Attending to the future: The role of learning in emergency response

J. J. McIntyre, University of Central Arkansas
Kenneth Lachlan, University of Connecticut
Patric R Spence, University of Kentucky

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ATTENDING TO THE FUTURE: THE ROLE OF LEARNING IN EMERGENCY RESPONSE

J. J. McIntyre, PhD
Kenneth A. Lachlan, PhD
Patric R. Spence, PhD

ABSTRACT

This study extends on previous examinations of postcrisis and postemergency responses by examining social and mediated learning. The article argues that mediated learning and learning in the classroom may be particularly important after a crisis, both to ameliorate the negative emotional consequences of such events as well as to prompt the learning of information that might be important in future emergencies. Furthermore, an argument is made that the classroom can be used to facilitate postcrisis learning and this can be viewed as part of the university postcrisis response plan. Using data collected after a university shooting, the article bolsters previous research that individuals have the capacity to learn from the media in the midst of a crisis and that the classroom was underutilized as a medium for postcrisis and postemergency learning.

Key words: crisis communication, learning, gender, school shooting

School violence has drawn much attention from both the news media and concerned scholars in recent years. Shooting incidents at universities such as Virginia Tech, Northern Illinois University, and the University of Alabama at Huntsville are examples that received a great deal of national media and scholarly attention. However, in comparison to other emergencies and extreme events, little is known about the communication processes that take place throughout the crisis lifecycle of a university shooting. Those on campus need immediate and timely information about the event and specific actions to take. Additionally, a larger external audience of community members, parents, the media, and other stakeholders will also want timely and accurate information. This diversity makes the public relations actions involved with a school shooting a demanding endeavor.

Although there are many actions a university can take to respond to its public during the unfolding crisis of a school shooting, the role of stakeholder learning has, so far, been overlooked. Because of the sudden and overwhelming nature of most emergencies, people often do not have a chance to prepare for the onset of life-threatening events. However, such events may create valuable opportunities for learning, and the learning processes used at this juncture might lead people to acquire knowledge they can use to reduce harm immediately in addition to the future. The process of learning through crisis could alleviate confusion and distress associated with the crisis experience. This study examines learning and crisis in this complex institutional context.

In this study, mechanisms relevant to learning about emergencies from the media and in the classroom are first discussed. Based on past research, an argument concerning gender differences in learning is forwarded. Results from data collected from students in the aftermath of a university shooting are offered, along with subsequent recommendations and best practices for message design and placement.

SCHOOL SHOOTINGS AND THE CASE

Based on the instances that most recently brought the concept into the public eye, a school shooting is an event caused by angry young male assailants, many of

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whom possess no previous criminal record.1 Within the context of crisis communication, school shootings fall under the category of the malevolence crisis type, which Coombs described as “when an outside actor or opponent employs extreme tactics to attack the organization, such as . . . terrorism.”2(p65) Although the extended length and subsequent media coverage of the Columbine shooting in 1999 brought school shootings to the forefront of the public’s consciousness, there are numerous other instances that are worthy of study.

One such shooting occurred on the Sunday evening of October 26, 2008. Gunshots were heard throughout the University of Central Arkansas’ campus. The shooting occurred outside of a residence hall where students often congregate. The University of Central Arkansas Police Department (UCAPD) officers also quickly arrived on the scene and promptly mobilized the entire department. As emergency responders attempted to gain control over the scene, campus police ordered a lockdown, students were told to stay where they were, and UCAPD monitored critical access points to the university.3 Only 3 minutes after learning about the shooting, UCAPD arrested the first of four suspects.4

About 15 minutes after the shooting, UCA implemented its emergency alert system that was purchased after the Virginia Tech shooting. An alert was sent to all university e-mail accounts, and an automated phone message was dispatched to key administrators and employees.5 Residence halls were among the group who received the phone calls and were instructed by an automated voice to “secure the facilities and restrict access to the buildings.”6 Additionally, a message was posted on UCA’s Web site, and about 30 minutes after the shooting, police officers attempted to call every building on campus.5

Despite these tactical actions, information about the shooting was not readily available or equally distributed, and campus officials soon faced public outcry from students and parents. Emails sent to students, faculty, and staff encountered technical difficulties and some did not receive the notification until hours after the shooting.7 The message on the campus’ homepage was reactive in that it was only seen by those who came across the homepage or who later searched for information. Additionally, the automated phone calls failed to notify many key buildings of danger.

