Chapter 7
Role of Cultural Milieu in Cultural Change: Mediating Factor in Points of Contact

Ramona A. Houmanfar, José G. Ardila Sánchez, and Mark P. Alavosius

Introduction

In recent decades, the majority of efforts by psychologists to analyze consumer behaviors and choices related to global warming focus on theories about attitudes toward environmental issues (Foxall, 2015; Lehman & Geller, 2004; Newsome & Alavosius, 2011). The approachability of the constructs applied within this school of thought, such as attitudes and beliefs contribute to the popularity of "social/environmental psychology." The familiar terms communicated by the associated theories are highly attractive to both laypersons and policy-makers perhaps because these terms summarize complex phenomena and do not require analysis of intricate relations. Although studies about the relationships between reported attitudes and socially impactful behaviors have penetrated the societal discussions, the subfield of environmental psychology has had very little influence on solving the problems associated with consumption (Lehman & Geller, 2004; Newsome & Alavosius, 2011). It is clear that scientific approaches focused on the correlations between what people say and what people do is of limited help for changing cultural practices. Moreover, verbal reports are to be interpreted with caution, as perceptions of subjective experiences are difficult to anchor to objective measures of social benefit (Houmanfar, Alavosius, Morford, Herbst, & Reimer, 2015).

The sweeping societal changes needed to combat and mitigate consumption practices that contribute to climate disasters and associated sociocultural upheavals such as post disaster recoveries and population migrations and associated social conflicts, must change more than attitudes. The challenge is to organize massive numbers of people to behave in ways that are sustainable within available resources. Influencing behavioral patterns of hundreds, thousands, millions, or even billions of

R. A. Houmanfar (✉) · J. G. Ardila Sánchez · M. P. Alavosius
Department of Psychology, University of Nevada-Reno, Reno, NV, USA
e-mail: ramonah@unr.edu

T. M. Cihon, M. A. Mattaini (eds.), *Behavior Science Perspectives on Culture and Community*, Behavior Analysis: Theory, Research, and Practice,
https://doi.org/10.1007/978-3-030-45421-0_7

people will require changes in many environmental sources of influence on resource consumption such as institutions, social groups, private and public organizations, etc.

An alternative behavior scientific perspective provides objective prescriptions for ways to change environmentally relevant behaviors. Approaching culture change by identifying key environmental factors that influence patterns of consumer behaviors that constitute cultural practices (Alavosius, Houmanfar, Anbro, Burleigh, & Hebein, 2017; Houmanfar et al., 2015) may lead to practical and effective solutions to social problems like global warming, wealth inequality, and resource depletion. This chapter discusses metacontingency and macrocontingency as foundational concepts in the behavior scientific analysis of the interaction between organizational practices producing products and behaviors of their consumers. Moreover, the role of cultural milieu as a mediating factor in this interaction will be highlighted.

Glenn (2004) describes two kinds of contingencies: metacontingencies and macrocontingencies. The latter describe topographically similar behaviors in macrobehavior, which operate independently of one another. For example, two neighbors who do not know each other drive electric cars. The cumulative effect of driving this type of car instead of cars burning fossil fuel is reduced greenhouse emissions and a reduced likelihood of pollution or carbon footprint across the community in the future.

Metacontingencies, on the other hand, describe selective contingencies that operate on interlocked patterns of behaviors between two or more persons or groups of persons. When the behavior of one person (e.g., in carpooling network with others to share travel expenses) becomes interlocked with (i.e., dependent upon) the behavior of another, a pattern of behavior emerges that Glenn (2004) describes as "interlocking behavioral contingencies" (p. 144, IBCs). IBCs, when they occur, have a measurable effect on the aggregate outcome (e.g., carpooling as a community practice could reduce the number of cars needing to be manufactured and sold per month) and on the environment (decreased greenhouse emission).

Glenn's (2004) perspective holds that cultural practices are comprised of cumulative, non-interlocking behaviors, which can vary in complexity from the cumulative car consumption of several individuals to cumulative IBCs of autoworkers in several manufacturing companies producing cars. Although the IBCs of organized entities (e.g., car companies) may be maintained by a metacontingency, cumulative IBCs of a particular type (e.g., car manufacturers operating in a competitive market across countries) may prompt alterations in macrobehavior (e.g., switching production from internal combustion to electric cars). When macrobehavior generates a cumulative product (e.g., reduced greenhouse emission) the relation between the two is called a macrocontingency (Glenn, 2004; Glenn & Malott, 2004).

Houmanfar, Rodrigues, and Ward (2010) elaborated account of the metacontingency offers points of entry to alter contextual factors influencing cultural practices. *Cultural milieu*—the first term of the elaborated account of the metacontingency—consists of contextual factors influencing the acquisition and maintenance of IBCs as well as the collective behaviors of individuals interacting with the associated aggregate products. The design of a product and its generation rely not only on

selection by consumers but also on the cultural milieu which consists of the prevailing beliefs and values within the culture as well as predictions about the future. Product designers study market trends and create consumer demand. In much the same way that rules can govern behavior before that behavior comes into contact with contingencies, societal values and beliefs about the future—be it the economy, a richer middle-class, the competition, advocacy organizations, or other factors—can also guide the production of different goods which consumers may or may not purchase. This relationship can be circular in that consumer purchases of goods will often alter the cultural milieu resulting in a different set of predictions about which products will be successful. In the early days of the twentieth century, automobiles were powered by steam, electricity, and gasoline. Internal combustion engines won the marketplace competition among these three alternatives and became the dominant choice of consumers. Imagine if electric cars had emerged in 1900 as the favored propulsion method for transportation needs and what effect this would have had on the greenhouse gas emissions from fossil fuel combustion. A shift to electric powered transportation appears probable as consumers turn away from fossil fuels and increasingly adopt cleaner technologies.

The growth of Facebook, as another example, has ramifications beyond its simple use by netizens. It revolutionized access and sharing of information and created a whole new online marketplace plus media platform that retailers and media networks are forced to compete with, to name just two of its effects. Though touted for its benefits of enhanced communications and information sharing, only recently have the negative effects of open access to social media and manipulation of people by special interests been recognized as an unintended consequence of these technologies. The unintended consequences of exciting new technologies emerge with their widespread adoption and reveal that human choice of these is driven by short-term consequences and not by the larger delayed effects from cumulative use.

The Tesla Corporation serves as an example of organizational impact (e.g., an organization producing solar batteries, electric cars, shifting cultural practices from usage of fossil fuel energy toward clean energy) on cultural change as depicted by consumer practices (as related to energy consumption) throughout this chapter. Multiple reports of Tesla's organizational practices pertaining to erratic leadership decision-making and aversive management practices change Tesla's image (in terms of leadership values) as related to the associated cultural milieu over time. The misalignment between the positive impact of Tesla's products on consumer practices, and the dysfunctional leadership and management practices inside of the organizations offers a unique case for our discussion of cultural milieu as a mediating factor in the analysis of cultural change over time.

