An Examination of the Use of the Framework of Social Marketing to Achieve Environmental Sustainability in International Agricultural and Extension Education

Laura A. Warner
University of Florida

Theresa Pesl Murphrey
Texas A&M University

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Keywords

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Laura A. Warner
University of Florida
Gainesville, FL
USA

Theresa Pesl Murphrey
Texas A&M University
College Station, TX
USA

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Introduction

Many human behaviors have been considered environmentally detrimental, making increased environmental sustainability one of the key issues of our time (Lehman & Geller, 2004). Promoting change in "individual behavior is central to achieving a sustainable future" (McKenzie-Mohr, 2000, p. 544) and strategic approaches for changing behavior are a vital issue for international extension. Traditional strategies intended to encourage sustainability have predominantly relied on information-intensive programming (McKenzie-Mohr & Schultz, 2014). Behavior change has been studied and reported in the *Journal of International Agricultural and Extension Education* in the context of training methods (Cai, Rodriguez, & Abbott, 2014), the use of demonstration plots (Malima, Blomquist, Olson, & Schmitt, 2014), and the impact of paraprofessionals on participants' behavior change (Cason & Poling, 1999); however, none of these studies have focused on change strategies described as social marketing. Social marketing has been validated as a promising approach to encouraging practice change among target audiences (Rogers, 2003), yet it has been absent from much of the colloquy about international extension. This topic has only been discussed three times at Association for International Agricultural and Extension Education (AIAEE) conferences (Mashburn, Monaghan, Harder, Israel, & Irani, 2009; Sanagorski, Monaghan & Murphrey, 2014; Strong, Harder, Goff, & Irani, 2009).

Operationally, social marketing may be defined using concepts from the field of traditional marketing; it has been discussed in terms of the *marketing mix*, which incorporates various versions of the *4Ps:* product; price; place; and promotion (Kotler & Lee, 2008; Peattie & Peattie, 2011). Sometimes a 5th *P*, policy, is added; policy may be used to make competing and undesirable behaviors more difficult (French, 2011).

Social marketing "as an approach for social change was 'born' in the developing world" (Cairns, Mackay, & MacDonald, 2011, p. 332) and has been used internationally with success for decades to promote sustainable behaviors and fight public health issues (Andreasen, 2006; Mathanga, Campbell, Taylor, Barlow, & Wilson, 2005; McKenzie-Mohr, 2011). Likely first used in India in the 1960s in family planning and infant oral rehydration programs (Lefebvre, 2011), social marketing is recognized by the United Nations as a valuable tool in the fight against AIDS (Fox, 2000) and has shaped Caribbean public health campaigns (PANCAP, 2012). More recently, social marketing has been used beyond the health sector to encourage environmental behaviors such as landscape water conservation in Ontario (McKenzie-Mohr, 2000), sustainable agriculture practices in India (Deshpande & Lee, 2013), indoor water conservation in Jordan (Kotler & Lee, 2008), and composting in Nova Scotia (McKenzie-Mohr, 2000). Despite evidence for success in using social marketing to change behavior, the international extension field has not yet fully explored this approach. This integrative literature review sought to remedy the gap by examining principles of social marketing as they apply to sustainable behavior change within international extension efforts and offer recommendations for future research.

Operational Framework

The integrative literature review process is used to develop a new perspective. As shared by Torraco (2005), the "conceptual structuring of the topic requires the author to adopt a guiding theory, a set of competing models, or a point of view about the topic" (p. 358). This

study's operational framework focused on the potential for social marketing to be used by extension to bring about environmentally sustainable human behavior change. Therefore, the topics included in the framework included environmental behavior change and social marketing within the context of extension. Social marketing is a practice that "seeks to develop and integrate marketing concepts with other approaches to influence [behaviors] that benefit individuals and communities for the greater social good" (Lefebvre, 2013, para. 2). This approach uses best practices, research, and an understanding of the target audience to deliver "competition sensitive and segmented social change [programs] that are effective, efficient, equitable and sustainable" (Lefebvre, 2013, para. 3).

