

Health Promotion Practice

<http://hpp.sagepub.com>

Integrating Cell Phones and Mobile Technologies Into Public Health Practice: A Social Marketing Perspective

Craig Lefebvre

Health Promot Pract 2009; 10; 490

DOI: 10.1177/1524839909342849

The online version of this article can be found at:
<http://hpp.sagepub.com/cgi/content/abstract/10/4/490>

Published by:



<http://www.sagepublications.com>

On behalf of:



[Society for Public Health Education](#)

Additional services and information for *Health Promotion Practice* can be found at:

Email Alerts: <http://hpp.sagepub.com/cgi/alerts>

Subscriptions: <http://hpp.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations <http://hpp.sagepub.com/cgi/content/refs/10/4/490>



Social Marketing and Health Communication

Integrating Cell Phones and Mobile Technologies Into Public Health Practice: A Social Marketing Perspective

Craig Lefebvre, PhD

Mobile communications are being used for many purposes, from instant messaging (IM), mobile or micro-blogging (Twitter), social networking sites (Facebook, MySpace), e-mail to basic voicemail. A brief background on cell phone and mobile technology use in public health is reviewed. The focus of the article is framing the use of mobile technologies in public health from a social marketer's perspective—using the 4 Ps marketing mix as a guide.

Keywords: *social marketing; media; technology*

Chances are that you are one of more than 3.3 billion in the world with a mobile telephone, a nearly ubiquitous new media that only may be surpassed by radio. Indeed, Ahonen (2008a) looked at the global picture for cell phone use, and found that in 2007, 2.5 times more people had mobile phones than fixed landlines. Only 1.3 billion people use the Internet worldwide and 1.5 billion have TV sets. Twice as many people use SMS

(short message service or text messaging) as Internet e-mail.

In 2007 in the United States, 255.4 million wireless subscribers existed—that translates into an 84% penetration of the total U.S. population. Nearly 16% of households only have a cell phone. Usage behaviors during the past 2 years show that whereas talk time has increased from 1.5 trillion minutes in 2005 to 2.1 trillion in 2007 (a 40% increase), SMS has shifted from 81 billion in 2005 to an estimated 363 billion last year (nearly a 350% increase; CTIA,

2008). More than half of adults have used a cell phone or personal digital assistant (PDA) for such things as texting, e-mailing, and looking for maps or directions (Horrigian, 2008). The constantly connected consumer is a reality for public health. The question is, Are public health professionals ready to take advantage of this fact?

Research shows that mobile communication is used for a myriad of purposes, many of them in professional work, in organizing the family's everyday life, in sustaining social networks, in commercial transactions, in

Associate Editor, Social Marketing and Health Communication Department



Rosemary Thackeray, PhD, MPH, is an associate professor at Brigham Young University in Provo, Utah.

Kelli McCormack Brown, PhD, CHES, FASHA, FAAHE, is a Professor and Associate Dean for Academic Affairs at the University of Florida, College of Health and Human Performance in Gainesville, Florida.



Health Promotion Practice

October 2009 Vol. 10, No. 4, 490-494

DOI: 10.1177/1524839909342849

©2009 Society for Public Health Education

Author's Note: Please address correspondence to Craig Lefebvre, PhD, Public Health Communication and Marketing, Department of Prevention and Public Health, School of Public Health and Health Services, 2175 K Street, NW, Suite 700, Washington, DC 20037; e-mail: sphrcj@gwumc.edu.

The Author

Craig Lefebvre, PhD, is a Research Professor of Public Health Communication and Marketing in the Department of Prevention and Public Health at the George Washington University Medical Center in Washington, D.C.

gathering and forwarding information, in sharing music, in producing and diffusing images, in sociopolitical mobilizations, and the like (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004). As a public health application, the world of mobile is just beginning. This article reviews the opportunities technology provides from a social marketing framework.

► THE SOCIAL NATURE OF MOBILE

Despite the protestations from some quarters that mobile technologies are encouraging greater social isolation, the reverse appears to be true. Ling (2008) has reviewed the literature regarding the effects of mobile communication on social systems and social interactions and concludes that mobile devices may have their strength in maintaining “strong-tie” relationships that are initially formed in face-to-face interactions. Other social media, including instant messaging (IM), mobile or microblogging (Twitter), social networking sites (Facebook, MySpace), e-mail, or landline telephones, favor broader but more superficial (“weak-tie”) relationships.