In the following sections, we will provide an overview of the elaborated account of metacontingency with the primary focus on ways this perspective offers points of entry to alter contextual factors influencing cultural practices. The elaborated account of metacontingency provides a process account relevant to the psychological and sociological levels of analysis as well as their interrelations with macrobehaviors associated with consumer practices. We believe that any such account of cultural phenomena must acknowledge its interdisciplinary nature involving the

behavior of verbally sophisticated consumers interacting with the many aggregate products of cultural entities. Moreover, the contexts within which members of organized group behave are predominantly verbal as well.

Five-Term Metacontingency[1]

Cultural Milieu

Identified as the first term in the elaborated account of the metacontingency (Houmanfar et al., 2010), cultural milieu is the collection of stimulus functions influencing the acquisition and maintenance of interlocked behaviors and the behavior of individuals interacting with the associated aggregate products (Ardila, Houmanfar, & Alavosius, 2019) (Table 7.1). These stimulus functions are inherent in different environmental features, such as biological, anthropological, and psychological tiers or vantage points. In this context, the term "environment" strictly refers to the natural conditions under which humans live (Kantor, 1982).

For example, the *biological* environment includes all the objects and conditions necessary for organisms (e.g., natural resources) to live; the *anthropological* environment is composed of the products of human civilizations (e.g., institutions, artifacts, federal, state, or national objects); and in the *psychological* environment (e.g., cognition, behaviors) comprise the individual's context. The biological and anthropological objects may acquire different functions through the interaction with individuals (Kantor, 1982). In turn, the cultural milieu comprises the collection of functional properties inherent in objects, events, and persons acquired across the three environmental tiers (i.e., biological, anthropological, and psychological), and that are shared by group members of systems of IBCs and associated consumers (Ardila et al., 2019).

Elements of the cultural milieu can be identified by careful examination of the environmental boundaries. The identified boundaries of any behavioral system facilitate our focus on the associated dynamics (Glenn & Malott, 2004; Houmanfar & Rodrigues, 2006). For example, communities can be centered on various boundaries for social systems (Luke & Alavosius, 2012) such as anthropological, psychological, and geographical, among others. Simply stated, boundaries are analytical limits that allow further identification of the cultural groups (organized and independent individuals) involved in social issues. For example, various countries and cultural groups rely on the ocean's fisheries for food. Different groups adopt various guidelines for harvesting fish and the variations may focus more on political boundaries than the natural habitats of the fish. One result is depletion of the resource when populations of fish succumb to overharvesting by fishermen pursuing catch for their markets and unfettered by consideration of their behaviors on the fish

[1] See glossary of definitions in Table 7.1.

Table 7.1 Glossary of definitions

Term	Definition
Aggregate Product	Conglomerate outcome or result of socio-IBs that may function as selector of future recurrences of socio-IBs or as mediator between socio-IBs and consumer practices.
Consumer Practices	Constitutes similar patterns of consumer responses (i.e., psychological collectivities) which also affect the future occurrences of the aggregate product and associated socio-IBs.
Cultural Milieu	The collection of stimulus functions influencing the acquisition and maintenance of IBs and the behavior of individuals interacting with the associated aggregate products.
Group-Rule Generation	The cultural entity's (e.g., organization) response to the practices of consumers, typically in the form of verbal rules crafted by those in power that may alter the cultural milieu and the socio-IBs.
Five-Term Metacontingency	A sociological unit that involves group relations such as those between whole organizations and the consumers of their aggregate product(s). The terms of this unit of analysis are: (a) cultural milieu, (b) socio-IBs, (c) aggregate products, (d) consumer practices, and (e) group-rule generation.
Interlocking Behavioral Contingency	Comprised of operant contingencies in which behavior of two or more people functions as environmental events for the behavior of the others.
Socio-Interlocked Behaviors	Emergent unit (i.e., cohesive whole) upon the organized or collective behavior of individuals and that is responsible for the aggregate product.
Two-Term Metacontingency	A contingent relation between (1) recurring interlocking behavioral contingencies having an aggregate product and (2) selecting environmental events.
Web of Interlocking Metacontingencies	The relations among the systems and their subsystems in organizations. The greater the component complexity in organizations, the more interlocking metacontingencies may be identified.

population. Thus, establishing boundaries is the first analytical step toward the identification of the cultural phenomenon of interest within some framework. Catching fish to meet market demand frames the boundary differently than fishing in ways that sustain the marine ecosystem. Next, the functional properties of environing factors (i.e., collection of stimulus functions or the cultural milieu) associated with the commercial compared to recreational fishing practices as well as the cultural groups reacting with respect to their shared functions need to be analyzed.

Cultural-organizational milieu Houmanfar, Rodrigues, and Smith (2009) and Houmanfar et al. (2015) provide several examples of cultural milieu factors such as properties of materials, resources, policies, rules, traditions, institutions, technological progress, art, other organized groups, competition, and individuals (e.g., societal leaders) that are adopted and practiced at the organizational level as cultural-organizational milieu (see Fig. 7.1). Organized group practices or IBCs can be defined as learned interactions with cultural-organizational milieu (e.g., rules, values, policies, traditions, other organizations, etc.), acquired under group auspices,

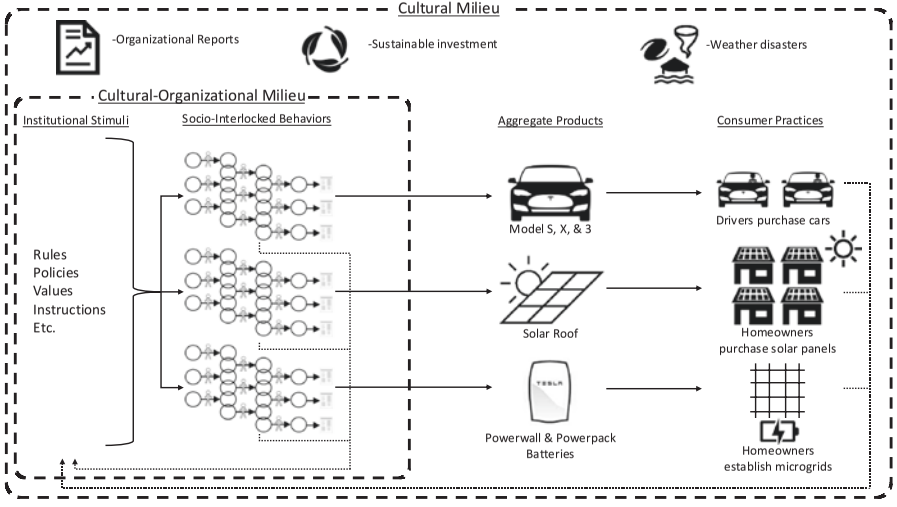

Fig. 7.1 Metacontingency describing group interactions among Tesla Inc. (i.e., socio-IBs) and leadership values (i.e., institutional stimuli) occurring under cultural milieu associated with the company's revenue and position in the marketplace (e.g., organizational reports), sustainable technology and investment, and weather disasters disrupting energy sources of small communities. Elon Musk and board of directors' decisions and associated rules and policies have functioned as institutional stimuli influencing the selection and maintenance of the socio-IBs and associated aggregate products of Tesla. The selected socio-IBs have produced resources delivered to several small communities (i.e., consumer practices) during post-weather disasters. Consumers accessing these products have demonstrated similar patterns of behavior (also known as macrobehavior; see Glenn et al., 2016)