Peattie and Peattie's (2011) iteration of the marketing mix and traditional 4Ps is a *social mix* that includes the stakeholder's involvement. The social mix incorporates: *social propositions* (e.g., desired behavior change of a targeted audience), *social cost* of client involvement (e.g., the net cost of perceived barriers and benefits), *accessibility* of products and services that support the behavior change, interactive and reciprocal *social communication,* and *stakeholder involvement*.

A number of social marketing tools are used within this mix and can be used to support social communications and adjust the perceptions of social cost: social norms or diffusion theory, prompts and reminders, commitment strategies, communications, incentives/disincentives, and a participatory approach (Kotler & Lee, 2008; McKenzie-Mohr, 2000). Social marketing ultimately aims to encourage behavior change. Research-based audience analysis may be used to identify the segment, understand the audience, and drive a behavior-change campaign. The goal of audience-focused research is to understand a segment's

perceptions of the barriers and benefits surrounding the desired behavior change. For the purpose of this study, environmental behavior change was defined as any action that an individual implements as a result of planned programming in order to reduce his/her individual impact on the environment (Hagevik & Sheehan, 2008).

Purpose and Objectives

The purpose of this study was to explore social marketing as a technique for encouraging sustainable environmental behavior change in communities across the globe. Objectives included: (a) document social marketing as a potential approach for encouraging sustainability in international extension education; (b) provide a synthesis of social marketing practices from the literature; and (c) encourage discussion about this practice and further research among international extension educators.

Methods

An integrative literature review was used in order to offer new perspectives (Torraco, 2005) on social marketing in the context of international agricultural and extension programming. One type of integrative literature review "addresses new or emerging topics that would benefit from a holistic conceptualization and synthesis of the literature to date" (Torraco, 2005, p. 357). When conducting this type of research, an author begins with a broad understanding of a topic and a notion of where new information may be needed (Torraco, 2005). The current authors began with an understanding that social marketing has been highly successful in public health campaigns, and some environmental initiatives, but may not have been used extensively in extension programming.

First, the topic was conceptually structured, and this structure was modified as the review progressed (Torraco, 2005).

The frame development was informed by peer-reviewed research articles, technical reports, and social marketing texts (Andreasen, 2006; Kotler & Lee, 2008; Kotler & Roberto, 1989; McKenzie-Mohr, 2011). A broad list of key elements from the conceptual framework was narrowed into a final structure that guided a focused literature review.

The criteria for inclusion in the first stage of this study encompassed the following: the article must have been published during or after 2000; the goal of the program of interest had to relate to environmentally sustainable behavior change; the article must have referenced either extension education or outreach programming; the article could not focus solely on school-based programs. University of Florida library databases and Google Scholar were used to conduct the literature search. To represent social marketing on an international scale, articles from all countries that were either in English or translated into English were included. The articles that met these search requirements represented nine diverse environmental campaigns.

A second stage literature search was conducted to encourage a deeper understanding of social marketing elements and incorporate diversity in resources. The initial framework was deepened by selecting additional references directly relevant to each area of focus and to access additional campaign information. This stage contributed 30 additional resources to the review.

The methods and findings reported in the identified articles were reviewed and scrutinized; summaries were transcribed for each article. Transcription included the presence/absence of social marketing elements, campaign strengths and weaknesses, and recommendations for research and practice. Logic and conceptual reasoning were used to analyze the data (Torraco, 2005). Credibility and trustworthiness were established by conducting a peer debriefing with an individual who was not associated with the study but is an expert on the topic of social marketing (Lincoln & Guba, 1985). The expert was asked to provide feedback on whether the findings were accurate and realistic. The feedback was then used to redirect and refine findings and improve results. The literature was synthesized by integrating findings with new ideas in such a way that new knowledge was created and encouraged a new way of thinking about social marketing within international agricultural and extension education, resulting in a proposed agenda and framework for research and practice.

Findings

A tremendous amount of literature was available regarding social marketing campaigns applied to public health, yet resources were extremely limited within the context of natural resources, agriculture, and environmental issues. The literature revealed most programs that encourage sustainability have focused on providing clients with high levels of information despite the fact that knowledge gain has shown to minimally effect behaviors (Frisk & Larson, 2011; McKenzie-Mohr, 2000; McKenzie-Mohr, 2011). While not always documented (Lefebrvre, 2011), social marketing has been used successfully throughout the world in diffusing environmental behaviors (Rogers, 2003). Social marketing focuses on the human aspect of decision-making, recognizing that education alone does not change behavior.