There were rumors of other shootings continuing to take place both on and off campus.4 According to a student that was in the library that evening; most students were desperately trying to find information about what was happening. Although the initial alert on the campus’ webpage told students that a shooting occurred on campus, little information was added during the next 3 and a half hours, and campus remained locked down. Facebooking and texting provided many students with both reliable information and misinformation that raised more uncertainty and fear. Wireless phones became unreliable under the strain of the crisis, and many parents were unable to reach their children (personal communication, October 28, 2008).

Although the tactical response to the shooting appeared competent and successful, students on campus faced a long night of uncertainty and in many cases terror. In the days following the shooting students voiced their concerns. Upshaw5 captured one student’s reaction, “[e]verybody here feels a little like they’re in danger.” UCA sophomore Pat Curran said, “Everybody is affected. Parents feel their kids are in danger, and this has changed everything about the school’s perspective of how it is a safe place to go to learn.”5 The outpouring of anger led UCA to form a committee to investigate the communication gaps and to implement additional notification systems.8,9 In the end, the shooting resulted in the death of two UCA students, the injury of another nonstudent,7 and a disoriented campus.

CRISIS COMMUNICATION AND SCHOOL SHOOTINGS

Crises are permeating events that affect the lives of many stakeholder groups to varying degrees. In a school shooting, there are students, faculty, staff, parents, and members of the host community. Depending on the specific situation, each of these stakeholder groups has different communication needs throughout a crisis. Students, faculty, and staff will need to know immediately how to protect themselves from harm, parents will need to know that their child is safe, and the community needs to know the situation is under control.
According to Coombs, if an organization does not supply information to help stakeholders cope with the psychological effects of a crisis, “stakeholders can become the victims of the crisis.”2 Thus when students or parents do not have a clear understanding of what happened and students in lockdown do not know if they are safe or what is being done to protect them, then they become victims of the crisis as well.

After the immediate danger of a crisis subsides, communication efforts typically shift from short-term efforts of attempting to reduce immediate harm toward long-term efforts of corrective action10 such as learning from the experience to prevent future crises and to improve future responses.2 Following such strategies, universities such as the Virginia Tech and UCA purchased additional emergency communication equipments such as outdoor sirens and mobile phone texting equipment that students must sign up to receive messages. These purchases are intended to communicate to stakeholders that if another crisis emerges, the university is better prepared to handle the situation.

Additionally, when faced with stakeholder outrage, schools are faced with repairing their image to emotionally charged stakeholders. Crisis communication and emergency management scholars have developed numerous image repair strategies such as corporate apologia,11,12 image restoration theory,13 and situational crisis communication theory2,14 that are available to public relations practitioners. Ulmer et al. posited that “[i]mage can and does play a role in organizational crises. However, we argue that crises also carry the potential for opportunity.”10(p304) This opportunity is described as the discourse of renewal and is composed of four theoretical elements including organizational learning, ethical communication, prospective rather than retrospective vision, and effective organizational rhetoric. However, organizational learning is generally seen as part of renewal discourse instead of image repair.10 The current study proposes that organizational learning can also be a part of image repair in the case of school shootings.

Crisis communication scholars focusing on image repair have recently expanded beyond image or reputational repair to study the amount of stakeholder anger generated by a crisis.2 If the confusion and distress felt by students are not alleviated, they could turn into feelings of anger toward the school or university. Feelings of anger are likely to create a negative word of mouth for a business or organization15 and may lead to reducing purchasing intentions.16 In the case of school shootings, students’ anger could lead to reduced enrollment and significant income losses. After the school shooting at UCA, enrollment declined to 9.2 percent,17 which equates to a loss of roughly 10 million dollars (Melissa Goff, personal communication, March 4, 2010). Interestingly, enrollment at the University of Arkansas at Little Rock, which is in the same metropolitan area as UCA, raised to 9.8 percent in the same period (The University of Arkansas at Little Rock, 2010, March 4, 2010). Although a multitude of factors influence student enrollment, it would be naïve to assume that the shooting had no effect. Like Coombs,2 the current study argues that there is merit to reduce or prevent anger caused by a crisis in an attempt to prevent a negative communication dynamic from developing. One way to alleviate potential anger is to confront the confusion and distress associated with the crisis experience by teaching students how to better protect themselves ahead of time. In doing so, the organization is simultaneously engaging in the opportunities of renewal discourse and creating a proactive prophylactic for image repair.