and shared among members of a given organization (Houmanfar & Johnson, 2003; Houmanfar et al., 2009). Given the coordinated nature of these practices, they can be influenced by verbal products such as rules, historical records, and organizational statements (e.g., value statements, vision, consumer feedback, management feedback, other recurring messages, updates, etc.) that constitute critical features of cultural-organizational milieu referred to as institutional stimuli.

Shared stimulus functions associated with institutional stimuli are specific to group members (Kantor, 1982); thus, these features of cultural milieu (in form of cultural-organizational milieu) differentially influence IBCs and consumer practices, including ways the consumer group accesses aggregate products, manages waste products, and distributes liabilities and costs. For example, several cultural milieu factors were altered in Puerto Rico in the aftermath of Hurricane María in 2017. The devastation to the island altered organizational values of sustainable and resilient development (e.g., the government's post-hurricane recovery plan; see Rosselló and Governor of Puerto Rico, 2017), and also highlighted shared values among the leaders of a group of island nations sharing economic, social, and ecological challenges, known as Small Island Developing States or SIDS (Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 2017). The hurricane created a crisis that heightened sustainable as well as ecological factors in the cultural milieu but also created opportunities for corruption and mismanagement of relief resources. These factors set the context for the development of metacontingencies consisting of the IBCs associated with the interactions among Puerto Rico's governor and private investors (e.g., Tesla corporate leaders) and the adoption of associated products of solar energy. Specifically, cultural milieu factors (i.e., sustainability and ecological threats) demonstrated a "shared values" function with respect to the formation of IBCs that favored new energy alternatives to the island's poorly operating system which was virtually demolished by the hurricane. These IBCs resulted in the provision of solar panels and batteries (i.e., aggregate products) to meet the evolving consumer demands. The citizens' usage of energy relying on old and damaged fossil fuel infrastructure changed to what is presumed to be more sustainable practices (i.e., usage of solar energy). In sum, the cultural milieu of ecological and sustainable factors set the occasion for the development of metacontingencies and Puerto Rico's attempts to adopt associated aggregate products during post-hurricane recovery.

The cultural milieu also influences the development of interrelated non-recurring behaviors of many individuals generating significant social change, known as macrobehavior (Glenn, 2004). For example, following the shortage of water and electricity occasioned by Hurricane María in Puerto Rico, and the extent of aid from federal agencies that citizens received, the people of Puerto Rico (constituting the target cultural group) engaged in creative activities to adapt to constringent circumstances. Their resilient macrobehavior in response to electricity and water shortages at home led to using rivers instead of showers for bathing. This resulted in public health challenges and, interestingly, in alternative hairstyles (Ardila et al., 2019).

As discussed recently by Ardila et al. (2019), resilient cultural practices are often developed by multiple individuals exposed to extreme ecological stress to successfully establish metacontingencies and macrocontingencies within sustainable boundaries. History is rife with examples of cultural groups adapting to environmental degradation by changing established practices and creating new ways of organizing themselves. The Rochdale Society of Equitable Pioneers were a group of weavers in Rochdale, England suffering famine. They organized themselves into a cooperative to pool their collective resources and sustain their families during times of resource scarcity. This group codified their principles of collective action and served as a model for others who replicated and extended their cooperative model (Alavosius, Getting, Dagen, Newsome, & Hopkins, 2009; Rochdale Pioneers, 1844). Within a decade, thousands of cooperatives were established in England and their ideas are recognized as the foundation for cooperatives across the globe. The development of resilient cultural practices in small cultural units in Puerto Rico such as towns, neighborhoods, and families were occasioned by the impact of a climate disaster and influenced by their cultural milieu. Group adaptation in this case has been influenced by group members' shared histories with respect to their development as an island colony of other nations and their current identity as an unincorporated territory of the United States. The movement toward statehood is complex and Puerto Ricans hold various positions from desiring statehood, remaining a commonwealth, and asserting independence.

The hurricane devastated the Puerto Rico island infrastructure, forced many to flee and migrate off the island and revealed the limited federal government's acknowledgement of Puerto Rico as a legitimate part of the United States of America. Ardila et al. (2019) describe the dire circumstances hurricane María created for Puerto Ricans and their ongoing struggles to rebuild under the growing realization that global warming increases the probability of future climate related impacts that may be more impactful than María. Many lessons can be learned by examining this trajectory and analyzing the drivers of communities to determine contextual factors that facilitate resiliency and those that promote conflicts and the collapse of communities. Moreover, the disaster recovery in Puerto Rico has proven to be an ongoing challenge, and an experimental platform for behavior scientific analysis of resiliency. As mentioned earlier, resiliency of cultural practices is demonstrated by patterns of multiple individuals' behaviors that result in the development of metacontingencies and macrocontingencies within sustainable boundaries (Ardila et al., 2019). The following section provides an overview of recurrence of behaviors in metacontingencies.

Interlocked Behaviors (IBs) and Socio-IBs

The five-term metacontingency provides an elaborated analysis of IBCs in terms of both psychological and sociological characteristics. The behaviors of individuals participating in IBCs are influenced by contextual factors (i.e., cultural milieu;

cultural-organizational milieu), and are selected at two levels: (1) interlocked behaviors (IBs) influenced by an individual's history of reinforcement as well as local contingencies within organized groups; and (2) socio-IBs and associated aggregate products that together are influenced by the cultural milieu, and recipients of the aggregate products. At the psychological level, the term *IB* highlights the critical role that individual participants' histories play in the interaction of individuals within a given IBC and, ultimately in the selection process associated with the metacontingency; the term *socio-IBs* refers to the cohesive unit—collective behaviors of individuals—responsible for the aggregate products (Houmanfar et al., 2010). As highlighted by many high technology and global energy companies with multi-cultural work force, addressing engineering controls alone without the recognition of individuals' histories of reinforcement and cultural repertoires limits efforts to promote effective cooperation in organized groups (Alavosius et al., 2017; Alavosius, Newsome, Houmanfar, & Biglan, 2016).