The four major components of the resulting structure included: the articulation of specific, measurable behavioral goals; audience segmentation; research-based analysis of an audience's perceptions

towards the behavior; and the use of specific social marketing tools and principles.

Summary of Campaigns Examined in the First Stage of the Integrative Review

Paschyn (2013) interviewed farmers in the Yunnan Province, China. Paschyn discussed the application of a Payment for Ecosystem Services (PES) / Payment for Watershed Services (PWS) similar to that of the Chesapeake Bay area in the United States as applied to the reduction of non-point source water pollution. This report suggests that one of the most desirable ways to reduce runoff and overuse of nitrogen is to reward behavior changes using incentives.

In the state of Minnesota, USA, the Native Shoreland Buffer Incentives (NSBI) project was established to encourage the adoption of vegetative buffers on shore lands owned by private landowners (Eckman, Blickenderfer, & Henry, 2012). This outreach approach to water quality improvement used incentives, social networks, and peer-to-peer interactions to encourage practice change.

The Pangani Basin Environmental Flow Assessment in Tanzania addressed water quantity concerns through participatory meetings and generated technical information as a means of improving water management activities (Bonnardeaux, 2012; King et al., 2009). While this campaign was arguably more technical than behaviorally focused, the modeling incorporated human needs on a basic level.

In the state of Maine, USA, the Protecting Our Children's Water initiative used an interdisciplinary collaborative learning approach to address the results of climate change on coastal watersheds (Feurt, 2009).

Peng, Chen, Lin, and Hong (2013) reported mixed results in an evaluation of the Jiulong River Watershed Management Program (JWRP) in China. The JWRP approached water quality issues through infrastructure and policy-focused activities such as closing enterprises which did not meet environmental standards, prohibiting the sale of agricultural chemicals containing phosphorus, and constructing water treatment facilitates. Some behavior change was achieved among large businesses and some individuals, but major water quality targets were not met (Peng et al., 2013). The authors called for a more holistic approach for future programs, asserting inadequate program design and lack of consideration for socioeconomic factors led to the project's limited success.

The Rural Access to New Opportunities for Health and Water Resource Management (RANON'ALA) in Madagascar installed infrastructure to enhance access to potable water and created action plans to protect local water sources through disincentives, protection of water catchment regions, and the application of shared accountability and promotion (Bonnardeaux, 2012; RTI International, 2014).

The Sugar Creek collaborative watershed partnership addressed water quality issues in the second most polluted watershed in the state of Ohio, USA, using collaborative partnerships as a means of encouraging agricultural best management practices (Campbell, Koontz, & Bonnell, 2011; Moore, Parker, & Weaver, 2008).

In the Gambia-Senegal, the Sustainable Fisheries (Ba-Nafaa) Project encouraged a host of sustainable fisheries management practices through participatory management practices, the installation of aquaculture farms, and a sustainable fisheries certificate (Bonnardeaux, 2012).

The Working for Wetlands (WfWet) campaign in South Africa addressed water quantity concerns by providing training and paying individuals to remove invasive plants

that uptake excessive amounts of water (Bonnardeaux, 2012; Working for Wetlands, 2005)

Specific Behavioral Goals - The Foundation for a Social Marketing Approach to Programming

Social marketing campaigns are designed and planned to result in specific end-state behavioral goals that are impactful if accomplished, feasible, measurable, and acceptable to the audience (Kotler & Lee, 2008; McKenzie-Mohr, 2011; McKenzie-Mohr & Schultz, 2014). The JRWP and the Pangani Basin projects focused measures on infrastructure (e.g., closing enterprises with serious pollution) (Bonnardeaux, 2012; King et al., 2009; Peng et al., 2013). JRWP referred to human behavior change such as "popularizing the clean production technologies … and popularizing ecological agriculture" (Peng et al., 2013, p. 82) but these goals were not translated into measurable, achievable outcomes. JRWP was considered ineffective, in part because its goals were unclear and overly ambitious (Peng et al., 2013). The Protecting Our Children's Water campaign focused on knowledge increase, intent to apply knowledge gained, and general program satisfaction, but stopped short of identifying specific behavior change objectives (Feurt, 2009). The PES campaign identified avoiding the overuse of nitrogen as a goal (Paschyn, 2013); however, it was not translated into a measurable behavioral objective.