**LEARNING AND EXTREME EVENTS**

Crisis is generally defined as “a specific, unexpected, and nonroutine event or series of events that create high levels of uncertainty and threaten or are perceived to threaten high priority goals,” including security of life and property or individual or community well-being.18(p233) The circumstances surrounding such events usually produce novel conditions, including stress and fear regarding the future, intense media scrutiny, and emotional instability.

Sundelius19 argued that a crisis is an opportunity for reform, innovation, exercising leadership, and learning through the crisis experience, both at the individual and organizational levels. Thus, crises become turning points that may also induce arousal, for instance, because of the potential for achievement.20 Another argument is that experience of crises has the ability to
contribute to a mindset of openness conducive to individual and collective learning.21 Because of the sudden nature of most crises, people often do not have a chance to prepare for the onset of life-threatening events. However, crises might create opportunities for learning, and these learning processes might lead people to acquire knowledge they can use to reduce harm in the future. In addition, the process of learning about crises through the media might alleviate confusion and distress associated with the crisis experience. In summary, previous research has demonstrated that given the intense attention allocation associated with crises and disasters, it seems likely that these situations have the capacity to facilitate learning.

Learning processes

The process of “learning” consists of the attainment of cognitive, affective, and behavioral outcomes.22 Learning is most often associated with a classroom setting. At a school or university, there are a number of components that affect how a student is able to learn new information. These factors can include student-teacher relationships, classroom environments, teacher clarity, and learning goals. According to a study by Anderson and Armbruster,23 college students spend approximately 10 hours a week in lectures. This section examines the various ways students are influenced to learn within the classroom setting.

Psychologists interested in learning have developed a number of models that outline the learning process. Piaget’s theory of cognitive development24 is a well-known and long-used model. Piaget examined learning through the development of schemas or ways of thinking. Thus, when an individual becomes exposed to a new stimulus, which challenges existing schemas, a process of reorganization and subsequent adaptation occurs, leading to new schemas. Piaget referred to this as “cognitive growth.”

Another well-known theory of learning comes from Bandura.26 Bandura described the process of vicarious learning as the observation of a model of the desired behavior, through which “an individual forms an idea of how response components must be combined and sequenced to produce the new behavior. In other words people guide their actions by prior notions rather than by relying on outcomes to tell them what they must do.”26(p35) Although each of these models may provide insight on the ability of individuals to learn, none take in the interplay of emotions, typical with the onset of crisis and their influence on learning along with the context.

Learning and context

Classrooms. Learning has frequently been associated with teachers’ verbal and nonverbal immediacy (see, eg, ref. 27). Witt and Wheeless asserted “the communication behaviors employed by teachers play a strategic role in student learning outcomes.”28(p327) This idea certainly applies at the collegiate level, where students are given the opportunity to pick and choose which professors they would like to instruct them. These may be professors who have taught a previous class the student enjoyed, or professors whom the students have heard positively mentioned by their classmates or through evaluations on social media.

McLaughlin and Ericson29 were able to determine some of the ideal qualities an instructor may portray. Some qualities included being participatory, giving approval to students, being sincere, and showing understanding. Different types of learning are related to instructors’ immediacy (see, eg, ref. 30). Christophel found positive relationships between an instructors’ immediacy behaviors and students’ perceived cognitive and affective learning. Cognitive learning refers to the ability to retain, synthesize, and apply knowledge and information.31 Affective learning, on the other hand, relies more on students’ emotional reaction and degree of acceptance to the topic.32

The classroom is one ideal place for learning after a crisis due to the mindset of the student. Oddly, the notion of learning in the classroom after a crisis is under-represented in the literature, despite the fact that the crisis literature is replete with examples of how to use the classroom and class discussion for issues of coping after a crisis.33-38 If the classroom can be used as a place of emotional healing, it is not much of a conceptual stretch to consider it a plausible avenue for crisis learning. Additionally, learning after a crisis could be facilitated in a classroom through discussion. Spee39 argued that the use of a focused conversation can aid in learning after a crisis. He outlined a teaching method described as ORID for these situations. It is derived from many of the theories of learning,
as described in a previous section of this article. ORID involves objective questions corresponding to the previous (crisis) experience. Reflective questions correspond to the observations and reflections of the event. Such questions focus attention on emotional responses. Interpretive questions correspond to the conceptualizations of the event, which focus attention on drawing conclusions and adopting beliefs. Finally, decisional questions focus attention on making a decision based on the group’s collective interpretation of the event. Spee\textsuperscript{39} used this method in classroom discussion after the terrorist attacks of September 11.

