Procedure

Procedures for Experiment 2 were similar to Experiment 1. Participants completed all measures on a computer in the research laboratory. After consenting to participate in the study, participants were asked to think of a particular memory related to either multitasking or group work. They were then asked to write down four words related to the memory. Next, participants were randomly assigned to read one of the three audience prompts which stated that the researchers of the project had either a positive perspective on the memory topic, a negative perspective on the memory topic, or which did not give any information about the researchers' perspective on the topic.

In Experiment 2, the information about the audience's perspective was bolded and highlighted in a different color font to draw participants' attention and reduce the number of participants who failed the attention check item, which was also presented on the same page as the audience information. Participants were then asked to write a description of their memory to the audience they were assigned before completing dependent measures, or they were directed immediately to the dependent measures without providing a written description of their memory for the event. For participants who elaborated on their memory, the memory prompts were the same as Experiment 1. For participants who did not elaborate on their memory, the audience prompt stated, "the researchers in charge of this project are very interested in students' experiences of [assigned memory topic]. They believe that [memory topic] can be a [positive or

negative] and [beneficial or harmful] experience for undergraduate students. They want to learn more about your experiences with this topic that they feel is [beneficial or harmful] for students.”

All participants completed the shared reality measures followed by measures assessing the remaining dependent variables which were randomized in order. Finally, at the end of the experiment, participants completed measures assessing demographic information. They were then thanked for their participation and debriefed.

Measures

The same measures of memory characteristics, audience measures, event memory perceptions, attitudes of memory topic, self-typicality, shared reality, and demographics from Experiment 1 were used.

Results

Overview of Analyses

The goals of Experiment 2 were to replicate findings from Experiment 1 and to determine if elaboration on one’s memory is necessary for audience perspective to influence subsequent attitudes, event memory perceptions, and self-typicality. The results from the attention and manipulation checks were examined first. Next, memory characteristics and audience measures were examined, for those who wrote memory descriptions, by both audience condition and by topic to determine whether essays differed across conditions. Descriptive analyses are also presented for all main dependent measures, followed by the main analyses for each outcome measure. A three-way univariate ANOVA was conducted for each dependent variable with audience condition, elaboration, and memory topic as between-subject factors. Lastly, moderation analyses are reported to examine whether shared reality again moderated the effects of audience condition on event memory perceptions and attitudes.

Attention Check

Participants were considered to have failed the attention check if they did not correctly list the audience perspective as positive in the positive audience condition, as negative in the negative audience condition, or as not mentioned in the no information condition. Those who did not correctly remember their audience's attitude towards the memory topic ($N = 29$) were removed from all main analyses. In the positive audience condition, 3 (1%) participants failed the attention check, in the negative audience condition, only 1 (.3%) participant failed the attention check and in the no information condition, 25 (8%) participants failed the attention check.

Manipulation Check

A one-way ANOVA revealed a main effect of audience perspective on the perceived researchers' attitudes of the memory topics, $F(2, 295) = 641.94$, $p < .001$, $\eta_p^2 = .81$, 95% CI [.52, .81]. As expected, participants rated the researchers' attitudes on the memory topics to be more positive in the positive audience condition ($M = 6.51$, $SD = .80$) than both the negative audience condition ($M = 1.68$, $SD = .77$), $p < .001$, $d = 6.15$, 95% CI [5.49, 6.79] and the no information audience condition ($M = 4.63$, $SD = 1.38$), $p < .001$, $d = 1.71$, 95% CI [1.38, 2.05]. Additionally, participants rated the researchers' attitudes as more negative in the negative audience condition than in the no information audience condition, $p < .001$, $d = 2.64$, 95% CI [2.33, 3.12]. These results suggest that the manipulation was successful in manipulating participants' perceptions of the researchers' perspectives on the memory topics.

Memory Characteristics and Perceived Audience Influence. For those who elaborated on their memory, two-way ANOVAs were conducted to examine the effects of audience condition and memory topic on memory characteristics (word count, time since the event

occurred, importance of memory, emotional intensity of memory, enjoyment experienced when writing about the memory, ease of recall, or frequency of event disclosure), see Table 8. There were no main effects of audience condition on word count, time since the event occurred, importance of memory, emotional intensity, ease of recall, or frequency of event disclosure. However, there was an effect of audience on enjoyment experienced when writing about the memory such that participants in the negative audience condition reported enjoying writing about their experience more than participants in the no information condition, $p = .006$, $d = 0.40$, 95% CI [0.12, 0.69]. There was no difference between participants in the negative audience condition and the positive audience condition, $p = .117$, $d = 0.21$, 95% CI [0.00, 0.48] or between the positive audience condition and the no information audience condition, $p = .208$, $d = 0.19$, 95% CI [-0.10, 0.47].

There was no main effect of memory topic on importance of memory, emotional intensity, or ease of recall. However, there were effects of topic on word count and enjoyment of writing, such that participants used more words ($p < .01$, $d = 0.31$, 95% CI [0.08, 0.54]) and reported more enjoyment ($p = .048$, $d = 0.30$, 95% CI [0.07, 0.53]) for group work memories than for multitasking memories. There was also an overall effect of topic on time since event occurred such that multitasking memories were more recent than group work memories, $p < .001$, $d = 0.57$, 95% CI [0.34, 0.80]. Participants also reported disclosing group work memories more often than multitasking memories, $p < .001$, $d = 0.46$, 95% CI [0.23, 0.69]. There were no effects of audience condition or memory topic on the degree to which participants reported thinking about their audience, including details for their audience, and believing their essay would confirm the perspective of the audience, which were averaged for a total score.

Table 8.

Experiment 2 Means of Memory Characters and Audience Measures across Topics and Audience Conditions

Topic:	<u>Positive Audience</u>		<u>Negative Audience</u>		<u>No Information Audience</u>		<u>Audience</u>	<u>Topic</u>	<u>Interaction</u>
	Group Work	Multitasking	Group Work	Multitasking	Group Work	Multitasking	η_p^2	η_p^2	η_p^2
Word Count	178.08	154.39	184.33	159.65	242.85	157.53	.032	.084**	.029
Time since event occurred	2.11	1.57	2.33	1.35	2.25	1.60	.001	.086**	.008
Importance of memory	2.95	2.79	3.30	2.69	3.00	3.00	.002	.005	.006
Emotional Intensity of memory	4.16	4.36	4.26	3.62	4.19	4.33	.012	.001	.020
Enjoyment from writing	4.24	3.71	4.67	4.19	3.88	3.27	.041*	.027*	.000
Ease of recall	6.03	5.50	5.33	6.04	5.69	5.73	.001	.001	.034
Frequency of disclosure	2.58	2.11	3.63	1.81	2.88	2.40	.011	.068**	.038
Perceived Audience Influence	4.20	3.79	3.58	4.03	3.75	3.96	.005	.001	.027

Note. Results are based on two-way ANOVAs. * $p < .05$, ** $p < .01$. Time since event occurred was measured on a scale from 1 (less than 1 month ago) to 7 (more than 10 years ago). Importance of memory, emotional intensity, enjoyment, and ease of recall were all measured on a scale of 1 (strongly disagree) to 7 (strongly agree). Frequency of disclosure was measured on a scale of 1 (not at all) to 7 (more than most events that have happened to me).