The social nature of mobile, and indeed all new media, also demands from us a new way of thinking about people formerly known as the *audience* (Rosen, 2006). Lefebvre (2007) states, “What these new technologies make plain is that it is, indeed, a networked world—one in which we

do not design “messages” for priority audiences, stakeholders, partners, donors, and others groups, but a world in which they talk back to us, and just as importantly, with each other” (p. 32). One of the key features of the mobile channel is that it allows for two-way conversation among many. Understanding and participating in these conversations are vital to successful marketing efforts, whether they are occurring in the public, private, or nonprofit sector.

► THE DATA CHALLENGE

How cell phone ownership is transforming the landscape for data collection is only recently becoming appreciated, understood, and used. For example, a national 2006 survey of cell phone owners by the Pew Research Center’s Pew Internet & American Life Project examined differences among respondents who only had a cell phone versus those who had both a landline and cell phone. They found that cell phone-only users were more likely to be male, under 30 years of age, non-White, unmarried, and from households earning less than \$30,000. And indeed, this trend to only owning a cell phone will increase in the next few years; 23% of those who currently have landline phones say they are very likely or somewhat likely to convert to being *only* cell phone users (Rainie & Keeter, 2006). More recent estimates from the 2008 National Health Interview Survey (NHIS) indicate that more than one of every six American homes (17.5%) had only wireless telephones during the first half of 2008 (Blumberg & Luke, 2008). The era of randomly dialing telephone numbers to gather data of representative samples of the general public is over. If you are working with more disadvantaged and younger populations, the challenge will be how to contact people who more and more choose who they want to contact them.

► WHAT ARE MOBILE TECHNOLOGIES?

When discussing mobile technologies, this includes any device and application that uses cellular (or wireless) technology to send information or communication across distances to other devices or people. Mobile telephones are the most common example that include voice data, SMS (where up to 160 characters can be sent from one cellular telephone to another) and multimedia services (MMS; for transmitting audio, pictures, and video images). Smart phones, or Web-enabled cell phones, use wireless signals to connect with the Internet. At the basic level, this interconnectivity is used to exchange e-mails with any person or Web server connected to the Internet through either wireless or landline connections.

Internet connectivity can be expanded to include browsing Web sites to search for information, access social network sites (such as Facebook, MySpace, YouTube), and receive updates from Web sites and blogs through RSS feeds. New e-health applications are looking at how this Internet connectivity can be used to provide remote sensing of health status, transmit clinical information, including x-rays and other biometric data, and facilitate e-prescribing. Indeed, one vision for the near future is for people to have access to their personal health record through their mobile phone. Mobile-friendly Web sites will become more important in the coming years for providing health information, instructions, and directions in emergencies and on-demand behavior change support systems for such things as quitting smoking, losing weight, and being more physically active.

The commercial sector is cautiously enthusiastic that the mobile

handset may be the next revolution in marketing. Mobile marketing has been defined as “the use of wireless media as an integrated content delivery and direct response vehicle within a cross-media or stand-alone marketing communications program” (Mobile Marketing Association, 2008a, p. 22). Mobile marketers do not view the mobile telephone as simply another advertising delivery channel. Instead, they have focused on its uniqueness from other mass communication devices based on its immediate response capabilities. This capability for asynchronous two-way text-based communication cannot be overemphasized. The Mobile Marketing Association (2008b) has generated a list of applications that are unique to the mobile experience. For instance, the local health department (originator) can send a voice message to the user to complete a survey and the user can click to take the survey from their mobile phone and provide them with valuable insights. Or the local parks and recreation agency might send an SMS or MMS to enter a walking competition and the user can click to enter the competition or enroll in one of its programs.

► SEGMENTING THE CELL PHONE MARKET

Judging from the data already presented, one might conclude that cell phone use is nearly ubiquitous in the United States. For voice messaging, that is becoming true; however, clear age and demographic variations are found for other mobile use functions. Adults in the 18 to 29 age group are much more likely to use their cell phones to send and receive SMS, IM, and e-mail and access the Internet than older adults. Hispanics and Blacks are also more likely to use these

same functions than their White counterparts (Horrigan, 2008).

