DISCRETE, NEGATIVE EMOTIONS AS A COGNITIVE-FUNCTIONAL SOURCE OF SYSTEMATIC PROCESSING, AND PERSONAL RELEVANCE AS A SOURCE OF POSITIVE BIAS

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The following faculty members have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts, with a major in Communication.

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ABSTRACT

The current study examines discrete, negative approach emotions from a cognitive-functional perspective to test their potential as an alternate condition for heuristic processing under conditions of affirmative remedial certainty. A concurrent prediction for personal relevance to serve as a source of positive bias under these conditions is also tested. An experimental study design was conducted using a fictional issue-based message, and the results were generally supportive of both predictions. Sadness did emerge as a potential confound for the intended elicitation of anger in the emotion manipulation. Implications for the theoretical models of the study, practical implications for issue-based rhetoric and potential avenues for future research are discussed.

INTRODUCTION

To quote Dr. Bryan Caplan, "Voter irrationality is the key to a realistic picture of democracy." Emotion, as a potentially irrational influence on behavior which has displayed relevance in the political sphere, (Parker, 2010) is surely part of this picture. While Dr. Caplan's sentiments remain true, using the term irrational should be avoided as it may imply a lack of thought, and the extant communication literature suggests the influence and role of emotion is tightly intertwined with cognitive mechanics. (Witte, 1992; Nabi, 1999) It is the cognitive effects of this oft-perceived heuristic source of persuasive influence that is of interest to this research proposal.

While message processing suggests itself as a strictly cognitive process, the literature suggests emotion has the potential to influence the direction and depth of processing. (Petty, 1988; Nabi, 1999) A common theme of the role for emotion within processing is variability, dependent upon the context of message and receiver characteristics. (Petty, 1991) The specific role this research proposal examines is emotion's capacity to heighten processing motivation under circumstances of discrete negative emotion. (Nabi, 1999)

Support for this role of emotion in persuasive message processing is found in the framework of the cognitive-functional model for the effects of discrete negative emotions on message processing. (Nabi, 1999) This prediction is stipulated by the model. However, later tests of the CFM's predictions focused primarily on the influences of expectations for action recommendations offered by the message on attitudes, among other variables which did not include an explicit test of central processing by way of mediated motivation. (Nabi, 2003) It is the goal of this research proposal to specifically test for this prediction.

Moreover, Dr. Nabi's tests of the CFM (2003) produced a finding in which indicators of systematic processing failed to appear in anger-induced subjects under conditions of high remedial certainty. This is a contradiction to the model's predictions which is of high relevance to this proposal. In this 2003 work, Dr. Nabi acknowledged the possibility that only uncertain remedial certainty creates emotion-induced systematic processing, not extending to approach emotions under certain remedial certainty as the model had previously predicted. Indeed, this explanation put forth by Dr. Nabi is plausible. On the other hand, the effects observed in the data may also represent positively biased processing. Dr. Nabi's study examined effects with weak arguments specifically; weak arguments would receive more favorable evaluations under biased, systematic processing, as happened in the study. Dr. Das (2003) also found biased, systematic processing co-occurs with personal vulnerability to a threat in the context of fear appeals. Dr. Nabi's study employed arguments relating to domestic terrorism in her study, a plausible induction of personal vulnerability. The transition from fear (Das, 2003) to a particular finding under anger (Nabi, 2003) in the literature is not of concern to the current study. Both the fear induction in Das, 2003 and anger under affirmative remedial certainty elicit a core relational theme which is relevant to the message, and both settings suggest the remedial goal as within the message. These features encourage systematic processing, with which personal relevance interacts as a source of positive bias. Vulnerability, for its part, is integrated into predictions as a parallel for relevance in the current study.

Personal relevance is both a conventional indicator of motivation under the ELM (Petty, 1984) and an effective synonym with issue-involvement under the HSM. (Chaiken, 1980) If argument strength is discriminated in the absence of personal relevance, and high personal relevance coincides with high perceptions of personal vulnerability, one might expect biased

processing effects in high-relevance conditions to present an alternative explanation for Dr. Nabi's finding. In order to test for this prediction, this study will use a between-subjects experimental design which compares for effects of personal relevance across argument strength on attitudes towards an issue-based persuasive message. A distinction between biased, systematic processing and heuristic processing ought to be visible under this factorial. The hypotheses are as follows:

H1: Low-relevance and high-relevance subjects will evaluate strong arguments more favorably than weak arguments.

H2: High-relevance subjects will report more favorable attitudes on strong and weak arguments than low-relevance subjects, respectively.

This effect for emotion on processing is significant for practitioners as systematic processing presents an avenue for lasting attitude change. (Chaiken, 1980) Furthermore, the occurrence of systematic processing in listeners due to emotional cue use alters the strategy for incurring attitude change and reinforcement with issue-based discourse, placing greater emphasis on the quality of arguments used within the message. For researchers, this facilitates the identification of cognitive-functional principles occurring in emotional conditions which are message-induced and extends the range of predictions supported by the literature which can be made for message evaluations under such conditions.

LITERATURE REVIEW

The role of affect in processing has remained an evolving concept over the last several decades. Fear appeals served as an early emphasis for the earliest emotion in persuasion literature due to their frequent use in health and public service communication. The body of research surrounding fear appeals dates back to the 1950s (Janis & Freshback, 1953) and documents inconsistent results for several decades. (Witte, 1992) A fair degree of this inconsistency was reconciled when the Extended Parallel Processing Model applied cognitive concepts and specified terms to identify a variable role for emotion in persuasion. (Witte, 1992)

From here, the relationship between emotion and cognition came into clear focus as a matter of importance for developing a functional understanding of emotion's role in persuasion. In order for such an understanding to develop, a working theory for emotion is necessary. A working theory for emotion serves to establish a definition of emotion, how emotions should be classified, and, consequently, the functional relationship between cognition and emotion. (Lazarus, 2000) The literature's path towards a working theory for emotion which elucidates its cognitive influence has not undergone a linear development. Rather, scholars have developed three distinct responses to this matter of inquiry which each carry their own merits, and put forth different predictions for the influence of emotion upon cognition. (DeSteno, 2004)

The manner in which emotions are classified serves as the source of initial difference between the three working theories of emotion, although other meaningful distinctions follow from their differing approaches as implications. The three primary working theories in the emotion literature are the bipolar model, the two-dimensional model and the discrete emotions model. The discrete emotions model is the approach employed in this study.

Discrete models of emotion reject the continuum-based approach used by the other two working theories, and instead identify emotional states as individually distinct (e.g., anger, fear, joy). To advance discrete categories, a clear, meaningful difference must be identified between them. Their distinction stems from differing appraisals of one's relation to their current environment and how this relation is relevant for extant goals, which reflects the influence of the emotion upon attitudes and behavioral intentions. (Lazarus, 1991) Each emotion bears a core relational theme, and if a theme closely matches the individual's appraisal of their current relationship to the environment, the emotion will activate. In the context of persuasion, this also requires relevance of the core relational theme to the message. (Nabi, 1999) This is a cognitive-functional process. As such, discrete models establish a cognitive mechanism of action for emotions. (Lazarus, 2001)

As an example, consider an individual who is eating lunch with people they are trying to impress. During this meal, a friend happens across them and brings up an embarrassing story in front of their dining companions. There are specific conditions under which this individual will experience anger. Their extant goal is to impress their dining companions, and the core relational theme of anger is a demeaning offense against me and mine. (Lazaurs, 1991) Further encouraging anger, the individual might attribute this incident to behavior which they perceive as within the friend's control. (Weiner, 1986) Since the friend has placed an extant goal relevant to dignity under duress with their own behavior, the core relational theme of anger is judged as relevant and experienced by the individual.

