The Effect of Embodied Social Cognition, Message Strength, and Message Framing on Counter-Attitudinal Persuasion

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Introduction

Embodied cognition entails the idea that the body plays an important part in processing and representing social and cognitive information, and that these processes are grounded in a physical context (Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). Embodiment has previously been shown to influence participants' receptivity to persuasive messages:

- For example, Wells and Petty (1980) instructed participants to move their heads either vertically (nodding), horizontally (shaking), or not at all while listening to a persuasive message. Head movement influenced attitude change: participants reported more favorable thoughts toward both proattitudinal and counterattitudinal messages when nodding than when shaking their heads.

Our aim was to extend these results and observe how to maximize support for counter-attitudinal persuasive messages by also manipulating the messages themselves. We selected the following study as a guide:

- Smith and Petty (1996, experiment 1) had participants read a strong or weak argument that encouraged recycling and had been framed either positively (i.e., gain-related) or negatively (i.e., loss-related). Positively-framed messages elicited equally favorable thoughts toward both strong and weak arguments, but negatively-framed messages elicited more favorable thoughts toward strong rather than weak messages.

Conceptually combining these studies, we instructed participants to move their heads vertically, horizontally, or not at all while listening to four counterattitudinal messages that differed by strength (strong or weak) and framing (positive or negative), and then report their agreement and support for each message.

Method

Participants were undergraduate students who voluntarily participated, $n = 82$. Students were randomly assigned to head movement (nodding, shaking, or no head movement), message quality (strong or weak), and message framing (positive or negative) conditions. Head movement was treated as a between-participants factor, whereas message quality and framing were treated as within-participants variables.

Participants listened to four simulated radio broadcasts that contained counter-attitudinal messages of high relevance:

(1) increasing yearly tuition rates per student
(2) building no additional parking lots;
(3) imposing a high pass-fail cut-off score for senior comprehensive examinations;
(4) allocating more university funds toward athletic programs.

Each broadcast was comprised of a unique combination of message quality and framing, and only one combination was used for each message topic: (a) strong-positive; (b) strong-negative; (c) weak-positive; and (d) weak-negative.

After listening to each broadcast, participants were asked to rate on a 7-point scale anchored by 1 (Strongly Disagree/Do Not Support) and 7 (Strongly Agree/Support) to what degree they agreed with and supported the message they just heard. We then asked a third, open-ended question that allowed participants to express their agreement with the message by answering the question with any number (e.g., dollar amount, percentage of increase or decrease) that could be compared to a baseline answer.
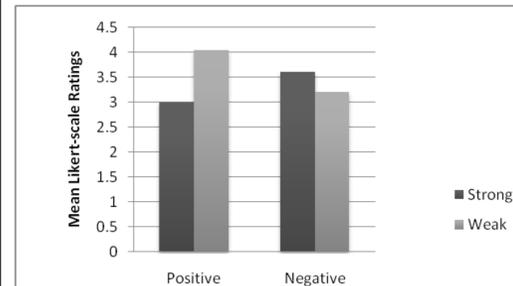

Figure 1. Participants who nodded reported more agreement and support for strong, negatively-framed messages than weak, negatively-framed messages.
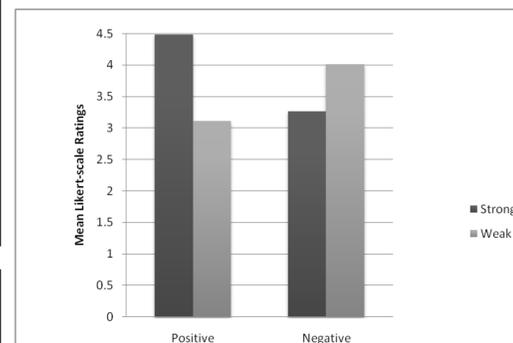

