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Memory-based versus on-line processing: Implications for attitude strength

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Abstract

Three experiments tested whether the manner in which attitudes are created—through on-line or memory-based processing—can impact the resultant strength of those attitudes. In each study, participants were presented with 20 behavioral statements about a person named Marie. Whereas some participants were asked to continually evaluate Marie based upon each sentence and then report their overall evaluation (on-line processing), others were asked to focus on the sentence structure and to evaluate Marie only after they had read all the sentences (memory-based processing). Even when controlling for attitude accessibility, attitudes created through on-line processing were stronger than attitudes created through memory-based processing: Experiment 1 showed that participants in the on-line condition felt more certain of their attitudes, Experiment 2 showed that on-line attitudes were better predictors of participants' evaluative preferences, while Experiment 3 showed that on-line attitudes manifested stronger attitude–behavioral intention correspondence.

Keywords: On-line processing; Memory-based processing; Attitude certainty; Attitude strength; Attitude accessibility; Attitude-behavior correspondence

The social world is filled with an abundance of stimuli that individuals are capable of evaluating. Although some information is likely to be evaluated on the spot, situational as well as personality factors sometimes lead people to evaluate information only at a later point in time when an evaluation is required. This distinction has been discussed as one of on-line than following memory-based evaluation (Hastie & Park, 1986). *On-line* attitudes have been defined as attitudes that result when people evaluate individual pieces of information as they are received and integrate these evaluations into an overall attitude by the time processing terminates. Thus, when a judgment is required, an individual simply retrieves the overall evaluation that has already been formed (see Srull & Wyer, 1989). *Memory-based* attitudes have been defined as attitudes that involve relatively less on-line evaluation. That is, when attitudes are formed in a memory-based fashion, information is not evaluated as much as it is received; rather, it is stored in memory. When a judgment is required, individuals retrieve as much of this information from memory as they can, evaluate the individual pieces of information, and then synthesize these "mini-assessments" into a global evaluation based on that retrieved information. In essence, whereas on-line attitudes are thought to consist of an evaluation created during information reception, making them relatively independent of recalled information, memory-based attitudes are thought to consist of an evaluation created at the time a judgment is required, making them more dependent on recalled information. In general, research has shown that on-line attitudes are most likely to occur when an individual has both the goal of forming and the resources to form an evaluation as he or she processes relevant information (Hastie & Park, 1986).

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To date, the literature has addressed two major differences between attitudes based upon on-line versus more memory-based processes. First, memory-based attitudes, compared to on-line attitudes, are more strongly (positively) correlated with the valence of the information that individuals recall about the attitude object (see Chartrand & Bargh, 1996; Hastie & Park, 1986; Lichtenstein & Srull, 1987; Mackie & Asuncion, 1990; Tormala & Petty, 2001). This is likely because memory-based attitudes, by definition, are relatively dependent on the specific information extracted from memory. Conversely, on-line attitudes are less reliant on information from memory (e.g., recalled traits, behavioral information; see Anderson & Hubert, 1963; Srull & Wyer, 1989) and more reliant on the evaluation that was formed at the time of initial encoding.

Second, on-line attitudes tend to be more accessible than memory-based attitudes—that is, they manifest shorter response latencies when being reported. Because on-line attitudes are formed as information is received, individuals simply need to retrieve the evaluation that was formed at the time of encoding. To report memory-based attitudes, individuals must retrieve each piece of information they can recall about the attitude object and then compute an attitude from the retrieved information. Thus, memory-based attitudes typically require both retrieval of multiple items and computation, creating a longer lag in reporting attitudes relative to on-line attitudes, which only require retrieval of the previously stored evaluation. Various studies have demonstrated that attitudes are reported more quickly following on-line than following memory based processing (e.g., Lingle & Ostrom, 1979; Mackie & Asuncion, 1990; Tormala & Petty, 2001).

Consequences for attitude strength

Although past research has shown these two features to be reliable consequences of on-line versus memory-based processing, little research has probed beyond these basic findings. The present research seeks to do so by testing the hypothesis that attitudes formed through on-line processing will manifest greater attitude strength in ways beyond heightened accessibility. Krosnick and Petty (1995) defined strong attitudes as those that are durable and impactful. In terms of durability, strong attitudes tend to be more persistent across time (e.g., Bassili, 1996) and more resistant to persuasion (e.g., Bassili, 1996; Eagly & Chaiken, 1995; Haugtvedt & Petty, 1992; Tormala & Petty, 2002; Wu & Shaffer, 1987). Strong attitudes also exert greater impact on thought and behavior. That is, as attitude strength increases, attitudes have a greater biasing effect on thought (i.e., they lead to more attitude-congruent thinking; e.g., Pomerantz, Chaiken, & Tordesillas, 1995) and are more predictive of behavior (i.e., they lead to greater attitude–behavior correspondence; e.g., Fazio & Zanna, 1978; Rucker & Petty, 2004; Tormala & Petty, 2002).

In short, attitude strength is associated with a variety of important consequences. Prior research showing that on-line attitudes are more accessible than memory-based attitudes, however, does not reveal whether on-line attitudes have additional strength effects as well, nor whether these effects are independent of accessibility. Although attitude accessibility is a well-established feature of attitude strength, known to contribute to the durability and impact of attitudes (see Fazio, 1995), accessibility differences between on-line and memory-based attitudes typically exist only the first time an attitude is reported (e.g., on the first in a series of attitude items; see Tormala & Petty, 2001). Once attitudes have been formed and reported that first time, accessibility differences may be reduced or eliminated. Indeed, repeated expression of an attitude should make it more accessible for everyone (Fazio, Chen, McDonel, & Sherman, 1982), regardless of how it was initially formed. Thus, it remains to be determined if on-line attitudes differ from memory-based attitudes in their underlying strength *downstream*—that is, after they have already been formed and reported. The present research addresses this issue for the first time.

The primary objective of the current research is to determine if on-line processing increases attitude strength as assessed in a variety of ways, or if it merely enhances attitude accessibility at the initial time an attitude is reported. We expect that attitudes formed through on-line processing will prove generally stronger than attitudes formed through memory-based processing, and we expect that these effects will be independent of initial, even short-lived, differences in attitude accessibility. We suspect that this is likely to occur given a number of unique inferences that might accompany on-line attitude formation, a point which we will explore in greater detail in the General discussion.

Across experiments, we assessed different features associated with strong attitudes. In past research, such features have been categorized as being either operative or meta-attitudinal in nature (e.g., Bassili, 1996), accessibility being the most studied of the operative features and attitude certainty being the most studied of the meta-attitudinal features. Thus, in Experiment 1, we examined attitude certainty and sought to establish its independence from initial differences in attitude accessibility. In the next two experiments, we examined important downstream features of strength—attitude-preference consistency in Experiment 2 and attitude–behavioral intention correspondence in Experiment 3. We expected that attitudes would prove more predictive of other preferences and behavioral intentions following on-line as opposed to memory-based processing.

Experiment 1

Method

Participants and procedure

One-hundred thirty-six participants enrolled in psychology classes at a medium-sized Midwestern university took part to fulfill a course requirement. Upon entering the laboratory, participants were seated at computers presenting all materials using MediaLab software (Jarvis, 2002). Participants were randomly assigned to receive instructions