The emotion one experiences when extant goals are incongruent with the environment will be that of the core relational theme which is judged most relevant, and the action impulse which follows from this emotion will be determined by the perceived implications of the core

relational theme for the preservation of one's goals. in this case, telling their friend to buzz off is a likely action impulse; it removes what the core relational theme would suggest is a threat to an extant goal from the environment, and discourages future contact with the threat by way of a negative effect on their attitude towards the friend.

Alternatively, this person might experience a different emotion under slightly different conditions. Perhaps what their friend says is a story which just happened recently, and this individual is a passive person. If the individual attributes this incident to their self rather than their friend, they might experience shame. (Weiner, 1986) The core relational theme for shame is a failure to live up to an ego-ideal. (Lazarus, 1991) Not all action impulses will lead to truly productive recourse; the options perceived as viable for preserving of one's goals are bound by the confines of the core relational theme. In this case, the core relational theme suggests an extant goal is threatened by the self, so action impulses will represent withdrawal, such as covering one's face or removing oneself from the group.

These processes may not be consciously contemplated by the individual, but the emotion is born from this association of their environment, their goals and the theme of the emotion with each other. The mechanism of action for the emotion's influence on attitudes is cognitive because a cognitive process determines the emotion. Discrete models, and their distinct mechanisms for identifying the influence of emotion have proven relevant in multiple works on emotion in persuasion, including those within the domain of political rhetoric. (Hullett, 2003; Wirz, 2018) As this paper examines the influence of emotional states upon a deeply cognitive processing mechanism in systematic processing, and discrete models are distinctly prepared in comparison to their counterparts to explain interactions of emotion and cognition—not only in

terms of outcomes but their causal relationships—a discrete model of emotion will be the framework employed in this study.

Three prior works serve as the primary justifications for this research proposal: Dr. Chaiken's Heuristic-Systematic Model, Dr. Nabi's Cognitive-Functional Model and Dr. Albaraccin's research modelling Affect as Information. This thesis will draw on research from the broader body of relevant literature as it becomes necessary or helpful for a discussion primarily centering on these three bodies of work.

The Heuristic-Systematic Model (Chaiken, 1980) provides the first theoretical framework for this research proposal. The HSM supposes a message recipient will process messages systematically or heuristically depending on the personal relevance of a message (issue involvement), their interest and incentive for thinking deeply about the message (response involvement), and accessibility. (Chaiken, 1980) Systematic processing occurs predominantly when these qualities are present, which results in high scrutiny and the use of content-based cues to determine message evaluations. Heuristic processing occurs predominantly when these qualities are lacking, which results in heuristics (i.e., pre-established associations of select responses with certain categories of stimuli) and non-content cues primarily influencing message evaluations.

The Elaboration Likelihood Model (Petty, 1986) bears mentioning in the context of the primary framework. While both the CFM and current study utilize the HSM as a primary framework, both also integrate ELM concepts into their predictions. Specifically, motivation and ability are concepts of the ELM, and not the HSM. Motivation and ability influence processing route. (Petty, 1986) The ELM's processing routes consist of central and peripheral processing. Like the HSM's heuristic and systematic processing, peripheral and central processing represent

an economic and an effortful route for message processing, respectively. The ELM and HSM, collectively known as the "dual-processing models", are two similar frameworks with a small number of significant differences.

First, the HSM lacks the trade-off hypothesis of the ELM, freely allowing both heuristic and systematic processing to occur simultaneously. While the ELM stipulates a message recipient may undergo both forms of processing in response to the same message, the trade-off hypothesis stipulates a zero-sum-like relationship between them in the form of their respective likelihoods to occur, which trend in opposite directions on a given mediator.

Second, a prediction for emotions to effect influencers of processing (e.g., motivation, ability, issue involvement) is compatible with the HSM but contradictory to the ELM. (Nabi, 2003) While the ELM's authors have recognized a capacity of emotion to effect direction and depth of processing under particular circumstances of elaboration (Petty, 1988), the ELM and subsequent works by its authors suggest motivation and ability specifically are established prior to the influence of emotion. Among the most notable influences emotion may exert in the ELM are A) as a peripheral cue under conditions of peripheral processing. (Petty, 1988) B) as an argument under conditions of high elaboration, assuming the emotion is goal-relevant. (Petty, 1988) C) as a disruptor of processing under high emotional intensity. (Petty, 1991) D) as a determinant of direction and depth of processing under conditions of moderate elaboration. (Petty, 1988) With the exception of C, these findings each identify a specific elaboration likelihood as a mediator of emotion's effect on processing outcomes, whereas the current research is interested in emotion's effect on elaboration.

It is worth noting, the ELM authors' works on affect primarily studied moods--pre-existing, extraneous sources of emotional arousal—in the research designs, while this study will

examine emotion induced by message content. The difference between the two is significant. In contrast to moods, discrete emotions operate in a targeted fashion and motivate reactive behaviors towards the initiating object. (Frijda, 1986)

Within this study, discrete emotions refers to distinct emotional states (e.g., anger, fear, joy). Multiple works within the emotion and processing literature have found discrete emotional categorizations useful. Discrete emotional categories facilitate the appearance of alternative distinctions in research such as approach and avoidance emotions (also referred to as appetitive and aversive emotions). In certain settings, this categorization is of greater importance for processing outcomes than valence. (Yan, 2012; Parker, 2010) For example, anger and fear are both negative-valence emotions, but anger is an approach emotion and fear is an avoidance emotion. The remedial goal of an approach-based emotional state is far different than that of an avoidance-based emotional state, which results in divergent preferences for gain- or loss-frames and extent of information seeking, as examples. (Yan, 2012; Parker, 2010) Dr. Nabi's Cognitive-Functional Model (Nabi, 1999), the second framework used in this study, integrates the approach/avoidance dichotomy.

The remedial goal of an emotion is determined by the core relational theme which precedes it. (Lazarus, 1991) A core relational theme is a setting which becomes associated with an emotion because it carries some perceived risk for benefit or harm to the individual experiencing the emotion.

Dr. Nabi's Cognitive-Functional Model uses Extended Parallel Processing principles to clarify the relationship between discrete negative emotions and attitude formation under message-induced emotional states. This model integrates ELM principles into its design and predictions. Continuing the trend from Dr. Petty's findings for mood states as exerting a variable

effect on message evaluations, Dr. Nabi's model posits the effect of discrete negative emotions is dependent upon both receiver and message characteristics.

