Cultural Tailoring of Environmental Communication Interventions

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Abstract

Environmental communication interventions may take a variety of forms: from civic engagement efforts to campaigns or interventions designed by professional strategic communications groups with minimal public input. In this manuscript, we distinguish between cultural tailoring processes and cultural tailoring of content for environmental communication interventions. We describe these concepts by reviewing theory and research on cultural tailoring in health communication and describe how this can be used for environmental communication research and practice. We propose an extension of previous concepts of tailoring based on the persuasion and intercultural communication literature. Finally, recommendations and directions for future research are posed.

Key words: Culture, cultural tailoring, environmental communication interventions, message design.
Cultural Tailoring of Environmental Communication Interventions

Communication processes are not universal. Cultural groups vary in the ways in which they engage in interpersonal, small group, and mediated communication. Yet theories of communication often fail to account for cultural dynamics: many have been developed and tested solely within Western cultural contexts, making their external validity uncertain. One literature that places culture at its core, is that which addresses cultural targeting and tailoring of communication interventions (Kreuter, Lukwago, Bucholtz, Clark, & Sanders-Thompson, 2003; Resnicow, Braithwaite, Ahluwalia, & Baranowski, 1999). This literature has largely flourished in the domain of health communication, particularly in public health, where the concepts are fundamental to practice, but theory remains underdeveloped. We argue here that the literature on cultural targeting and tailoring of health communication can be useful for environmental communication theory and practice. Specifically, we argue that understanding and theorizing cultural dynamics should be axiomatic to environmental communication. This is because environmental challenges disproportionately impact communities of color in many places and require cross-community, cross-region, and cross-nation collaboration; thus making consideration of cultural dynamics fundamental to environmental communication.

Comfort and Park’s (2018) recent systematic literature review on the science of environmental communication serves as the rationale for this chapter; they showed that in the sample they reviewed, message production and response remain largely ignored in the environmental communication literature. Further, despite the global reach of the field, very few studies of environmental communication explicitly address and theorize cultural dynamics (Comfort & Park, 2018). In this chapter, we address culture and cultural dynamics explicitly; we
differ from Comfort and Park’s paper in that we do not limit our discussion to mediated communication about environmental issues. We instead focus on *environmental communication interventions* (ECI) to acknowledge that environmental communication might take a variety of mediated and non-mediated forms and may vary tremendously in the process, structure, and goals of its efforts. The term *intervention* is used here because it encompasses any intentional, interactive, strategic communication effort and may involve both communication and non-communication efforts to influence decision-making. For example, behavioral payment programs that promote conservation actions and involve communication designed to influence behaviors in tandem with financial incentives to act (c.f., Lapinski, Kerr, Zhao & Shupp, 2017; Kerr, Lapinski, Liu, & Zhao, 2017).

In this chapter, we describe the literature on cultural targeting and tailoring and how it can be useful to scholars and practitioners of environmental communication. For clarity, we focus our own theorizing on *cultural tailoring*; designing messages for individuals. We acknowledge the conceptual “baggage” associated with the concepts of targeting and tailoring which are critiques of strategic communication more generally (see Fellows & Proctor, 2019 summary of ECI). As described below, we think that it may be fruitful to distinguish intervention design processes from content creation. As such, the following sections: 1) discuss cultural targeting, tailoring, and related concepts 2) describe a range of processes for engaging in cultural tailoring by focusing on gradations of community-driven approaches 3) identify key content elements for cultural message tailoring and 4) present future directions and recommendations. Throughout the chapter, we draw examples from both the field and our own work, which spans both empirical tests of cultural targeting and application of its principles in health and environmental communication, as cases of cultural targeting and tailoring for environmental
communication. Our own research using these approaches has spanned national cultures (for example, U.S., New Zealand, Mexico, China, Japan, Kenya, Nigeria, Tanzania) and co-cultures within those national cultures (e.g., Maori populations within New Zealand; American Indian populations within the U.S.; Tibetan populations within China) but it is difficult to know how wide-spread the use of cultural targeting or tailoring is because of the lack of a systematic literature review on this topic.

**Concepts Important for Cultural Targeting and Tailoring**

Message tailoring is the creation of information and messages (including verbal and non-verbal content, images, sources) matched to the needs and preferences of individuals (Kreuter et al., 2003; Kreuter & Skinner, 2000). Tailoring is distinct from targeting or segmentation which involves the design of messages or information for particular groups of people who share some common characteristic, yet are different from other groups (Noar, Harrington, & Aldrich, 2009; Rogers & Story, 1987). By definition, culture involves groups or communities characterized based on shared linguistic features, psychological states, values, and belief systems that may separate them from some dominant group within a nation state or geographical boundary. By considering groups based on shared cultural characteristics and identities, we acknowledge the intersectionality of multiple identities and the distinct needs, patterns of cognition, and preferences for communication that are crucial to consider for effective ECI design.

By cultural groups, we mean social communities exhibiting shared and learned communication characteristics, perceptions, values, beliefs, norms, and practices. When examining communication patterns and practices, understanding groups based on shared meanings and psycho-social characteristics is more useful and insightful than classifying people
based on demographic characteristics like race or ethnicity, biological sex, or socio-economic status. Although these categories provide a useful framework for an initial understanding of groupings of people, it is identification of shared meanings, values, behaviors, and attitudes that should be fundamental to ECI design. Within-culture variation means that understanding at the group-level serves as a starting point only. Once group-level variation is identified, key cultural dynamics can be measured at the individual level and information designed particularly for an individual. Kreuter et al. (2003) provide an example of this process for cancer screening and highlights the benefits and challenges associated with this approach.