Escalada and Heong (2004) reported a case study in Vietnam that was designed to prevent farmers from spraying pesticides during the first six weeks after planting. This is an excellent example of a specific behavior change goal that permitted the authors to quantify changes in behavior, allowing them to report more than a 50% reduction in insecticide use (Escalada &

Heong, 2004). Similarly, many extension and agricultural educators do work toward specific behavioral goals (Rogers, 2003), and those that do not may benefit from this principle of social marketing, revisiting their programmatic objectives and modifying them into measurable behavioral objectives where appropriate.

Social Marketing Uses Audience Segmentation to Increase Program Effectiveness

Audience segmentation is one of many elements social marketing borrows from traditional marketing. Contrary to a mass messaging approach to programming, an approach using audience segmentation delivers targeted program messages to specific groups within target audiences, acknowledging the "likelihood that they will clump together in meaningful ways" (Andreasen, 2006, p. 105). Groups are segmented using behavioral characteristics (e.g., stage of adoption, behavior patterns, decision-making types), sociodemographic attributes (e.g., education, income, age, social class), and psychological profiles (e.g., attitudes, character traits, motivations, values) (Kotler & Roberto, 1989). Segmentation is effective because it presents the opportunity for a program to meet specific needs and allows a project to target the most appealing and important groups within a population (Andreasen, 2006).

The NSBI project specifically targeted lakeshore property owners who had control over the condition of their shoreline and the way it impacts adjacent water quality in two counties in Minnesota (Eckman et al., 2012). The highly successful Sugar Creek Partners project targeted a segment of local farmers with operations in the Upper Sugar Creek Watershed and included them in all project stages (Campbell et al., 2011). These two campaigns benefitted from delivering a

concentrated approach to people who had a specific opportunity to act on a water quality issue. The Gambia-Senegal Ba-Nafaa Project used a communications plan based on audience segmentation in developing educational marketing materials specific to each group's needs, and in their specific dialect (Coastal Resources Center, 2013). For example, the plan specified when to include or exclude funding agency identification on communications, based on each group's perceptions toward the agency (Coastal Resources Center, 2013).

In two well-known audience segmentation studies, subgroups were defined based on how individuals perceive climate change and respond to the concept in nationwide segmentation analysis studies conducted in the United States (Maibach, Roser-Renouf, & Leiserowitz, 2009) and Australia (Hine et al., 2013). Both of these segmentation analyses identified audience subgroups who were more likely to engage in environmental programs and emphasized the need for professionals to consider differences among these subgroups when developing environmental programming. Similarly, Trivedi, Patel, and Savalia (2011) defined subgroups by identifying distinct factors that motivated Indian consumers to adopt environmental behaviors. The subgroups identified were: *energy economists* (who are motivated to save energy for financial reasons), *energy conservists* (who are concerned with energy conservation), and *environmental activists* (who proactively take steps to protect the environment) (Trivedi et al., 2011).

In a study on Great Lakes Basin absentee landowners in the United States, Petrzelka (2012) found the landowners' primary use of their land was a highly important factor in segmenting this important audience. By segmenting this population based on land usage, substantial differences in decision-making regarding the

land, conservation interests, and information-seeking preferences emerged and provided exceptional insight into potential outreach efforts for each.

International agricultural and extension educators may find an audience segmentation approach, rather than one designed to reach a mass audience with a general message, can be beneficial to promoting change among the people who have the greatest opportunity or need to change.