The Cognitive-Functional Model becomes relevant for the processing of a message when the receiver perceives the core relational theme of an emotion as dominant within a message, and judges it personally relevant. The receiver is now motivated to achieve the emotion's remedial goal, and is encouraged to engage with the message to do so if they are experiencing an approach emotion.

Depending on receiver and message characteristics, the subject will follow branching paths through the Cognitive-Functional Model process, which all end with a combination of motivated processing or peripheral processing, and message acceptance or rejection. Initially, the message recipient will establish an expectation for if the message will offer a satisfactory remedy for achieving the goal associated with the emotion's core relational theme. If the expectation is no, they will process the message with low motivation. If the expectation is uncertain, they will process with high motivation. If the expectation is yes, they will experience high motivation only if the induced emotion is an approach emotion.

If the receiver has high motivation to process the message for their core relational theme due to affirmative or uncertain expectations of receiving a remedial action recommendation from the message, they will undergo motivated, systematic processing if they have high ability to process the message. They will undergo peripheral processing if they do not. Those with low motivation to process due to failing the core relational theme or expectation stipulations will undergo peripheral processing. Both systematic, motivated processing and peripheral processing can lead to either message acceptance or rejection depending upon the favorability of thoughts as well as satisfaction with the remedial action proposals offered by the message.

The third key predecessor to this work is Dr. Albaraccin's research on the Affect as Information hypothesis (Albaraccin, 2003), which identifies a concept important for broader application of the Cognitive-Functional Model, and sets an empirical basis for this study.

Dr. Albaraccin's work is primarily concerned with the Affect as Information hypothesis. Specifically, Dr. Albaraccin's experiments suggest moods serve as information, which message recipients use to make judgements under conditions of mixed ability and motivation (i.e., one is low and the other is high), because these are the conditions under which the mood's influence is identified but not discounted.

It is Dr. Albaraccin's data, rather than the Affect as Information hypothesis itself, that is of interest to this study. More specifically, this study builds on the findings of experiment 3, which suggest identification can occur if the affective state is emphasized during or before message processing. A key difference between moods and message-induced emotion is a predisposition towards relevance and a greater ability to influence processing for the latter (Nabi). With a degree of inference, these findings in experiment 3 by Dr. Albaraccin provide some ground to stand on in applying the study's data to message-induced emotion hypotheses, so long as the present study does not focus its discussion on low-ability, low-motivation conditions as they occur under circumstances which are unlikely during settings of motivation-mediating, message-induced emotional cueing, and thus the data we examine under the CFM.

This study predicts that message-induced arousal of approach emotions will carry a positive relationship with processing motivation, and thus mediates the occurrence of systematic processing under low-motivation/high-ability conditions.

Dr. Albaraccin's experiment 1 examined a counter-attitudinal message under conditions of negative and positive mood, strong and weak arguments, and four ability conditions with five dependent variables.

For the dependent variable of cognitions suggested by prior knowledge, high-ability/low-motivation was the only condition to see a significant negative difference between strong and weak arguments, which is a fundamental indicator of central processing. (Petty, 1985) Furthermore, prior knowledge has displayed positive interactions with systematic processing, lending greater confidence to this association. (Averbeck, 2011)

Experiment 2 within the publication examines a pro-attitudinal message under similar variables.

In summary, if the hypotheses held true, the expected observations from the data in experiments 1 and 2 would include: A) LM/HA participants differentiate between strong and weak arguments on cognitions and attitudes at a significant level due to the presence of systematic processing. B) LM/HA participants generate greater positive cognitions for attitudinally congruent strong arguments and greater negative cognitions for attitudinally incongruent weak arguments than low-ability conditions due to biased, systematic processing. C) LM/HA participants generate fewer negative cognitions towards attitudinally congruent weak arguments and fewer positive cognitions towards attitudinally incongruent strong arguments than low-ability conditions due to the presence of biased processing. These expectations are satisfied by the dataset far more often than they are not.

More hypotheses than those listed in this discussion may be generated from our position, but unfortunately Dr. Albaraccin's dataset did not report affect x argument strength interactions.

This might be expected given they did not design their study with this analysis in mind. Nonetheless, it limits the relevant observations available in the data.

It is not the intent of hypothesis 2 in the current research to claim negative discrete emotions will not induce biased processing, but rather that biases resulting from personal vulnerability will present in one condition but not the other. The presence or absence of the vulnerability bias will create the discrepancy this study intends to isolate as the alternate cause of anger's apparent similarity to control under affirmative remedial expectations in Dr. Nabi's study.

The hypotheses of this study are founded upon the predictions of the CFM as well as Dr. Albaraccin's dataset. Both hypotheses represent a measurement of systematic processing, and according to the CFM with support from Dr. Albaraccin's dataset, systematic processing can be expected to occur in conditions of low-relevance but high-ability due to motivation derived from the presence of content-induced, negative discrete emotions.

METHODS

This study used a between-subjects experimental design to measure the effects of message-induced discrete negative emotions on motivation for information processing.

Subject conditions followed a 2(personal relevance)x2(argument strength) factorial design.

Subjects were placed into conditions. Both low- and high-personal relevance conditions read a message presented as a direct mail advertisement from a fictional candidate running for a vacant seat on the Wichita city council in 2021.

Participants read a roughly six-hundred word issue-based message from the fictional city council candidate. The message was divided into three segments: an introductory section which exposits the issue and candidate, a personal-relevance and anger manipulation, and an argument strength manipulation.

The first of three sections within the advertisement served to introduce the issue and candidate, followed by emotional baseline testing. This page was identical across all conditions.

Following baseline testing, subjects proceeded to the second section of the message. A proposal by the current council to cut a grant to Wichita State University served as the issue in the message, with the expected effects altering between reduced staff bonuses or increased student fees in the personal relevance manipulation. The anger manipulation is uniform, and written in accordance with the core-relational theme of anger. The CFM stipulates subjects will experience high motivation to process if their remedial expectation for the advertisement is uncertain. It also stipulates approach emotions will also experience motivation to process under affirmative remedial expectations. Anger is a discrete, negative approach emotion. Affirmative remedial certainty was also manipulated uniformly in the second section.

Following exposure to the second section, subjects performed checks on anger, personal relevance, remedial certainty, effect-involvement and ability to process. These checks used semantic differential scales.

The third section contained the argument strength manipulation, consisting of two scripts which make the same claims in favor of the candidate. Their supporting arguments were contradictory, vague or irrelevant in one script, and in the other, they were not. Weak arguments were designed to appear convincing unless scrutinized carefully. Following exposure, subjects completed a post-exposure battery for argument strength rating, attitudes towards the advertisement and attitudes towards the candidate. These measurements were performed using generalized attitude measures. Finally, subjects performed a thought-listing exercise. Subjects were then debriefed and thanked for their time.

The data produced in the post-exposure battery will be assessed to confirm hypothesis 1 by examining the effect of strong and weak arguments on argument strength rating, attitudes towards the candidate and message within the personal relevance conditions. The data produced in the battery will be used to validate hypothesis 2 by evaluating the effect of personal relevance condition on argument strength ratings and attitudes across argument strength conditions following exposure.