As can be seen from the discussion that follows, the terms tailoring and targeting are still often confused in the literature. Further, there are a number of concepts and approaches that are connected to cultural tailoring that are often used interchangeably, including: cultural competence, cultural sensitivity, cultural adaptation, and culture-centeredness. Cultural competence is the ability to communicate in an appropriate and effective manner with people from different cultural backgrounds (Spitzberg & Chagnon, 2009) and is generally treated as an interpersonal construct referring to characteristics of health practitioners or intervention implementers (Resnicow et al., 1999); there is a large body of research using the cultural competence approach (Aranthanathan, 2014). Cultural competence has been used as a catch-all term to cover any effort at addressing culture in communication activities and achievement of it may be the focus of intercultural training. Yet, the concept has been critiqued as being unachievable and for failing to account for the complex and dynamic nature of culture. That is, it is not possible to be fully competent in another cultural approach, and even when people achieve some type of competence, the assumption is that change is not needed to evolve cultural knowledge (Tervalon & Murray-Garcia, 1998).
Cultural sensitivity or appropriateness is the extent to which cultural characteristics, values, norms, behavior patterns, and historical and social forces are included in the design, implementation and evaluation of interventions (Resnicow et al., 1999). This involves both surface and deep structure characteristics. Surface structure refers to the matching of messages and intervention materials to the observable behavioral and social characteristics of cultural groups (e.g., people with similar physical characteristics or familiar symbols and foods). Deep structure includes the underlying norms and values that guide cultural behavior (Resnicow et al., 1999). Culturally tailored or targeted messages can be focused on identity affiliation or cultural attributes and contextual dynamics make these factors more or less salient (Davis & Resnicow, 2012). Cultural adaptation is a form of culturally sensitive intervention design where an existing intervention is modified to the cultural characteristics of a group (Barrera, Castro, Strycker, & Toobert, 2013). Cultural sensitivity is sometimes used synonymously with cultural targeting or tailoring although it is distinct because tailoring focuses on both process and content while sensitivity only focuses on content and typically refers to something broader than intervention design. Dutta (2007) critiqued the lack of focus on process in the cultural sensitivity literature because it may encourage a tendency to develop intervention materials without the input of those for whom an intervention is being designed.

Culture-centeredness focuses on defining and targeting interventions from the local and cultural perspective by focusing on the voices of cultural members; particularly those at the margins (Dutta, 2007). Dutta contrasts the culture-centered approach with that of sensitivity by suggesting that the latter approaches the problem from the top-down. Yet, it is important to note that both environmental and health communication researchers and practitioners have used community-led, bottom-up approaches to address cultural dynamics for decades. In
environmental communication, Brulle (2007) for example, highlights the tension between civic engagement and other approaches to the ECI design process that have predominated in the field. In health communication, the U.S. Centers for Disease Control and Prevention (CDCP) mandated community planning processes for HIV prevention interventions in 1995 (Johnson-Masotti, Pinkerton, Holtgrave, Valdiserri, & Willingham, 2000) in which groups at risk for HIV identified and prioritized populations and needs assessment activities, reviewed needs assessment data, and helped to craft appropriate communication interventions. Likewise, Johns Hopkins Center for Communication Programs (JHCCP) has been using community-based approaches to intervention design in international contexts since at least the 1980’s (JHCCP, 2019). Culture-centeredness is popular in communication literature, particularly from a critical perspective. However, it is not as readily cited in other disciplines. Further, this approach is process driven and thus we incorporate it into our framework as a process.

Kreuter et al., (2003) identified a model for characterizing the elements of what he termed culturally appropriate interventions. In this scheme, peripheral strategies deal with the packaging of interventions in ways that are likely to appeal to a given group. This may include using certain colors, images, fonts, pictures, or titles likely to be relevant to members of a group. Evidential strategies present data or information about the ways in which an issue impacts a particular group in order to enhance the relevance of the issue. Linguistic strategies use language as a method for cultural sensitivity by designing intervention content in the native language of the target group. Constituent-involving strategies are akin to the concepts in community-engaged intervention design processes; designers draw directly on the experience of members of the target group for design of a communication intervention. What Kreuter et al. (2003) call sociocultural strategies involve addressing health-related issues in the context of a community’s
values and characteristics using Resnicow et al.’s (1999) characterization of deep culture. In this approach: “A group’s cultural values, beliefs, and behaviors are recognized, reinforced, and built upon to provide context and meaning to information and messages about a given health problem or behavior” (Kreuter et al., 2003, p. 136).

**State of the Research on Cultural Tailoring**

Despite Kreuter and colleagues (2003) clearly stating that the framework was designed only to be descriptive and that the categories they identified were not mutually exclusive, it has been used in subsequent work to examine cultural targeting in health interventions. Most recently, it was used as a framework in a Patient-Centered Outcome Research Institute (PCORI) descriptive review of the cultural targeting\(^1\) strategies used in 33 clinical trials (Torrez-Ruiz et al., 2018). The review indicates that cultural targeting is used across health conditions. Multiple strategies are used in most of the trials with 93% using three or more strategies, and that trials commonly address the intersectionality of identity by segmenting groups based on multiple categories of race or ethnicity, socio-economic status, health literacy, and rurality. Practically, the multifaceted approaches make sense, but theoretically, this means it is impossible to identify the ‘active ingredients’ in culturally-tailored trials. That is, what are the elements of cultural tailoring or targeting that drive intervention outcomes? Torrez-Ruiz et al. (2018) do not report on or test the outcomes of cultural tailoring processes because the trials they review are ongoing. As such, they do not attempt to answer the question: “Do culturally-targeted interventions have a greater effect on outcomes than non-culturally-targeted interventions?” When the outcomes of

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\(^1\) Torrez-Ruiz et al. (2018) use the word “tailoring” for what Kreuter et al. (2003) call “targeting”. They state “cultural tailoring was defined as the adaptation of the study design, materials, and other components of the intervention to reflect cultural needs and preferences at the population level.” (Torrez-Ruiz et al., 2018; p. 3). We will use the word targeting to represent their work in order to be consistent with the conceptualizations proposed in this manuscript.
these trails are known, we will know only how a package of targeted elements fair relative to a control or comparison group. We will not know what specific types of cultural targeting strategies are effective or not.