Descriptive results for main dependent variables. Descriptive statistics for all dependent variables are provided in Table 9. Additionally, a correlational analysis was conducted to examine the relationships among dependent variables and is provided in Table 10. As illustrated in the table below, attitudes toward topic, event memory perceptions, self-typicality, and essay valence were all positively associated. However, shared reality was not significantly correlated with any of the other variables.

Table 9.

Descriptives of Experiment 2 Outcome Measures

	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Shared reality	298	4.42	1.40	1 to 7
Attitude toward topic	298	4.30	1.30	1 to 7
Event memory perceptions	298	4.67	1.22	1 to 6
Self typicality	298	5.00	1.05	1 to 7
Essay valence	146	-0.07	0.88	-2 to 2

Table 10

Correlations among Experiment 2 Outcome Variables

	1.	2.	3.	4.	5.
1. Shared reality	-				
2. Attitude toward topic	.095	-			
3. Event memory perceptions	.096	.61**	-		
4. Self typicality	-.01	.31**	.42**	-	
5. Essay valence	.01	.56**	.67**	.36**	-

Note. * $p < .05$, ** $p < .01$

Main Analyses

Shared reality. Although there were no explicit predictions, a three-way ANOVA was conducted with elaboration, audience perspective, and memory topic as between-subject factors to examine whether message elaboration influenced perceptions of a shared reality. Analyses revealed non-significant main effects of elaboration, $F(1, 286) = 0.16, p = .691, \eta_p^2 = .001, 95\% \text{ CI } [.00, .02]$, audience perspective, $F(1, 140) = 0.84, p = .433, \eta_p^2 = .006, 95\% \text{ CI } [.00, .06]$, and memory topic, $F(1, 140) = 0.17, p = .682, \eta_p^2 = .001, 95\% \text{ CI } [.00, .04]$. These findings replicate Experiment 1.

However, there was a significant interaction between memory topic and audience perspective, $F(2, 286) = 7.29, p = .001, \eta_p^2 = .048, 95\% \text{ CI } [.01, .10]$ such that audience perspective had a significant effect for group work memories, $F(2, 292) = 6.59, p = .002, \eta_p^2 = .043, 95\% \text{ CI } [.01, .09]$ but not for multitasking memories, $F(2, 292) = 1.48, p = .229, \eta_p^2 = .010, 95\% \text{ CI } [.00, .04]$. For participants who were assigned to group work memories, there was greater shared reality in the positive audience condition ($M = 4.90, SD = 1.39$) than in the negative audience condition ($M = 3.93, SD = 1.77$), $p < .001, d = 0.61, 95\% \text{ CI } [0.22, 1.00]$ and moderately more shared reality than in the no information condition ($M = 4.34, SD = 0.77$), $p = .053, d = 0.48, 95\% \text{ CI } [0.06, 0.89]$. Additionally, among those who were assigned to group work, the no information condition reported more shared reality than the negative audience condition, $p < .001, d = 0.29, 95\% \text{ CI } [-0.12, 0.70]$. The interaction between audience perspective and elaboration was non-significant, $F(2, 286) = 2.66, p = .071, \eta_p^2 = .018, 95\% \text{ CI } [.00, .06]$. The three-way interaction between topic, audience, and elaboration was also non-significant, $F(2, 286) = 0.13, p = .882, \eta_p^2 = .00, 95\% \text{ CI } [.00, .01]$. These results are presented in Figure 9.

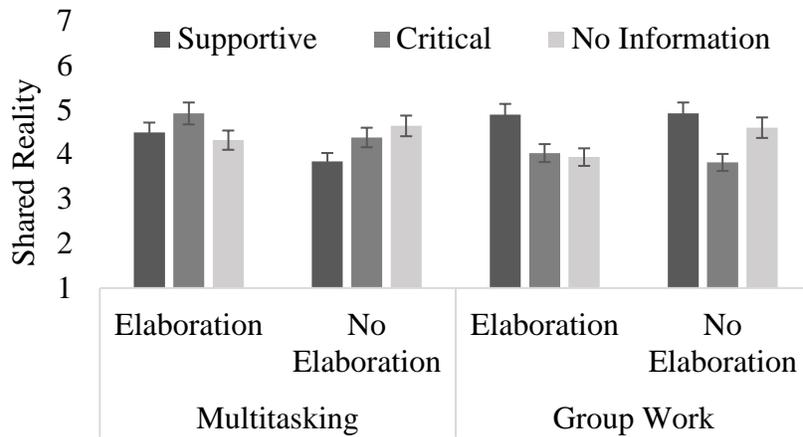


Figure 9. Experiment 2: Effects of elaboration, audience perspective, and memory topic on shared reality.

Attitude toward topic. If message elaboration is a necessary component for the audience-bias effect, then we would expect a significant interaction between message elaboration and audience condition such that attitudes are biased in the direction of the audience after message elaboration but not biased when there is no elaboration. A three-way ANOVA was conducted on event memory perceptions with elaboration, audience perspective, and memory topic entered as between-subject factors. As predicted, results revealed a significant interaction between elaboration and audience perspective on subsequent memory topic attitudes, $F(2, 298) = 3.14, p = .045, \eta_p^2 = .021, 95\% \text{ CI } [.00, .06]$. Planned contrasts indicated that for participants who elaborated on their memory, audience perspective had a significant effect on subsequent topic attitudes, $F(2, 292) = 12.90, p < .001, \eta_p^2 = .081, 95\% \text{ CI } [.03, .14]$, such that writing to the positive audience led to more positive attitudes ($M = 4.73, SD = 1.36$) than writing to the negative audience ($M = 3.89, SD = 1.17$), $p < .001, d = 0.66, 95\% \text{ CI } [0.28, 1.02]$ or the no information audience ($M = 3.90, SD = 1.24$), $p = .003, d = 0.64, 95\% \text{ CI } [0.19, 1.06]$. However,

audience perspective had no effect on attitudes for participants who did not elaborate on their memory, $F(2, 292) = 3.11, p = .145, \eta_p^2 = .02, 95\% \text{ CI } [.00, .06]$, see Figure 10.

Additionally, there was an overall main effect of audience perspective, $F(2, 298) = 5.76, p = .004, \eta_p^2 = .039$, and an overall main effect of memory topic on subsequent attitudes, $F(1, 298) = 18.05, p < .001, \eta_p^2 = .057, 95\% \text{ CI } [0.17, .11]$. Post hoc analyses revealed that participants in the positive audience condition had more positive attitudes ($M = 4.59, SD = 1.36$) than participants in the negative audience condition ($M = 4.00, SD = 1.26$), $p = .001, d = 0.45, 95\% \text{ CI } [0.18, 0.72]$, but not than participants in the no information audience condition ($M = 4.33, SD = 1.43$), $p = .154, d = 0.20, 95\% \text{ CI } [-0.09, 0.49]$. There was also no difference in attitudes between participants in the negative audience condition and participants in the no information audience condition, $p = .065, d = 0.27, 95\% \text{ CI } [-.01, 0.56]$. Additionally, participants also had more positive attitudes in the group work condition ($M = 4.64, SD = 1.31$) than in the multitasking condition ($M = 3.98, SD = 1.20$), $p < .001, d = 0.53, 95\% \text{ CI } [0.29, 0.75]$.