RESULTS

Emotion Manipulation

Baseline testing following exposure to the first section of the message indicates neutral emotion. All measured emotions were rated significantly below the scale midpoint, including anger, $t(131) = -2.05$, $p \leq .05$. Anger was, however, rated significantly higher in baseline testing than fear, $t(131) = 4.1$, $p \leq .01$; and shame, $t(131) = 3.67$, $p \leq .01$. Regardless, pre-testing successfully established baseline emotion prior to manipulation exposure.

Emotion Baseline — Table 1

(Midpoint: 3)	Mean	Standard Deviation	Variance	Responses
Fear	2.43	1.01	1.02	131
Anger	2.81	1.06	1.13	131
Sadness	2.68	1.11	1.23	131
Shame	2.47	1.11	1.24	131

Emotion measurement following exposure offers mixed support for a successful anger manipulation. Anger was reported significantly above baseline, $t(129) = 9.25$, $p \leq .001$; and scale midpoint, $t(129) = 7.25$, $p \leq .001$. Anger was also reported at significantly higher levels than shame, $t(129) = 7.89$, $p \leq .001$; and fear, $t(129) = 7.99$, $p \leq .001$. A two-way ANOVA revealed a main effect for the anger manipulation on reported anger, $F = 32.27$, $p \leq .001$; which displayed no significant interaction with relevance, $F = .78$, $p \leq .5$; although relevance did display a main effect for anger, $F = 8.17$, $p \leq .01$. Sadness also displayed a statistically significant difference above baseline, $t(130) = 6.12$, $p \leq .001$; and scale midpoint, $t(130) = 3.15$, $p \leq .01$. Furthermore, while anger was reported at significantly higher levels than sadness in the overall sample, $t(129)$

= 3.68, $p \leq .001$; anger failed to achieve statistical significance over sadness in the irrelevant condition, $t(63) = 1.52$, $p \leq .2$. These results are worrisome. However, within the irrelevant sample, anger successfully exceeds the scale midpoint, $t = 3.04$, $p \leq .01$; while sadness does not, $t = 1.4$, $p \leq .2$. Anger also displayed a larger increase over baseline than sadness in the irrelevant sample, albeit at a statistically insignificant level, $t = 0.62$, $p \geq .5$. Ultimately, the anger manipulation reveals a possible confound in sadness, which represents a limitation of the current study. Nonetheless, the results are generally affirmative. The current study interprets the emotion data as sufficient to carry out the remaining analysis, but withhold reservations in doing so.

Emotion Manipulation Check

Table 2

(Midpoint: 3)	Mean	Standard Deviation	Variance	Responses
Sadness	3.34	1.23	1.50	130
Fear	2.93	1.15	1.33	130
Anger	3.69	1.08	1.18	129
Shame	2.94	1.26	1.58	130

Emotion x Irrelevant

Table 3

Irrelevant x	Mean Emotion	Standard Deviation	Variance	Responses
Sadness	3.22	1.26	1.58	64
Fear	2.70	1.11	1.24	64
Anger	3.44	1.15	1.33	63
Shame	2.70	1.25	1.55	64

Relevance Manipulation

The relevance manipulation was successful. Subjects in irrelevant conditions reported issue relevance significantly below the scale midpoint, $t(66) = -2.3$, $p \leq .05$; and subjects in relevant conditions reported issue relevance significantly above midpoint, $t = 10.22$, $p \leq .001$. The relevant and irrelevant conditions also displayed a significant comparative difference on relevance measures, $t = 8.63$, $p \leq .01$.

Relevance Manipulation Check — Table 4

(Midpoint: 12)	Mean Relevance	Standard Deviation	Variance	Responses
Irrelevant	11.00	3.52	12.39	66
Relevant	16.20	3.34	11.16	66

Remedial Certainty Manipulation

Affirmative remedial certainty was successfully manipulated. Subjects reported remedial certainty significantly above the scale midpoint, $t(133) = 12.63$, $p \leq .001$. There was no significant difference reported between irrelevant- and relevant-treatment subjects on remedial certainty, $t = 1.46$, $p \leq .2$.

Remedial Certainty Manipulation Check

Table 5

(Midpoint: 12)	Mean	Standard Deviation	Variance	Responses
Remedial Certainty	15.11	2.84	8.07	133

Remedial Certainty x Relevance

Table 6

Remedial Certainty x	Mean Remedial Certainty	Standard Deviation	Variance	Responses
Irrelevant	14.76	3.17	10.03	66
Relevant	15.48	2.44	5.95	66

Ability & Response Involvement

Ability to process and response involvement are not manipulated in the current study, but they are relevant variables to its hypotheses and frameworks. Checks were conducted to identify the status of these variables.

Ability Check

Table 7

(Midpoint: 8)	Mean	Standard Deviation	Variance	Responses
Ability	10.46	2.61	6.80	131

Ability x Relevance

Table 8

Ability x	Mean Ability	Standard Deviation	Variance	Responses
Irrelevant	10.05	2.75	7.58	64
Relevant	10.94	2.30	5.30	66

Unexpectedly, ability reported a minimally significant difference across relevance conditions, $t = 2.00$, $p \leq .05$. Ability was reported significantly above scale midpoint in the relevant condition, $t(66) = 10.38$, $p \leq .001$; the irrelevant condition, $t(64) = 5.96$, $p \leq .001$; and the overall sample, $t(131) = 10.79$, $p \leq .001$.

Response Involvement Check

(Midpoint: 8)	Mean	Standard Deviation	Variance	Responses
Response involvement	9.14	2.20	4.84	133

Response Involvement x Relevance

Response Involvement x	Mean Response Involvement	Standard Deviation	Variance	Responses
Irrelevant	8.38	2.16	4.66	66
Relevant	9.91	1.98	3.90	66

Response involvement was reported at statistically significant levels in the overall sample, $t(133) = 5.98$, $p \leq .001$; and the relevant treatment, $t(66) = 7.84$, $p \leq .001$. The null hypothesis was not rejected in the irrelevant condition, $t(66) = 1.43$, $p \leq .2$. A statistically

significant difference emerged between the irrelevant and relevant treatments, $t = 4.24$, $p \leq .01$. The authors do not at all interpret these results as a flaw in the study. No response involvement manipulation was performed, and the purpose of the check was simply to identify the status of the variable, so the results may be interpreted with this knowledge. The irrelevant treatment has reported significantly below the relevant treatment on both ability and response involvement—two typical indicators of effortful processing—as the study proceeds into measurement.

Argument Strength Manipulation Check

(Midpoint: 20)	Mean Argument Strength	Standard Deviation	Variance	Responses
Strong Argument	26.84	4.92	24.23	63
Weak Argument	23.68	5.41	29.31	68

Argument Strength

Following exposure to the third section of the message, participants reported argument strength. A statistically significant difference was reported across argument strength treatments, $t = 3.46$, $p \leq .01$. Argument strength was successfully manipulated.

The argument strength rating supports H1: the irrelevant treatment will undergo systematic processing, and partially supports H2: relevant-treatment subjects will undergo positively biased, systematic processing. Significant interactions for argument strength rating emerged on irrelevant x argument strength, $t = 2.2$, $p \leq .05$; relevant x argument strength, $t = 2.8$, $p \leq .01$; and strong argument x relevance, $t = 2.06$, $p \leq .05$. A two-way ANOVA revealed a main effect for argument strength, $F = 6.42$, $p \leq .05$.