In a meta-analysis designed to address the question of whether or not culturally targeted (our word) interventions are persuasive (that is, influence attitudinal and behavioral outcomes), Huang and Shen (2016) examined 36 experimental studies comparing deep-level targeted\(^2\) messages to a comparison group. They concluded that the overall effects of cultural targeting on attitudinal and behavioral outcomes are relatively small \((r = .11)\) but that deep-level targeting has a greater impact on outcomes than surface-level targeting. Importantly, they focused on cancer communication interventions which included multiple channels and messages, treated participant race/ethnicity as culture, and included in the analysis studies that use multiple strategies for targeting identified by Kreuter et al. (2003). As such, it is also not possible to know the ‘active ingredients’ in culturally-targeted messages from Huang and Shen’s (2016) analysis. Noar and colleagues ((Noar, Benac, & Harris, 2007), who centered their work on tailored print messages in health communication campaigns, found that the specific elements of message content and the study design elements functioned to moderate tailored message effects.

In short, questions remain about whether or not accounting for cultural dynamics in communication intervention design improves their effects. Studies testing culturally-targeted interventions, including the randomize control trials (RCT’s) summarized in Huang and Shen (2016) and Torres-Ruiz et al. (2018), use multiple intervention design processes, messaging strategies, cultural elements, and channels making it impossible to sort out the real impact of

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\(^2\) Huang & Shen use the word tailoring to represent targeted cancer prevention interventions. That is, interventions designed based on group-level characteristics. These were typically multifaceted campaigns using a variety of channels & messages (c.f., Blumenthal et al., 2005). We will use the word targeting to represent their work to be consistent with the conceptualizations presented in this manuscript.
process or message content on outcomes. This has also been true of the message tailoring literature in general (Noar et al., 2018). The cultural appropriateness framework proposed by Kreuter et al. (2003) and refined in later work (e.g., Barrera et al., 2013), although useful heuristically for generation of the research described above, conflates content elements with the outcomes of tailored messages. It also conflates the process of creating culturally-tailored messages with guidance about the content of messages. The framework does not consider variations in the processes used and useful for creating culturally-tailored messages. It also fails to account for the literature in persuasion and intercultural communication which provides specific guidance on the nuances of message design. Thus, our review separates the process and content components and describes each in some depth. We begin with cultural tailoring processes.

**Cultural Tailoring Processes**

ECI’s might take a variety of forms and may vary tremendously in the structure and goals of its efforts: goals ranging from awareness about an issue, to providing information for decision-making, to behavior change. An ECI may take the form of persuasive campaigns or more sustained communication efforts like community or group-based civic engagement interventions. Regardless of the form or goals, ECI’s are constructed with groups of people or an audience in mind and often, but not always, involve some level of community engagement. For example, the use of communication technology for intervention design can involve machine learning. This includes natural language processing and image recognition as a mechanism for understanding individual preferences. This is a process for understanding people without engaging them and is widely used by a private industry for tailoring marketing and advertising content (Noar et al., 2018).
Community engagement is a “process of working collaboratively with groups of people who are affiliated by geographic proximity, special interests, or similar situations, with respect to issues affecting their well-being” (CDC, 1997, p. 9). Community-engaged design of communication interventions is fundamental to communication theory and practice. Rice and Atkin's (1980, 2012) foundational campaigns book describes the ways in which effective communication campaigns involve audiences (or communities) in the design, creation, and refinement of communication efforts and outline processes for bringing community voices to the table. In practice, the role of community members in ECI ranges from little or no community engagement to extensive engagement, wherein the community sets intervention and research priorities and inputs directly on ECI design, implementation, and revision. Specifically, a range of community engagement approaches are described with five categories: outreach, consultation, involvement, participatory, and community-driven (CTSA, 2011; Yuen, 2015). Each of these five types exists in a continuum with increasing levels of community involvement, decision making, trust, and communication.

Outreach refers to projects that are driven by experts. These projects seek to place the ECI into the community; often without significant input from the community members. This is a common approach when experts believe they have a strong understanding of their target audience(s) and have a specific, evidence-based message they deem as clear and necessary to communicate. Traditional advertising campaigns (e.g., Smokey the Bear; The Ad Council, 2017) may take this form. Consultation involves some initial discussion with the community to help design the ECI, however, the final decisions rest with the expert team (e.g., using focus groups to gather relevant information from the community). Public participation meetings are a common approach for governmental agencies seeking to develop an environmental intervention and are
reflective of consultation (Peterson & Feldpausch-Parker, 2013). Involvement includes bidirectional communication results in greater levels of cooperation. There is a beginning level of partnership, although the expert team still has leadership. For example, the Fitter for Walking intervention sought to create environmental interventions in five regions in the UK to increase physical activity (Adams, Cavill, & Sherar, 2017). In some communities, the intervention was led by a local authority with moderate community involvement in determining the intervention; in other communities, the intervention was developed and led from a participatory approach. The participatory approach comprises shared leadership, decision making, and communication among the “expert” team and the community. In reality, the partnership reflects the idea that all partners have expertise that are needed to effectively develop, implement, and evaluate the ECI. Community-driven includes strong community leadership that drives the ECI and may involve consultation with external research partners who can contribute to the work. An example of this is Pacific Climate Warriors from 350.org. Pacific Climate Warriors are a network of activists from 15 different Pacific Islands fighting against climate change, particularly to stop/reduce use of fossil fuels (Harris, 2017).