It is *how* people use their cell phones that is the industry standard for segmentation schemes—not demographics. At a general level, comScore Networks (2007) has identified three broad segments of users: *the cellular generation*, ages 18 to 24, who have grown up with cell phone awareness and having them as part of their everyday lives; *transitioners*, ages 25 to 34, who began to experience cell phones in their everyday lives during their teen years and early adulthood; and *adult adopters*, age 35 and older, who were not exposed to cell phone until adulthood. Adult adopters tend to have the most functional view of cell phones, with many requiring just the basics and showing limited interest in emerging technologies.

► MOBILE PUBLIC HEALTH PROGRAMS

The world of mobile technologies already is strongly focused on health applications. In this section, illustrations of how mobile applications are being used to address each of the 4 *Ps* of the marketing mix—products and services, price, place, and promotion—to achieve behavior change are presented.

Products and Services

Mobile phones are rapidly becoming adjuncts or features of behavior change products and services; most commonly they are combined with Web sites to support behavioral monitoring, social support networks and feedback. The empirical evidence for the efficacy of these approaches is just developing. Hurling et al. (2007) evaluated a 9-week physical activity program that included both Internet and mobile components

among a randomized sample of 77 healthy adults (mean age = 40.0 years). At follow-up, intervention group participants reported a significantly greater increase over baseline than did the control group for perceived control ($p < .001$) and intention or expectation to exercise ($p < .001$). The average increase (over the control group) in accelerometer-measured moderate physical activity was 2 hr 18 min per week. The intervention group also lost more percentage body fat than the control group.

In discussing their results, Hurling et al. (2007) noted that not only was the Internet and mobile phone-based intervention effective in increasing levels of physical activity, but also all parts of the Web and mobile system were used by at least one third of participants. They note that each individual requires an idiosyncratic selection of support tools to achieve behavior change, such that no one tool can be universally considered the most influential. Mobile technologies add to the arsenal of possible intervention products and services; they do not necessarily replace them.

Price

One of the commercial benefits of cell phones has been the development of a marketplace for downloading ringtones, wallpapers, videos, music, and in some areas of the world, mobile banking. The financial piece of the price variable for social marketers has yet to be explored to our knowledge, yet other psychological prices have been explicitly addressed. Especially in the area of sexual behavior and sexually transmitted diseases, where confidentiality and stigma can keep many people away from information and service providers, mobile phone applications are quite prevalent.

To develop an intervention to respond to the increasing incidence of sexually transmitted diseases among urban youth, the designers of the San Francisco project, SEXINFO, looked at the high rates of cell phone use among their priority audience—15- to 19-year-old African American youth. They developed an opt-in text messaging service to provide information about basic sexual health and relationship issues and referrals to youth-oriented services. In the first 25 weeks of offering the service, nearly 4,500 inquiries were made via SMS and 2,500 of those led to requests for more information and/or referrals (Levine, McCright, Dobkin, Woodruff, & Klausner, 2008). The authors concluded from this investigation that cell phones and text messaging were both feasible and culturally appropriate ways to provide sexual health information and service referrals to at-risk youth.

One of the exciting opportunities of mobile phones for public health is how to utilize this technology to overcome many psychological and social barriers (costs) people have to engaging in new behaviors, develop mobile-mediated incentives and reinforcers, and create new ways of providing social support to people who are trying to change behaviors.

Place

One of the great strengths of mobile technology is to *place-shift* many different tasks and also to use global positioning services (GPS) to create locator applications. In one of the earliest applications of the latter, a mobile phone service in South Africa began in 2007 to provide HIV testing station locations through the use of SMS. By sending an SMS with the term *HIV* followed by the name of their town or postal code, South Africans can receive the location of the two nearest traveling HIV testing units (Ramey, 2007).

Place-shifting finds mobile applications in the use of SMS and other mobile technologies to shift clinical interactions from health provider and clinic offices to people's natural environment. The SEXINFO project is one example of this place-shifting for asking questions about sexually transmitted diseases from the clinic to wherever the need occurs. BeWell Mobile (www.bewellmobile.com) provides a technology platform to health care providers and patients that incorporates self-monitoring, via cell phones, for remote patient monitoring of conditions such as asthma and diabetes. Clinical data and symptoms can be texted to the provider with any necessary follow-up actions immediately sent back to the patient (Boland, 2006).