Argument Strength - Irrelevant x Argument Strength

Irrelevant x	Mean Argument Strength	Standard Deviation	Variance	Responses
Strong Argument	25.63	4.78	22.86	32
Weak Argument	22.94	5.09	25.94	34

Argument Strength - Relevant x Argument Strength

Relevant x	Mean Argument Strength	Standard Deviation	Variance	Responses
Strong Argument	28.10	4.75	22.54	31
Weak Argument	24.41	5.62	31.60	34

Attitudes

Attitudes towards message were reported following argument strength. Significant interactions emerged on irrelevant x argument strength, $t = 2.83$, $p \leq .01$; and weak argument x relevance, $t = 2.07$, $p \leq .05$. Relevant x argument strength reported a marginally insignificant interaction, $t = 1.824$, $p \leq .1$. Strong argument x relevance reported $t = 1.38$, $p \leq .2$. A two-way ANOVA revealed main effects for argument strength, $F = 4.97$, $p \leq .05$; and relevance, $F = 3.99$, $p \leq .05$.

Attitudes towards candidate revealed significant interactions on irrelevant x argument strength, $t = 2.1$, $p \leq .05$; and weak argument x relevance, $t = 2.21$, $p \leq .05$. Relevant x argument strength reported $t = 1.44$, $p \leq .2$; and strong argument x relevance reported $t = 1.69$, $p \leq .2$. A

two-way ANOVA revealed main effects for argument strength, $F = 4.75$, $p \leq .05$; and relevance, $F = 8.62$, $p \leq .001$.

Attitudes Towards Message - Relevant x Argument Strength

Relevant x	Mean Attitudes	Standard Deviation	Variance	Responses
Strong Argument	27.52	4.23	17.93	31
Weak Argument	25.15	5.87	34.42	34

Attitudes Towards Message - Irrelevant x Argument Strength

Irrelevant x	Mean Attitudes	Standard Deviation	Variance	Responses
Strong Argument	25.91	4.88	23.77	32
Weak Argument	22.32	5.38	28.98	34

Attitudes Towards Candidate - Irrelevant x Argument Strength

Irrelevant x	Mean Attitudes	Standard Deviation	Variance	Responses
Strong Argument	26.44	4.64	21.50	32
Weak Argument	23.71	5.66	32.03	34

Attitudes Towards Candidate - Relevant x Argument Strength

Relevant x	Mean Attitudes	Standard Deviation	Variance	Responses
Strong Argument	28.38	4.39	19.30	32
Weak Argument	26.65	5.16	26.58	34

DISCUSSION

Limitations

The first limitation in the study design lies in the emergence of sadness as a potential confound in the irrelevant treatment. There is a statistical basis in the emotion data to doubt the interference of this confound, and the results of dependent measures likewise point in the opposite direction, but possible interference cannot be ruled out within the structure of the CFM. Were irrelevant subjects experiencing sadness—an avoidance emotion—and experiencing peripheral processing as a result, disparities in relevant cues across the argument strength manipulation might produce similar results. There are, again, reasons to doubt this interference. The weak argument manipulation was designed to fold only upon close scrutiny. Also, sentences designed strictly as cues were placed within the argument strength manipulation and kept identical between treatments. These cues were placed with the intent to facilitate non-differentiation effects on argument strength in the presence of peripheral processing were it to appear, which is significant for hypothesis 1. These effects did not appear. Nonetheless, the limitation cannot be ruled out.

The next limitation of the study design is the absence of a control or factorial condition manipulated for peripheral processing. The hypotheses of the current study were designed within this limitation and are functional without such a condition. However, while this limitation does not limit the hypotheses themselves, they do limit this study's confidence to speak on their purpose. Measurement results might appear a typical representation of systematic processing, but the factorial does not contain a basis for comparison which is non-systematic by design. Heuristic manipulations might reveal a similar presentation on this particular message. Under typical systematic conditions, we would expect they would not, but these are experimental

systematic conditions. Significant effects measured across a heuristic condition is a vote of confidence which the current study is likely better with than without. All components of the current factorial were strictly necessary to test for the predictions, and an eight-by factorial was simply too tasking to serve as the scale for the current study.

Sample size is a limitation of the current study beyond its influences on factorial design. The final sample size of the study was fair, but unfavorable for t-value calculations when cut across the full factorial. A small number of interactions meaningful for the hypotheses fell narrowly short of statistical significance at n=31-34. For example, relevant x argument strength on attitudes towards the message—a particularly non-controversial prediction of the current study—reported insignificant at $p \leq .1$. This interaction achieves significance with its current effect size at n+5 for both samples.

The failure of irrelevant-treatment subjects to report significant ability and response involvement over scale midpoint proposes a possible confound which runs into the same dilemma as the sadness confound. To resolve, the current framework ends on a likelihood calculus between the emergence of hypothesized effects despite the possible confound, or responsibility for the current dependent measures lying with peripheral processing. This is a calculus the current study finds favorable.

Implications

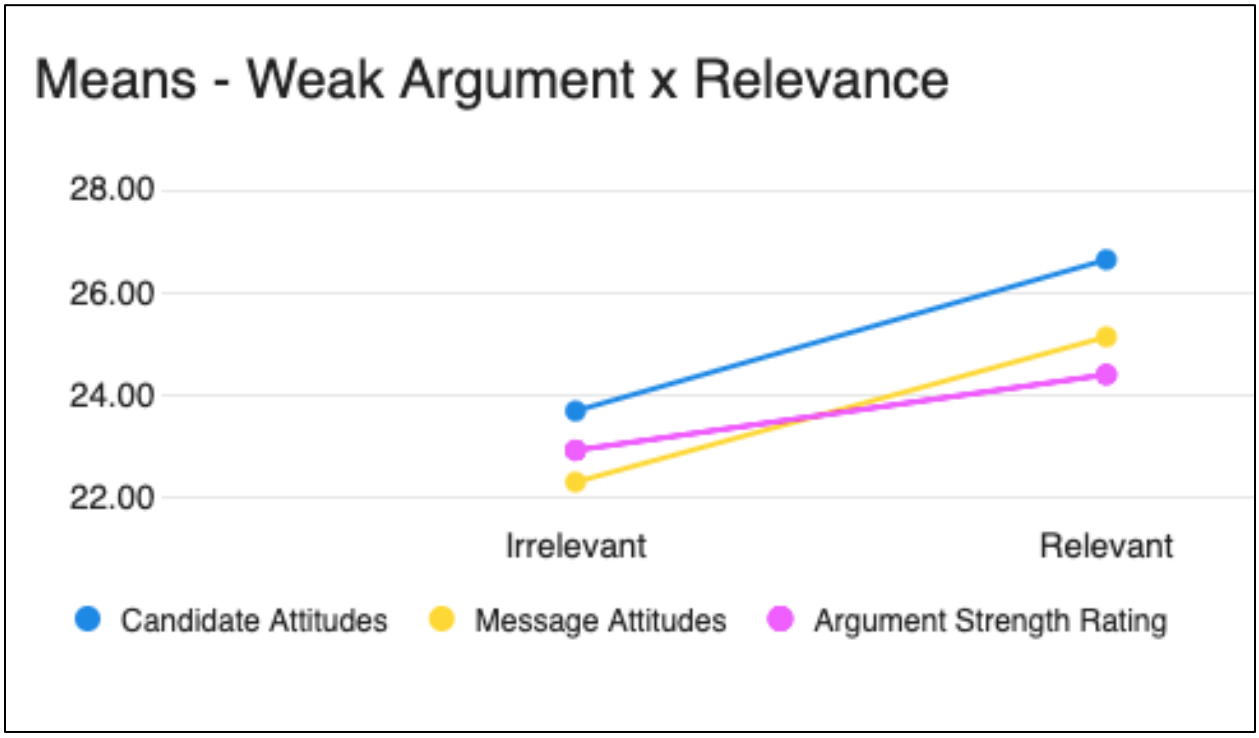
H1: Low-relevance and high-relevance subjects will evaluate strong arguments more favorably than weak arguments.