The ideal type of community engagement depends on the nature of the community, goals, risks, and time available to develop an ECI. For example, many disengaged, marginalized, and underrepresented audiences prefer high levels of community engagement to build trust and buy in for the intervention (Wallerstein, Duran, Oetzel, & Minkler, 2018). However, in situations where time is critical and action is needed quickly (e.g., the Flint Water crisis), high levels of community engagement may not be appropriate for initial communication activities because they are time consuming and may need immediate behavioral response (e.g., stop consuming contaminated water). Similarly, high levels of engagement can be resource intensive and hence...
may not be appropriate for small-scale projects with clearly defined goals. Finally, some individuals and organizations do not have the capacity to conduct effective community engagement. In these cases, more harm may be done than good through the use of inauthentic engagement approaches (e.g., saying you are doing community engagement when you really just intend to do community engagement) (Wallerstein et al., 2018).

Nonetheless, numerous systematic reviews about community engagement have demonstrated that higher levels along the continuum (i.e., interventions that are participatory and community driven) have positive social and health outcomes (Carter, Tregear, & Lachance, 2015; Cook, 2008; Milton et al., 2012; Boelson-Robinson et al., 2015; Las Nueces, Hacker, DiGirolamo & Hicks, 2012). For example, Cyril and colleagues (2015) completed a systematic review of the literature examining the impact of community engagement on health outcomes in disadvantaged populations and found that 88% of the studies (N=24) had positive health outcomes. In addition, O’Mara-Eves and colleagues (2015) completed a meta-analytic review of 131 articles that used a public health intervention for disadvantaged communities. They found that community engagement had positive impacts on health behavior outcomes, health behavior self-efficacy, and perceived social support. In fact, a recent scoping review identified more than 100 systematic reviews that have largely supported positive health, social, and environmental outcomes when communities are engaged in intervention processes (Ortiz et al., in press).

If there is sufficient time and resources, and when working with marginalized communities, higher levels of engagement are appropriate for developing culturally tailored ECIs. We introduce three types of participatory approaches to provide an illustration of different ways to achieve high levels of community engagement.
**Community-Based Participatory Research.** One of the most popular approaches to community engagement is community-based participatory research (CBPR) (Wallerstein et al., 2018). CBPR involves partnership of researchers and community members/organizations in all phases of the research process and is guided by principles of action, social justice, and power sharing (Israel et al., 2018; Oetzel et al., 2015; Pearson et al., 2015). Wallerstein and colleagues’ (2008) conceptual model is a key approach and has gained international recognition as a strong theoretical framework guiding community engagement (Rasmus, Charles, & Mohatt, 2014; Mulrennan, Mark, & Scott, 2012). The model includes four domains: context, group dynamics, research/intervention, and outcomes (system/capacity and health outcomes). The authors developed the model in consultation with an advisory board of CBPR academic and community experts and outlines characteristics within each domain. Context includes university/community capacity, readiness for change, socio-economics, historical collaboration, and policy, which frames the group dynamics. Group dynamics includes individual partner characteristics (e.g., bridging social capital), structural aspects of the partnership, and relational dynamics. The partnering processes influence the intervention and/or research design and ideally integrating mutual learning and local cultural perspectives, norms, and practices. The intervention/research creates proximal, intermediate, and distal outcomes for the individual members and the community.

One example of CBPR used for community engagement and involving cultural tailoring is found in a case study of promoting environmental justice in a New Mexico community (Chen, Milstein, Anguiano, Sandoval, & Knudsen, 2012). The partnership involved multiple advocacy groups helping to make audible Latinx voices about environmental meaning. In addition, they sought to develop sustainable community partnership to advance environmental justice for
ecocultural struggles. One result from the project was the launch on a non-profit organization that sought ways to facilitate expression of views in the targeted communities, articulate the meaning systems of the communities, and use empirical data to advance a policy agenda with the legislature. This case illustrates that cultural tailoring of messages occurs by emphasizing the community’s voices and meanings.

**Culture-Centered Approach.** The second participatory approach is the culture-centered approach (CCA) (Dutta, 2007). The CCA advocates for the transformation of “social structures surrounding health through dialogues with cultural members that create spaces for marginalized cultural voices” (p. 305). The CCA includes the tripartite relationship among culture, structure, and agency. Culture provides a context for communication and meaning. Structure is the infrastructure and systems that constrain and enable behavior. Agency is capacity for individuals, groups, and communities to define problems and create solutions to various problems. The CCA argues that the interplay of these three elements creates spaces that enable community members to create positive changes in their communities. The CCA is built on the premise that communicative marginalization goes hand in hand with structural marginalization (Dutta, 2008). The CCA is largely consistent with CBPR although it makes explicit the focus on structure; CBPR often, but does not always includes structural elements.

Operationally, the CCA is built upon three characteristics (Dutta, 2008; Wallerstein et al., 2019). First, community members need to have a voice in defining the problem (including determining whether something is a problem) and they also need to identify a solution. Second, members of a participatory team need to be reflexive about their partnerships. Reflexivity questions the unstated power and privilege of outsiders (particularly “experts”) and ensures that the intervention processes are co-constructed and relevant to communities. Third, resources and
structural change are needed to have an effective and sustainable implementation of an intervention. Cultural tailoring emerges from these characteristics by having a collaborative process where community voices are heard. Additionally, the CCA emphasizes structural transformation and resources to ensure that tailoring is effective and sustainable. For example, Dutta and Basnyat (2008) deconstructed messages from the Radio Communication Project in Nepal that suggested that residents needed to have an outlet for smoke in their homes and to smoke outside. Dutta and Basnyat noted that poor residents were unable to afford the fixes for their homes and without resources, a “tailored” message would be ineffective.

An example of a form of cultural tailoring from the CCA involves food environments and rural food insecurity (Ramadurai, Sharf, & Sharkey, 2012). The study used the CCA to explore rural community member’s food environments and identify problems, assets, and solutions. The work involved focus groups with community members from small towns and various ethnic groups. The research identified structural barriers and personal obstacles as well as points of agency including social capital, churches, and government programs. The authors argue that these findings and the CCA approach are useful for developing an ECI to help combat the problems of rural food insecurity.