Although Spee used this to focus on learning how to express feelings and issues of decision making after a traumatic event, the method is generalizable and useful for learning issues of safety and crisis knowledge.

Classroom learning has been extensively studied and it is a known context where learning can take place. However, other than the lone article by Spee,\textsuperscript{39} the issue of how classroom learning can facilitate learning crisis safety measures is not represented in the literature; therefore, the following research questions (RQs) are offered:

- **RQ1:** To what extent did classroom discussion contribute to safety and crisis specific learning after the university shooting?
- **RQ2:** To what extent was gender related to classroom learning?

### Mediated learning

Classrooms are not the only environments in which learning can take place. In times of crisis, people will often turn to the media for answers. A crisis, by definition, is “a low-probability/high-consequence” event\textsuperscript{40} that creates high levels of uncertainty.\textsuperscript{18} Some studies have shown that media coverage of a crisis can be used as a coping mechanism (see, eg, ref. 41). Media, such as radio broadcasts, are also commonly available during times of crisis.\textsuperscript{42,43}

Although human neural architecture evolved to allow learning from direct social contact, research has demonstrated that individuals can and do learn from the media. For instance, teenagers pick up warnings about drugs and sexually related topics from entertainment television and public service announcements (eg, ref. 44), and adults respond to television news broadcasts to learn about current events in politics.\textsuperscript{45,46} Even when individuals are uninterested in a news topic, research suggests that they pick up some of the information by mere exposure to it.\textsuperscript{47} Moreover, the success of survival programs, such as the Discovery Channel’s Man vs. Wild or the History Channel’s Apocalypse PA, demonstrates that the public will attend to such information.

Learning from the media can occur through direct instruction (such as safety measures to follow) as well as observational learning. Seeing other individuals reacting to a crisis over media coverage might help another person remain calm in a similar situation.\textsuperscript{21} People can even learn from the media when they are not remotely interested in the coverage; simply being exposed to the information can be effective.\textsuperscript{47} Fleming et al., in their study on food safety information delivered through local news media, suggested that learning from news broadcasts are “dependent on both cognitive capacity and availability of information.”\textsuperscript{48(p784)} In other words, exposure and availability of information is just the first step to learning; the viewer should also remember this information and think about it later on. Nelson et al.\textsuperscript{21} also suggested that a number of factors can influence mediated learning, including a person’s motivation, attention span, and information retention.

Learning through the media may also have an emotional component. Research about the psychological impact of media exposure during crises has provided somewhat conflicting results. Evidence exists that supports the idea that seeking media exposure is a popular method of coping with crises. One study reported that the most common coping strategy after the World Trade Center attack on September 11, 2001 (9/11) was to seek “access to television and radio to follow the news,” and the coping item rated most helpful in the first 24 hours after the attack was information-seeking related.\textsuperscript{41} Through hearing and seeing the accounts of others who have experienced the event, individuals are able to make sense of a highly equivocal situation.\textsuperscript{49}

Much of this research outlines the negative consequences associated with media exposure to crises. For
example, children who viewed explicit coverage of disasters, such as the Oklahoma City bombings and 9/11, were more likely to develop symptoms consistent with post-traumatic stress disorder and other anxiety and depressive disorders.\textsuperscript{50-55} Studies of the September 11 attacks found this relationship both for children living in New York City\textsuperscript{51,52} as well as those living farther away, who were only indirectly exposed to the disaster via media coverage.\textsuperscript{54}

Parallel findings in adults have led some researchers to claim that television coverage itself might merit consideration as a form of exposure to traumatic events.\textsuperscript{56} Collectively, these results suggest that even those not directly exposed to a disaster can be affected emotionally after a large-scale disaster.\textsuperscript{57,58} Furthermore, increases in substance use (e.g., alcohol, cigarettes, and marijuana) parallel the increases in psychiatric conditions during the postdisaster period,\textsuperscript{59} and these unhealthy behaviors might persist after other psychological symptoms have subsided.\textsuperscript{50,61}

