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## Perspectives

# An Argument for Ecological Research and Intervention in Health Communication

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Ecological approaches to understanding and changing health behavior are becoming increasingly common (Gehlert et al., 2007; Mabry, Olster, Morgan, & Abrams, 2008). Such approaches account for the multiple contexts that influence health behavior and the interactions between these contexts. Although traditionally health communication scholarship has focused primarily on individual-level determinants of health, such as beliefs and attitudes (Dutta, 2008; Neuhauser & Kreps, 2003), researchers are expanding their scope of inquiry to include more macrolevel contexts, such as family, peers, the neighborhood, as well as the broader culture or society (Lee, 2014; Niederdeppe, Gollust, Jarlenski, Nathanson, & Barry, 2013). Given these exciting new avenues, we put forward a framework to further advocate for ecological health communication scholarship.

Although our thinking is informed by a long history of scholarship<sup>1</sup>, our conceptualization of ecological scholarship most closely aligns with the assumptions underlying Bronfenbrenner's (1977, 2009) ecological framework for human development. This framework emphasizes the multiple contexts that influence behavior. The individual-level context, consisting of factors such as personality traits, beliefs, and attitudes, is most commonly studied by health communication scholars. Beyond the individual level is the

microsystem, or the immediate social environment in which an individual lives, including peers and families. The exosystem consists of the broader social context, such as one's neighborhood, and institutions and systems, such as the mass media and political system. Lastly, the macrosystem refers to broader shared societal and cultural norms, values, and ideologies. One critical assumption of ecological approaches is that factors across and within each context are interrelated and mutually influential (Sallis, Owen, & Fisher, 2008). Bronfenbrenner (1977) described the connection between microlevel settings (e.g., school and family) as a mesosystem; however, this interrelatedness exists across and within all contexts. Thus, we define ecological health communication scholarship as that which (a) acknowledges the multiple contexts, ranging from individual-level to macro-level; (b) acknowledges the mesosystems that capture the interrelatedness of these contexts; and (c) seeks to understand how communication operates in these multiple contexts to affect health outcomes.

### Why Ecological Health Communication Scholarship?

There are several reasons why it is imperative for the field of health communication to incorporate ecological perspectives. Foremost among them is that an expanded scope of inquiry should result in theories, research, and practice that are more likely to produce positive health outcomes. It is well documented that health outcomes are affected by a wide range of micro- to macrolevel factors. For example, Stokols's (1992) social ecological model has spurred myriad interventions to improve health at multiple levels. If, as a field, we wish to effect positive health change, directing our efforts toward the full scope of factors that affect health is critical. Far too often, health communication campaigns fail to reach their goals (Neuhauser & Kreps, 2014; Snyder

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<sup>1</sup>For example, Durkheim's (1893/1984) concepts of organic and mechanical solidarity, Lewin's (1951) work on ecological psychology, McLeroy, Bibeau, Steckler, and Glanz's (1988) ecological model of health behavior, and Stokols's (1992) social ecological model.

et al., 2004), frequently because they focus too narrowly on individual-level constructs (Dutta, 2008; Neuhauser & Kreps, 2003) and ignore the interpersonal, community, and societal contexts in which individuals live. Moreover, the interrelatedness of different contexts can potentially magnify the effects of interventions. For example, a campaign seeking to promote breast cancer screening can better achieve its goal by not only increasing knowledge (an individual-level construct) but also sparking interpersonal discussion (a microlevel construct) about screening (Southwell & Yzer, 2007, 2009). In this case, the knowledge change and interpersonal discussion should have an interactive effect and prompt behavior change that is greater than the mere additive effect of the two levels. In addition, health communication interventions that go beyond the individual level should produce more sustainable effects, as they operate through multiple pathways. Finally, we argue that communication is a fundamental social process that links together different contexts and facilitates translevel effects. In other words, we view communication as a glue that binds together mesosystems. Thus, communication scholars should be at the forefront of the science that seeks to understand the multiple and everyday contexts affecting health.