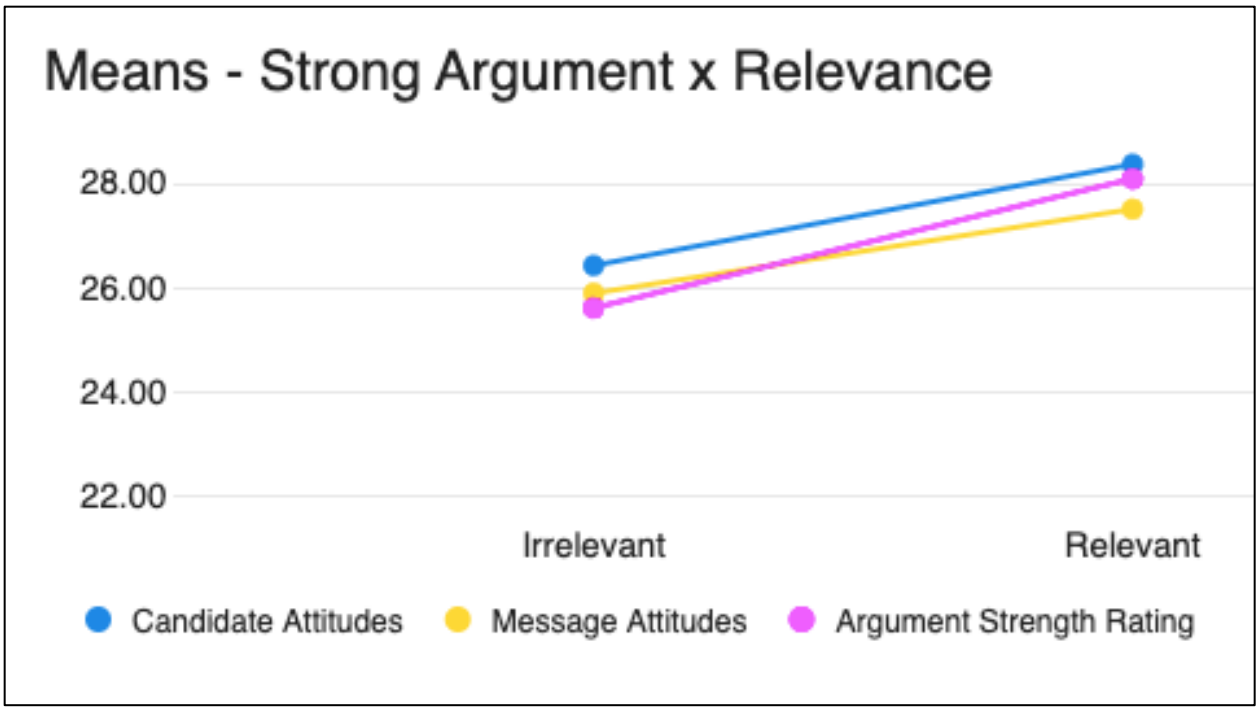
H2: High-relevance subjects will report more favorable attitudes on strong and weak arguments than low-relevance subjects, respectively.

Limitations withstanding, the results support the hypotheses.

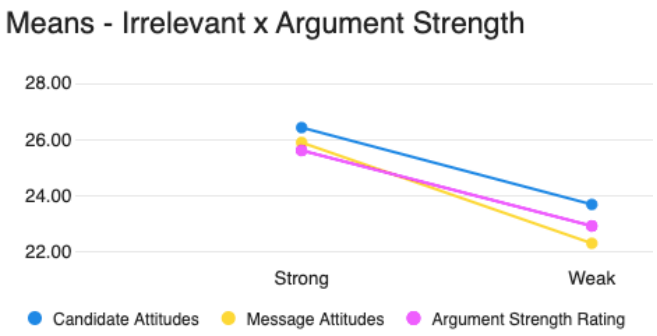
Four of six dependent measures relevant to H1 offered significant support for H1, displaying significant differentiation across strong and weak arguments on a dependent variable in either relevance treatment. The irrelevant treatment specifically was significantly supported by all three relevant interactions. All six relevant interactions fell within $p \leq .2$.

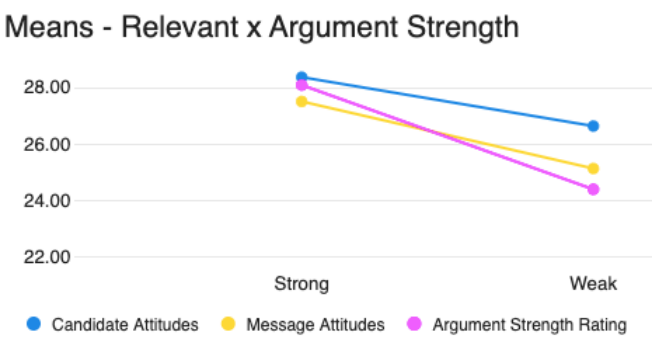
Four of six dependent measures relevant to H2 offered significant support for H2, reporting with significantly greater favorability from the relevant treatment within either argument strength condition. All six relevant interactions fell within $p \leq .2$. Of note, weak argument x relevance on argument strength rating was not a predicted interaction of H2. Rather, H2 predicts the null hypothesis on this interaction. Positively biased systematic processing is still systematic processing. When asked to specifically evaluate arguments, which are some degree(s) removed from the remedial certainty provided by the candidate, the effects of positive bias weaken due to this separation from the remedial source, and systematic processing effects carry greater prominence in the measurement.





The first implication which follows from this analysis addresses the CFM, and in particular, Dr. Nabi's 2003 study to test for its effects which reported a contradiction on anger under remedial certainty. The results of the current study suggest the CFM's prediction for systematic processing under conditions of affirmative remedial certainty and negative approach emotions should be withheld. The current study examined a similar effect to the one responsible for this contradiction, with processing indicators in the factorial. The results were generally concurrent with the CFM's prediction, but exerted a uniform upward translation on attitudes rather than polarization. This effect is concurrent with the predictions of H2, which the current study predicted from Dr. Das' 2003 work on vulnerability and positive bias. The prior conjecture regarding Dr. Nabi's 2003 data—positive bias, rather than heuristic processing led to more favorable weak argument evaluations from certain, angry subjects than other systematic processing conditions—is supported by the results.