Studies documenting the emotional impact of disaster coverage explain why predictions about learning from media must reflect well-known relationships between emotional arousal and learning. The foundation of these relationships is a distinction between gist and verbatim memories. Gist memories are memories of overall patterns and meaning, and typically memory of event gist increases as emotional arousal increases. As a result, people are more likely to remember traumatic events than nontraumatic events, especially long after those events have occurred.\textsuperscript{62} However, individuals also lay down verbatim memories, which are memories reflecting the surface (perceptual) form of experiences that retain event details.\textsuperscript{63} The relationship between emotional arousal and memory for details is curvilinear such that individuals remember the most about moderately arousing events but suffer a loss of detailed memory when events are highly arousing.\textsuperscript{64}

It is believed that the hormones released in response to stressful events act to better preserve the gist of experiences,\textsuperscript{65} whereas a number of mechanisms, such as restricted attentional focus at the time of events, serve to impair memory for details when events are highly arousing.\textsuperscript{56} Because emotional arousal both preserves and impairs learning depending on the degree of arousal, nature of the material tested, and temporal relationships between the aroused state and learning,\textsuperscript{67} it is unclear how much people will learn when exposed to educational information embedded in disaster coverage. This interplay of emotion and memory may tell us more about how people remember events in crises than previous models.

Previous studies have shown that gender can also play a major role in how media can affect learning. For example, a study on terrorism and media in Israel\textsuperscript{72} indicated that men tend to learn more from “vivid media” like television, and women learn more from “nonvivid media” like radio. Other studies suggest that women may be influenced to turn to television during crisis events as well as radio and newspapers.\textsuperscript{42} Nelson et al.\textsuperscript{21} also reported that women are overall more likely to state that they were able to learn from the media than men. Women were also more likely to seek out information and survival techniques for themselves and others in similar situations.\textsuperscript{69} Because of the broad variance in results from the literature on mediated learning, the following RQs are offered:

- **RQ3:** To what extent did media contribute to safety and crisis-specific learning after the university shooting?
- **RQ4:** To what extent was gender related to mediated learning?

**METHODS**

In the week following the shooting, 569 surveys were collected from students at UCA (62 percent female and 38 percent male). The questionnaire was five pages long and included items pertaining to demographic attributes, information-seeking behaviors, and media identified as primary sources of information. Student data were gathered using a snowball technique. Students enrolled in both university-required introduction to communication courses and communication-elective courses were given a survey to fill out in class and three additional surveys to give to other UCA students who were noncommunication majors and who had not already filled out a survey. Surveys were filled out and returned anonymously. The sampling decision was made because of an increasingly
common preference in crisis research to collect data quickly in order to minimize memory recall effects. The more time between an event and questionnaire administration, the more likely the respondent is to use imprecise methods of recall, including mapping, heuristics, and decomposition.\textsuperscript{70,71} Methods in examining crises are still highly unstructured, and there is no agreed-on set of procedures for the length of time of data collection, sampling techniques, or data analysis. This might be attributed in part to the infrequent and novel set of circumstances surrounding crises. Because crisis events tend to be unpredictable and exist outside of a laboratory setting, adherence to strict scientific method is often unrealistic.\textsuperscript{72}

**Measures**

*Media use and learning.* A total of six Likert items were used to evaluate how people learned from the media, with five-point scales ranging from “strongly agree” to “strongly disagree.” Items were then coded with “1” representing strongly agree to “5” representing strongly disagree; therefore, in the analysis, lower means represent higher levels of learning. Respondents were asked to report what they learned from the media coverage, including learning about university emergency response, how to protect oneself in a shooting, how lockdowns work, how they would respond in a similar situation, issues of personal safety, and how they would travel around campus. Reliability for this index was $a = 0.83$.

*Classroom learning.* The same six Likert items were used to evaluate how people learned from professors and class discussions, with five-point scales ranging from “strongly agree” to “strongly disagree.” Items were coded identically to the previous learning index. Reliability for this index was $a = 0.85$.

It should be noted that because of the nature of the questions and method of data collection, the questions measured perceived learning rather than actual learning from the media or the classroom. Although measuring how much individuals learned was of interest, it was more feasible given the limitations noted earlier to measure the extent to which participants believed that they learned something from the media coverage. In addition, because perceived learning is hypothesized to be important in ameliorating the negative psychological impact of crises, such information was deemed valuable for the purpose of this study.

