

THE EFFECTS OF INFORMATION PROCESSING AND MESSAGE QUALITY ON ATTITUDES TOWARD THE AMBER ALERT SYSTEM

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Despite its popularity, the AMBER Alert system might be an ineffective means of addressing the problem of stranger-child abduction and have unintended negative consequences. To better understand the mechanisms underlying unquestioned public support for AMBER Alert, the current study examined the effects of processing modes specific to Cognitive-Experiential Self-Theory and message quality on attitudes toward the system. Contrary to expectations, processing manipulations had no effect on attitudes toward AMBER Alert. However, exposure to high-quality messages regarding the efficacy of AMBER Alert significantly reduced participants' support for the system. These results demonstrate the malleability of attitudes toward alerts and illuminate message components that may encourage more thoughtful contemplation of AMBER Alert and similar crime control policies.

Keywords: AMBER Alert, crime control theater, attitudes, information processing, message quality

In the United States, the chance of a child being abducted by a stranger is one in 1,000,000 (Finkelhor, Hammer, & Sedlak, 2002). Despite the low frequency of stranger abduction-murders, disproportionate media focus on sensationalized child abductions and homicides have created a pervasive sense of fear and "moral panic" in American society (Zgoba, 2004b). In response to public concerns, legislators implemented the AMBER Alert system in 1997 (Zgoba, 2004a).

Although public officials and members of law enforcement have convinced many Americans to embrace the AMBER Alert system (Griffin & Miller, 2008), researchers have suggested that it may be an ineffective means of addressing the complex social problem of child abduction and murder (e.g., Miller & Clinkenbeard, 2006; Zgoba 2004a; 2004b). As public attitudes and beliefs are critical in the development and endurance of many crime control policies (Sorenson, Manz, & Berk, 1999), public evaluations of AMBER Alert may reflect the likelihood that this system will be maintained, modified, or abandoned. However, social scientists have yet to systematically examine public attitudes towards AMBER Alert.

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This research aims to enhance the understanding of the underpinnings of attitudes toward AMBER Alert and their potential for change. Specifically, it examines the effects of the type of information individuals receive about AMBER Alert and the ways in which they process this information on their support for the system. Findings not only have implications for the perseverance of AMBER Alert, but also for similar policies aimed at protecting innocent victims from moral wrongdoers.

AMBER ALERT: EFFECTIVENESS AND UNINTENDED CONSEQUENCES

Named after 9 year old Amber Hagerman, who was abducted and murdered in 1996, AMBER Alerts “distribute information about recent child abductions to the public, enabling the entire community to assist in the search for and safe recovery of the child” (National Center for Missing & Exploited Children “NCMEC,” 2008, p. 3). The premise for the system emerged from the advocacy of Amber’s family and community members, who began working with Texas radio stations to broadcast special alerts in events of suspected child abductions (amberalert.com, 2012). Shortly thereafter, numerous national organizations (e.g., NCMEC, U.S. Department of Justice, Fraternal Order of Police) collaborated to promote nationwide implementation of AMBER Alert (NCMEC, 2002). As a result of these efforts, legislation requiring all U.S. states to adopt AMBER Alert was approved in 2003 (amberalert.com). Currently, federal guidelines recommend that alerts only be issued in cases of known stranger abductions when the child is believed to be in imminent danger of bodily harm or death. Additionally, there should be sufficient information to assist law enforcement and the public in the recovery of the child (NCMEC, 2008). The U.S. Department of Justice proclaims that AMBER Alerts have saved hundreds of children’s lives (NCMEC, 2008).

Despite the well-coordinated and successful implementation of AMBER Alert, social science researchers have begun to uncover evidence suggesting that the system is ineffective, in part because it is often not used as intended. Most alerts are not issued in cases of stranger abductions, but in cases of family abductions, when the likelihood of bodily injury or death is low (Griffin, Miller, Hoppe, Rebideaux, & Hammack, 2007; Zgoba, 2004a). Similarly, AMBER Alerts are least effective in rescuing children from stranger abductions, with the majority of successful returns occurring in familial abduction cases (Griffin et al., 2007).

The success of AMBER Alert is contingent on the public’s ability to recall enough information from the Alert to identify the perpetrator or victim. Yet, an experiment that exposed individuals to alerts while engaged in a simulated freeway driving task revealed that only 8.3% of participants accurately recalled vehicle information (e.g., make, model, color) and five to six license plate characters (Harder, Bloomfield, & Chihak, 2003). Focus groups exposed to hypothetical alerts for a period of eight seconds reported significant difficulty remembering the information disseminated by the alert, with the majority unable to recall entire license plate numbers (Ullman, Dudek, & Trout, 2006). Finally, a field experiment revealed that the majority (70%) of 142 shoppers interviewed as they were exiting a supermarket did not pay attention to any of the eight missing child posters displayed

at the store's exit (Lampien, Larnal, & Hicks, 2009). Those who did stop to look could not reliably identify the missing children when presented with a set of 16 photographs, eight of which replicated the photographs included in the posters. These findings challenge the notion that individuals will be able to recognize a missing child and/or their suspected abductor based on information distributed through AMBER Alerts.

Further, the AMBER Alert system is based on questionable assumptions about the causes and solutions to stranger abductions. There is no evidence that alerts deter perpetrators, and researchers have suggested that alerts may encourage copycat crimes (Griffin & Miller, 2008). Issuing an alert may cause an abductor to panic and murder the child (or kill the child earlier than intended) to avoid getting caught (Miller, Griffin, Clinkenbeard, & Thomas, 2009). As most perpetrators who intend to kill their victim do so within three hours of the abduction (Hanfland, Keppel, & Weiss, 1997), few alerts are issued in time to save a child's life (Griffin et al., 2007).

Alerts also may result in unforeseen negative social consequences. Most notably, the depiction of the AMBER Alert system as a solution to the problem of child abductions is misleading (Griffin & Miller, 2008). In exaggerating claims of the system's effectiveness, public officials and law enforcement may instill a false sense of security in the public, fostering unrealistic beliefs about the ability of law enforcement to prevent abductions and rescue abducted children. Conversely, AMBER Alert may lead to a decreased sense of security and exacerbate erroneous beliefs about the risks of stranger abduction (Miller et al., 2009).