On practical implications of the current study, content which induces negative approach emotions, such as anger, is rated more favorably when personally relevant to its audience. Issue relevance carries a positive relationship with favorable attitudes regardless of the specificity, cogency or pertinence of content; these latter qualities also positively correlate with audience attitudes, but the benefit received from personal relevance occurs independently from them. The co-occurrence of high content quality and personal relevance to the consumer has a stronger positive effect on audience attitudes than either exert individually. The positive effect of personal relevance is likely dependent on attitudinal alignment of content with its audience, at least within the context of its subject matter. A positive processing bias is responsible for the positive effect of personal relevance. Attitudinal alignment and positive bias have conditionally inseparable meanings in an issue-based setting, but attitude alignment was not tested for this effect in the current research.

Affirmative remedial certainty is a condition of this bias effect. Affirmative remedial certainty means the audience is confident the content or its subject matter will provide remedy to the source of negative emotion; this source can be identified as the feature of a consumer's environment which, from their perspective, satisfies the theme of a demeaning offense.

Content which utilizes this relevance bias effect in the absence of quality content will likely experience less benefit to attitudes towards the content than attitudes towards the content subject matter. Attitudes towards content can still benefit from personal relevance in the absence of content cogency, specificity or pertinence; but the benefit of relevance for attitudes towards content subject matter will remain on par with that received by quality content in these circumstances, and likely surpass attitudes towards content.

In the absence of audience personal relevance towards the content subject matter, content strength is of heightened importance for negative, approach emotion-inducing content. The approach theme of the emotion experienced by the audience—combined with affirmative remedial certainty—forms an environment in which the emotion acts as a targeted survival instinct and creates an urge to take heightened interest in the source of remedial certainty. High interest is not always a positive effect. Content quality generally determines the effect of high interest, displaying positive effects on high-quality messages and negative effects on low-quality messages. Content which induces negative approach emotions and offers remedial certainty will likely display effects of high interest unless a positive bias effect, such as personal relevance, bolsters attitudes universally, obscuring high interest effects, or the audience judges the message irrelevant to the goal of the emotion, and high interests do not occur at all.

On future research, four variables absent in the current study are of importance to its subject matter: ability, partisanship, attitudinal alignment and proximity to the remedial goal. Ability serves to address an aforementioned limitation in the current study's lack of a peripherally manipulated baseline to verify systematic processing in its conditions. Partisanship and attitudinal alignment are likely best studied in tandem. Such a design serves a dual-purpose in verifying the predicted effects of attitudinal alignment in the discussion of the current study—

a positive determinant of valence for personal relevance effects under content-induced emotion—and testing for effects of partisanship.

On proximity to the remedial goal, a positive correlation seems to emerge in the current study between the strength of positive bias effects and the perceived influence of an evaluation subject on achievement on the remedial goal. A test of this trend likely represents the study which will follow the current research. Such a finding would potentially carry implications for the rhetoric and social psychology of party and official loyalty, incumbent advantage, endorsement strategies both in politics and advertising in general, sponsor identification effects and the discrete emotion literature as a whole, conditionally identifying a function of influence exertion for core relational themes.

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APPENDIXES

INFORMED CONSENT

Informed Consent

My name is Jesse Porter and I'm working with Dr. Lisa Parcell. We are recruiting research participants to measure reactions to an issue-based message. If you decide to participate, you will be asked to read materials and answer questions. Participation will take about 10-15 minutes.

In addition to reading the material and answering related questions, we will request demographic information pertaining to your age, planned graduation date, and political affiliation.

There is no personal benefit or anticipated risk to participating in this study. However, if you feel uncomfortable with a question, you may skip it. Participation is voluntary, and you can stop taking the survey at any time.

At the end of the survey, you will be asked if you want to receive research credit towards your class. If you select yes, you will be asked for your name and your instructor's name. Your status as a volunteer will not be shared with anyone outside of the research team and your instructor. Your name will not be associated with your survey responses.

We will work to make sure no one sees your survey responses without approval. There is a minimal risk that security of any online data may be breached, but our survey host (QUALTRICS) uses strong encryption and other data security methods to protect your information. Only the researchers will have access to your information on the Qualtrics server. However, because we are using the Internet, there is a chance that someone could access your online responses without permission. In some cases, this information could be used to identify you.

If you have questions, please contact Dr. Lisa Parcell. She can be contacted at 210 Elliott Hall, Wichita State University, Wichita, KS 67260-0031; by phone at 316-978-6064; or by email at lisa.parcell@wichita.edu.

For questions about the rights of research participants, you may contact the Office of Research and Technology Transfer at Wichita State University, 1845 Fairmount Street, Wichita, KS 67260-0007, and telephone (316) 978-3285.

You are under no obligation to participate in this study. By selecting "Yes" below, you are indicating that:

• You have read (or someone has read to you) the information provided above,

• You are aware that this is a research study,

• You have voluntarily decided to participate.

I have read the above and agree to participate in this survey Yes No

I am age 18 or over Yes No

I would like to have a copy of the Consent Form Yes No

INTRODUCTION

You will be presented with a message designed as a direct mail advertisement for a 2021 city council campaign. As is common for city councilors, the candidate featured in the message in non-partisan. Please read through the message and answer questions when they appear. Responses to questions are anonymous, and there are no right or wrong answers.

Demographics

Please indicate your age:

18-24
25-34
35-44
45-54
54-65
65+

Do you plan on graduating before the spring 2022 semester?

Yes
No

Please indicate your political affiliation:

Democrat
Republican
Independent
None
Third-party
Please specify:

MESSAGE INTRODUCTION AND EMOTION BASELINE

Hello. My name is Daniel Fairchild, and I am running for a vacant seat on the Wichita City Council in 2021. I am writing today to ask for your support, so I may fight back against a recent decision made by the council in regards to Wichita State University. The council is currently set to vote to pull out of a community development contract with WSU. Under this contract, the city funds a small grant for WSU each year as compensation for the many community development projects WSU performs. The contract was put forth by the city as a symbolic display of the mutually beneficial relationship between Wichita and WSU some time ago. The council's decision to ignore the contract's obligations is nothing short of demeaning to the University. WSU continues to do more than enough for the city to earn their share in this contract, but now the council is voting to go back on their promise, and let WSU's contributions to the city of Wichita go empty-handed. Regardless of whether or not you are eligible to vote in this election, any support from WSU and its students would greatly benefit my election to the council so I may oppose this decision.