**RESULTS**

Each target question asked respondents to report the extent to which they had learned a behavior or information from the media. Mean (M) scores were as follows: learning something about university emergency response (M = 2.24, standard deviation [SD] = 1.03); learning how people can protect themselves in a shooting (M = 3.31, SD = 1.06); how lockdowns work (M = 2.77, SD = 1.18); learned to think about how I would respond in a similar situation (M = 2.62, SD = 1.11); learned more about personal safety (M = 2.88, SD = 1.11); and about how to travel around campus (M = 2.53, SD = 1.16).

The target questions also asked respondents to report the extent to which they had learned a behavior or information from the classroom discussions. Mean scores were as follows: learning something about university emergency response (M = 2.94, SD = 1.22); learning how people can protect themselves in a shooting (M = 3.19, SD = 1.18); how lockdowns work (M = 2.89, SD = 1.23); learned to think about how I would respond in a similar situation (M = 2.78, SD = 1.25); learned more about personal safety (M = 2.92, SD = 1.19); and about how to travel around campus (M = 2.96, SD = 2.11).

To determine if students learned more through the classroom or media, the six scores for mediated learning and classroom learning were summed and computed into a new variable that measures the overall learning for each condition. The overall mean for classroom learning was 2.94, and the mean for mediated learning was 2.72. A one-sample $t$ test indicated that the classroom learning mean (M = 2.94) was significantly different from the media learning mean (M = 2.72), $t(566) = 5.921$, $p < 0.001$.

RQ2 was addressed with a series of $t$ tests that examined differences between men and women on the six questions reported earlier (Tables 1 and 2). Results suggested that men (M = 2.37, SD = 1.04) were less likely than women (M = 2.16, SD = 1.02) to have learned something about university emergency response from the media $t(566) = 2.312$, $p < 0.05$. Additionally, men (M = 2.74, SD = 1.178) were less likely than women (M = 2.40, SD = 1.14) to have been
prompted by the media to think about how they would travel around campus $t(564) = 3.396, p < 0.001$.

Post hoc analyses were performed to examine the difference between learning though the media for students living on campus and off campus (Tables 3 and 4). From the media coverage, students living on campus were more likely to have learned how to protect themselves in a shooting ($M = 3.21, SD = 1.10$) than students living off campus ($M = 3.47, SD = 0.92$), $t(548) = 2.62, p < 0.01$. Students living on campus also learned more about how lockdowns work ($M = 2.58, SD = 1.16$) than students living off campus ($M = 3.12, SD = 1.08$), $t(548) = 5.122, p < 0.001$. They also indicated learning more ($M = 2.78, SD = 1.10$) about personal safety than students living off campus ($M = 3.05, SD = 1.09$), $t(550) = 0.272, p < 0.01$. Students living on campus learned more ($M = 2.39, SD = 1.14$) about how they would travel around campus than students living off campus ($M = 2.82, SD = 1.15$), $t(549) = -4.00, p < 0.001$.

Finally, post hoc analyses were conducted to examine the difference between learning from classroom discussion for students living on campus and off campus. From classroom discussions, students living on campus ($M = 2.80, SD = 1.24$) were again more likely to learn about how lockdowns worked than students living off campus ($M = 3.10, SD = 1.17$), $t(422) = -2.32, p < 0.05$.

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**Table 1. Mediated learning by gender**

<table>
<thead>
<tr>
<th>From the media coverage I learned...</th>
<th>Sample mean</th>
<th>Men</th>
<th>Women</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Something about university emergency response</td>
<td>2.24</td>
<td>2.37</td>
<td>2.16</td>
<td>0.02</td>
</tr>
<tr>
<td>How people can protect themselves in a shooting</td>
<td>3.31</td>
<td>3.28</td>
<td>3.34</td>
<td>n.s.</td>
</tr>
<tr>
<td>How lockdowns work</td>
<td>2.77</td>
<td>2.75</td>
<td>2.79</td>
<td>n.s.</td>
</tr>
<tr>
<td>Was encouraged to think about how I would respond in a similar situation</td>
<td>2.62</td>
<td>2.55</td>
<td>2.66</td>
<td>n.s.</td>
</tr>
<tr>
<td>More about personal safety</td>
<td>2.88</td>
<td>2.90</td>
<td>2.87</td>
<td>n.s.</td>
</tr>
<tr>
<td>Think about how I would travel around campus</td>
<td>2.53</td>
<td>2.74</td>
<td>2.40</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Abbreviation: n.s., nonsignificant.