AMBER ALERT AS "CRIME CONTROL THEATER"

Though well-intended, the AMBER Alert system is an illusory means of controlling crime. As such, it exemplifies crime control theater (CCT), or "a public response or set of responses to crime which generate the appearance, but not the fact, of crime control." (Griffin & Miller, 2008, p. 160). Although AMBER Alerts may be relatively ineffective, the system allows public officials to visibly and dramatically demonstrate their concern for child safety.

Several other popular policies have been conceptualized as CCT, and most have had unintended negative consequences (see Armstrong, Miller, & Griffin, 2011; Brown, Miller, & Griffin, 2011; Griffin & Miller, 2008; Hammond, Miller, & Griffin, 2010). Two notable examples are three-strikes laws and Megan's Law. The three-strikes-and-you're-out law, which mandates life sentences for those convicted of more than two felonies, was first implemented in California in 1994. Citing widespread public support, legislators in 14 other states adopted similar policies (Applegate, Cullen, Turner, & Sundt, 1996). However, three-strikes incarceration occurs relatively late in a habitual offender's career, when the likelihood of recidivism is low (Stolzenberg & D'Alessio, 1997; Kovandzic, Sloan, & Vieraitis, 2004). Consequently, three-strikes laws have had minimal impact on violent crime rates (Kovandzic et al., 2004). At an annual cost of \$500 million, California's three-

strikes law has resulted in severe prison overcrowding and the early release of potentially violent offenders (Chen, 2008).

Federally implemented in 1996, Megan's Law requires states to establish registration programs to alert the public to the presence of a convicted sex offender in their community (Proctor, Badzinski, & Johnson, 2002). Despite public and official praise for Megan's Law, it too is based on questionable assumptions (Armstrong et al., 2011). Specifically, Megan's Law is based on the notion that sex offenders are notorious recidivists, although they are actually among the least likely groups of parolees to recidivate (Langan & Levin, 2002). At an annual cost of more than \$3.5 million, Megan's Law has failed to reduce sex offender recidivism rates (Zgoba, Witt, Dalessandro, & Veysey, 2008; Zgoba, Veysey, & Dalessandro, 2010). Further, Megan's Law interferes with the successful re-integration of sex offenders in the community (Levenson & D'Amora, 2007; Levenson, D'Amora, & Hern, 2007) and thus may actually increase the likelihood of legal non-compliance among these offenders (Tyler, 2006).

AMBER Alert is a somewhat unique form of CCT, as it can be conceptualized as both a crime control policy and a victim's assistance program. Alerts are issued shortly after the alleged commission of a crime (i.e., abduction) to help rescue a victim, whereas most CCT policies are strictly preventative. Yet, the primary purpose of alerts is to protect abducted children from further victimization (i.e., to prevent sexual assault and murder), and the system has been promoted as a deterrent to potential child abductors by the U.S. Department of Justice (2006; 2012). Thus, AMBER Alert is largely intended to control crime and has much in common with three-strikes laws, Megan's Law, and other CCT policies. All were hastily implemented in response to heinous crimes perpetrated against innocent victims by moral wrongdoers. These policies allow government officials and law enforcement to symbolically address the problem of sexual assault, abduction, and murder, yet do very little to actually control crime. Often, the public is incorporated as part of the "solution" to crime, as when community members are deputized to search for an abductor via an AMBER Alert (Griffin & Miller, 2008), or implicitly encouraged to monitor activities of sex offenders in their neighborhood. Despite their shortcomings, these policies enjoy widespread public support (Applegate et al., 1996; Levenson, Brannon, Fortney, & Baker, 2007; Zgoba 2004a, b). Understanding how attitudes toward AMBER Alert may form and change also may illuminate the processes underlying the success of similar misguided policies.

PUBLIC ATTITUDES TOWARD AMBER ALERT

There are likely numerous underpinnings of positive attitudes toward AMBER Alert. For instance, people may support AMBER Alert to comply with social norms, to reinforce their self-conceptions as caring individuals, or to foster a sense of security (Sicafuse & Miller, 2010). However, two factors may be particularly important in understanding how attitudes toward alerts may develop and change: the available information about alerts, and the means by which this information is processed.

Public Knowledge of AMBER Alert

The understanding of public knowledge about AMBER Alert is limited. As AMBER Alerts are issued in all states and often covered by the media (Muschert, Young-Spillers, & Carr, 2006), most individuals likely have a basic understanding of their function. However, there is reason to suspect that public knowledge about the system is largely comprised of incomplete or even false information. Thus, many individuals may not have considered the limitations of alerts, which may help explain why the system remains popular (Sicafuse & Miller, 2010).

AMBER Alert's popularity is typically attributed to exaggerated public perceptions of the risk of stranger-child abduction. (Griffin & Miller, 2008); Sicafuse & Miller, 2010; Zgoba 2004a, b). During the 1980s and 1990s, activists and media sources commonly cited misleading statistics overestimating the incidence of child abduction and murder (Best, 1990; Finkelhor, Hotaling, & Sedlak, 1992), facilitating the development of early child-protection legislation (Muschert et al., 2006). Though social scientific data regarding the actual prevalence of child abduction is now available, media sources have largely neglected this information in favor of reporting unusual cases of stranger-child abduction, sexual assault, and murder (Muschert et al., 2006; Zgoba, 2004a, b). Such disproportionate focus likely heightens public fear and risk perceptions, thereby increasing support for alerts (Sicafuse & Miller, 2010).

The media, along with social cognitive processes, also may foster public beliefs in the efficacy of AMBER Alert. For instance, rare cases in which the issuance of an alert is associated with the safe return of a child are typically highly publicized (Griffin & Miller, 2008), building faith in the system. However, reasoning fallacies may cause individuals to ignore the much more common cases in which an alert was issued and the abducted child remains missing or is found murdered (Sicafuse & Miller, 2010). More generally, many individuals are likely unaware of the psychological literature providing a more comprehensive portrayal of AMBER Alerts.