**He Pikinga Waiora Implementation Framework.** The final participatory approach we introduce is the He Pikinga Waiora (HPW; Enhancing Wellbeing) Implementation Framework (Oetzel et al., 2017). The HPW framework was developed for elevating the effectiveness of implementation of various interventions for Māori (Indigenous people of New Zealand) communities and Indigenous communities in general. The framework has applicability to other communities and contexts as well. HPW centers on Indigenous knowledge, perspectives, and
worldviews. This center is surrounded by four key principles: community engagement, culture-centered approach, systems thinking, and integrated knowledge translation (IKT) (see Figure 1).

Community engagement and CCA are built upon the two previous participatory approaches discussed and two extensions of these approaches are systems models and IKT. Systems thinking involves examining complex problems using holism and big picture perspectives rather than trying to reduce the issues into smaller parts (Frerichs, Lich, Dave, & Corbie-Smith, 2016). It involves examining the inter-relationships between the parts and how these parts function as a whole (Trochim et al., 2006). In particular, the HPW emphasizes a systems approach to issues by looking at multiple perspectives, relationships among the parts, and considers multiple levels of analysis of a bounded problem (since no single intervention can address all aspects of a problem; Flood & Jackson, 1991).

Knowledge translation is the process of taking research findings, such as the results of an ECI, and disseminating them and the intervention into practice in other contexts (Ministry, 2017). IKT is the process of co-innovation and co-development of interventions with end users (Canadian, 2012; Ministry, 2017). End users are the individuals, organizations, and communities that will utilize an intervention after the research period is over. IKT involves engaging with end users early in the development process which increases the likelihood of sustainable interventions because end users will have ownership and investment in the process (Ministry, 2017; Smylie et al., 2004).

An example of cultural tailoring using the HPW framework can be found in a study of a housing development for Māori kaumātua (elders) (Reddy, Wilson, Simpson & Nock, 2019). The project used a retrospective analysis to identify the successful elements of a village including 19 homes. The village was developed to address several key environmental factors for kaumātua
including loneliness stemming from living physically away from their tribes, low quality housing due to housing structures, and a need for health and social services. The authors developed a tool kit from their learnings which involved the importance of community engagement and participatory approaches, centering Māori culture, considering all elements of the system including the natural environment, financing, building, policy, and social services. These latter system elements are also reflected by engaging key end users from each area to ensure implementation effectiveness. The final tool kit is a culturally tailored and targeted message for communities that wish to build an effective kaumātua village to address a variety of environmental issues.

In summary, community-engaged communication design accounts for cultural dynamics at the macro level – it brings the needs and values of communities to the design of an ECI. It can also contribute to cultural tailoring efforts by making cultural insiders central to the message design process. The key principle of this approach is that it is participatory. CBPR, CCA, and HPW are three participatory approaches that have been associated with positive environmental outcomes that involve aspects of cultural tailoring. Table 1 presents the key elements of each of these approaches. It is assumed that which of these models is most effective is, to some extent, culturally dependent. For example, in a community or group with strong desire for engagement, connection, and activism the more participatory approaches should be more effective. In other communities, where, for example, there is a strong sense of power distance and hierarchy, these approaches may not be useful. There is little data directly comparing these different approaches and so difficult to make claims about their relative efficacy. These frameworks help guide the “how” of the tailoring process. The next section focuses on the “what” or content of tailoring.

(Table 1 about here)
Cultural Tailoring of Content for Environmental Communication

As described above, accounting for cultural dynamics in intervention content takes a variety of forms. The most concrete framework for cultural tailoring is that of Kreuter and colleagues (2013) described above; they identified the major ways culture has been approached in public health intervention design and describe cultural tailoring as an alternative. What is missing from the literature described above is a theory that describes how and when cultural tailoring of intervention content should be most effective. As an initial step toward filling that gap, we introduce a Cultural Tailoring of Content (CTC) framework for cultural tailoring of message content that refines and extends Kreuter and colleagues’ concept. In this effort, we describe the “what” as opposed to the “why” of cultural tailoring. By the “what” we mean the elements of message content that can be tailored or modified and what that might look like in practice. Future scholarship can build theory on why and when cultural tailoring should be effective and explain the mechanisms of those effects. The need for theorizing in this space is clear; a recent review of the general message tailoring literature (Noar et al., 2018) laments the fact that despite decades of research on message tailoring, we still know very little about the message elements that are important in the tailoring process and why and when they function. Noar et al. (2018) begin this process for message tailoring generally, not cultural tailoring, by describing the purpose of elements of messages (e.g design elements function to gain attention) and theorizing how and why tailored messages impact attitudinal and behavioral outcomes.

As shown in Table 2, there are a number of elements of the verbal and non-verbal content of messages to consider in cultural tailoring processes. These elements are derived from previous research on cultural tailoring and targeting (Kreuter et al., 2003; Resnicow et al., 1999), cultural dynamics (Hall, 1976; Hofstede, 1980), and message design for persuasive communication (Noar
et al., 2018). Noar et al. (2018) provide an excellent framework for general tailoring of messages and the theories that explain effects. Our framework differs from theirs in that it is focused on culturally tailored messages particularly and on a broader range of message elements.

It is important to note several key assumptions we make in the design of the CTC framework. First, although aspects of the elements we describe may be important for message tailoring broadly, we focus our thinking on tailoring of content to account for culturally-based differences in how people might respond to messages. That is, we highlight elements where there is evidence for cultural differences in message response or preference. Second, we recognize that the elements of messages that we describe may be hard to extract from other aspects of interventions (for example source effects). A source of a message who is demographically similar to the receiver may impact the response to message content including being impactful in message attention and processing. Third, we highlight the importance and need for a deep understanding of potential message recipients as a foundation of this approach. The creation and design of ECI information and message tailoring is based on “data” (in any of its forms) gleaned through any of the cultural tailoring processes described above and should involve reciprocal and transactional processes. Fourth, we proffer experimental designs using tailoring algorithms as the most rigorous method for testing the framework we propose. It is only through these methods that the active ingredients of messages can be isolated and tested. Although the Kreuter et al. (2003) typology described above serves as the starting point for our thinking, our goal was to expand it, address its limitations, and position it squarely in the environmental communication literature.