There was no overall main effect of elaboration, $F(1, 298) = 2.71, p = .101, \eta_p^2 = .009, 95\% \text{ CI } [.00, .04]$. Lastly, there was no interaction between audience condition and memory topic, $F(2, 298) = 0.29, p = .746, \eta_p^2 = .002, 95\% \text{ CI } [.00, .02]$, between elaboration and memory topic, $F(2, 298) = 1.72, p = .191, \eta_p^2 = .006, 95\% \text{ CI } [.00, .01]$, and no three-way interaction between audience condition, memory topic, and elaboration, $F(2, 298) = 2.44, p = .089, \eta_p^2 = .017, 95\% \text{ CI } [.00, .05]$.

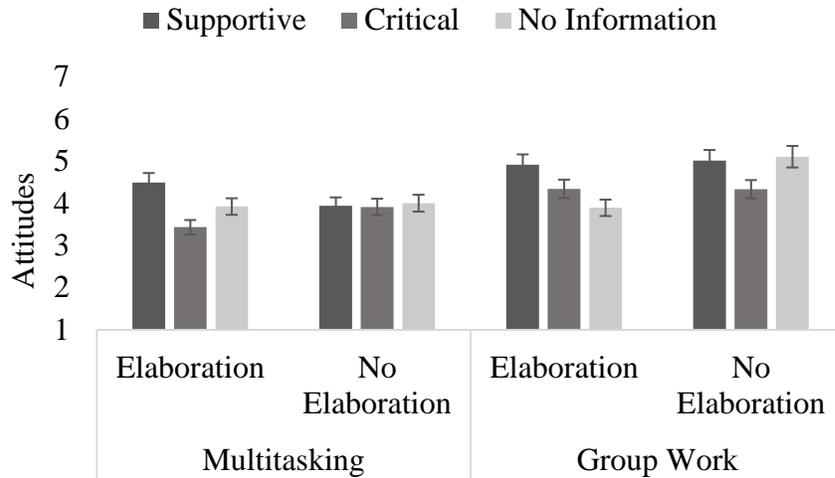


Figure 10. Experiment 2: Effects of elaboration, audience perspective, and memory topic on attitudes.

Event Memory Perceptions. If message elaboration is a necessary component for the audience-bias effect, then we would expect a significant interaction between message elaboration and audience condition such that perceptions are biased after message elaboration but not biased when there is no elaboration. A three-way ANOVA was conducted on event memory perceptions with elaboration, audience perspective, and memory topic entered as between-subject factors. As predicted, results revealed a significant interaction between elaboration and audience perspective on subsequent ratings of event memory perceptions $F(2, 286) = 4.38, p = .013, \eta_p^2 = .030, 95\%$ CI [.00, .07].

Planned contrasts indicated that, replicating Experiment 1, for participants who elaborated on their memory, audience had a significant effect on subsequent ratings of event memory perceptions, $F(2, 292) = 5.80, p = .003, \eta_p^2 = .038, 95\%$ CI [.00, .09] such that the positive audience led to more positive perceptions ($M = 5.09, SD = 1.23$) than the negative audience ($M = 4.44, SD = 1.30$), $p = .003, d = 0.51, 95\%$ CI [0.15, 0.88], and the no information audience ($M = 4.39, SD = 1.32$) $p = .007, d = 0.55, 95\%$ CI [0.12, 0.99]. However, the difference

in event memory perceptions between those who wrote to the negative audience and those who wrote to the no information audience was not statistically significant, $p = .849$, $d = 0.04$, 95% CI [-0.40, 0.48]. Additionally, participants who were not given an opportunity to elaborate on their memory showed no difference in subsequent event memory perceptions, $F(2, 292) = 1.97$, $p = .142$, $\eta_p^2 = .013$, 95% CI [.00, .05].

Overall, there was also no main effect of audience, $F(1, 298) = 2.39$, $p = 0.94$, $\eta_p^2 = .01$, 95% CI [.00, .04], or elaboration opportunity, $F(1, 298) = .106$, $p = .745$, $\eta_p^2 = .000$, 95% CI [.00, .02] on event memory perceptions. However, there was a significant main effect of memory topic, $F(1, 298) = 26.69$, $p < .001$, $\eta_p^2 = .085$, 95% CI [.03, .15], such that participants rated group work memories as more positive ($M = 5.04$, $SD = 1.07$) than multitasking memories ($M = 4.32$, $SD = 1.26$), $p < .001$, $d = 0.62$, 95% CI [0.38, 0.85].

Finally, results revealed an unpredicted significant three-way interaction of elaboration, audience perspective, and memory topic on subsequent event memory perceptions, $F(2, 298) = 3.46$, $p = .033$, $\eta_p^2 = .024$, 95% CI [.00, .06]. Post hoc analyses revealed that within the multitasking memory condition, audience perspective had a significant effect for participants who elaborated on their memory, $F(2, 286) = 5.86$, $p = .003$, $\eta_p^2 = .039$, 95% CI [0.00, .09] but not for participants who did not elaborate on their memory, $F(2, 286) = 1.02$, $p = .362$, $\eta_p^2 = .007$, 95% CI [.00, .03]. However, within the group work memory condition, audience perspective did not predict event memory perceptions for participants who elaborated, $F(2, 286) = 1.75$, $p = .175$, $\eta_p^2 = .012$, 95% CI [.00, .04], nor for participants who did not elaborate, $F(2, 286) = 2.39$, $p = .093$, $\eta_p^2 = .016$, 95% CI [.00, .05]. These results are presented in Figure 11.

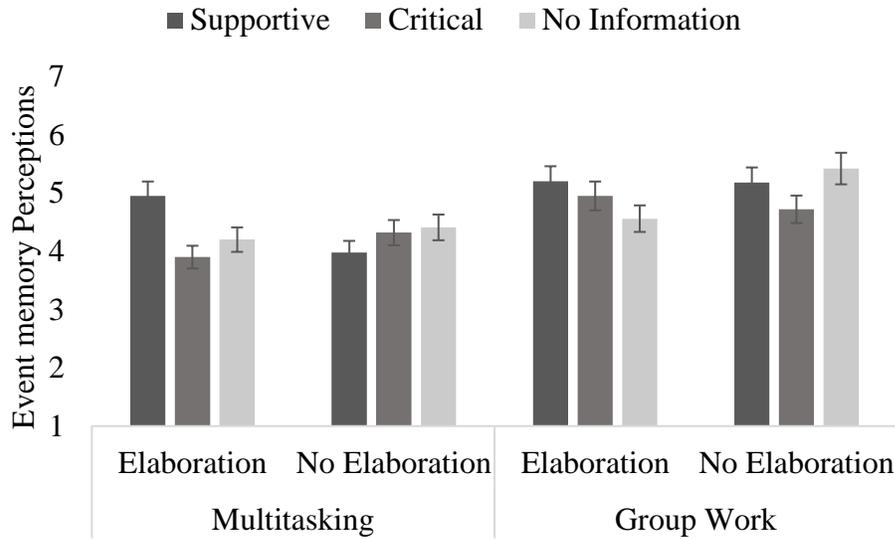


Figure 11. Experiment 2: Three-way interaction of audience perspective, elaboration, and memory topic on subsequent event memory perceptions.