Finally, public officials and child-safety activists, who are often close relatives of a victim of stranger-child abduction and murder, often rely on horrific examples (e.g., the abduction and murder of Amber Hagerman and Polly Klass) to rally public support for alerts (Muschert et al., 2006). Not only are such examples atypical of child abductions as a whole, but they also tend to evoke strong negative emotional responses. These emotions can affect the ways in which individuals process available information about AMBER Alert, leading to more positive attitudes toward the system.

Cognitive-Experiential Self-Theory

Cognitive-Experiential Self-Theory (CEST), a dual processing model of attitude formation and change, may explain how affective reactions to cases of child abduction and murder foster public endorsement of AMBER Alert. CEST proposes that emotional response elicits experiential processing, which is automatic, efficient, and relatively effortless. Individuals using the experiential mode process information rapidly and rely on heuristic cues, leading to broad and biased conclusions (Epstein, Lipson, Holstein, & Huh,

1992). In the absence of emotion, people use the rational mode, processing information deliberately and analytically to reach logical conclusions (Epstein, 1994).

Numerous studies have linked experiential processing to reasoning and judgment errors. Epstein et al. (1992) found that priming participants to process information experientially increased reliance on heuristic cues (e.g., whether an individual's behavior was an act of omission or commission; whether their behaviors were usual or unusual), which in turn led to misattributions of responsibility for events in which both actors were equally responsible. Individuals also are more likely to make "non-optimal" responses (i.e., those that decrease their likelihood of success) in games of chance when thinking experientially (Denes-Raj & Epstein, 1994; Pacini & Epstein, 1999). In the applied realm, mock juror studies revealed that experiential processing increased jurors' reliance on "clinical" expert testimony, which is largely intuitive and based on practitioners' opinions. Conversely, jurors processing rationally were more inclined to consider "actuarial," or scientific expert testimony (Krauss, Lieberman, & Olson, 2004; Lieberman, Krauss, Kyger, & Lehoux, 2007).

Considering the emotional nature of stranger-child abduction and murder, it is likely that many individuals process alert-relevant information experientially. In doing so, they may fail to recognize AMBER Alert's potential flaws, arriving at the broad generalization that the system is necessary and effective. Additionally, those processing information experientially often rely on narratives and images in forming judgments (Krauss et al., 2004), increasing the likelihood that individuals will continue to base their attitudes and beliefs about alerts on biased and unrepresentative media reports.

Potential for Attitude Change toward AMBER Alert

Increasing public awareness of the actual risk of stranger-child abduction and potential shortcomings of AMBER Alert may help promote more accurate perceptions of the system. Basic principles highlighted in the attitude and persuasion literature may be used to foster attitude change toward AMBER Alert. In general, message quality is the strongest predictor of attitude change (Johnson, Maio, & Smith-McLallen, 2005). "High-quality" messages characterized by clear and professional language, sound logic, valid reasoning, and the presentation of data exert a consistent persuasive impact across message topics (Park, Levine, Westerman, Orfgen, & Foregger, 2007). Not surprisingly, "low-quality" messages relying on general language, weak assertions, and opinions often fail to change attitudes (Park et al., 2007).

Source expertise also influences attitude change. In general, experts are more persuasive than non-experts or unspecified sources; this persuasive impact increases with the perceived knowledge, credibility, and trustworthiness of an expert source (Eagly & Chaiken, 1993; Petty & Wegener, 1998). Unexpected messages (i.e., those inconsistent with audience views or the expert's reference group) tend to enhance audience perceptions of an expert's trustworthiness, heightening the potential for attitude change (Eagly, Wood, & Chaiken, 1978). Finally, due to the widespread belief that "consensus implies correctness," messages citing numerous expert sources are more persuasive than messages attributable

to a single expert (Ziegler, Diehl, Zigon, & Fett, 2004). To maximize persuasive impact, multiple experts should deliver distinct arguments that advocate the same position (see Eagly & Chaiken, 1993; Petty & Wegener, 1998).

Incorporating such components into messages regarding AMBER Alert may be the most conducive means of encouraging more thorough consideration of the system and its limitations. However, according to CEST, exposure to comprehensive and high-quality information about alerts may not change individuals' attitudes toward the system. Those processing experientially may have difficulty incorporating new information into their pre-existing attitudes, or discount evidence of AMBER Alert's potential ineffectiveness. Further, experiential processors tend to favor arguments based on opinions (characteristic of low-quality messages) over those based on scientific evidence (Krauss et al., 2004). Ultimately, CEST predicts that those engaged in experiential processing will continue to rely on their "gut instincts" when making judgments about AMBER Alert, regardless of the quality and scope of alert-related information available.

In sum, questionable information about AMBER Alert and related issues coupled with experiential processing of this information likely underpin positive evaluations of the system. Because thinking about child abduction, sexual assault, and murder is inherently emotional, increasing public awareness of AMBER Alert's flaws may not significantly impact attitudes. Thus, the current research will examine the effects of alert-related information (i.e., message quality) and information processing with respect to CEST on public attitudes toward AMBER Alert. Doing so may also enhance the understanding of attitudes towards other emotionally-based crime control theater polices and their potential for change.

OVERVIEW AND HYPOTHESES

To explore the foundations and malleability of attitudes toward AMBER Alert, both processing mode and the quality of alert-related messages were manipulated in a 3 (rational, experiential, or no prime) x 3 (high-quality, low-quality, or no messages) between-groups design. Rational processing was primed through a problem solving task, whereas experiential processing was primed by two highly emotional news stories. Message quality was ascertained through pilot testing. To establish baseline conditions, some participants were not exposed to primes or messages about AMBER Alert (though all participants read a brief description about the system).

Because the experiential processing prime was designed to elicit negative emotional responses, the Positive and Negative Affect Schedule (PANAS) was used to explore the mediating role of emotion on evaluations of AMBER Alert. The effectiveness of CEST processing primes were measured by performance on a judgment task: Participants exposed to the rational prime should make more accurate attributions about an actors' behavior than participants exposed to no prime or the experiential prime (see Epstein et al., 1992).

It was expected that participants receiving the rational prime would have the least favorable attitudes toward AMBER Alert, whereas those receiving the experiential prime would have the most favorable attitudes. Similarly, participants exposed to high-quality messages should express less favorable attitudes than those exposed to low-quality or no messages. An interaction between the processing and message quality manipulations was further hypothesized: Those receiving both the rational prime and high-quality messages would have the most negative attitudes compared to any other group, but participants primed to process information experientially would express positive attitudes regardless of message quality.