(Table 2 about here)
Design content elements are the visual aspects of environmental messages that highlight aspects of group membership, including demographics and other surface-level characteristics of culture. This may include pictures, graphics, and titles that specifically address group-level characteristics or any demographic information known about the person. For example, a tailored ECI may show pictures of people who are demographically similar to the message receiver, wearing clothes that are common to a region, in the process of doing the behavior recommended in the message like planting trees or picking up trash to clean a community space. This element is similar to the ‘peripheral’ element in Kreuter et al.’s (2003) typology but eliminates the word peripheral because many elements of a message can be processed peripherally (including potentially the language used, number of arguments, and source characteristics). The next two content elements deal with the use of logic and evidence in the messages.

Evidential message elements involve the inclusion of verbal or visual evidence that has a specific connection to the group to which the receiver belongs (Kreuter et al., 2003). This may include statistical or narrative evidence, pictoral evidence in the form of graphs (but not pictures), or other forms of evidence about the issue. For example, a graph may show the prevalence of deforestation in the region where a person lives or narrative might describe the nature of deforestation in the same region. Evidence may be presented alone or in the context of arguments and conclusions about the issue in the ECI. There is evidence from communication and cross-cultural psychology that suggests culturally-based differences in people’s preferences for oral versus formal logic in messages (e.g., McLaurin, 1995). These elements are in line with what has been called System 2 processing (Kahneman, 2011) in which a person thinks about the logical verbal content of messages. We also include an element to encompass the type of message appeal used in the tailored communication. This is content designed to appeal to
System 1 (Kahneman, 2011) thinking which is more emotional and is inclusive of emotional appeals such as fear, humor, nostalgia, guilt or anger and other message content such as message sensation value and framing.

We have re-conceptualized linguistic tailoring described in Kreuter et al. (2003) to consider language and communication style as separate elements of messages. By a language, we mean a system of communication that uses words and combinations of words into sentences through spoken, written, or manual means. It is well-known that our thoughts, language, and culture are inextricably connected (e.g., Sapir-Whorf hypothesis; see Hall, 1976) and there is evidence that the use of language in communication interventions influences how people respond to those interventions. The literature on translation and the use of cultural brokers in health communication (Kam, & Lazarevic, 2014), for example, shows the role of language and transmission of meaning in health interactions. The use of a message recipient’s primary or preferred language can serve as a form of message tailoring. It is axiomatic in the literature on cultural sensitivity that interventions should be provided in a recipient’s native language (Resnicow et al., 1999) yet, the evidence testing this assumption is scant.

We address language here as distinct from communication style, which deals not with language systems but with the ways in which words are used and presented in environmental communication messages to reflect audience preferences. We follow Norton (1983) who conceptualized communication style as the verbal, nonverbal, and paraverbal cues which signal how language should be taken, interpreted, filtered, or understood (see deVries et al., 2009 for a review). The literature from several disciplines indicates that there are cultural differences in preferences for direct vs. indirect communication (Kim & Wilson, 1994); for the meaning of the message to be explicitly stated or derived from the context (Hall, 1976; Ohashi, 2000), and
communication approaches and accommodation patterns (Giles, 2006; Orbe, 1998). In co-cultural theory, for example, communication approach is conceptualized as the communication style with which one will interact with dominant group members; this includes the choice of particular verbal codes as well as the utilization of nonverbal codes (e.g., tone, volume, sarcasm, etc.) that accompany language. As illustrated in the descriptions of co-cultural practices provided by Orbe (1998a), one’s communication approach can also include other aspects of nonverbal communication including body language, use of space, and personal/cultural artifacts. Communication style of culturally-tailored messages may also consider the use of vivid, intense, or emotional style (ala fear-based messages) but there is less theorizing or evidence for existing cultural differences.

Social psychological elements of tailoring involves a deep understanding of participant’s cognitions and social interactions about an environmental issue in order to design messages or information related to this understanding. Social-psychological dynamics are recognized, reinforced, and built upon in verbal aspects of materials including cultural values (Hofstede, 1980; Kluckhohn & Strodtbeck, 1961), aspects of identity (Markus & Kitiyama, 1993), beliefs (Bandura, 1986; Kleinman & Benson, 1986), norms (Gelfand et al., 2011), attitudes and behaviors (Burgoon, 2009; Ting-Toomey, 2005). Identifying which of these dynamics are most important for any environmental issue is particularly complex given the fact that this is a broad category of phenomena; understanding socio-cultural and psychological dynamics for message tailoring can involve various methods and processes. Kreuter et al. (2003), for example, used questionnaires to assess religiousity, collectivism, and racial pride of participants, then tailored messages based on those responses.

(Table 3 about here)
Table 3 presents a series of open-ended questions designed to foster an understanding and dialogue about the sociocultural and psychological aspects of people’s environmental attitudes and behaviors that can inform message tailoring efforts. These questions have been adapted from Kleinman’s ideas about patient-physician communication (Kleinman & Benson, 2006) and have been applied to the topic of grassland conservation (Lapinski, Liu, Kerr, Zhao, & Bum, 2018). Grassland conservation behaviors can include changes to animal management practices, protection of wild species, and decisions about chemical use; grassland conservation is related to climate change, water systems, landuse patterns, and human and animal health and well-being. The answers to these questions can be used to gain a deeper understanding of the social psychological dynamics that people identify as most important for an issue. Responses to these questions can be coded and form the basis for message tailoring efforts or other communication activities (Lapinski, Anderson, Cruz, & LaPine, 2014; Lapinski et al., 2018; Kerr et al., 2019).