In short, the IBs of individuals are simultaneously selected at the psychological level by contingencies of reinforcement and at the sociological level by the recipients of the associated aggregate product (i.e., consumers). Socio-IBs are also responsible for aggregate products influencing the behaviors of other individuals outside the organization. For example, Tesla Corporation and its associated aggregate products (e.g., vehicles, solar panels, batteries using solar energy) have influenced changes in cultural practices in multiple small island nations: safety-related practices using emergency backup power to move trains in Osaka, Japan in the event of a grid outage (Lambert, 2017); recovery strategies using battery systems and solar panels to restore electricity in Puerto Rico in the aftermath of Hurricane María (Korosec, 2017); transitioning from fossil fuels to solar energy using microgrids to power whole communities of Ta′u in American Samoa and in the Hawaiian island of Kauai (Golson, 2017; Kaufman, 2016). The socio-IBs of Tesla Corporation and the associated aggregate products have influenced the development and maintenance of a number of cultural practices associated with energy conservation and renewable energy over recent years (Tesla, 2018).

Aggregate Products

Socio-IBs generate aggregate products that impact at the sociological level. Aggregate products vary as a function of the cultural milieu (Houmanfar et al., 2010), and mediate relations between socio-IBs and consumer practices. For example, on the island of Ta′u in American Samoa, consumer practices were altered by the change in Tesla's aggregate products in 2017. More specifically, citizens shifted from diesel to solar energy consumption by the replacement of old energy infrastructures with Tesla's energy microgrids (Lin, 2017). Interestingly, the new aggregate products (e.g., solar panels, batteries, and microgrids) altered consumers' cultural practices. For instance, although the people of Ta′u still use energy in their daily activities, energy-consumption practices have significantly lowered their carbon footprint on the environment (Lin, 2017).

Consumer Practices

The consumer response to aggregate products constitute similar patterns of behavior, known as macrobehavior (Glenn, 2004; Glenn et al., 2016). Further, a relation of macrobehavior and certain cumulative effects is described as a macrocontingency (Glenn et al., 2016). The behavioral products depicted in macrocontingencies pertain to the state of affairs associated with many social issues (Malott & Glenn, 2006) such as pollution, global warming, corruption, and youth violence. Thus, cultural interventions targeting macrocontingencies focus on changing socially relevant cumulative products of the behavior of multiple individuals. However, the cumulative effect in a macrocontingency is not in a contingent relation with the macrobehavior, thus, this unit cannot be selected (Glenn et al., 2016). Alternatively, the shared mode of responding of two or more individuals with respect to institutional stimuli constitutes a functional unit, known as a psychological collectivity (Kantor, 1982). Designing interventions that target institutional stimuli such as the aggregate products of organizations may nudge responding by psychological collectivities to produce positive social cumulative effects. The aforementioned example of Ta′u illustrates an intervention targeting psychological collectivities in a macrocontingency—that between energy-consumption practices in Ta'u residents and the carbon footprint of the community in the environment. Ta'u citizens reduced their consumption of diesel fuel from 100,000 gallons per year to almost zero by the acquisition of Tesla's batteries and solar panels (Lin, 2017). The intervention did not target the cumulative outcome of fossil fuel consumption; rather by providing an alternative source of energy, Ta'u citizens continued their regular energy-consumption practices without the harmful effect on the environment. Thousands of psychological collectivities in Ta'u were nudged to produce a positive social outcome (i.e., reducing their carbon footprint in the environment) by modifying the functional properties of energy consumption. In other words, Ta'u residents' macrobehavior of energy consumption did not change in form—they still used energy in the same ways for their daily activities; rather, these practices changed their function with respect to the institutional stimuli of energy. Changes in psychological collectivities' responding may be observed in the ways in which people verbally behave with respect to institutional stimuli present in the cultural milieu. For example, after Ta'u became 100% solar, citizens began to consider their energy-consumptive practices as an example of sustainable and resilient adaptation to climate change for all other Pacific islands dealing with similar environmental challenges (Lin, 2017). Moreover, the institutional stimuli shared by Ta'u psychological collectivities, as it relates to solar energy consumption, acquired new functional properties such as sustainable and renewable energy.

Many consumers have little or no understanding of the production and distribution processes that deliver their purchased goods and services. Purchasers of laptop computers, athletic shoes, clothing, and jewelry, for example, likely do not realize many of these products are manufactured by workers earning wages below sustenance levels in challenging working conditions producing externalities like pollution, waste products, and resource depletion. Product choice is probably most

influenced by price, perceived value, and reputation of the product. Producers camouflage the unsavory features of their products and instead promote the comfort, convenience and cachet owners of their products enjoy until the next product version replaces the still functional but now less fashionable model. Countercontrol interventions to offset deceptive marketing and reveal the true costs of consumption are a class of interventions effective in altering consumer behavior. Advocacy organizations play a critical role in providing consumers with genuine information and shaping the cultural milieu. Witness the many decades of effort to counter the deceptive marketing of tobacco companies and the slow progress of interventions to reduce smoking. The same strategies can be and are being applied to other products with mass appeal and huge social cost (e.g., fossil fuels) but the approach alone may be too slow to meet the accelerating problems.

In short, the consumer side of an organization has been largely ignored within behavior analysis. Fortunately, a few ideas about this area lay substantial groundwork for an advanced analysis of consumer behavior (e.g., Foxall, 2001, 2007, 2015; Hantula, DiClemente, & Rajala, 2001). Most consumer research disregards the effect of the consumer setting on behavior and is often not grounded in empirically demonstrated principles. Behavior scientists working in the areas of behavioral systems analysis and economics would benefit from empirical explorations of consumer behavior particularly in the areas of choice and alternative selections. The impact of consumer practices as well as other components of cultural milieu on organizational practices can be analyzed in the context of group-rule generation.

Group-Rule Generation

Those who design and implement organizational contingencies (i.e., group leaders and managers) maintain, change, or generate new roles and contingencies as a function of their interaction with an evolving organizational cultural milieu including consumers' response to the aggregate product. More specifically, the consumer response (e.g., purchase of product, communication of their like or dislike of the product etc.) is mediated by verbal rules generated by decision makers and designers of organizational contingencies (i.e., group leaders or managers). Group-rules affect the recurrence of interlocked behaviors or organized actions.

Our account of rule governance highlights the importance of functional characteristics of rules in the management of IBCs or organized group practices in organizations. In many cases, the source of rule may have quite a different history and perspective from those of the rule followers, and this discrepancy may explain the often-seen mismatch between the rule author's objective and the rule followers' understanding. Based on the literature on communication in behavioral systems, (Houmanfar et al., 2009; Peláez & Moreno, 1999; Rafacz, Houmanfar, Smith, & Levin, 2018; Smith, Houmanfar, & Denny, 2012; Smith, Houmanfar, & Louis, 2011) explicity and accuracy of rules and instructions may generate environmental ambiguity associated with rule followers' behaviors.