METHOD

Participants

A total of 180 undergraduate students (55% female) enrolled in introductory psychology or criminal justice courses at a Western U.S. university participated in the study in exchange for extra credit. The mean age of participants was 19.9 years ($SD = 2.86$). Ethnic background was reported as follows: Caucasian (75%); Asian/Pacific Islander (10%); Hispanic (10%); African American (4%); Native American (1%). Each cell had an average of 20 participants, with cell sizes ranging from 18 to 25.

Procedure

All participants completed the study online using the Survey Monkey website. After connecting to the online survey link, participants were electronically randomly assigned to one of nine conditions. In order to minimize reactivity effects, participants were informed that the purpose of the study was to examine college students' cognitive processes, attitudes toward government policies, and thinking styles.

Participants in the "rational prime" condition were asked to solve a series of math equations and to submit their responses within 20 minutes, whereas those in the "experiential prime" condition read two highly emotional news stories and answered questions regarding their emotional responses to the story (those in the "no prime" condition immediately proceeded to the next phase of the study). Next, participants in the no messages condition read a brief summary regarding the development, purpose, and guidelines of the AMBER Alert system, whereas participants in the low-quality and high-quality messages conditions were presented with this summary in addition to the corresponding messages. All participants subsequently completed two questionnaires designed to assess their attitudes toward AMBER Alert, followed a problem-solving task designed to measure processing mode and the PANAS. Finally, participants filled out a demographics questionnaire and were debriefed on the actual purpose of the study.

Materials

Processing primes. Because working on math problems requires analytic thought (Epstien, 1994), participants in the rational prime condition were asked to complete a set of 10 math problems requiring multiplication, division, and estimations of fractions and percentages. These problems were developed by Krauss et al. (2004) to prime rational

processing. Two news stories were used to prime experiential processing. The first describes a college undergraduate who has recently died from cancer (Cermak, 2008); the second focuses on a devastating plane crash (Erdley, 2004). To maximize the effects of the experiential prime, participants were asked to describe their emotional responses to the articles. Additionally, participants answered four questions regarding the content of the articles as a comprehension check.

Messages. All participants reviewed general information about the purpose and guidelines of the AMBER Alert system. To develop high and low-quality messages, 22 pilot participants rated the persuasiveness of a series of arguments about the system on a 1 (not at all persuasive) to 7 (extremely persuasive) Likert scale. As recommended by Petty and Cacioppo (1986), high-quality messages were constructed from the arguments rated as most persuasive, whereas low-quality messages were constructed from the arguments rated as least persuasive. Both types of messages included similar arguments (e.g., the likelihood of stranger-child abduction is low; most alerts are not issued in enough time to save an abducted child; it is difficult for people to remember the information disseminated by alerts). However, the high-quality messages cited expert testimonials, research findings, and statistics, whereas the low-quality arguments were characterized by weak assertions and general language (e.g., “Most children will not be abducted by a stranger...people may find it difficult to recognize an abductor or victim from a photograph”).

Dependent variables.

Attitudes. The attitude scale ($\alpha = .89$) was comprised of the average score on eight items designed to assess cognitive and behavioral components of attitudes toward AMBER Alert on a 7-point Likert Scale (1 = strongly disagree, 7 = strongly agree). The evaluative belief scale ($\alpha = .90$) was comprised of the average score on three items instructing participants to use a dichotomous pair of adjectives (e.g., wise vs. foolish, positive vs. negative) to express their general beliefs about AMBER Alert. Responses occurred on a 7-point scale where 1 and 7 indicate a strong belief, 5 and 6 indicate a weak belief, and 4 indicates indecision. Higher scores on both scales indicate stronger support for AMBER Alert.

CEST measure. All participants were asked to solve “The Parking Problem” to determine their degree of rational and experiential processing. This problem consists of a vignette in which one actor’s behavior is constrained and the other actor’s behavior is unconstrained (Epstein et al., 1992). Participants indicate which actor was more foolish on a scale of 1 (Actor 1 was more foolish) to 9 (Actor 2 was more foolish) with a midpoint of 5 (Actors were equally foolish). Responses were coded on a 1-5 scale so that “5” indicates a high degree of rational processing and “1” indicates a high degree of experiential processing.

Affect measure. The PANAS provides independent measures of positive (10 items) and negative (10 items) affect. Reliabilities of these two scales have been reported as follows: PA, $\alpha = .89$; NA, $\alpha = .85$ (Crawford & Henry, 2004). In the current study, PA $\alpha = .82$, NA $\alpha = .82$. To target state affect, participants were asked to indicate the extent to

which they were currently experiencing each emotion (1 = very slightly or not at all; 3 = moderately, 5 = extremely), with responses summed and averaged to yield a comprehensive PA and NA scores.

Demographics

Information was collected from participants regarding their age, gender, and ethnic background. Additionally, participants were asked to indicate the degree to which they have learned about the AMBER Alert system by participating in the current study on a 5-point Likert scale (1 = very little, 5 = very much) and to indicate whether they had received information about AMBER Alert's ineffectiveness prior to participation.

RESULTS

Preliminary Analyses and Manipulation Checks

Overall, participants had positive attitudes ($M = 5.01$, $SD = 1.14$) and evaluative beliefs ($M = 5.51$, $SD = 1.14$) about the AMBER Alert system. Further, most indicated that they had gained substantial knowledge about AMBER Alert by participating in the current study ($M = 3.46$, $SD = .880$). The majority of participants (85.0%) reported that they had not previously been exposed to any information suggesting that alerts may be ineffective. Those who reported prior knowledge of the limitations of alerts ($N = 27$) were prompted to describe the types of information they were exposed to. Over half of these participants (59.3%) described exposure to general information regarding the purpose and function of alerts and did not reference any information challenging the efficacy of the system. Thus, this question was likely misinterpreted, resulting in an inflated estimate of participants' prior knowledge of the limitations of alerts.