**Future Directions & Conclusions**

There is great promise for cultural tailoring of ECIs if scholarship takes a path that is different from yet informed by innovations in the health communication literature. A key aspect of tailoring is the need to examine both process and content of cultural tailoring and not conflate the two. The process of cultural tailoring is conducted through various approaches to community engagement, whereas content deals with the specific communicative elements of the verbal and non-verbal messages in an ECI which we have identified in this chapter. Importantly, environmental and health communication differ in fundamental ways. Beyond the obvious difference in content focus, health communication efforts tend to be better funded and institutionalized than environmental communication. With these differences in mind, this final section considers key future directions for cultural tailoring for environmental communication.
There is a need for additional research about cultural tailoring content and processes, particularly using the frameworks we have introduced. The continuum of community engagement is generally well accepted as representing the range of engagement approaches (CTSA, 2011; Yuen, 2015). Further, it is also generally accepted that community engagement produces positive health and social outcomes (O’Mara-Evans et al., 2015). What is not known is whether more engagement produces better results or whether there are certain conditions in which engagement is needed and other conditions when it is not needed. Further, the frameworks we introduced have various types of elements and it is not clear exactly which parts are necessary to produce positive outcomes. Researchers using ECIs could help contribute to this larger literature by contributing insights of different elements of community engagement. Such research has pragmatic importance as community engagement is resource and time intensive. If we can better understand exactly when and how to use community engagement, we may be able to make efficient use of scarce resources. Additionally, much of the research supporting these frameworks is based in the U.S. and to a lesser extent European national and co-cultures and Australia/New Zealand. Thus, further research is other cultural contexts is needed.

Similarly, the elements of the content framework in Tables 2 and 3 have been identified as theoretically important in the communication, social psychology, public health, and anthropology literature, but their precise role in message tailoring, including the mechanisms that explain their effects, remains murky. The contributions of these elements are usually not isolated or studied relative to the others. Future research can focus on refining these elements through systematically reviewing the literature related to cultural tailoring around each element. Theorizing and testing the reasons cultural tailoring along these elements should be effective and the mechanisms to explain these effects can also be a fruitful area for future inquiry.
Although many of the ideas we present here have focused on parceling out the effects of certain processes and content features, it may also be the case that the cultural tailoring processes and content elements are contextual. One of the key principles of community engagement is that it allows the key (communicative) elements from a local context to be identified and tailored to a specific problem (Wallerstein et al., 2018). The connection of process and content to context can be examined through in-depth case studies with careful theorizing about the effects.

Finally, more work is needed to examine the effects of machine learning for improving cultural tailoring. Some will be “put off” by the rigidity of machine learning and its association with big data and manipulation of consumers. However, machine learning has major advantages of being able to process, sort, and adapt voluminous information to enhance persuasion and, at this time, provides the most effective and efficient method for tailoring (Noar et al., 2018). The use of machine learning for message design does not have to be antithetical to cultural tailoring processes. Communities can still have a voice in defining problems and identifying the key communication elements for an ECI. Machine learning and natural language processing can be used to process data to address these elements and communities can review and approve/revise the results. Such an approach may have efficiency gains while also enabling effective community engagement.

In conclusion, this chapter has introduced a framework that separates process and content for cultural tailoring of ECIs. These approaches have been applied in health communication contexts with success, but the conceptual and theoretical aspects of cultural tailoring have been historically weak. In this chapter, we have taken a first step toward clarifying some of the conceptual problems in the literature and explicitly contextualizing our ideas in the environmental communication literature. Although there are strong examples of the use of
cultural tailoring for environmental communication, more work and development in needed, particularly in the area of theorizing about cultural tailoring. Nonetheless, there appears to be great promise in improving the impact of ECIs through use of cultural tailoring.

References


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Table 1. Cultural tailoring processes

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community-based Participatory Research (CBPR) Conceptual Model (Wallerstein et al., 2018)</strong></td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td>Understanding the historical context that a community faces along with capacity to affect change and readiness to change</td>
</tr>
<tr>
<td>Partnership processes</td>
<td>The structures and processes used to create a partnership including shared decision-making, mutual learning, shared resources, and a commitment to collective empowerment</td>
</tr>
<tr>
<td>Intervention</td>
<td>ECI reflects local knowledge, reflects synergy among partners, and has strong community involvement in creation</td>
</tr>
<tr>
<td>Outcomes</td>
<td>ECI impacts intermediate outcomes such as capacity building and policy changes and long-term outcomes such as sustainability and environmental justice</td>
</tr>
<tr>
<td><strong>Culture-centered Approach (CCA) (Dutta, 2007)</strong></td>
<td></td>
</tr>
<tr>
<td>Voice/Agency</td>
<td>Community members impacted by the environmental issue have agency in defining the problem and offering solutions (i.e., creating the intervention)</td>
</tr>
<tr>
<td>Reflexivity</td>
<td>Members of the partnership reflect on processes and also power and privilege among members</td>
</tr>
<tr>
<td>Structural transformation and resources</td>
<td>ECI includes changes to structures (e.g., policies and practices) and provides the community resources to affect change</td>
</tr>
<tr>
<td><strong>He Pikinga Waiora Implementation Framework (Oetzel et al., 2017)</strong></td>
<td></td>
</tr>
<tr>
<td>Community engagement</td>
<td>Partnership implementing the ECI includes shared decision-making and communication</td>
</tr>
<tr>
<td>----------------------</td>
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</tr>
<tr>
<td>CCA</td>
<td>Implementation of the ECI includes agency for community members, reflexivity among partners, and structural transformation and resources</td>
</tr>
<tr>
<td>Systems thinking</td>
<td>The ECI reflects a holistic view of the problem and considers multiple levels, relationships, and perspectives</td>
</tr>
<tr>
<td></td>
<td>ECI is created and implemented through a partnership with end users such as practitioners, governmental and non-governmental agencies, and policy makers</td>
</tr>
<tr>
<td>Element</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Evidential</td>
<td>Verbally or visually present evidence about the issue (statistical or anecdotal) about the group to which the individual belongs based on surface-level aspects of culture. E.g., Tables, graphs, narratives</td>
</tr>
<tr>
<td>Arguments and conclusions</td>
<td>Structure verbal content of messages based on different styles and preferences for logical analysis; System 2 Kahneman (2011) elements E.g., Formal vs. oral logic argument structure, preferences for implicit vs. explicit conclusions, message-sidedness, and repetition of messages.</td>
</tr>
<tr>
<td>Communication Style</td>
<td>Verbal and non-verbal aspects of messages in addition to language system. E.g., Preferences for in/directness, high/low context communication, attentional focus on different aspects of the message; adherence to oral communication maxims, communication accommodation and choice of communication approach. Use of vivid or intense style of language.</td>
</tr>
<tr>
<td>Social-Psychological</td>
<td>Social-psychological dynamics are recognized, reinforced, and built upon in verbal aspects of materials including cultural values, aspects of identity, beliefs, norms, attitudes, and behaviors.</td>
</tr>
</tbody>
</table>
Table Note: Message strategies can be most effectively identified and evaluated by community members and should be created based on individual-level data. “Constituent Involving” which was part of the Kreuter et al. (2003) original typology, is a process rather than a tailoring strategy and was removed from the table to make the constructs parallel; other concepts have been retained in new form or added. Examples are not from tailored campaigns.