### Beyond the Individual Level: A Brief Orienting Framework

To better orient scholars toward ecological health communication scholarship, we provide a brief framework that (a) highlights key communication-related constructs that scholars study at each level, (b) lists communication theories that serve as useful lenses for research at each level, and (c) identifies one empirical study exemplary of research at each level (see Table 1). There are myriad health communication studies that we could have included, but for simplicity's sake we selected one clear example of research at each level. We acknowledge that this framework is not meant to be a comprehensive overview of current health communication scholarship. Although we find Bronfenbrenner's framework to be a parsimonious way of organizing ecological health communication scholarship, there are other equally valid approaches. Depending on the approach, different phenomena could be placed at different levels. Thus, the goal of this framework is not to argue that a given concept or study should exclusively be conceptualized at any one level. Rather, this framework seeks to highlight the scope of work being conducted in our field, demonstrate that the communication field has the theoretical and methodological expertise

**Table 1.** Orienting framework for ecological health communication research

Context	Key constructs and processes	Relevant communication theories	Examples of research
Individual level	<ul style="list-style-type: none"> <li>• Attitudes</li> <li>• Beliefs</li> <li>• Biological and physiological responses (e.g., hormonal change, blood pressure, immune response, neural activity)</li> <li>• Emotions and affective responses</li> <li>• Personality traits</li> <li>• Self-efficacy</li> </ul>	<ul style="list-style-type: none"> <li>• Affection exchange theory</li> <li>• Elaboration likelihood model</li> <li>• Extended parallel processing model</li> <li>• Social cognitive theory, theory of reasoned action/theory of planned behavior/integrative model of behavioral prediction</li> </ul>	Shim et al.'s (2006) analysis of Health Information National Trends Survey data to understand how cancer-related information seeking and scanning behavior are associated with cancer-related knowledge and behaviors
Microsystem	<ul style="list-style-type: none"> <li>• Interpersonal discussion</li> <li>• Social networks</li> <li>• Group social norms</li> </ul>	<ul style="list-style-type: none"> <li>• Diffusion of innovations</li> <li>• Theory of normative social behavior</li> </ul>	Rimal et al.'s (2015) examination of interpersonal communication as a moderator of the relationship between social norms and contraceptive use
Exosystem	<ul style="list-style-type: none"> <li>• Collective efficacy</li> <li>• Community norms</li> <li>• Community health communication capacity</li> <li>• Neighborhood storytelling networks</li> </ul>	<ul style="list-style-type: none"> <li>• Communication infrastructure theory</li> <li>• Structural influence model</li> </ul>	Jung et al.'s (2014) study of how individual community participation and community-level capacity for health communication and mobilization impacted residents' self-reported health status
Macrosystem	<ul style="list-style-type: none"> <li>• Societal norms, values, and ideologies</li> </ul>	<ul style="list-style-type: none"> <li>• Agenda setting</li> <li>• Framing</li> <li>• Knowledge gap hypothesis</li> </ul>	Mejia et al.'s (2014) analysis of rhetoric used by news organizations to report on the tobacco industry
Mesosystem	<ul style="list-style-type: none"> <li>• Cross-level interactions and connections</li> </ul>	<ul style="list-style-type: none"> <li>• Communication infrastructure theory</li> <li>• Culture-centered approach</li> </ul>	Matsaganis et al.'s (2014) intervention to bridge a gap in communication between community residents and community-based health organizations

to conduct this work, and inspire new ecological health communication research.