Promotion

When most people think of a mobile phone, they think about communication or promotion opportunities. Yes, cell phones do provide the opportunity for one-to-one communication that becomes independent of landlines and cables (and will likely become more so as wireless access to the Internet increases and Web sites can be accessed by more people from their phone). Providing health information on demand is one arena where this revolution is already taking place. The Mayo Clinic InTouch Program (<http://www.mayoclinic.com/health/intouch/AM00070>) provides a Symptom Checker for subscribers to quickly assess their severity, a First-Aid Guide with detailed tips on treating and responding to medical emergencies, an Emergency Room Finder to locate nearby urgent-care medical facilities, Health Alerts, Healthy Living Tips, and the ability to watch medical news videos. A similar use of cell phones to disseminate health information is also being considered by the U.S.

Department of Defense Military Health System (Buxbaum, 2008).

In other exemplary work, the BBC World Service Trust (2008) has used an integrated communication campaign featuring ring tones to promote the use of condoms in India. The UK Department of Transport (thinkbox, n.d.) embraced the notion of audience-generated content (see Lefebvre, 2007) by giving teenagers who were the target of a road safety campaign by mobile phones to record their unsafe practices. And finally, Virgin Mobile USA and YouthNoise created Ghost Town, a made-for-mobile-phones short story told in text messages that describes "the experiences of a 17-year-old boy who, with the support of his counselor and girlfriend, is able to rise up and overcome many of the hardships he faces being homeless" (*Business Wire*, 2006). These examples demonstrate that mobile phones are more than just another pipeline for one-way exhortations to "audiences."

► NEXT STEPS FOR SOCIAL MARKETERS

The use of mobile phones offers public health professionals the opportunity to develop and expand their relationships with others (whether they are called patients, audiences, users, constituents, partners, or colleagues). Mobile technologies are unsurpassed for offering opportunities to engage people personally on such a scale and also when and where they are most likely to be open to communications and behavior change. They are more than a communication device—they can become marketing tools that address all elements of the marketing mix when strategically considered in the context of how people use them. Cell phones are an always-on, two-way communication channel, a signal or cue for action, a

resource of instant access to health information, a tool for social support and the development of social capital, a production tool, a way to engage audiences, and a data collection and feedback device.

Alan Moore (2008) states that in the future, mobile technologies will play the roles of life enablers, life simplifiers, and life navigators for people. In this world, the language of search, proximity, recommendation, links, discovery, and the currency of information become the essence of new approaches to addressing issues of equity, civic engagement, poverty, health, and harnessing our collective intelligence to improve the public's health and well-being.

As public health professionals, we need to adapt and change not only the technologies we use in our programs but our framework for looking at the world and thinking about what we do. In designing interventions that will effectively lead to behavior change, we have to ask ourselves as social marketers and public health professionals (a) do we harness the technology to educate people about issues and problems that are relevant and meaningful to them (not us), (b) is what we do engaging them in positive and meaningful ways with the technologies that they use, (c) is there an entertainment value to our offerings, (d) do people believe and feel empowered as a result of their experiences with our programs (products and services), and (e) do we take advantage of every opportunity to let our customers and clients become our evangelists and leverage these new social and mobile media? If we fail to do all five, we are failing them and ourselves (Lefebvre, 2007).