**Table 2. Classroom learning by gender**

<table>
<thead>
<tr>
<th>From my professors and class discussion I learned...</th>
<th>Sample mean</th>
<th>Men</th>
<th>Women</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Something about university emergency response</td>
<td>2.94</td>
<td>2.91</td>
<td>2.96</td>
<td>n.s</td>
</tr>
<tr>
<td>How people can protect themselves in a shooting</td>
<td>3.19</td>
<td>3.15</td>
<td>3.22</td>
<td>n.s.</td>
</tr>
<tr>
<td>How lockdowns work</td>
<td>2.89</td>
<td>2.92</td>
<td>2.89</td>
<td>n.s.</td>
</tr>
<tr>
<td>Was encouraged to think about how I would respond in a similar situation</td>
<td>2.78</td>
<td>2.83</td>
<td>2.75</td>
<td>n.s.</td>
</tr>
<tr>
<td>More about personal safety</td>
<td>2.92</td>
<td>3.06</td>
<td>2.85</td>
<td>0.05</td>
</tr>
<tr>
<td>Think about how I would travel around campus</td>
<td>2.96</td>
<td>3.10</td>
<td>2.87</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Abbreviation: n.s., nonsignificant.
This study was an initial look at the role the media and the college classroom can play in fostering learning after a crisis. Overall, respondents indicated that they learned something from the media about the general crisis response but less from classroom discussion. They indicated general learning about emergency response and campus travel. These are both important parts of the learning process in crises, as these can aid in reducing the harm, severity, and duration of a crisis. However, in general, respondents did not indicate learning much about how to protect themselves in a shooting or about personal safety. Assuming this information was available, perhaps students were not attuned to it because they thought it was unlikely to be necessary to retain for the future.

When results are examined based on gender, a few interesting relationships emerge. First, from media coverage, women indicated learning something about university emergency response and were encouraged to think about how they would travel around campus. These results appear to complement past crisis research. After Hurricane Katrina, for example, women were more likely than men to seek information from mediated sources, and this information was likely to pertain to both survival

### Table 3. Mediated learning by housing

<table>
<thead>
<tr>
<th>From the media coverage I learned...</th>
<th>Sample mean</th>
<th>On campus</th>
<th>Off campus</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Something about university emergency response</td>
<td>2.24</td>
<td>2.20</td>
<td>2.34</td>
<td>n.s.</td>
</tr>
<tr>
<td>How people can protect themselves in a shooting</td>
<td>3.31</td>
<td>3.21</td>
<td>3.47</td>
<td>&gt;0.01</td>
</tr>
<tr>
<td>How lockdowns work</td>
<td>2.77</td>
<td>2.58</td>
<td>3.12</td>
<td>&gt;0.001</td>
</tr>
<tr>
<td>Was encouraged to think about how I would respond in a similar situation</td>
<td>2.62</td>
<td>2.61</td>
<td>2.57</td>
<td>n.s.</td>
</tr>
<tr>
<td>More about personal safety</td>
<td>2.88</td>
<td>2.78</td>
<td>3.05</td>
<td>&gt;0.01</td>
</tr>
<tr>
<td>Think about how I would travel around campus</td>
<td>2.53</td>
<td>2.39</td>
<td>2.82</td>
<td>&gt;0.001</td>
</tr>
</tbody>
</table>

Abbreviation: n.s., nonsignificant.

### Table 4. Classroom learning by housing

<table>
<thead>
<tr>
<th>From my professors and class discussion I learned...</th>
<th>Sample mean</th>
<th>On campus</th>
<th>Off campus</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Something about university emergency response</td>
<td>2.94</td>
<td>3.00</td>
<td>2.68</td>
<td>n.s.</td>
</tr>
<tr>
<td>How people can protect themselves in a shooting</td>
<td>3.19</td>
<td>3.16</td>
<td>3.15</td>
<td>n.s.</td>
</tr>
<tr>
<td>How lockdowns work</td>
<td>2.89</td>
<td>2.80</td>
<td>3.10</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Was encouraged to think about how I would respond in a similar situation</td>
<td>2.78</td>
<td>2.84</td>
<td>2.56</td>
<td>n.s.</td>
</tr>
<tr>
<td>More about personal safety</td>
<td>2.92</td>
<td>2.95</td>
<td>2.84</td>
<td>n.s.</td>
</tr>
<tr>
<td>Think about how I would travel around campus</td>
<td>2.96</td>
<td>3.05</td>
<td>2.84</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Abbreviation: n.s., nonsignificant.
needs and concern for others who were affected. Similar results emerged after the I-35W bridge collapse. Furthermore, women might be more concerned with relational and task information, as well as issues of safety during a crisis event. Therefore, because women are seeking out more information during a crisis, the increased level of exposure leads to more learning. Alternatively, women’s tendencies to channel a relational orientation (ie, concern about relationships) into a problem-solving orientation (ie, concern for obtaining information needed to prevent or minimize the harm) might lead to increased information seeking and subsequent learning.