The majority of participants exposed to the rational prime correctly answered the math problems. Similarly, the majority of participants receiving the experiential prime correctly answered the two comprehension questions following each news story. The news stories elicited substantial affective response: most participants reported experiencing sadness (92.6%), admiration (77.9%), and compassion (75%). However, a one-way ANOVA found no effects of the processing manipulation on PANAS scores, suggesting that the affective responses elicited by the news stories may have dissipated quickly or failed to impact participants' temporary emotional states. Further, one-way ANOVAS revealed no effects for processing prime on Parking Problem scores. Thus, the processing manipulations may have been ineffective.

Attitude and Evaluative Belief Measures

Effects of processing manipulation and message quality. Contrary to expectations, a MANOVA revealed no significant effects for processing manipulation on attitudes and evaluative beliefs or interactions between processing manipulation and message quality. As predicted, analyses yielded a main effect for message quality on attitude and evaluative belief measures ($F [4, 340] = 11.46$; $p < .01$, $\eta_p^2 = .119$). Tukey post-hoc tests indicated that participants exposed to high-quality messages had more negative attitudes ($M = 4.49$, $SD = 1.23$) toward AMBER Alert than those exposed to low-quality messages ($M = 5.34$,

$SD = .89$) or no messages ($M = 5.43$, $SD = 1.06$; $ps < .01$). Similarly, those exposed to high-quality messages had less favorable evaluative beliefs ($M = 4.77$, $SD = 1.11$) about the system than those exposed to low-quality messages ($M = 5.81$, $SD = .91$) or no messages ($M = 5.92$, $SD = 1.03$; $ps < .01$).

Effects of PANAS scores. It was predicted that scores on the PANAS would mediate the relationship between the processing manipulation and attitudes. As the processing manipulation had no effect on PANAS scores, this relationship was not further examined. Multiple regression analyses revealed that NA and PA scores failed to predict scores on the attitude measure. In addition, NA scores did not predict scores on the evaluative belief measure. PA scores did account for a small portion of the variance on evaluative belief scores ($R^2 = .057$; $F [2, 176] = 5.35$, $p < .01$), such that those with higher PA scores had more positive beliefs about AMBER Alert than those with lower PA scores ($b = .240$, $p < .01$)

Effects of gender. Though no prior predictions were made regarding the relationships between gender and evaluations of AMBER Alert, MANOVAs revealed a main effect for gender on attitudes and beliefs ($F [2, 158] = 3.65$; $p < .05$, $\eta_p^2 = .044$). Females had more favorable attitudes ($M = 5.19$, $SD = 1.01$) and evaluative beliefs ($M = 5.59$, $SD = 1.14$) about alerts than males ($M = 5.00$, $SD = 1.18$; $M = 5.40$, $SD = 1.13$, respectively). There were no significant interactions between gender, processing prime, or message quality.

DISCUSSION

This research sought to elucidate the influences of information exposure and processing on attitudes toward the AMBER Alert system. Due to the potential failure of the processing manipulations, results could not illuminate the mechanisms responsible for the formation of attitudes toward alerts. Yet, the finding that high-quality messages decreased support for alerts has important implications for social scientists, lawmakers, and the American public.

CEST, Affective Response, and Support for AMBER Alert

The processing primes had no impact on attitudes, subsequent affective responses, or performance on the Parking Problem. Several factors may account for the likely failure of the processing primes. Previously successful experiential primes targeted general affective response (e.g., Krauss et al., 2004; Lieberman et al., 2007). The experiential primes in the current study elicited strong, specific emotional responses (e.g., sadness, sympathy), which may not be as conducive to experiential processing. In addition, participants may have disregarded instructions and used a calculator to solve the math problems, which would have inhibited rational thinking. It also is possible that they solved easier problems relatively effortlessly while guessing the answers to more difficult problems. Because both primes originally elicited expected responses, however, they likely initially promoted rational or experiential thinking which dissipated over the course of the study.

Despite the likely ineffectiveness of the processing manipulations, the relationship between positive affect and evaluative beliefs suggests that support for AMBER Alert

may be based in the experiential system. Higher PA scores were associated with more favorable beliefs about AMBER Alert; this effect was relatively small but significant. Though unexpected and seemingly unaffected by processing primes, this finding coheres with earlier research linking PA to reliance on heuristic cues in judgment and decision making tasks (see Bodenhausen, 1993; Bodenhausen, Kramer, & Süsner, 1994). More recently, both induced and naturally occurring PA have been shown to promote experiential processing (King, Burton, Hicks, & Drigotas, 2007). Experiential processing should exert the strongest impact on evaluative beliefs about the system, which were designed to tap more holistic, affectively-based assessments of AMBER Alert. This may explain why PA scores had no significant impact on the attitude measure, which was designed to assess the more “rational” cognitive components of support for alerts.

Message Quality, Gender Differences, and Attitude Change

Emotion and motivation undoubtedly play a role in the development of attitudes toward AMBER Alert. However, current findings indicate that individuals will incorporate accurate and persuasive information into their judgments about alerts in spite of or even at the expense of such influences. More generally, findings suggest that positive attitudes toward alerts could be largely based on a lack of information or understanding about the system.

No initial predictions were made regarding gender differences and support for AMBER Alert, but post hoc analyses indicated that overall, women were more likely than men to express favorable attitudes and evaluative beliefs about the system. Gender differences in fear of crime may help account for this effect; women are more likely than men to fear victimization in general (May, Rader, & Goodrum, 2010; Smith & Tortensson, 1997) and victimization of sexual assault in particular (Ferraro, 1996; Reid & Konrad, 2004). In addition, female jurors are more conviction prone and punitive toward alleged perpetrators of child sex abuse than are men (Bottoms & Goodman, 1994; Kovera, Gresham, Borgida, Gray, & Reagan, 1997). Thus, women may be especially likely to support policies exemplifying crime control theater, which often target crimes involving young, female victims (e.g., see Lord, Bourdreaux, & Laming, 2001; Reid & Conrad, 2004). Indeed, studies have shown that women are more likely than men to express fear and anger upon notification of a convicted sex offender in their neighborhood (Caputo & Brodsky, 2004; Phillips, 1998) and to support sex offender registration policies (Levenson et al., 2007). However, the lack of interactive effects between message quality and gender as observed in this study suggests that women and men are equally likely to consider information promoting more realistic perceptions of alerts and to change their attitudes accordingly.