Self-typicality. If message elaboration is a necessary component for the audience-congruence bias, then we would again expect a significant interaction between message elaboration and audience condition such that memories are reported as being more self-typical in the positive audience condition when there is message elaboration but not when there is no message elaboration. A three-way ANOVA was conducted with elaboration, audience perspective, and memory topic entered as between-subject factors. Similar to Experiment 1, there was a non-significant effect of audience perspective, $F(2, 298) = 2.45, p = .088, \eta_p^2 = .017, 95\%$ CI [.00, .05] or memory topic, $F(1, 298) = 2.20, p = .139, \eta_p^2 = .008, 95\%$ CI [.00, .04]. However, there was a significant effect of elaboration, $F(1, 298) = 4.55, p = .034, \eta_p^2 = .02, 95\%$ CI [.00, .05] such that elaboration led to higher ratings of self-typicality ($M = 5.14, SD = 1.08$) than not elaborating ($M = 4.86, SD = 1.01, d = 0.27, 95\%$ CI [.04, 0.50]). There was no interaction between audience perspective and elaboration, $F(2, 298) = 2.27, p = .105, \eta_p^2 = .016,$

95% CI [.00, .05] or between audience perspective and memory topic, $F(2, 298) = 0.02, p = .979, \eta_p^2 = .00, 95\% \text{ CI} [.00, .00]$. The three-way interaction between audience perspective, elaboration, and memory topic was not statistically significant, $F(2, 298) = 0.97, p = .379, \eta_p^2 = .007, 95\% \text{ CI} [.00, .03]$. These results are displayed in *Figure 12*.

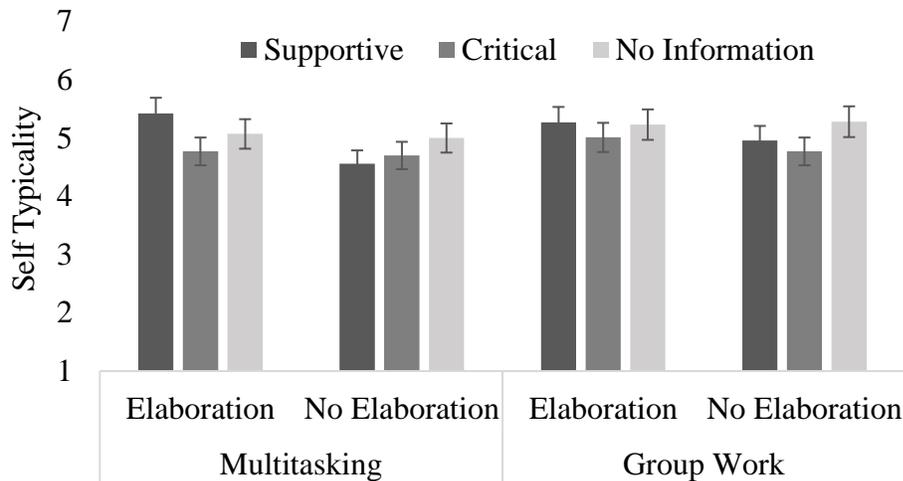


Figure 12. Experiment 2: Effects of elaboration, audience perspective, and memory topic on self-typicality.

Essay Valence

Memory descriptions for those who were asked to elaborate on their memories ($N = 146$) were again analyzed using LIWC software and by two independent coders blind to experimental conditions. Essays were coded in the same eight ways as in Experiment 1. Because statistical analyses indicated similar patterns for each coded dimension, only results for overall essay valence are reported below. See Appendix B for additional analyses and the correlation matrix for all coded variables.

First, a two-way ANOVA revealed a main effect of topic on the inclusion of positive emotion words, $F(1, 140) = 3.89, p = .050, \eta_p^2 = .027, 95\% \text{ CI} [.00, .10]$, a non-significant effect

of audience condition, $F(1, 140) = 1.45, p = .239, \eta_p^2 = .01, 95\% \text{ CI } [.00, .07]$, and a non-significant interaction between topic and audience, $F(2, 140) = 0.35, p = .707, \eta_p^2 = .01, 95\% \text{ CI } [.00, .04]$. Participants included more positive emotion words in the group work condition ($M = 2.67, SD = 1.62$) than in the multitasking condition ($M = 2.09, SD = 1.84$), $d = 0.34, 95\% \text{ CI } [0.02, 0.67]$.

Additionally, a two-way ANOVA revealed a main effect of audience condition on the inclusion of negative emotion words, $F(1, 140) = 4.18, p = .017, \eta_p^2 = .03, 95\% \text{ CI } [.00, .10]$, but no effect of topic, $F(1, 140) = 1.52, p = .219, \eta_p^2 = .01, 95\% \text{ CI } [.00, .07]$, or interaction between audience and topic, $F(2, 140) = 0.53, p = .589, \eta_p^2 = .01, 95\% \text{ CI } [.00, .05]$. Participants in the no information audience condition included more negative emotion words ($M = 1.56, SD = 0.94$) than participants in the positive audience condition ($M = 1.00, SD = 0.86$), $p = .006, d = 0.62, 95\% \text{ CI } [0.18, 1.09]$, and negative audience condition ($M = 1.07, SD = 0.91$), $p = .019, d = 0.53, 95\% \text{ CI } [0.07, 1.00]$. There was no difference between participants in the positive audience condition and the negative audience condition, $p = .691, d = 0.34, 95\% \text{ CI } [0.02, 0.67]$. Overall, there was no consistent evidence from the LIWC software that participants tuned their essay descriptions in the direction of their audience's perspective.

Lastly, a two-way ANOVA revealed a main effect of audience condition on the overall coded essay valence, $F(1, 140) = 4.79, p = .010, \eta_p^2 = .03, 95\% \text{ CI } [.00, .11]$ but no effect of memory topic, $F(1, 140) = 1.05, p = .307, \eta_p^2 = .007, 95\% \text{ CI } [.00, .06]$, or interaction, $F(2, 140) = 1.18, p = .309, \eta_p^2 = .02, 95\% \text{ CI } [.00, .07]$. Participants in the positive audience condition had more positively rated essays ($M = 0.19, SD = 0.80$) than participants in the no information audience condition ($M = -.30, SD = 0.83$), $p = .011, d = 0.60, 95\% \text{ CI } [0.16, 1.06]$, and

participants in the negative audience condition ($M = -0.25$, $SD = 0.92$), $p = .005$, $d = 0.51$, 95% CI [0.15, 0.89]. These analyses provide the first evidence of tuning in this project.

Moderation of Shared Reality

It was originally hypothesized that shared reality would mediate the effects of audience perspective on subsequent attitudes and memory perceptions. However, given the lack of a causal relationship of audience perspective on shared reality, as reported above, a mediation analysis was no longer deemed appropriate. Therefore, moderation analyses were conducted instead in an attempt to replicate the exploratory findings from Experiment 1.