## What Can Our Field Do to Advance Ecological Health Communication Scholarship?

### *Advance Theory*

Although many communication theories examine phenomena at more macro levels, ecological work that theorizes interactions across levels is scarce. However, communication infrastructure theory (Kim & Ball-Rokeach, 2006a, 2006b), which examines “the interplay between communication environments, individuals, and communities” (Kim & Ball-Rokeach, 2006a, p. 175), is one example of such work. Scholars have recently theorized communication infrastructure theory in the contexts of entertainment-education campaigns (Literat & Chen, 2014) and community-based interventions to reduce health disparities (Wilkin, 2013). Dutta’s (2008) culture-centered approach similarly theorizes how the interactions between the individual, cultural, and structural levels influence one’s health, whereas Viswanath, Ramanadhan, and Kontos’s (2007) structural influence model links higher level structural and interpersonal determinants of health to both individual- and population-level health outcomes. Theories such as these can serve as roadmaps to guide ecological health communication scholarship.

### *Develop and Use Ecological Measures and Methods*

Good measurement and methods are critical to advancing ecological health communication science, and communication scholars should start incorporating existing ecological tools into their work and developing new measures and methods. Analytical tools, such as multilevel modeling, that allow researchers to test relationships within and across contexts have been crucial to ecological research (Slater, Snyder, & Hayes, 2006). Geo-coding individuals to addresses (or other geographic location) creates many possibilities for ecological analysis: Researchers with geographic data are able to incorporate community-level data (such as neighborhood poverty, ethnic heterogeneity, percent nonnative English speakers, etc.) with individual-level data and use multilevel modeling techniques to examine cross-level effects.

In addition, metrics and methods that can capture communicative phenomena beyond simple individual-level exposure variables are needed. In particular, ecological health communication research must use a more grounded approach that captures the ways in which people experience everyday life and, in the process, captures the dynamics that may affect their health. If researchers do not connect with the people they study or situate those individuals into the contexts in which they live, their capacity to capture the phenomenological features that affect health will be limited at best. The multilevel forces that shape individuals’ health need to be directly observed whenever possible, and a combination of quantitative and qualitative methods can be particularly valuable here. For example, our research team developed a protocol for coding neighborhood-level patterns

of communication via field observation. Coders assessed the presence of communication about health and community topics at multiple sites nominated by participants in a large-scale survey we conducted as potential health communication hotspots. Ongoing media surveillance of health-related topics is also instrumental if we are to conceptualize communication as a macrolevel variable (Murphy, Hether, & Rideout, 2008; Smith, Choueiti, Scofield, & Pieper, 2013). In addition, measures that can capture the mesosystem, such as the communication ecology metric (Ball-Rokeach, Gonzalez, Son, & Kligler-Vilenchik, 2012), which documents the connections among the various communication resources in an individual’s life, are needed.

### *Teach Our Students to Study Health Communication in Ecological Ways*

To produce researchers and practitioners who take an ecological approach, it is essential that health communication curricula address the full scope of contexts that affect health behavior. Students should be taught to think about the multiple spheres that affect health outcomes and should be taught ecological health behavior models (e.g., the social ecological model; Stokols, 1992, 1996), the PEN-3 model (Airhihenbuwa, 1995), the triadic theory of influence (Flay & Petraitis, 1994), and the social contextual model (Sorensen, Barbeau, Hunt, & Emmons, 2004)). In addition, work from other disciplines can provide perspectives that can inform an ecological approach to health communication. Fields such as sociology, anthropology, political science, urban studies, and critical/cultural studies can provide more macrolevel perspectives, whereas fields such as neuroscience examine more microlevel phenomena. Finally, it is imperative that students be taught analytic and methodological techniques, such as multilevel modeling, and Geographic Information System (GIS) that will enable them to investigate multilevel hypotheses. Exposing students (and perhaps ourselves) to multilevel scholarship and methods will allow them to understand the many contexts that influence health behavior and subsequently apply and advance communication research in such contexts.

## Conclusion

An ecological approach to health behavior produces a more comprehensive understanding of the many factors that affect health outcomes. As a fundamental social process, communication is a key phenomenon across multiple levels of influence. Thus, health communication scholarship can and should continue to expand its scope of inquiry toward more ecological contexts. By highlighting the importance of communication both within and across all levels that affect health, we have an opportunity to advance the impact of health communication scholarship within the broader literature on social determinants of health.

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