The vast majority of participants were unaware of AMBER Alert’s disadvantages prior to participation in the study. This is consistent with one-sided “social marketing” of AMBER Alert and similar CCT measures focusing on the “benefits” of these policies while ignoring any potential disadvantages or alternatives. Low-quality messages comprised of general arguments about the shortcomings of AMBER Alert did not attenuate support for the system. Yet, participants were receptive to high-quality messages including more specific evidence of the psychological and practical limitations of alerts (e.g., research indicating

that the majority of children abducted by strangers are killed before an alert can be issued; results of a field experiment demonstrating individuals' difficulty in identifying missing children), statistics regarding the incidence of stranger-child abductions and the efficacy of alerts in rescuing missing children, and distinct arguments from a variety of expert sources (e.g., attorneys, criminologists, psychologists). Language was professional yet targeted toward the layperson; statistical arguments were relatively brief and comprehensible (e.g., "Children are 14 times more likely to die as a result of abuse and neglect by a family member than at the hands of a murderous stranger").

The current study design did not allow for an assessment of the effectiveness of the individual components of the high-quality messages in promoting attitude change toward AMBER Alert. Prior research has demonstrated the value of incorporating arguments from multiple expert sources in persuasive messages (see Petty & Wegener, 1998, for a review); such arguments are particularly effective when individuals know little about the message topic (Wood & Kallgren, 1988), as in the present study. Further, the perceived trustworthiness of the expert sources may have been enhanced by the presentation of unexpected arguments (i.e., that AMBER Alert may be ineffective; Eagly et al., 1978). Most likely, all of the components of high-quality messages in conjunction led to attitude change. Though low-quality messages included a variety of arguments, a higher level of specificity and attribution to expert sources was needed to attenuate support for alerts. The finding that message quality affects support for AMBER Alert regardless of emotion and motivation has important implications for both professionals and laypersons.

Implications, Limitations, and Directions for Future Research

The current study provides a foundation for understanding attitudes toward the AMBER Alert system and other policies exemplifying CCT. This is the first empirical investigation substantiating researchers' claims (e.g., Griffin & Miller, 2008; Zgoba, 2004a) of strong public support for alerts. Most notably, the current findings indicate that attitudes toward the AMBER Alert system are malleable. Thus, widespread dissemination of accurate and convincing evidence of the limitations of alerts and similar crime control measures may lead to policy improvements or the development of more effective means of controlling crime. Special efforts should be made to target women's knowledge of AMBER Alert, as their heightened fear of crime and perception of risk may make them more susceptible to "unquestioned acceptance" of the system.

Ensuring such mass distribution and public reception, however, poses a challenge to social scientists. Many media sources may hesitate to report findings substantiating the unpopular view that AMBER Alert is not the most appropriate means of addressing the problem of stranger-child abduction. In addition, some outlets may only highlight a few select limitations of AMBER Alert (e.g., most rescues are in cases of family abductions). Given the time and space limitations of many media sources, it may prove difficult to convey more comprehensive messages about AMBER Alert. Even so, it is important to educate the public in order to encourage more accurate perceptions of AMBER Alert.

In the current study, participants were presumably motivated and able to attend to information about the AMBER Alert system. In real-world settings, people may choose to ignore messages about alerts or process information while distracted. Messages describing other means of preventing child abduction and murder or ways in which the resources allocated to alerts could be redirected to other, more successful programs designed to help endangered children (e.g., child welfare services, child abuse and neglect prevention programs) may help promote more realistic beliefs about the system's efficacy.

Accordingly, future research should investigate various methods of information distribution, message construction, and their effects on public attitudes toward AMBER Alert and similar policies in natural environments. For instance, social scientists may examine the degree to which individuals attend to messages about the limitations of alerts disseminated through the internet or other media outlets. Research regarding law enforcement and government officials' attitudes toward the AMBER Alert system is also needed. "Unexpected" testimony from police officers and policy makers questioning the effectiveness of AMBER Alert may significantly reduce public support for the current system and result in policy changes. However, these individuals' attitudes may be particularly resistant to change, as many may have publicly endorsed alerts or fear that challenging the system will alienate colleagues and constituents.

Limitations of the current study further highlight the need to examine attitudes toward the AMBER Alert system and other policies exemplifying crime CCT utilizing different populations and methodological approaches. Data were collected using a purposive sample of college students, and these results may not generalize to other community members or college students. Results may have further been influenced by demand characteristics (i.e., those receiving high-quality messages may have inferred that they were expected to express less support for alerts), and attitude change as observed in the current study may not translate to decreased support for the system in public arenas. Thus, future research should examine potential differences in public and private advocacy for AMBER Alert.

Finally, the failure of the processing primes compromised the goals and scope of this study. Other means of priming rational and experiential processing should be used to further assess the utility of CEST in understanding attitudes toward the AMBER Alert system. More generally, the effects of specific affective responses on rational and experiential processing and the subsequent impact of these mechanisms on attitudes toward legal issues merit further attention. Such investigations may help support CEST as an all-encompassing theory or identify circumstances in which its applications are limited.

CONCLUSION

Though the AMBER Alert system is endorsed by both professionals and laypersons, evidence suggests that it is a relatively ineffective means of addressing the problem of stranger-child abduction. Further, AMBER Alert and similar crime control policies may have serious, unintended consequences. In an effort to better understand public support concerning crime control policies, this study investigated the role of information processing

and message quality on the development and modification of attitudes toward AMBER Alert. The influences of rational and experiential processing on attitude change toward alerts could not be clarified. Yet, the current study provides the impetus for future research aimed at understanding public support for questionable responses to crime and encouraging more thorough assessments of crime control measures. In addition to supporting the notion that the AMBER Alert system may enjoy unquestioned acceptance, results suggest that informing the public of its limitations may yield widespread attitude change. An increased focus on the components of attitudes toward AMBER Alert and similar measures coupled with the development of strategies to engage the public in thoughtful contemplation of these policies may motivate positive social changes.