Table 2 (ABOVE). Cultural Tailoring of Content (CTC) Framework including message elements, definitions and environmental communication examples expanded from Kreuter et al., (2003).

| E.g. Individualism-collectivism, tight-loose culture, independent-interdependent self-construal, etc. | Social norms messages and collectivism/individualism messages about water conservation (Lapinski et al., 2007), grassland conservation (Kerr et al, 2019) |
Table 3. Questions designed to understand socio-cultural aspects of environmental behaviors modeled after Kleinman & Benson (1989) and applied to changes in climate-related changes to grassland quality (Lapinski et al., 2018).

<table>
<thead>
<tr>
<th>Questions</th>
<th>What might it elicit?</th>
<th>Example Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you call the phenomenon?</td>
<td>Beliefs about Nosology (Classification)</td>
<td>Have you seen changes to your grassland? What do you call it?</td>
</tr>
<tr>
<td>What do you think caused the phenomenon?</td>
<td>Beliefs about Etiology (Cause)</td>
<td>What is the reason that the grassland has changed in this area?</td>
</tr>
<tr>
<td>Why do you think it started when it did?</td>
<td>Beliefs about Etiology (Cause) and Values</td>
<td>When did you notice changes to your grassland?</td>
</tr>
<tr>
<td>What do you think the phenomenon does? How does it work? What is the chief problem it has caused?</td>
<td>Beliefs about Etiology (Cause) and Values</td>
<td>What do you think changes to grassland does? What is the problem or problems it causes?</td>
</tr>
<tr>
<td>How severe is the phenomenon? What do you fear most about it? Will it have a short or long course?</td>
<td>Risk perceptions, attitudes</td>
<td>How bad are the changes to the grassland? What worries you about it? Do you think it will last for a short or long time?</td>
</tr>
<tr>
<td>What do you think should be done about the phenomenon? What have you done, if anything about the phenomenon? What is the outcome you would hope to see from this?</td>
<td>Existing behaviors and beliefs about prevention and solutions/outcome expectations</td>
<td>What do you think could or should be done about changes to grassland quality if anything? What would happen if these things were done?</td>
</tr>
<tr>
<td>Do you feel you have the power to do something about the phenomenon?</td>
<td>Values, self and collective efficacy</td>
<td>Can you or people around you do anything about grassland quality? What are these things?</td>
</tr>
<tr>
<td>Who are the other people who know or care about this phenomenon? What do they do and think about this phenomenon?</td>
<td>Norms, Values</td>
<td>Who, that you know, cares most about changes to grassland quality? Why do you think they care? What do they think about the problem?</td>
</tr>
</tbody>
</table>
Figure 1. Key elements of the He Pikinga Waiora Implementation Framework

- **Cultural Centredness**
  - Ko tākū reo, tākū ahoaroa, ko tākū reo, tākū Māorihia Māumahara

- **Community Engagement**
  - He whakaaro tanga, he whakaaro pākehakeke, he kuara ohoi nei kia tawhia

  Partnering between researchers and community in all phases of the project. Guided by principles of action, social justice, and power sharing.

  Decision-making and communication is shared and a strong partnership is identified throughout the intervention. Relationships build capacity of communities and researchers.

- **Kaupapa Māori**
  - He pōh đâu ngā pāpa, he pōh trovare mōna

  The Framework has Indigenous self-determination at its core. All four elements have conceptual fit with Kaupapa Māori aspirations and all have demonstrated evidence of positive implementation outcomes. The Framework is intended as a planning tool to guide the successful development and implementation of interventions.

- **Integrated Knowledge Translation**
  - He tana ki nui, he tāmoki ki whakawa

  Integration of knowledge translation activities within the context of the community in which the knowledge is to be applied.

  There is a process of bi-directional learning established so that information is tailored to knowledge users needs.

- **Systems Thinking**
  - He tāne ki nui, he tāmoki ki roa

  Systems perspectives

  Intervention has a broad focus and considers multiple perspectives, world views, values, causes & solutions.

  System relationships

  Demonstrates strong understanding of the complex relationships between variables including feedback loops, time delays and multi-level effects.

  Systems levels

  Intervention targets change at macro, meso & micro levels.