Furthermore, the effectiveness of group-rule generation to influence acquisition and maintenance of socio-IBs has to do with ways leaders craft rules using values that occasion rule follower behavior. Values (i.e., overarching life directions or the qualities of being and doing that the person or a cultural group aspire to live or work in alignment with) are an inherent part of the cultural milieu, and are shared stimulus functions when used as group-rules affecting the behavior of the socio-IBs of individuals inside organizations.

With regard to the topography and function of rules, organizational rules are institutional stimuli that correspond to a shared response from a group (Kantor, 1982). Accordingly, the institutional nature of organizational rules requires our focus not only on their structure but also the shared function they serve among employees (Houmanfar et al., 2009). Organized group practices or IBCs can be defined as learned interactions with institutional stimuli (e.g., rules, policies, other organizational members, etc.), acquired under group auspices, and shared among members of a given organization (Houmanfar & Johnson, 2003). And, given the coordinated nature of these practices, they can be influenced by verbal products such as rules, policies, instructions, etc.

In the case of Tesla Inc., its aggregate products are generally well received in the marketplace (Tesla, 2018)—at the sociological level of analysis consumers interact with the products of the organization; however, certain organizational practices have affected the organization from a psychological standpoint (e.g., local contingencies and cultural milieu factors). Despite Tesla Inc.'s undeniable success in diversification and rapid expansion of its product-line (Tesla, 2018), Elon Musk's leadership style in relation to his employees has affected his image as well as his products—from the standpoint of the market place—over time (Lashinsky, 2019). Following Glenn and Malott's (2004) analysis of organizational complexity, we may say that Musk's Tesla has increased its component complexity (e.g., multiple assembly lines for different products), without the needed adjustments to its hierarchical complexity: Musk is still both chairman and chief executive (Gelles, Stewart, Silver-Greenberg, & Kelly, 2018). Such product diversification without leadership adjustments for an effective oversight has led to several communication issues over the recent years (Gelles et al., 2018). Musk announced plans of closing the majority of Tesla's showrooms and selling cars online, which turned into a dispute with the store landlords in relation to the store leases (Fung, 2019). Also, Musk has declared many ambitious production objectives and failed to meet the associated goals (Lashinsky, 2019). The impact of these leadership factors, quality control issues, and delays in product delivery on consumers plus investors' confidence remain a topic of debate.

Tesla's influence in shifting energy-consumption practices in several small nations, while being under Musk's erratic decision making—saying that he will close most of the company's retail stores and later announcing that no closure will occur (Lashinsky, 2019)—is a clear example of how leadership practices can hinder communication networks which are part of the process by which IBCs are managed (Houmanfar & Johnson, 2003). When individuals are given clear and explicit rules of operation, they produce more, faster, and with fewer errors (Smith et al., 2011).

Particularly, values and traditions that are communicated by leaders may act as a source for rule governance (Houmanfar et al., 2009). For example, shared values among group members are an essential feature in teamwork performance (Rafacz et al., 2018). Moreover, when leadership values are aligned with the overarching cultural-organizational milieu, they can affect not only organizational well-being but also the well-being of individuals outside the organization who may be members of multiple cultural groups interacting with its aggregate products.

As highlighted by Houmanfar et al. (2010), a better understanding of the consumer response to the aggregate product and the various contingencies that affect that consumer response is critical to the generation of more effective organizational group-rules. The surveys and focus-groups conducted by organizations are an aid to crafting useful group-rules. The role of language here cannot be overstated. The assessment of the cultural milieu that affects (a) organizational practices in the form of cultural-organizational milieu, as well as those of its consumers, (b) the evaluation of the organizational practices in terms of their efficiency and productivity, (c) the evaluation of the aggregate product in terms of its quality (by consumer and market place), and (d) the consumer response of choosing or rejecting the product based on its value adding function, are primarily verbal in nature (Houmanfar et al., 2015). In short, language serves as an intermediary between the multiple interlocking processes associated with product generation and response to consumer demand.

The five terms of the metacontingency are interdependent relations between sociological and psychological factors that participate in human interactions. The selection of human behavior in a social environment occurs at two levels: (1) at the *psychological* level, response and stimulus functions, analysis of contingencies, personal history, and the roles individuals take in organized groups are all relevant factors to understand in the selection of individual behavior; (2) at the *sociological* level, human behaviors are configured as a collection of interlocked behaviors producing aggregate outcomes, such as organizations generating material products, universities producing of knowledge, and governmental congress producing laws. Further, these organizations (i.e., metacontingencies) are interrelated with the collective behavior of individuals (i.e., macrocontingencies) accessing aggregate products. Because meta- and macrocontingencies capture the dynamics of interactions among cultural groups, further consideration of these interactions is warranted.

Meta- and Macrocontingencies Dynamics

Organizations consist of the interaction of human behavior and its products that affect the behavior of other humans outsisde the organization (Glenn & Malott, 2004). As such, organizations affect one another building a reciprocal ecological relationship referred as “co-evolution” (Glenn & Malott, 2004). Given that organized and self-organized systems must co-evolve, any mismatch between aggregate products and environmental requirements is likely to be detrimental to both systems (Glenn & Malott, 2004). In this sense, organizations that focus on maintaining an

ecological balance—adapting to consumer demands and ecological challenges—are in a position to affect culture in a variety of ways. Five-term metacontingencies may help us understand the processes by which organizations partly determine the survival and success of certain cultural practices of collectivities interacting with its aggregate products. The participation of Tesla in many small nations illustrates how the aggregate products of organizations (e.g., solar batteries and electric cars) may directly influence consumer practices (e.g., changing cultural practices of usage of fossil fuel energy toward clean energy). However, rarely does a single organization affect whole cultural groups because consumers are continuously interacting with multiple aggregate products of various organizations.

Figure 7.2 illustrates the complexity of meta- and macrocontingency dynamics, whereby a web of interlocking metacontingencies and associated cultural milieu developed in the aftermath of Hurricane María in Puerto Rico, and ultimately affected the citizens' recovery (i.e., cultural practices). The web of interlocking metacontingencies began at the federal and end at the local level of government where consumer practices directly interacted with its aggregate products. At each governmental level, metacontingencies generated aggregate products influenced by different cultural milieu factors that were identified by examining the boundaries of Puerto Rico as a community. In their analysis, Ardila et al. (2019) identified ecological, geographical, and psychological boundaries for Puerto Rico through a careful consideration of historical and legal documents related to its status as a nation.