REFERENCES

- Amberalert.com (2012). *The AMBER Alert program*. Retrieved from <http://www.amberalert.com/about/amber-alert/>
- Applegate, B. K., Cullen, F. T., Turner, M. G., & Sundt, J. L. (1996). Assessing public support for three-strikes-and-you're-out laws: Global versus specific attitudes. *Crime & Delinquency, 42*, 517-534.
- Armstrong, M., Miller, M. K., & Griffin, T. (2011). *Examining the psychology of Crime Control Theater using sex offender registration and notification laws*. Manuscript submitted for publication.
- Best, J. (1990). *Threatened children: Rhetoric and concern about child-victims*. Chicago: University of Chicago Press.
- Bodenhausen, G. V. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 13-37). San Diego, CA: Academic Press.
- Bodenhausen, G. V., Kramer, G. P., & Stüsser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology, 66*, 621-632.
- Bottoms, B. L., & Goodman, G. S. (1994). Perceptions of children's credibility in sexual assault cases. *Journal of Applied Social Psychology, 24*, 702-732.
- Brown, C. S., Miller, M. K., & Griffin, T. (2011). *Polygamy raids: An example of Crime Control Theater precipitated by moral panic*. Manuscript submitted for publication.
- Caputo, A. A., & Brodsky, S. L. (2004). Citizen coping with community notification of released sex offenders. *Behavioral Sciences & the Law, 22*, 239-252.
- Cermak, J. (2008, July 13). Student dies from cancer. *Ball State Daily News*. Retrieved from <http://media.www.bsudailynews.com/media/storage/paper849/news/2008/07/14/News/Student.Dies.From.Cancer-3390458.shtml>
- Chen, E. Y. (2008). Impacts of "three strikes and you're out" on crime trends in California and throughout the United States. *Journal of Contemporary Criminal Justice, 24*, 345-370.
- Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*, 245-265.
- Denes-Raj, V., & Epstein, S. (1994). Conflict between intuitive and rational processing: When people behave against their better judgment. *Journal of Personality and Social Psychology, 66*, 819-829.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Orlando, FL: Harcourt Brace Jovanovich.
- Eagly, A. H., Wood, W., & Chaiken, S. (1978). Causal inferences about communicators and their effect on opinion change. *Journal of Personality and Social Psychology, 36*, 424-435.
- Epstein, S. (1994). Integration of the cognitive and psychodynamic unconscious. *American Psychologist, 49*, 704-724.
- Epstein, S., Lipson, A., Holstein, C. & Huh, E. (1992). Irrational reactions to negative outcomes: Evidence for two conceptual systems. *Journal of Personality and Social Psychology, 62*, 328-339.

- Erdley, D. (2004, September 5). "There was no one to save." *Pittsburgh Tribune-Review*. Retrieved from http://www.pittsburghlive.com/x/pittsburghtrib/news/specialreports/flight427/s_2_47854.html.
- Ferraro, K. F. (1996). Women's fear of victimization: Shadow of sexual assault? *Social Forces*, 75, 667-690.
- Finkelhor, D., Hammer, H., & Sedlak, A. (2002). Nonfamily abducted children: National estimates and characteristics. *U.S. Department of Justice Special Report, NCJ 196467*. Washington, DC: U.S. Department of Justice, Bureau of Statistics.
- Finkelhor, D., Hotaling, G. T., & Sedlak, A. (1992). The abduction of children by strangers and nonfamily members: Estimating the incidence using multiple methods. *Journal of Interpersonal Violence*, 7, 226-243.
- Griffin, T., & Miller, M. K. (2008). Child abduction, AMBER Alert, and "Crime Control Theater." *Criminal Justice Review*, 33, 159-176.
- Griffin, T., Miller, M. K., Hoppe, J., Rebideaux, A., & Hammack, R. (2007). A preliminary examination of AMBER Alert's effects. *Criminal Justice Policy Review*, 18, 378-394.
- Hammond, M., Miller, M. K., & Griffin, T. (2010). Safe Haven Laws as Crime Control Theater. *Child Abuse and Neglect*, 34, 545-552.
- Hanfland, K. A., Keppel, R. D., & Weiss, J. G. (1997). Case Management for Missing Children Homicide Investigation: Executive Summary. Olympia, WA: Office of the Attorney General.
- Harder, K. A., Bloomfield, J., Chihak, B. J. (2003). *The effectiveness and safety of traffic and non-traffic related messages presented on changeable message signs (CMS)*. Retrieved from the University of Minnesota Digital Conservancy website: <http://conservancy.umn.edu/handle/793>
- Johnson, B. T., Maio, G. R., & Smith-McLallen, A. (2005). Communication and attitude change: causes, processes, and effects. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 617-670). New York: Psychology Press.
- King, L. A., Burton, C. M., Hicks, J. A., & Drigotas, S. M. (2007). Ghosts, UFOs, and magic: Positive affect and the experiential system. *Journal of Personality and Social Psychology*, 92, 905-919.
- Kovandzic, T. V., Sloan, J. J., & Vieraitis, L. M. (2004). "Striking out" as a crime reduction policy: The impact of "three strikes" laws on crime rates in U.S. cities. *Justice Quarterly*, 21, 207-239.
- Kovera, M. B., Gresham, A. W., Borgida, E., Gray, E., & Regan, P. C. (1997). Does expert testimony inform or influence juror decision-making? A social cognitive analysis. *Journal of Applied Psychology*, 82, 362-375.
- Krauss, D. A., Lieberman, J. D., & Olson, J. (2004). The effects of rational and experiential information processing on expert testimony in death penalty cases. *Behavioral Sciences and the Law*, 22, 801-822.
- Lampien, J. M., Larnal, J., & Hicks, J. L. (2009). The effectiveness of supermarket posters in helping to find missing children. *Journal of Interpersonal Violence*, 24, 406-423.
- Langan, P. A., & Levin, D. J. (2002). Recidivism of prisoners released in 1994. *Federal Sentencing Reporter*, 15, 58-65.
- Levenson, J. S., Brannon, Y., Fortney, T., & Baker, J. (2007). Public perceptions about sex offenders and community protection policies. *Analyses of Social Issues and Public Policy*, 7, 1-25.
- Levenson, J. S., & D'Amora, D. A. (2007). Social policies designed to prevent sexual violence: The emperor's new clothes? *Criminal Justice Policy Review*, 18(2), 168-199.
- Levenson, J. S., D'Amora, D. A., & Hern, A. L. (2007). Megan's Law and its impact on community re-entry for sex offenders. *Behavioral Sciences and the Law*, 25, 587-602.
- Lieberman, J. D., Krauss, D. A., Kyger, M., & Lehoux, M. (2007). Determining dangerousness in sexually violent predator evaluations: Cognitive-Experiential Self-Theory and juror judgments of expert testimony. *Behavioral Sciences and the Law*, 25, 507-526.
- Lord, W. D., Boudreaux, M. C., & Lanning, K. V. (2001). Investigating potential child abduction cases: A developmental perspective. *FBI Law Enforcement Bulletin*, 70, 1-10.
- May, D. C., Rader, N. E., & Goodrum, S. (2010). A gendered assessment of the "threat of victimization": Examining gender differences in fear of crime, perceived risk, avoidance, and defensive behaviors. *Criminal Justice Review*, 35, 159-182.