REFERENCES

- Ahonen, T. (2008). When there is a mobile phone for half the planet: Understanding the biggest technology. Communities Dominate Brands. Retrieved January 30, 2009, from <http://communities-dominate.blogs.com/brands/2008/01/when-there-is-a.html>
- BBC World Service Trust. (2008). Mobiles are focus of HIV and AIDS campaign [news release]. Retrieved January 30, 2009, from http://www.bbc.co.uk/worldservice/trust/news/2008/04/080805_news_india_condomcondom.shtml
- Blumberg, S. J., & Luke, J. V. (2008). Wireless substitution: Early release of estimates from the National Health Interview Survey, January-June 2008. National Center for Health Statistics. Retrieved January 30, 2009, at <http://www.cdc.gov/nchs/nhis.htm>
- Boland, P. (2006). Going mobile—An emerging disease management strategy in managed care. *Managed Care Outlook*, 19(9), 1-6.
- Business Wire (2006, August 8). Virgin Mobile launches first text novella to raise awareness of teen homelessness; "Made-for-Mobile" story, Ghost Town, delivers dramatic content via 160-character text messages. Retrieved January 30, 2009, from http://findarticles.com/p/articles/mi_m0EIN/is_ai_n26951956
- Buxbaum, P. A. (2008, June 27). Military mulls using cell phones to spread health info. Government Health IT. Retrieved January 30, 2009, from <http://govhealthit.com/Articles/2008/06/Military-mulls-using-cell-phones-to-spread-health-info.aspx>
- Castells, M., Fernandez-Ardevol, M., Linchuan Qiu, J. L., & Sey, A. (2004). The mobile communication society: A cross-cultural analysis of available evidence on the social uses of wireless communication technology. Research report prepared for the International Workshop on Wireless Communication Policies and Prospects: A Global Perspective, Annenberg School for Communication, University of Southern California, Los Angeles, October 2004. Retrieved 14 July, 2008, from <http://arnic.info/workshop04/MCS.pdf>
- comScore Networks. (2007). Consumers in the 18-to-24 age segment view cell phones as multi-functional accessories; crave advanced features and personalization options [press release]. Retrieved 14 July, 2008, from <http://www.comscore.com/press/release.asp?press=1184>
- CTIA. (2008). *Wireless quick facts*. Washington, DC: Author. Retrieved July 1, 2008, from <http://www.ctia.org/advocacy/research/index.cfm/AID/10323>
- Horrigan, J. (2008). *Mobile access to data and information. Data Memo. Pew Internet and American Life Project*. Washington, DC: Pew Foundation. Retrieved January 30, 2009, from http://www.pewinternet.org/pdfs/PIP_Mobile.Data.Access.pdf
- Hurling, R., Catt, M., De Boni, M., Fairley, B. W., Hurst, T., Murray, P., et al. (2007). Using Internet and mobile phone technology to deliver an automated physical activity program: Randomized controlled trial. *Journal of Medical Internet Research*, 9(2), e7. Retrieved January 30, 2009, from <http://www.jmir.org/2007/2/e7>
- Lefebvre, R. C. (2007). The new technology: The consumer as participant rather than target audience. *Social Marketing Quarterly*, 13, 31-42.
- Levine, D., McCright, J., Dobkin, L., Woodruff, A. J., & Klausner, J. D. (2008). SEXINFO: A sexual health text messaging service for San Francisco youth. *American Journal of Public Health*, 98, 393-395.
- Ling, R. (2008). *New tech, new ties: How mobile communication is reshaping social cohesion*. Cambridge, MA: MIT Press.
- Mobile Marketing Association. (2008a). *Mobile marketing industry glossary*. Denver, CO: Author. Retrieved January 30, 2009, from <http://mmaglobal.com/glossary.pdf>
- Mobile Marketing Association. (2008b). *Mobile advertising overview*. Denver, CO: Author. Retrieved January 30, 2009, from <http://mmaglobal.com/mobileadoverview.pdf>
- Moore, A. (2008). The glittering allure of the mobile society. Retrieved January 30, 2009, from http://smlxtrlarge.com/wp-content/uploads/2008/12/the-glittering-allure-mobile-soc_final2.pdf
- Rainie, L., & Keeter, S. (2006). *Cell phone use. Pew Internet Project Data Memo*. Washington, DC: Pew Foundation.
- Ramey, C. (2007, December 6). Texting for HIV testing in South Africa. MobileActive.org. Retrieved January 30, 2009, from <http://mobileactive.org/texting-hiv-testing-south-africa>
- Rosen, J. (2006, June 27). The people formerly known as the audience. Pressthink. Retrieved January 30, 2009, from http://journalism.nyu.edu/pubzone/weblogs/pressthink/2006/06/27/ppl_fm.html
- Thinkbox (n.d.). Department of Transport—Cameraphone. Retrieved January 30, 2009, from <http://www.thinkbox.tv/server/show/ConCaseStudy.143>