On the following scales, please indicate your feelings on the issue discussed in the message:

Not afraid at all [1] A little bit afraid [2] Somewhat afraid [3] Afraid [4] Very afraid [5]
Not angry at all [1] A little bit angry [2] Somewhat angry [3] Angry [4] Very angry [5]
Not sad at all [1] A little bit sad [2] Somewhat sad [3] Sad [4] Very sad [5]
Not ashamed at all [1] A little bit ashamed [2] Somewhat ashamed [3] Ashamed [4] Very ashamed [5]

PERSONAL RELEVANCE AND ANGER MANIPULATION

Low Personal Relevance

WSU has expressed to the council that they will need to reduce staff bonuses by 10% in order to cover the loss of the grant. With the money saved by cutting the grant, the council plans to increase their own salaries and pay off excess expenditures from the previous fiscal year. The council's choice is an insult to WSU, taking funds from the University to fill their pockets and fix their own mistakes in the budget while WSU continues working to improve their city. For WSU, the contract has always been nothing more than a symbolic display of the city's gratitude, and they intend to continue their projects even after the city ends the contract. The council clearly does not recognize the value of WSU's contributions to the city of Wichita. I have collaborated with a number of local policy experts on this issue, and I am running for city council with the intent to fight for WSU's grant. The current council is narrowly divided on this issue; my election can change the outcome. Please allow me to explain how I plan to put a stop to this decision.

High Personal Relevance

WSU has expressed to the council that they will need to increase student fees by 10% in order to cover the loss of the grant. With the money saved by cutting the grant, the council plans to increase their own salaries and pay off excess expenditures from the previous fiscal year. The council's choice is an insult to WSU, taking funds from the University to fill their pockets and fix their own mistakes in the budget while WSU continues working to improve their city. For WSU, the contract has always been nothing more than a symbolic display of the city's gratitude, and they intend to continue their projects even after the city ends the contract. The council clearly does not recognize the value of WSU's contributions to the city of Wichita. I have collaborated with a number of local policy experts on this issue, and I am running for city council with the intent to fight for WSU's grant. The current council is narrowly divided on this issue; my election can change the outcome. Please allow me to explain how I plan to put a stop to this decision.

On the following scales, please indicate your feelings on the issue discussed in the message:

Not sad at all sad [1] A little bit sad [2] Somewhat sad [3] Sad [4] Very sad [5]
Not afraid at all [1] A little bit afraid [2] Somewhat afraid [3] Afraid [4] Very afraid [5]
Not angry at all [1] A little bit angry [2] Somewhat angry [3] Angry [4] Very angry [5]
Not ashamed at all [1] A little bit ashamed [2] Somewhat ashamed [3] Ashamed [4] Very ashamed [5]

Please indicate your agreement with the following statements:

"I am directly affected by the issue discussed in the message."

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“The issue discussed in the message is personally relevant to me.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“I feel vulnerable to the issue discussed in the message.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“I can personally make a difference on this issue."

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“My support is important to the candidate.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“I am confident the author will discuss solutions in the next section of the message.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

“The author is capable of proposing effective solutions to the issue.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

"I believe the author will propose solutions to the issue which are more likely to be effective than ineffective.”

Strongly agree – Agree – Somewhat agree – Neutral/No opinion – Somewhat disagree – Disagree – Strongly disagree

ARGUMENT STRENGTH MANIPULATION

Strong

As city councilman, I will work to ensure the city honors its contract with WSU. I intend to press my fellow councilors on this issue and present them with materials which explain the positive outcomes of the contract for the city. Although I have never held an elected office, I have fifteen years of experience in public administration, so I am prepared to represent WSU's interests on the council. Recently, I spoke to the current members of the council. I argued extensively in favor of the University's grant. I am a WSU alumnus and have donated to WSU many times, so I am a trustworthy supporter of the University. Next January, the council will vote on cutting WSU's grant from the budget for 2022 and beyond. I ask for your support of my candidacy for city council in this November's elections, so I may use the office to support you.

Weak

As city councilman, I will work to ensure the city honors its contract with WSU. I intend to press my fellow councilors on this issue despite the contract's lack of financial sense for the city. Although I have never held an elected office, I have three years of experience in public administration, so I am prepared to represent WSU's interests on the council. Recently, I spoke to the current members of the council. Although other issues took up much of our time, I voiced my concerns about the University's grant. I graduated from a public Wichita high school, so I am a trustworthy supporter of the University. Next month, the council will vote on cutting WSU's grant from the budget for 2022 and beyond. I ask for your support of my candidacy for city council in this November's elections, so I may use the office to support you.

Please indicate your agreement with the following statements:

"I was not distracted while reading the message."

Strongly agree – Agree – Somewhat agree – Neutral/No Opinion – Somewhat Disagree – Disagree – Strongly disagree

"I was able to read the message without difficulty."

Strongly agree – Agree – Somewhat agree – Neutral/No Opinion – Somewhat Disagree – Disagree – Strongly disagree

On the scales below, please indicate your feelings about the arguments presented in this section of the message. Numbers "1" and "7" indicate a strong feeling. Numbers "2" and "6" indicate a moderate feeling. Numbers "5" and "3" indicate a fairly weak feeling. Number "4" indicates a neutral feeling or you did not understand the adjective pairs themselves. Please select only one answer per line.

Good 1-2-3-4-5-6-7 Bad
Weak 1-2-3-4-5-6-7 Strong
Wise 1-2-3-4-5-6-7 Unwise
Convincing 1-2-3-4-5-6-7 Unconvincing
Illogical 1-2-3-4-5-6-7 Logical

(Reverse code 2 & 5)

On the scales below, please indicate your feelings about this advertisement:

Good 1-2-3-4-5-6-7 Bad
Negative 1-2-3-4-5-6-7 Positive
Convincing 1-2-3-4-5-6-7 Unconvincing
Disagreeable 1-2-3-4-5-6-7 Agreeable
Trustworthy 1-2-3-4-5-6-7 Untrustworthy

(RC 2 &4)

On the scales below, please indicate your feelings about the candidate, Daniel Fairchild:

Good 1-2-3-4-5-6-7 Bad
Supportive 1-2-3-4-5-6-7 Unsupportive
Incapable 1-2-3-4-5-6-7 Capable
Unfavorable 1-2-3-4-5-6-7 Favorable
Positive 1-2-3-4-5-6-7 Negative

(RC 3 & 4)

Please list up to ten thoughts you had during this exercise:

DEBRIEF

Thank you for your participation. The contents of this message are fictional, including the candidate and the issue they discuss in the message. The goal of this study was to examine if certain emotions motivate individuals to think more deeply about an issue-based message. A degree of deception was necessary for the design. A belief that the message and candidate are real is important for simulating the conditions in which one might actually read such a message. If readers were aware the candidate and the issue were fictional, they might process the message differently.

The selection of WSU's funding as the issue in the message was a result of the study design, which required us to use an issue which could be made both relevant and irrelevant to WSU students. If the issue is irrelevant to an individual, we would not expect them to process the message deeply unless emotion causes them to do so, which is specifically what the study was looking for, and switching issues across the messages would open up the possibility that the different issues effected the results. As a result, a school funding cut was selected as the issue, because it could be made both relevant and irrelevant to WSU students by altering minor details such as who would bear the brunt of the cuts.

Your participation is greatly appreciated, and may help policymakers better understand how to talk about real issues, as well as help researchers better understand the relationship between our emotions and our thoughts.

We ask you not to discuss this study with others who are currently participating or may participate in the future. Specifically, this refers to your fellow communication students. Please do not discuss this study with them, or with those taking the same classes in another section.

Thank you!