Figure 2. Participants reported more attitude change while listening to strong rather than weak messages. However, unlike nodding participants, those who shook their heads were more persuaded by positively-framed rather than negatively-framed messages.
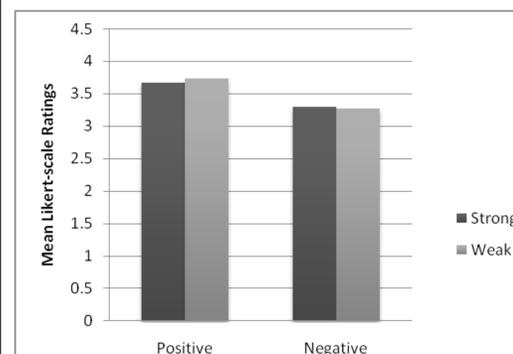

Figure 3. Participants who neither nodded nor shook their heads experienced no attitude change as a result of hearing the persuasive messages.

Results & Discussion

ANOVA for the Likert-scaled (combined) agreement and support data revealed a significant three-way interaction, $F(2, 78) = 6.94$, MSE = 2.93, H-Fp = .002, $\eta^2 = .15$, and no main effects of quality, framing, or head movement. Subsequent ANOVAs for each head movement condition were also conducted:

- Nodding: No main effects for quality or framing were indicated, but the interaction between quality and framing was significant, $F(1, 23) = 6.97$, MSE = 1.78, p = .015. Strong-negative messages elicited higher levels of agreement and support than weak-negative messages, $t(23) = 2.24$, p =.035. These data are illustrated in Figure 1.
- Shaking: A significant interaction between quality and framing was indicated, $F(1, 25) = 8.36$, MSE = 3.48, p = .008, and there were no main effects (see Figure 2). Participants experienced more attitude change while listening to strong-positive rather than weak-positive messages, $t(25) = 2.64$, p = .014.
- No head movement: No interaction was found, $F(1, 30) = .022$, MSE = 3.34, p = .884, nor were there any main effects. See Figure 3 for these data.

A repeated measures ANOVA was conducted on the open-ended dependent measures after participants' answers were converted to z-scores, revealing no main effects and no interaction of quality, framing, or head movement, $F(2, 69) = 1.45$, MSE = 1.11, H-Fp = .243, $\eta^2 = .04$.

Our explanation for these results is that head movement caused a violation of participants' expectations of message content (c.f., Smith & Petty, 1996, experiment 2), influencing the amount of attention paid to each message. Nodding participants inherently expected to hear messages containing positive framing, and upon hearing positively-framed messages, they paid less attention to, elaborated less on, and experienced less attitude change because of the expected message content. However, when nodding participants heard messages that were strong and contained negative framing, their expectations were interrupted, causing increased attention toward and elaboration of the messages and subsequent attitude change. Head shaking produced a similar effect, except that when shaking was paired with strong-positive messages, increased elaboration of the messages occurred and further attitude change resulted.

Conclusion

The present study examined participants' receptivity to counter-attitudinal persuasive messages that differed by strength and framing while participants nodded or shook their heads (or not), and then reported to what degree they agreed with and supported the messages. A significant three-way interaction was found for the head movement, quality, and framing conditions, indicating (a) nodding participants experienced increased attitude change when exposed to strong-negative messages; (b) shaking participants experienced increased attitude change after hearing strong-positive messages; and (c) participants who did not move their heads experienced no attitude change after hearing the messages.

Previous research has firmly demonstrated how the use of somatic systems leads to specific changes in processing, influencing attitudes toward neutral objects (Tom, et al., 1991), facilitating confidence in one's own thoughts (Briñol & Petty, 2003). However, we propose that some of these previously examined changes in processing via embodiment may be a result of implicit expectancy change; that is, embodiment may support or interrupt one's intrinsic expectations of content, redirecting one's attention, thoughts, feelings, and behaviors—a theory requiring additional empirical support.

Our research attempted to conceptually replicate the results of Wells and Petty (1980), and Smith and Petty (1996), to examine ways to maximize receptivity to persuasive messages. Our data indicate that careful manipulation of embodiment and message composition are essential to encourage attitude change toward counter-attitudinal topics.

References

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