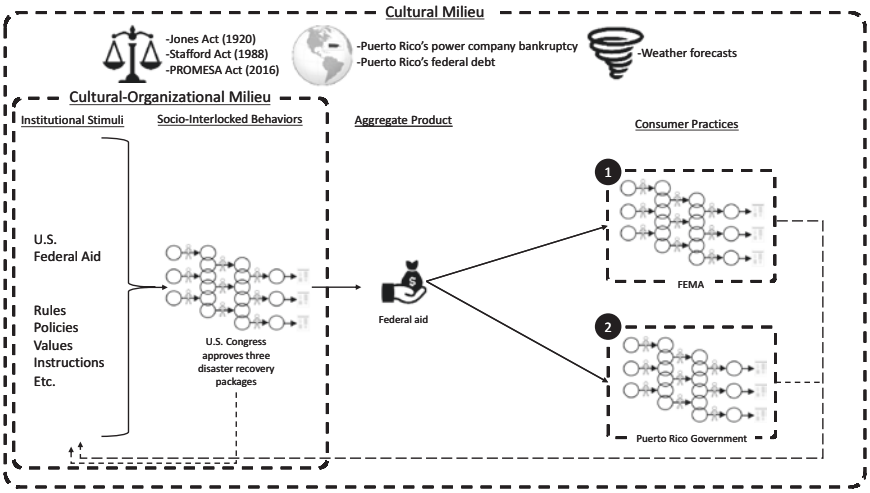

Fig. 7.2 Web of interlocking metacontingencies describing functional relations among the U.S. Congress metacontingency and associated aggregate products with two other metacontingencies: (1) FEMA and hired companies in charge of delivering critical resources to Puerto Ricans during post-hurricane recovery and (2) Puerto Rico government and profit and nonprofit companies producing sustainable products for resilient recovery. (Reprinted with permission from Ardila et al., 2019)

The identification of these boundaries resulted in further identification of differences among milieu factors at each level of the web of interlocking metacontingencies and the ways by which they affected the variability of aggregate products. For example, the metacontingency of U.S. Congress generated insufficient and delayed federal funding (Ardila et al., 2019) in the presence of cultural milieu including Puerto Rica's citizenship status and federal debt (post Hurricane Maria in August 2018). Similar observations of serious problems with federal funding were not made during the recovery process following Hurricane Harvey (April 2018) in Houston.

With regard to post-hurricane recovery process in Puerto Rico, the federal budget was received by another set of actors participating in other metacontingencies that developed at the local governmental level. Cultural milieu factors influencing the aggregate products of metacontingencies at the local governmental level included Puerto Ricans shared values as a resilient nation, and shared values of sustainable development (SIDS). As a result, metacontingencies and their associated aggregate products varied as a function of cultural milieu favoring alternate sustainable and resilient practices (Ardila et al., 2019).. The different perspectives among Puerto Ricans as being a state, territory, or independent country reveal the variability in values related to sustainability, self-sufficiency, and internal governance of collective resources. The tangled web of community interests within the island is influenced by the external special interests that do not necessarily share the same history and values. The devastation wrecked by María punctuated a history of interdependencies among residents on the island, diaspora who had migrated elsewhere, outside agents seeking gain (e.g., markets for their products and services), and the US governance of Puerto Rico as an unincorporated territory. The hurricane essentially devastated the island and the fabric of society was shredded as the energy system, health care, and food and water supplies degraded. Business as usual on the island ground to halt and the internal resources were inadequate to rebound without external resources, the delivery of which was widely seen as inadequate.

In short, while approval of relief-packages at the federal level was delayed and insufficient at lower governmental levels, the associated aggregate products occasioned significant social change. Some were positive, for example, Puerto Rico's governor participated in socio-IBs between Tesla and the Puerto Rican government that resulted in solar energy aiding Puerto Rico's recovery process (Ardila et al., 2019). That same governor was later forced to resign in July 2019 when massive social protests of his alleged corruption with his aides, disrespectful communications about those suffering losses, and mismanagement of relief funds forced him from office (Rosa, Mazzei, Kao, & Cai, 2019).

In the co-evolution of business organizations and cultural groups, leaders are the key players in maintaining an ecological relationship or exposing imbalance. In other words, citizens' choices can be restricted by the policies and rules crafted by organizational leaders who determine which aggregate products are available to them and which are not. In this context, the citizens are not only participating in the selection of aggregate products from outside their boundaries and the generation of them within, but are also influenced by the associated consumption and interaction

with those products. Moreover, the role of leaders in cultural change goes beyond how they manage people within organizations. Their practices also influence the culture more generally. In crafting messages, community or organizational leaders may want to account for conflicts of human values—between tendencies toward tolerance and tendencies toward extremism; between tendencies toward embracing diversity and the creation of ethnic purity; and/or between consumption of the products of others or generation of these locally. Values conflict is a by-product of environmental ambiguity associated with communication networks in organizations. This type of conflict produces insensitivity to direct contingencies (e.g., insensitivity to the pain of others and insensitivity to one's own pain), which can negatively impact group cohesion and cooperation. Puerto Ricans' uprising against their governor is a stark example of how insensitive communications occasion social upheaval. Therefore, our challenge is to help community or organizational leaders understand the damaging nature of such conflicts and promote the utilization of verbal networking systems that can prevent their destructive effect on organizational functioning and the associated impact on consumer practices. Uncertainty (i.e., not having a history with the governing contingencies) may become part of the implicit practices of organizations (depicted by metacontingencies) and their consumer groups among community members (associated macrocontingencies). In the absence of strong leadership and management of metacontingencies, organizational practices can become unfocused and ineffective in the face of newly changed contingencies that are influenced by associated cultural milieu (Houmanfar & Rodrigues, 2012).

Conclusion

This chapter calls for more work in behavior analysis, emphasizing the importance of contextual factors such as cultural milieu, and cultural-organizational milieu to capture cultural dynamics between organizational practices and those of their consumers. With regard to social problems like those under global warming, it is not enough to eliminate aversive conditions for an individual or even a single family. Rather, it is necessary to arrange community and organizational interventions that can create environments that support establishment and *maintenance* of target behaviors at the population level that operate within sustainable boundaries. Some organizational leaders, perhaps under mounting pressure from social forces or in alignment with their personal values, may seek to direct their organizations' resources toward broader social values. Others may look for ways to protect and defend their gains against sharing with others with less. As briefly discussed in this chapter, behavior analysis provides assessment tools that may guide potential solutions to some of the challenges that humanity faces and offer corporate leaders a systematic strategy for cultural change. A technology of behavior and culture change can be hijacked and applied by special interests to perpetuate their agenda.