Moderation of Shared Reality on Attitudes. As was found in Experiment 1, it was hypothesized that the audience-bias effect would be more pronounced for individuals who achieve greater shared reality. Dummy coding was again used for the independent variable (see Table 11). The positive audience condition was chosen as the reference group in order to compare 1) the difference between the positive and negative audience conditions and 2) the difference between the positive and no information audience conditions. Therefore, the first dummy coded variable shows the difference on memory attitudes between participants in the positive audience condition and participants in the negative audience condition. The beta value describes the change in attitudes due to a unit increase in the predictor, which represents a change from the positive audience condition (coded as 0) to the negative audience condition (coded as 1). The interaction of the negative audience condition by shared reality represents the change in attitudes between the positive audience condition and the negative audience condition as a function of shared reality.

Table 11

Dummy Coding for Moderation Analyses

Audience Condition	Dummy coded variable 1 (Positive vs. Negative Audience)	Dummy coded variable 2 (Positive vs. No Information Audience)
Positive Audience	0	0
Negative Audience	1	0
No Information Audience	0	1

Results revealed a significant interaction between the negative audience condition and shared reality, $b = -1.34$, $t(292) = -17.06$, $p < .001$, suggesting that shared reality does moderate the effects of audience on attitudes between participants in the positive and negative audience conditions. To interpret the moderation effect, conditional effects were calculated at one standard deviation above and below the mean of shared reality. Conditional effects at one standard deviation above the mean of shared reality indicated the expected effect of audience condition on attitudes at higher levels of shared reality, $b = -2.45$, $t(292) = -14.80$, $p < .001$, with participants reporting more negative attitudes in the negative audience condition than participants in the positive audience condition. Additionally, conditional effects at one standard deviation below the mean of shared reality indicated a significant effect in the opposite direction, $b = 1.29$, $t(292) = 7.81$, $p < .001$, such that participants reported more positive attitudes in the negative audience condition than in the positive audience condition.

The next analysis explored the difference of memory topic attitudes between participants in the positive audience condition and participants in the no information condition. The interaction between the no information audience condition and shared reality was also

significant, $b = -0.46$, $t(292) = -3.23$, $p = .001$, suggesting that the difference in attitudes between participants in the positive audience condition and the no information condition is also moderated by shared reality. To interpret the moderation effect, conditional effects were calculated at one standard deviation above and below the mean of shared reality. Conditional effects at one standard deviation above the mean of shared reality indicated that participants reported more negative attitudes in the no information condition than in the positive audience condition, $b = -0.81$, $t(292) = -3.46$, $p = .001$. Additionally, conditional effects at one standard deviation below the mean of shared reality were not statistically significant, $b = 0.47$, $t(292) = 1.94$, $p = .054$. The overall interaction of audience condition and shared reality resulted in a significant increase in variance explained compared to a model with only main effects, $\Delta R^2 = .48$, $F(2, 292) = 146.95$, $p < .001$. These results are reported in Table 12 and displayed in Figure 13.

As in Experiment 1, I also explored whether the moderation of shared reality on memory topic attitudes differed by memory topic. I again used Model 3 of Hayes' (2017) PROCESS macro to examine these effects. Memory topic explained an additional 2% of variance in the model, $\Delta R^2 = .02$, $F(2, 286) = 6.90$, $p = .001$. Results revealed a non-significant interaction between the negative audience condition, shared reality, and memory topic, $b = -0.22$, $t(286) = -1.39$, $p = .166$, suggesting that the moderation of shared reality on the effect of audience perspective on attitudes does not differ by memory topic for participants in the negative audience condition. However, there was a significant interaction between the no information audience condition, shared reality, and memory topic, $b = 0.80$, $t(286) = 2.89$, $p = .004$.

Conditional effects at one standard deviation below the mean of shared reality indicated that for multitasking memories, participants in the no information condition had more positive

attitudes than participants in the positive audience condition, $b = 0.77$, $t(286) = 2.31$, $p = .022$. However, for group work memories, there was no difference in attitudes between participants in the no information condition and participants in the positive audience condition, $b = 0.08$, $t(286) = 0.23$, $p = .821$. Additionally, conditional effects at one standard deviation above the mean of shared reality indicated that for multitasking memories, participants in the no information condition has less positive attitudes than participants in the positive audience condition, $b = -1.45$, $t(286) = -4.60$, $p < .001$. However, for group work memories, there was again no difference in attitudes between participants in the no information condition and participants in the positive audience condition, $b = 0.10$, $t(286) = 0.30$, $p = .763$. Lastly, I used Model 3 of Hayes' (2017) PROCESS macro to explore whether the moderation of shared reality on the effect of audience perspective on topic attitudes differed for those who elaborated compared to those who did not elaborate. Results indicated that the moderation of shared reality did not differ as a function of elaboration, $\Delta R^2 < .01$, $F(2, 286) = 0.07$, $p = .932$.

Table 12

Experiment 2: Regression analysis of shared reality and audience on attitudes

	<i>B</i> 95% CI	<i>SE</i>	<i>T</i>	<i>P</i>
Constant	4.50 [4.33, 4.67]	.09	50.96	<.001
Negative Audience	-0.58 [-0.82, -0.33]	.12	-4.67	<.001
No Information Aud.	-0.17 [-0.43, 0.09]	.13	-1.30	.194
Shared Reality (centered)	0.74 [0.63, 0.85]	.06	13.19	<.001
Negative Aud. x SR	-1.34 [-1.49, -1.18]	.08	-17.06	<.001
No Information x SR	-0.46 [-0.73, -0.18]	.14	-3.23	.001

Note. Overall model, $R^2 = .52$, $\Delta R^2 = .48$.