Post hoc analyses indicated differences in learning between students living on campus and off campus. Particularly, students living on campus learned more from the media about how to protect themselves, how lockdowns work, issues of personal safety, and how they would travel around campus. These results are a bit troubling in that the classroom is an ideal place for learning. Moreover, the results indicate that the media, which is an outside actor in the situation, fostered more issue-relevant learning than the university. Classroom discussions are well-used teaching tool. Issue-relevant national events are often used in the classroom discussion to supplement a lecture. An immediate event such as a shooting provides a unique opportunity for the university to foster learning. Individuals receive information and messages daily to which they pay little attention. However, when a crisis event happens, it can be viewed as an exemplar. Exemplars that are concrete, iconic, and emotionally arousing, influence issue perceptions and retention more than abstract, symbolic, and emotionally inconsequential exemplars. Therefore, representations that are attentionally favored are easier to store and retrieve from memory and are subsequently more likely to be used. Because school shootings are rare, information about actions to take and precautions are rarely elaborated. Once a shooting happens, the individual may be motivated to obtain information and store that information. This is an ideal moment for a university to encourage classroom discussion to foster learning.

Although the professor may not know the policies, procedures, or steps to take in a shooting, the university can distribute these points and encourage professors to lead class discussion to foster the learning of campus safety. Moreover, it is also a unique moment for the professor to learn as well. The act of promoting learning can be seen as part of the postcrisis stage. This allows the university to affirm social responsibility and reaffirm a larger social purpose and value after the crisis. It can also be viewed as part of the image restoration process. Fostering learning in the student body after a shooting can be seen as a form of corrective action. In this instance, the university can outline that it has, in addition to taking steps of security, also worked to make the students more ready in the event of another tragedy. Promoting such classroom discussions after a crisis is represented in the literature as an important means of coping with the disasters, and learning can be viewed as an additional feature of this response.

In post hoc analyses, it is evident that the media produced more learning for students who lived on campus than those who lived off campus, specifically in the area of how to protect themselves, how lockdowns work, issues of personal safety, and how they would travel around campus. These appear to be more salient issues to on-campus residents, and because the shooting occurred on campus, it does make intuitive sense that such issues would be important to this subset of students. It could also be that because the shooting occurred on campus, these students were in their dorms and used the media to obtain information and then learned from that information. If this is the case, then it shows a positive role that the media can play in the learning process. Moreover, students living off campus may not have known about the shooting and therefore been less likely to use the media to seek information and engage in learning. This again is troubling because it further outlines the need of learning about these actions in the classroom. Because such students were not made aware about the shooting right away, the salience of the issue was not as great when they learned about it at a later time. The lack of subsequent learning from this subpopulation makes them potentially more vulnerable to another shooting and outlines the need to look at postcrisis classroom discussion as part of a school shooting crisis plan.
CONCLUSIONS

This study provided supporting evidence to past research that individuals can learn potentially useful information from crisis media coverage. This is a promising finding, as crises might provide a unique situation for vicarious learning. Although opportunities exist in day-to-day occurrences to observe the success or failure of the actions of others, because crises are low probability, novel events individuals rarely have established plans about actions to take in a particular crisis. This study also outlines the potential need to educate university personal after a crisis on issues of the crisis management plan. Professors can then use that knowledge to discuss safety when the student body is attentionally favored and receptive to the information. Future research needs to examine both how to implement and how to improve classroom learning after a school shooting. Although students did learn valuable crisis and safety information from the media, the university failed in promoting learning in the student body.

J. J. McIntyre, PhD, Assistant Professor, Department of Communication, University of Central Arkansas, Conway, Arkansas.

Kenneth A. Lachlan, PhD, Associate Professor, Sociology Department and Communication Studies Program, University of Massachusetts Boston, Boston, Massachusetts.

Patric R. Spence, PhD, Associate Professor, School of Communication, Western Michigan University, Kalamazoo, Michigan.

REFERENCES