As global warming accelerates and the social impacts of an increasing uninhabitable planet mount, the transition to a new energy economy requires maintaining social order as the practices that brought us here are replaced with more sustainable ones for a rapidly expanding population. Levin, Cashore, Bernstein, and Ault (2012) describe an iterative process in which humans constrain their future selves and reinvent culture in a series of stages. This shaping of culture is a process toward an unknown future where each step reveals opportunities and faults leading in step changes to a point where humans live within planetary boundaries.

In keeping with Skinner's earlier enthusiasm, we believe that behavior analysis has the capability of making a significant impact on certain issues in which behavior change plays a vital function (Houmanfar et al., 2015). Consumptive behaviors are fundamental to global warming, and other huge threats to human survival. Ostrom (1990) examined how communities managed common-pool resources for generations and organized themselves into producers and consumers that operated within sustainable limits. The science of behavior is reaching a point where we can contribute to understanding and shaping cultural change (Alavosius et al., 2016; Alavosius & Mattaini, 2011; Biglan, 2009; Biglan & Glenn, 2013; Glenn, 1988; Glenn & Malott, 2004; Houmanfar et al., 2010; Malott & Glenn, 2006; Mattaini, 2013). Socially significant leadership in this context not only relates to leaders' actions and management practices that affect the well-being of organizational members (e.g., their safety, health, financial security, etc.) but also bear positive or negative impact on consumer practices (e.g., education, obesity, cancer, safe or green driving, energy conservation, diversity based health care, etc.). In many ways, leadership practices demonstrate and influence the morals and values of the society. Social responsibility is not new ground for behavior analysts to consider. Wolf (1978) and Hawkins (1991) explore social validity and functional assessment of the societal importance of the goals, technologies, procedures, and impacts achieved by applications of behavior analysis. Their analyses consider the social validity of interventions applied to help special needs populations and provide a framework to consider the impact of behavior science on larger social issues (Baer, Wolf, & Risley, 1968).

The challenges ahead in achieving sustainable cultures within global limits will require humans to organize themselves in ways that promote collective well-being, allow future generations to live within sustainable boundaries, and restore environments damaged by past practices. Underlying this path to future well-being are identifying and countering the many forces that drive isolationism, unbridled consumption, and conflict over depleting resources. The coming decades will reveal the extent to which humans can successfully respond to global challenges that will generate much conflict over dwindling resources, and perhaps bring out socially responsible adaptations that essentially reinvent how humans regard their stewardship of the planet.

Acknowledgments The authors greatly appreciate Steven J. Anbro's contribution to the generation of figures in this manuscript.

References

Alavosius, M., Getting, J., Dagen, J., Newsome, W., & Hopkins, B. (2009). Use of a cooperative to interlock contingencies and balance the commonwealth. *Journal of Organizational Behavior Management, 29*, 193–211. https://doi.org/10.1080/01608060902874575

Alavosius, M., & Mattaini, M. A. (2011). Editorial: Behavioral analysis, sustainability, resilience, and adaption. *Behavior and Social Issues, 20*, 1–5. https://doi.org/10.5210/bsi.v20i0.3782

Alavosius, M. P., Houmanfar, R. A., Anbro, S. J., Burleigh, K., & Hebein, C. (2017). Leadership and Crew Resource Management in high-reliability organizations: A competency framework for measuring behaviors. *Journal of Organizational Behavior Management, 37*(2), 142–170. https://doi.org/10.4324/9780203713198-11

Alavosius, M. P., Newsome, W. D., Houmanfar, R., & Biglan, A. (2016). A functional contextualist analysis of the behavior and organizational practices relevant to climate change. In R. Zettle, S. C. Hayes, D. Barnes-Holmes, & A. Biglan (Eds.), *Handbook of contextual behavior science* (pp. 513–530). Sussex, UK: Wiley-Blackwell. https://doi.org/10.1002/9781118489857.ch25

Ardila, J., Houmanfar, R., & Alavosius, M. (2019). A descriptive analysis of the effects of weather disasters on community resilience. *Behavior and Social Issues, 28*, 298–315. https://doi.org/10.1007/s42822-019-00015-w

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*(1), 91–97. https://doi.org/10.1901/jaba.1987.20-313

Biglan, A. (2009). The role of advocacy organizations in reducing negative externalities. *Journal of Organizational Behavior Management, 29*, 215–230. https://doi.org/10.1080/01608060903092086

Biglan, A., & Glenn, S. S. (2013). Toward prosocial behavior and environments: Behavioral and cultural contingencies in a public health framework. In G. J. Madden, W. V. Dube, T. D. Hackenberg, G. P. Hanley, & K. A. Lattal (Eds.), *APA handbook of behavior analysis, Vol. 2. Translating principles into practice* (pp. 255–275). Geneva, Switzerland: American Psychological Association. https://doi.org/10.1037/13938-010

Foxall, G. (2015). Consumer behavior analysis and the marketing firm: Bilateral contingency in the context of environmental concern. *Journal of Organizational Behavior Management, 35*(1–2), 44–69. https://doi.org/10.1080/01608061.2015.1031426

Foxall, G. R. (2001). Foundations of consumer behaviour analysis. *Marketing Theory, 1*(2), 165–199. https://doi.org/10.1177/147059310100100202

Foxall, G. R. (2007). Consumer behavior analysis. In *Explaining consumer choice* (pp. 3–23). Hampshire, UK: Palgrave Macmillan. https://doi.org/10.1057/9780230599796_1

Fung, E. (2019, March). Landlords to Tesla: You're still on the hook for your store leases. *The Wall Street Journal*. Retrieved from https://www.wsj.com/articles/landlords-to-tesla-youre-still-on-the-hook-for-your-store-leases-11552059041

Gelles, D., Stewart, J., Silver-Greenberg, J., & Kelly, K. (2018, August). Elon Musk details 'excruciating' personal toll of Tesla turmoil. *The New York Times*. Retrieved from https://www.nytimes.com/2018/08/16/business/elon-musk-interview-tesla.html

Glenn, S. S. (1988). Contingencies and metacontingencies: Toward a synthesis of behavior analysis and cultural materialism. *The Behavior Analyst, 11*, 161–179. https://doi.org/10.1007/bf03392470

Glenn, S. S. (2004). Individual behavior, culture, and social change. *The Behavior Analyst, 27*, 133–151. https://doi.org/10.1007/bf03393175

Glenn, S. S., Malott, M., Andery, M., Benvenuti, M., Houmanfar, R. A., Sandaker, I., … Vasconcelos, L. (2016). Toward consistent terminology in a behaviorist approach to cultural analysis. *Behavior and Social Issues, 25*, 11–27. https://doi.org/10.5210/bsi.v25i0.6634

Glenn, S. S., & Malott, M. E. (2004). Complexity and selection: Implications for organizational change. *Behavior and Social Issues, 13*, 89–106. https://doi.org/10.5210/bsi.v13i2.378

Golson, J. (2017, March). Tesla built a huge solar energy plant on the island of Kauai. *The Verge*. Retrieved from https://www.theverge.com/2017/3/8/14854858/tesla-solar-hawaii-kauai-kiuc-powerpack-battery-generator

Hantula, D. A., DiClemente, D. F., & Rajala, A. K. (2001). Outside the box: The analysis of consumer behavior. In L. Hayes, J. Austin, R. Houmanfar, & M. Clayton (Eds.), *Organizational change* (pp. 203–223). Reno, NV: Context Press.