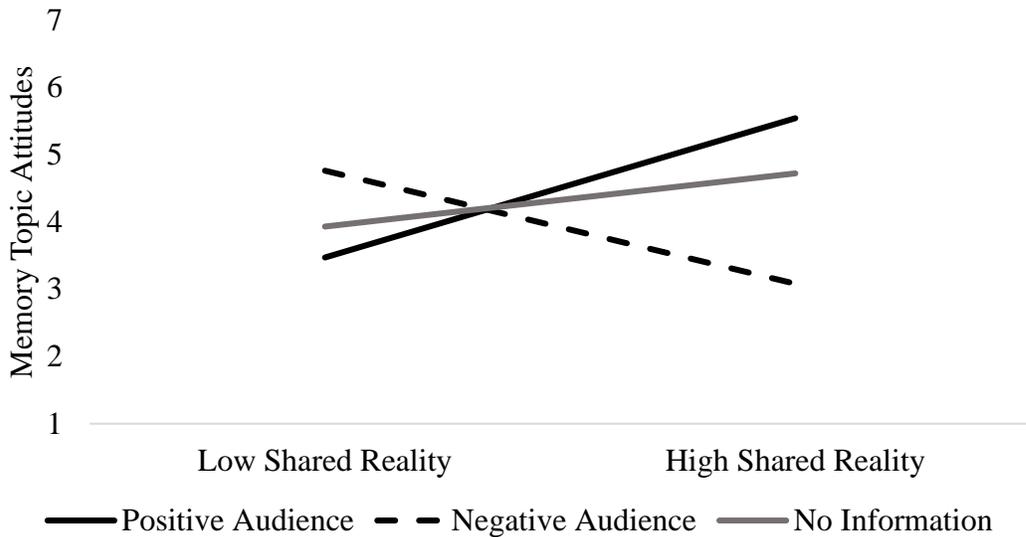


Figure 13. Experiment 2: Interaction of Shared Reality and Audience on Attitudes

Moderation of Shared Reality on Event Memory Perceptions. Participants who reported greater shared reality should again demonstrate more pronounced audience-bias effects, such that those in the positive audience condition should report more positive event memory perceptions and those in the negative audience condition should report more negative event memory perceptions as compared to participants who reported less shared reality. Results revealed a significant interaction between the negative audience condition and shared reality, $b = -.98$, $t(292) = -11.04$, $p < .001$, indicating that shared reality does moderate the effects of audience on event memory perceptions between participants in the positive and negative audience conditions. To interpret the moderation effect, conditional effects were calculated at one standard deviation above and below the mean of shared reality. Conditional effects at one standard deviation above the mean indicated the expected effect of audience condition at higher levels of shared reality, $b = -1.74$, $t(292) = -9.24$, $p < .001$, with participants reporting more negative memories in the negative audience condition compared to the positive audience

condition. Additionally, conditional effects calculated at one standard deviation below the mean of shared reality indicated a significant effect in the opposite direction, $b = 1.01$, $t(292) = 5.38$, $p < .001$, such that participants reported more positive memories in the negative audience condition compared to the positive audience condition.

The interaction between the no information audience condition and shared reality was also significant, $b = -0.46$, $t(292) = 0.03$, $p = .005$, suggesting that the effect of audience condition on event memory perceptions is also moderated by shared reality for participants in the no information condition compared to participants in the positive audience condition.

Conditional effects at one standard deviation above the mean indicated that participants reported more negative event memory perceptions in the no information condition than in the positive audience condition, $b = -0.72$, $t(292) = -2.72$, $p < .007$. Additionally, conditional effects calculated at one standard deviation below the mean of shared reality indicated a significant effect in the opposite direction, $b = 0.56$, $t(292) = 2.04$, $p = .042$, such that participants reported more positive memories in the no information condition compared to the positive audience condition. The overall interaction of audience condition and shared reality resulted in a significant increase in explained variance compared to a model with only main effects, $\Delta R^2 = .29$, $F(2, 292) = 60.93$, $p < .001$. These results are reported in Table 13 and displayed in Figure 14.

Additional analyses were again conducted to explore if the moderation of shared reality on event memory perceptions differed by memory topic or elaboration. All analyses were conducted using Model 3 of Hayes' (2017) PROCESS macro. First, results were consistent with Experiment 1 such that the moderation of shared reality on the effect of audience perspective on event memory perceptions did not significantly differ by memory topic, $\Delta R^2 < .01$, $F(2, 286) =$

0.36, $p = .701$. Additionally, results did not significantly differ by elaboration, $\Delta R^2 < .01$, $F(2, 286) = 0.78$, $p = .458$.

Table 13

Regression analysis of shared reality and audience on event memory perceptions

	<i>B</i> 95% CI	<i>SE</i>	<i>T</i>	<i>P</i>
Constant	4.78 [4.58, 4.98]	.10	47.75	<.001
Negative Audience	-0.36 [-0.64, -0.09]	.14	-2.58	.010
No Information Audience	-0.08 [-0.38, 0.21]	0.15	-0.54	.588
Shared Reality (centered)	0.57 [0.45, 0.70]	.06	9.02	<.001
Negative Audience x SR	-0.98 [-1.15, -0.80]	.09	-11.04	<.001
No Information x SR	-0.46 [-0.77, -0.14]	.16	-2.85	.005

Note. Overall model, $R^2 = .31$, $\Delta R^2 = .29$.

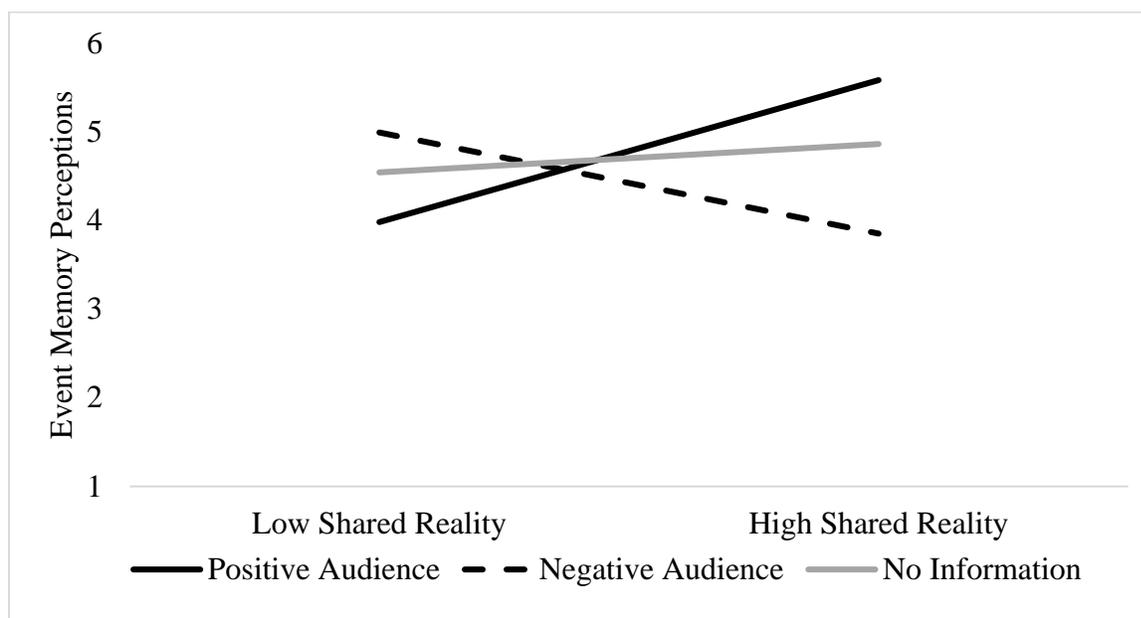


Figure 14. Experiment 2: Interaction of Shared Reality and Audience on Event Memory

Perceptions

Experiment 2 Discussion

The goals of Experiment 2 were to replicate findings from Experiment 1 and to examine whether message elaboration is a necessary component of the audience-bias effect. It was predicted that participants writing for a positive audience would again demonstrate more positive memory topic attitudes and event memory perceptions than participants writing for a negative audience. Additionally, if elaboration is a necessary component of the audience-bias effect, then these effects should be more pronounced for individuals who elaborated on their memory than those who did not. Lastly, as in Experiment 1, it was predicted that shared reality would moderate the effects of audience perspective on memory topic attitudes and event memory perceptions such that the audience-bias effect should be more pronounced for individuals who achieve greater shared reality.

