All over campus, students have their heads bent over mobile devices, their fingers working furiously on miniature keypads. Students today use SMS (Short Message Service) messaging for everything from arranging study groups to discussing campus politics. SMS messaging—or “texting”—is performed before class, after class, and oftentimes even during class, making it the most ubiquitous form of student communication.

The popularity of SMS messaging among the college-age demographic, as well as its perceived speed of delivery and ease of use, have led some campus planners to view SMS messaging as the superstar player in an emergency notification strategy. But rapid is not the same as reliable, and ease of use doesn't equate with robust. And as evidenced by recent campus emergency events—at Virginia Tech, Delaware State University, LSU, and Northern Illinois University—delayed messaging in an emergency isn't merely inconvenient; it has the potential to turn an already bad situation much worse.

Disadvantages of SMS Messaging

Even though SMS messaging may beat out other technologies in terms of popular appeal, it suffers from several disadvantages including inherent design problems, the opt-in process, character limits, and vulnerability to abuse. First, SMS is in direct competition for the same network resources that are required to initially set up cellular voice calls. Since cellular operators optimize local cell sites and sectors to meet traffic demands at the busiest time of a normal day, it is likely there is very little excess capacity at these times. Although SMS message delivery is usually rapid, receipt time and actual delivery can't be guaranteed. A recent study found that 91 percent of SMS messages were delivered in less than five minutes, but the same study determined that approximately 5.1 percent of messages were not delivered at all. In comparison, end-to-end message loss for e-mails was only 1.6 percent—and likely much less when considering internal campus e-mail distribution. In an emergency situation, institutions may be sending out thousands of SMS and phone warnings as students, faculty, and staff are themselves sending and receiving—and resending—their own messages and cellular phone calls. A large and sudden network event like this adversely affects network performance and substantially increases the probability that messages will not reach their intended destination. In addition, some cellular operators will suspend a user's ability to send text messages long before they suspend voice services if a user's account becomes past due or delinquent. In short, the SMS infrastructure was never intended to be used for real-time mass notification in emergency situations; it was designed as a unicasting messaging system to support low-volume, one-on-one communications.

But getting text messages delivered to the intended recipients is only part of the problem. Building a distribution list of accurate contact information has also proven to be a formidable challenge. Traditionally, cellular operators have required SMS commercial senders to document that recipients have gone through an opt-in process indicating the recipients’ willingness to receive text messages from the commercial sender. The opt-in process can be single-threaded, in which an intended recipient merely provides a cell phone number, usually via some sort of web portal. Or the opt-in process can consist of a double opt-in/challenge-response model, in which the recipient, after providing a cell phone number, receives a verifying SMS to which the recipient must reply affirmatively by sending back a simple response such as “y” or “yes.”

Whether an institution chooses an optional or a mandatory participation model for its mass notification system can also be key in the overall success or failure of SMS messaging as a tool. Here I need to introduce a common set of operational definitions. Institutions may collect emergency contact information—including cell phone numbers—either by requesting voluntary submission of the information or by mandating the requirement. How the college or university chooses to collect its information is very much a function of the culture of the institution and affects what I will call the enrollment rate. Once the information has been collected, however, the choice to pursue the double opt-in model will generally reduce the enrollment rate by those who fail to respond successfully to the SMS opt-in challenge. This is what I call the participation rate. Institutions often misstate their SMS effectiveness by inconsistently reporting one metric or the other without clarification, leading to confusion about the overall effectiveness...
of SMS messaging communication.

Independent of the collection process, it is at the point of uploading the data into the system that institutions generally make the double opt-in decision. Not surprisingly, colleges and universities that take the route of auto-loading cell phone information without requiring a double opt-in have a much higher participation rate (ideally, identical to enrollment rate) than do those that pursue a double opt-in strategy. The University of Notre Dame switched from a double opt-in model to a mandatory load and moved its student participation rate from 62 percent to 99.8 percent on a 90 percent voluntary enrollment rate. The 0.2 percent is attributable to the fact that once the information is uploaded, Notre Dame gives students the option of consciously opting-out of the service.

Keeping the cellular contact information up-to-date is yet another challenge. The cellular industry typically endures an average annual churn rate of around 2 percent, with many operators and demographics going well above 10 percent. Fortunately, many consumers port their legacy cell number to the new carrier, but the burden of ensuring the accuracy is still considerable and usually falls to the institution. LSU, for instance, has moved to a user-centric model for maintaining contact data by requiring users periodically to verify their information and reaffirm their decision to opt-in (or not) through an application similar to what the university uses to implement periodic password changes.

Another disadvantage involves the limit on message length. Because SMS messaging supports only 160 characters, messages are often necessarily cryptic. Longer messages are broken down into a sequence of 160-character messages. These long or "concatenated" SMS messages are reassembled by newer phones to accurately present the message to the reader. If the phone doesn’t support concatenation, however, submessages sometimes arrive out of order or not at all. During the October 2007 fires in Malibu, California, Pepperdine University initially sent long emergency text messages, which were subsequently broken up into six to eight smaller components. In many cases, the messages were not delivered in order and subsequently confused the recipients. Lastly, the extensive casual social network formed by SMS users is inherently vulnerable to abuse. To be effective in an emergency situation, a text message must be as credible as possible. The credibility of a message can be undermined by a number of factors, including the sender's address or number not being recognized by the receiver or the message being too sensational or ultimately unbelievable. Sometimes malicious messages do make it through, creating a modern-day hoax that can spread through the community with viral-like speed.

Granger High School in West Valley City, Utah, experienced this situation when an SMS hoax telling of an imminent shooting caused mayhem throughout the school. For this reason, many institutions have conscientiously branded their emergency communications strategies—for example, the University of Georgia (UGAlert) and Notre Dame (NDAlert)—across all modalities in an effort to avoid misleading or confusing their communities.

Even when the message sender is well recognized, a message that is too sensational or alarming may undercut effectiveness. According to a 2005 study commissioned by the Public Entity Risk Institute and conducted by the Center for Survey Research and Analysis at the University of Connecticut, the Connecticut Emergency Broadcast System accidently aired the following message over all Connecticut TV and radio stations: “Civil authorities have issued an immediate evacuation order for all of Connecticut, beginning at 2:10 PM and ending at 3:30 PM.” Of the people who heard the alert, 39 percent either did not believe its accuracy (28%) or totally ignored it (11%). A similar mistake made via an SMS alert would no doubt result in an even higher percentage of unbelievers.

**Multimodal Emergency Communication**

Colleges and universities have a responsibility to their constituents; their emergency communication plans must be robust and reliable while simultaneously addressing the capacity and redundancy issues of effective mass notification. Although SMS messaging possesses obvious attributes—the technology is ubiquitous, it is fast and discreet, and SMS messages sent and received create a modern-day paper trail—its inherent fragilities make it inappropriate as a singular modality in emergency communication.

Instead, text messaging must be viewed as a valuable component of a comprehensive, multimodal emergency communication strategy. Mass notification systems that are able to deliver critical messages via many modalities—phone, e-mail, IM, text, visual, and auditory—help ensure that during any emergency, everyone will get the message. If voice channels are congested, a text message may reach its destination. If cellular is overloaded, e-mail should get through. If affected parties are not near a phone or a computer, they might be near a campus cable TV feed. Or if they’re outside, an outdoor siren or enunciator will likely be within range.

No single communication modality will ever cover 100 percent of the intended target population. However, by relying on a series of overlapping technologies and old-fashioned word-of-mouth, an institution can spread the emergency message quickly throughout campus. Imho, if you rely on txt only, u do so ayor!