Hawkins, R. P. (1991). Is social validity what we are interested in? Argument for a functional approach. *Journal of Applied Behavior Analysis, 24*, 205–213. https://doi.org/10.1901/jaba.1991.24-205

Houmanfar, R., & Johnson, R. (2003). Organizational implications of gossip and rumor. *Journal of Organizational Behavior Management, 23*(2–3), 117–138. https://doi.org/10.1300/j075v23n02_07

Houmanfar, R., & Rodrigues, N. J. (2012). The role of leadership and communication in organizational change. *Journal of Applied Radical Behavior Analysis., N1*, 22–27.

Houmanfar, R. A., Alavosius, M. P., Morford, Z. H., Herbst, S. A., & Reimer, D. (2015). Functions of organizational leaders in cultural change: Financial and social well-being. *Journal of Organizational Behavior Management, 35*(1–2), 4–27. https://doi.org/10.1080/01608061.2015.1035827

Houmanfar, R. A., & Rodrigues, N. J. (2006). The metacontingency and the behavioral contingency: Points of contact and departure. *Behavior and Social Issues, 15*, 13–30. https://doi.org/10.5210/bsi.v15i1.342

Houmanfar, R. A., Rodrigues, N. J., & Smith, G. (2009). Role of communication networks in Behavioral Systems Analysis. *Journal of Organizational Behavior Management, 29*, 257–275. https://doi.org/10.1080/01608060903092102

Houmanfar, R. A., Rodrigues, N. J., & Ward, T. A. (2010). Emergence & metacontingency: Points of contact and departure. *Behavior and Social Issues, 19*, 78–103. https://doi.org/10.5210/bsi.v19i0.3065

Kantor, J. R. (1982). *Cultural psychology*. Chicago, IL: The Principia Press.

Kaufman, A. (2016, November). Tesla flexes its solar muscle by powering an entire pacific island. *HuffPost*. Retrieved from https://www.huffpost.com/entry/tesla-american-samoa_n_583469a1e4b058ce7aacf9b6?guccounter=1

Korosec, K. (2017, September). Tesla is helping Puerto Rico get power after Hurricane María. *Fortune*. Retrieved from http://fortune.com/2017/09/28/tesla-battery-puerto-rico-power/

Lambert, F. (2017, March). Tesla builds powerpack system to provide backup power to Osaka train. *Electrek*. Retrieved from https://electrek.co/2019/03/27/tesla-builds-powerpack-osaka-train/

Lashinsky, A. (2019, March). How Elon Musk is ruining his own reputation. *Fortune*. Retrieved from http://fortune.com/2019/03/18/elon-musk-reputation-tesla-manager/

Lehman, P. K., & Geller, E. S. (2004). Behavior analysis and environmental protection: Accomplishments and potential for more. *Behavior and Social Issues, 13*(1), 13–32. https://doi.org/10.5210/bsi.v13i1.33

Levin, K., Cashore, B., Bernstein, S., & Ault, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences, 45*, 123–153. https://doi.org/10.1007/s11077-012-9151-0

Lin, D. (2017, February). How a Pacific Island changed from diesel to 100% solar power. *National Geographic*. Retrieved from https://news.nationalgeographic.com/2017/02/tau-american-samoa-solar-power-microgrid-tesla-solarcity/

Luke, M., & Alavosius, M. (2012). Impacting community sustainability through behavior change: A research framework. *Behavior and Social Issues, 21*, 54–79. https://doi.org/10.5210/bsi.v21i0.3938

Malott, M. E., & Glenn, S. S. (2006). Targets of intervention in cultural and behavioral change. *Behavior and Social Issues, 15*, 31–56. https://doi.org/10.5210/bsi.v15i1.344

Mattaini, M. (2013). *Strategic nonviolent power: The science of satyagraha*. Edmonton, Canada: Athabasca University Press.

Newsome, W. D., & Alavosius, M. P. (2011). Toward the prediction and influence of environmentally relevant behavior: Seeking practical utility in research. *Behavior and Social Issues, 20*, 44–71. https://doi.org/10.5210/bsi.v20i0.3234

Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States [UN-OHRLLS] (2017). *Small island developing states in numbers: Biodiversity & oceans*. Report from the United Nations.

Ostrom, E. (1990). *Governing the commons*. Cambridge, England: Cambridge University Press.

Peláez, M., & Moreno, R. (1999). Four dimensions of rules and their correspondence to rule-governed behavior: A taxonomy. *Behavioral Development Bulletin, 8*(1), 21–27. https://doi.org/10.1037/h0100528

Rafacz, S. D., Houmanfar, R. A., Smith, G. S., & Levin, M. (2018). Assessing the effects of motivative augmentals, pay-for-performance, and implicit verbal responding on cooperation. *The Psychological Record, 69*, 49–66. https://doi.org/10.1007/s40732-018-0324-x

Rochdale Pioneers. (1844). *Laws and objects of the Rochdale Society of Equitable Pioneers*. Rochdale, England: Jesse Hall.

Rosa, A., Mazzei, P., Kao, J., & Cai, W. (2019, July 22). The faces of protest in Puerto Rico. *The New York Times*. Retrieved from https://www.nytimes.com/2019/07/25/style/feminist-collective-puerto-rico-protests.html?module=inline

Rosselló, R., & Governor of Puerto Rico. (2017). *Build back better Puerto Rico: Letter from the governor*.

Smith, G., Houmanfar, R. A., & Louis, S. (2011). The participatory role of verbal behavior in an elaborated account of metacontingency: From conceptualization to investigation. *Behavior and Social Issues, 20*, 122–145. https://doi.org/10.5210/bsi.v20i0.3662

Smith, G. S., Houmanfar, R., & Denny, M. (2012). Impact of rule accuracy on productivity and rumor in an organizational analog. *Journal of Organizational Behavior Management, 32*, 3–25. https://doi.org/10.1080/01608061.2012.646839

Tesla. (2018). *Fourth quarter & full year 2018 update*. Retrieved from https://ir.tesla.com/news-releases/news-release-details/tesla-releases-fourth-quarter-and-full-year-2018-financial

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*(2), 203–214. https://doi.org/10.1901/jaba.1978.11-203