Consistent with the elaboration as a necessary component hypothesis, the results demonstrated an interaction of message elaboration and audience perspective for memory topic attitudes and event memory perceptions such that, for participants who elaborated on their memory, those in the positive audience condition had more positive attitudes and event memory perceptions than those in the negative audience condition. These results provide a direct replication of Experiment 1 and also indicate that elaboration is an important component of the audience-bias effect. Although, there was also a significant three-way interaction of audience perspective, elaboration, and memory topic on event memory perceptions such that results were consistent with predictions for participants who wrote about multitasking but not for participants who wrote about group work. These findings highlight the complexity of the audience-bias effect as it relates to autobiographical memories and suggest the possibility of additional moderators that may influence when elaboration is necessary. Previous research suggests that when trust in

one's audience is high, message production may not be necessary for the audience-bias effect to occur (Echterhoff & Schmalbach, 2018).

Also consistent with Experiment 1, there were no main effects of audience perspective on perceptions of shared reality or self-typicality. Message elaboration also did not appear to influence shared reality, although, elaboration did lead to higher ratings of self-typicality. Additionally, effects of audience perspective on essay valence for participants who elaborated on their memory was examined using both LIWC software and coded essay valence. According to the LIWC calculations, there was no effect of audience on positive emotion words. However, participants who wrote to a negative audience did include more negative emotion words than participants writing for a positive audience. There was also a main effect of audience perspective on coded scores of essay valence such that essays of participants who wrote to a positive audience were rated more positively than those of participants who wrote to a negative audience. Although these findings are not consistent with findings from Experiment 1, this suggests that participants may have tuned their memory descriptions to be consistent with the perspective of their audience. Additional research is needed to understand whether participants actually tune their autobiographical memories to their audience and how to best measure this process. Lastly, moderation analyses indicated that the audience-bias effect was more pronounced for individuals who achieved greater shared reality compared to those who achieved less shared reality for both memory topic attitudes and event memory perceptions. These findings were also consistent with findings from Experiment 1.

In conclusion, Experiment 2 suggests that the effect of audience perspective on memory topic attitudes and event memory perceptions is robust and that message elaboration does appear to be an important component of this process. Additionally, shared reality also appears to be an

important moderator of this effect which is consistent with Experiment 1 and previous literature (Echterhoff et al., 2008). Participants also consistently rated group work memories as more positive than multitasking memories, and the effects of elaboration appear to be slightly stronger for memories related to multitasking than group work. Future work in this area should explore further how the topic of the memory relates to these processes.

CHAPTER 5. GENERAL DISCUSSION

The current project examined the extent to which the audience with whom individuals communicate about personal events influences how the event is described and later perceived by the communicator. Experiment 1 examined how describing a memory to an audience who either has a positive perspective, a negative perspective, or whose perspective is unknown influenced subsequent attitudes about the memory topic, perceptions of the memory, and the self-typicality of the memory. The results of this experiment were consistent with my hypotheses that communicating with an audience who has a positive perspective on the memory topic leads to more positive attitudes and event memory perceptions than communicating with an audience who has a negative perspective on the memory topic. The effects of audience perspective on attitudes and event memory perceptions were stronger for individuals who experienced a shared reality with their audience. However, contrary to expectations, the actual essay descriptions did not illustrate differences in positive or negative valence across audience conditions. Also contrary to my predictions, audience perspective did not affect the perceived self-typicality of memories. The current project is the first empirical investigation to directly apply the concepts of audience tuning and shared reality to communication about autobiographical memories. These findings also extend previous literature on the co-construction of autobiographical memories and illustrate novel ways in which one's audience can influence subsequent perceptions of these events.

Additionally, Experiment 2 examined whether message elaboration is a necessary component of the audience-bias effect. According to the saying-is-believing effect, simply learning about a new perspective will not bias one's own memory if the memory is not tuned accordingly (Higgins, 1999). Therefore, if elaboration is a necessary component of this process,

then it was expected that only participants who elaborated on their memory would experience the audience-bias effect, compared to participants who did not elaborate on their memory. The results from Experiment 2 partially supported this hypothesis such that participants who elaborated demonstrated attitudes and event memory perceptions that were more consistent with the perspective of their audience than participants who did not elaborate. Additionally, the audience-bias effects were again stronger for those who experienced greater shared reality. However, the findings of Experiment 2 were more complex than anticipated such that effects of elaboration varied across topics. Therefore, it is possible that other mechanisms also influence this process, such as trust in audience which may vary by memory topic. Previous research suggests that under some circumstances, the audience-bias effect may occur without message elaboration (Echterhoff & Schmalbach, 2018). For instance, when an audience's judgement is perceived as highly trustworthy, the audience may lead to biases in subsequent attitudes without message elaboration.

It was surprising that message elaboration appeared to strengthen the audience-bias effect despite the lack of evidence for tuning. The audience-bias effect on subsequent attitudes is typically conceptualized as resulting from a shared reality with one's audience which is created via actively tuning a message description to the audience (Echterhoff, Higgins, & Groll, 2005). However, the current project suggests that this explanation may not fully account for the underlying psychological processes. For instance, the current findings suggest that participants did not actively tune their memory descriptions to the perspective of their audience nor did they always experience a shared reality, yet audience nonetheless impacted subsequent attitudes and event memory perceptions. One explanation for this paradoxical finding is that participants may be relying on the availability heuristic, which suggests that a judgement is determined by the

relevant information that is most accessible at the time of the judgement (Tversky & Kahneman, 1973).

According to the availability heuristic model, judgements are comprised of both the subjective ease of which relevant information is accessible in memory and the amount of information that is accessible in memory. Others have conceptualized this distinction as affective versus cognitive information (Breckler & Wiggins, 1989). In the case of the audience-bias effect, participants are asked to make a judgement about a relatively neutral or ambiguous topic. The perspective of the audience serves as the affective basis for the judgement. The affective judgement may then be strengthened via cognitive elaboration of one's own experience, even when the elaboration is not itself affect-based. Rather, the importance of elaboration may be due to an increase in the amount of information that is available when participants are later asked to make a judgement. Therefore, the availability heuristic model helps explain the importance of elaboration even in the absence of audience-tuning. However, additional research is needed to fully understand the role of elaboration and other psychological processes that may impact how communication of personal events may influence subsequent judgements.

The current project adds to the plethora of research on the malleability and reconstructive nature of autobiographical memory, with a focus on social influences. By combining research on audience tuning and autobiographical memories, the present findings suggest that similar processes and corresponding biases that occur when individuals communicate social attitudes may also occur when individuals communicate about their own experiences. This is consistent with a host of literature examining how communication about experiences can alter the speaker's perceptions of the experience (Echterhoff, Higgins, Kopietz, & Groll, 2008; Higgins & Groll, 2005; Tversky & Marsh, 2000). In particular, this work underscores the importance of who one

chooses to share these events with and the subtle ways that audience may alter event memory perceptions.

Many of the classic findings on false and distorted memory have focused on more overt ways that memory can become distorted such as by providing individuals with misinformation that becomes incorporated into the original memory (Loftus, 2005) or by presenting word lists that may prime individuals into false recall of words that were absent from the list (Roediger & McDermott, 1995). The idea that speakers' memory for experiences can be biased by their own communication about these experiences is arguably less intuitive than the notion that memory becomes distorted through the exposure of additional information. Therefore, it is important that researchers continue to examine the complex dynamics by which communication and its underlying motivations reshape memories and may impact how they become integrated with the self. It is possible that various forms of social influence from other research domains may also serve as tools for memory researchers as they seek to understand the different types of social influence on memory.