- Miller, M. K., & Clinkenbeard, S. S. (2006). Improving the AMBER Alert system: Psychology research and policy recommendations. *Law and Psychology Review, 30*, 2-21.
- Miller, M. K., Griffin, T., Clinkenbeard, S. S., & Thomas, R. M. (2009). The psychology of AMBER Alert: Unresolved issues and policy implications. *Social Science Journal, 46*, 111-123.
- Muschert, G. W., Young-Spillers, M., & Carr, D. (2006). "Smart" policy decisions to combat a social problem: The case of child abductions 2002-2003. *Justice Policy Journal, 3*, 1-32.
- National Center for Missing & Exploited Children (2002). National Center for Missing & Exploited Children spearheads campaign to promote AMBER Plan nationwide [press release]. Retrieved from http://www.missingkids.com/missingkids/servlet/NewsEventServlet?LanguageCountry=en_US&PageId=331
- National Center for Missing & Exploited Children (2008). *Analysis of AMBER Alert cases in 2007*. Retrieved from http://www.amberalert.gov/pdfs/07_amber_report.pdf
- Pacini, R., & Epstein, S. (1999). The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology, 76*, 972-987.
- Park, H. S., Levine, T. R., Westerman, C. Y. K., Orfgen, T., & Foregger, S. (2007). The effects of argument quality and involvement type on attitude formation and attitude change: A test of dual-process and social judgment predictions. *Human Communication Research, 33*, 81-102.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Petty, R.E., & Wegener, D.T. (1998). Attitude change: Multiple roles for persuasion variables. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 323-390). New York: Oxford University Press.
- Phillips, D. M. (1998). *Community notification as viewed by Washington's citizens*. Olympia, WA: Washington State Institute for Public Policy.
- Proctor, J. L., Badzinski, D. M., & Johnson, M. (2002). The impact of media on knowledge and perceptions of Megan's Law. *Criminal Justice Policy Review, 13*, 356-379.
- Reid, L. W., & Konrad, M. (2004). The gender gap in fear: Assessing the interactive effects of gender and perceived risk on fear of crime. *Sociological Spectrum, 24*, 399-425.
- Sicafuse, L. L., & Miller, M. K. (2010). Social psychological influences on the popularity of AMBER Alerts. *Criminal Justice and Behavior, 37*, 1237-1254.
- Smith, W. R., & Tortensson, M. (1997). Gender differences in risk perception and neutralizing the fear of crime: Towards resolving the paradoxes. *British Journal of Criminology, 37*, 608-634.
- Sorenson, S. B., Manz, J. G., & Berk, R. A. (1999). News media coverage and the epidemiology of homicide. *American Journal of Public Health, 88*, 1510-1514.
- Stolzenberg, L., & D'Alessio, S. J. (1997). "Three strikes and you're out": The impact of California's new mandatory sentencing laws on serious crime rates. *Crime & Delinquency, 43*, 457-459.
- Tyler, T. R. (2006). Psychological perspectives on legitimacy and legitimation. *Annual Review of Psychology, 57*, 375-400.
- Ullman, B. R., Dudek, C. L., & Trout, N. D. (2006). Amber Alert and major catastrophe messages on dynamic message signs: Focus group studies in Texas. *Transportation Research Record: Journal of the Transportation Research Board, 1959*, 114-121.
- U.S. Department of Justice (2006). Department of Justice initiates talks about bringing AMBER Alert to Indian country [press release]. Retrieved from <http://www.ojp.usdoj.gov/newsroom/pressreleases/2006/OJJDP06060.htm>
- U.S. Department of Justice (2012). *AMBER Alert: Frequently asked questions*. Retrieved from <http://www.amberalert.gov/faqs.htm>
- Wood, W., & Kallgren, C. A. (1988). Communicator attributes and persuasion: Recipients access to attitude-relevant information in memory. *Personality and Social Psychology Bulletin, 14*, 172-182.
- Zgoba, K. (2004a). The AMBER Alert: The appropriate solution to preventing child abduction? *The Journal of Psychiatry and Law, 32*, 71-88.

- Zgoba, K. (2004b). Spin doctors and moral crusaders: The moral panic behind child safety legislation. *Criminal Justice Studies, 17*, 385-404.
- Zgoba, K., Veysey, B. M., & Dalessandro, M. (2010). An analysis of the effectiveness of community notification and registration: Do the best intentions predict the best practices? *Justice Quarterly, 27*, 667-691.
- Zgoba, K., Witt, P., Dalessandro, M., & Veysey, B. (2008). *Megan's Law: Assessing the practical and monetary efficacy*. National Institute of Justice: Washington, D.C.
- Ziegler, R., Diehl, M., Zigon, R., & Fett, T. (2004). Source consistency, distinctiveness, and consensus: The three dimensions of the Kelly ANOVA Model in persuasion. *Personality and Social Psychology Bulletin, 30*, 352-364.

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- Sicafuse, L.L., & Miller, M.K (2012). The effects of information processing and message quality on attitudes toward the AMBER Alert system. [Electronic Version]. *Applied Psychology in Criminal Justice, 8*(2), 69-86.