Limitations and Future Directions

The current project provides evidence that shared reality is an important component of the audience-biasing effect in relation to autobiographical events. Specifically, the predicted effect was larger for individuals who also reported experiencing a shared reality with their audience. However, an important limitation of the current project is that participants did not record pre-manipulation attitudes and event memory perceptions. Therefore, the current project cannot determine the causal nature of shared reality on subsequent perceptions. In other words, it is possible that audience perspective had larger effects for individuals who already agreed with the perspective of their audience and thus, because of this congruence, also naturally experienced more shared reality. Although, the main effects of audience condition on subsequent memory

attitudes and memory perceptions suggest that individuals were biased by the audience despite previous attitudes about the topic.

Lastly, it is surprising that there was little evidence that audience perspective influenced actual memory descriptions, as previous literature typically finds that individuals tune their message descriptions to be aligned with the perspective of their audience (Higgins, 1999). However, it is possible that individuals were tuning in a way that was not detected, as the memories chosen for this project were relatively neutral topics and unimportant. It is possible that tuning may be more pronounced for more emotional memory topics.

Although outside the scope of this project, future studies should explore possible boundary conditions for the audience-bias effect regarding autobiographical memories. For instance, differences across the various memory topics suggest the possibility of additional moderators of this effect. Researchers tend to treat memory topics similarly or merely separate them into positive and negative experiences. However, despite the pilot study demonstrating that the memory topics used in Experiment 1 were evaluatively similar, the findings across both experiments suggest that there may be subtle but important differences in memory topics that impact how these memories are reflected on. Future research should further explore underlying mechanisms that may help explain the differences found across memory topics such as whether importance to the self-concept or trust in audience may influence these processes.

Conclusion

In conclusion, the current project provides insight into how memories may become distorted through telling (Marsh & Tversky, 2004) and how people use the perspectives of others to help reconstruct and make sense of past experiences. This work has important implications as autobiographical memories influence how we think about our past, how we plan for the future, and how we view our current self (Bluck, Alea, Habermas, & Rubin, 2005). As described by

Smorti, “autobiography in its double sides — that of memory and that of narrative — is a process of continuous construction that is deeply linked to social relations” (2011). The present investigation is the first to provide evidence that the perspective of an audience whom one shares a memory with can lead to subsequent attitudes and perceptions about the memory that are more consistent with the audience perspective.

Additionally, the desire to achieve a shared reality with one’s audience appears to be a key component of this process. Within the area of autobiographical memory, shared reality is a relatively new and unexplored topic that warrants further investigation. Understanding how shared reality aids in memory construction also has important implications for other social phenomena such as group identity and consensus. Future work should continue to explore the role that social influences have on memory and how people use communication of their memories to help them achieve a deeper understanding of what is real and meaningful not only about the world but also about themselves.

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APPENDIX A. EXPERIMENT 1 ESSAY CODED VARIABLES

Table 13

Experiment 1: Correlation Matrix for Essay coded variables

	1.	2.	3.	4.	5.	6.	7.	8.
1. Positivity	-							
2. Negativity	-.42**	-						
3. Overall Valence	.70**	-.83**	-					
4. Positivity at End	.69**	-.45**	.76**	-				
5. Negativity at End	-.50**	.74**	-.80**	-.62**	-			
6. Overall Valence of End	.67**	-.63**	.87**	.88**	-.86	-		
7. Positive Consequences	.69**	-.44**	.69**	.75**	-.56	.74**	-	
8. Negative Consequences	-.42**	.72**	-.69**	-.50**	.68**	-.63**	-.42	-

Note. *p < .05, **p < .01

Table 14

Experiment 1: Means of Coded Essay Variables across conditions

Topic:	<u>Positive Audience</u>			<u>Negative Audience</u>			<u>No Information Audience</u>			<u>Audience</u>	<u>Topic</u>	<u>Interaction</u>
	Multitasking	Group work	Social media	Multitasking	Group work	Social media	Multitasking	Group work	Social media	(η_p^2)	(η_p^2)	(η_p^2)
Positivity	0.50	0.81	0.86	0.72	0.83	0.75	0.33	0.80	0.67	.010	.033	.011
Negativity	0.66	0.67	0.62	0.94	0.81	0.75	0.60	0.50	0.98	.018	.008	.041
Overall Valence	-.21	.28	.21	-.47	.03	.02	-.27	.20	-.30	.010	.033	.010
Positivity at End	0.55	0.86	0.93	0.64	0.97	0.82	0.42	0.95	0.70	.007	.062**	.009
Negativity at End	0.50	0.50	0.48	0.81	0.64	0.70	0.71	0.55	0.73	.026	.006	.005
Overall Valence at End	-.05	0.42	0.33	-0.08	0.36	0.20	-0.25	0.38	-0.05	.006	.034	.003
Positive Consequences	0.53	0.69	0.69	0.44	0.72	0.70	0.38	0.75	0.55	.006	.063**	.009
Negative Consequences	0.68	0.67	0.52	0.83	0.78	0.61	0.75	0.53	0.73	.012	.018	.025

Note. *p < .05, **p < .01

APPENDIX B. EXPERIMENT 2 ESSAY CODED VARIABLES

Table 15.

Experiment 2: Correlation Matrix for Essay coded variables

	1.	2.	3.	4.	5.	6.	7.	8.
1. Positivity	-							
2. Negativity	-.41**	-						
3. Overall Valence	.83**	-.78**	-					
4. Positivity at End	.87**	-.36**	.75**	-				
5. Negativity at End	-.50**	.83**	-.76**	-.50**	-			
6. Overall Valence of End	.80**	-.64**	.89**	.86**	-.83**	-		
7. Positive Consequences	.85**	-.36**	.76**	.83**	-.49**	.76**	-	
8. Negative Consequences	-.48**	.79**	-.74**	-.42**	.75**	-.66**	-.43**	-

Note. ** $p < .01$

Table 16.

Experiment 2: Means of Coded Essay Variables across conditions

Topic:	Positive Audience		Negative Audience		No Information Audience		Audience (η_p^2)	Topic (η_p^2)	Interaction (η_p^2)
	Multitasking	Group work	Multitasking	Group work	Multitasking	Group work			
Positivity	0.45	0.76	0.31	0.56	0.30	0.54	.03	.06**	.00
Negativity	0.50	0.41	0.65	.69	0.57	0.92	.06**	.01	.03
Overall Valence	-.05	.38	-.35	-.17	-.23	-.38	.06**	.01	.02
Positivity at End	0.52	0.85	0.31	0.56	0.37	0.58	.06*	.06**	.00
Negativity at End	0.36	0.31	0.62	0.63	0.50	0.73	.08**	.00	.01
Overall Valence at End	0.13	0.49	-.33	-.13	-.17	-.04	.07**	.02	.00
Positive Consequences	0.45	0.68	0.25	0.46	0.30	0.46	.05*	.05*	.00
Negative Consequences	0.54	0.32	0.77	0.63	0.63	0.92	.11**	.00	.05*

Note. * $p < .05$, ** $p < .01$