Social Marketing Campaigns - Audience Analysis Can Assist in Removing Barriers

Social marketing is based on the understanding that barriers to behavior change prevent adoption among audience members, and the barriers vary greatly among individuals (McKenzie-Mohr & Schultz, 2014). The audience analysis element was one of the strongest among the campaigns reviewed. This is an area of exceptional consistency between traditional agricultural and extension programming and the social marketing approach. Extension does this very well through research-based needs assessment activities and subsequent extension programming is often focused on removing barriers that prevent clients from implementing change. Social marketing practitioners begin by identifying barriers that prevent their target audiences from adopting specific behaviors as well as identifying motivations to act (McKenzie-Mohr, 2011). Participatory research pairs the insights of researchers with local community members and results in a campaign that better fits the people it is meant to serve (Franz, Piercy, Donaldson, Richard, & Westbrook, 2010). All of the first-stage literature review campaigns incorporated audience research in some way but stopped short of identifying the very specific barriers that would prevent individuals from achieving behavioral change. The NSBI

project used focus groups and key informant interviews to understand attitudes, practices, and knowledge toward water quality and stewardship behaviors (Eckman et al., 2012). RANON'ALA used a baseline survey to assess current practices in water and sanitation in Madagascar (Bonnardeaux, 2012), and the Pangani projects used participatory social field research paired with demographic data (Bonnardeaux, 2012; King et al., 2009).

The second stage of the literature review revealed positive examples of audience analysis in practice. Hijazi, Parameswar, Pasch, McCornick, and Haddadin (2006) reported the identification of numerous barriers to sustainable water reuse in the Reuse for Industry Agriculture and Landscaping (RIAL) Project in Jordan. These barriers included public perceptions, restrictive policies, and market limitations, to which the RIAL campaign applied a strategy to remove (Hijazi et al., 2006).

Jayaratne and Acker (2003) studied agricultural extension educators' perceptions of the barriers to diffusing sustainable agriculture practices in Sri Lanka. A major barrier they identified was "farmers' unwillingness to compromise short-term gains of conventional agricultural practices for the long-term benefits associated with sustainable agricultural practices" (Jayaratne & Acker, 2003, p. 329). Likewise, Munyua (2003) found social acceptance, inadequate support, and the transfer of skills to be a major barrier that prevents farmers in Kenya from adopting Integrated Pest Management (IPM) practices. Escalada and Heong (2004) discussed an illiteracy barrier to appropriate pest management techniques and offered appropriate communication strategies as a method for removing it. Wynn, Coppedge, and Strong (2013) also identified communication barriers between farmers and outside information sources as a hindrance to the adoption of IPM practices.

Social Marketing Programs - Effectiveness is Based on Tool Use

Social marketing offers a number of tools and principles borrowed from traditional marketing that can be used to encourage audience behavior change. These tools include social norms; audience commitment; incentives/disincentives; prompts, and a participatory approach. It should be noted that multiple tools are generally combined into a comprehensive behavior change strategy.

Social norms. Social norms refer to the way people think their peers view certain behaviors (Ajzen, 1991). When an individual perceives acceptance and support for a behavior among their peers, they are more likely to engage in it (Ajzen, 1991; Fielding, Russell, Spinks, & Mankad, 2012). Many environmentally sustainable practices are relatively invisible and therefore people may believe their peers are not engaged in or approving of some behavior. For example, a study conducted in Queensland, Australia found household norms were predictive of actual water conservation behaviors among households in four local government areas (Fielding et al., 2012).

The use of social norms can be exceptionally powerful in encouraging positive behaviors because this tool, unlike many other social marketing tools, can be effective even among individuals who are not at all motivated to engage in environmental practices (Lehman & Geller, 2004). Because of the powerful influence norms have on behavior, social marketers may highlight actual behaviors to emphasize under-perceived social norms and correct false perceptions about community behaviors which in turn increases the likelihood of others doing so (Kotler & Lee, 2008; McKenzie-Mohr, 2011). Biel and Thøgersenb (2007) described the power of social norms in regulating environmental

behaviors, emphasizing that once they are activated they become habitual.

None of the campaigns reviewed in the first stage of this study utilized the social norms tool; however, the second stage revealed numerous examples. While they did not explicitly refer to the use of social norms, Malima et al. (2014) discussed the concept in the Companion Village Project (CVP) in Tanzania. The CVP was intended to encourage the adoption of improved agricultural production practices, and capitalized on the influence of local ministers and churches. Religious organizations were used to convey research-based information and host demonstration plots. This led to increased acceptance of certain practices and a heightened awareness of social norms among the villages which led to increased production yields for farmers (Malima et al., 2014).

In the state of Michigan, USA, Nassauer, Wang, and Dayrell (2009) found both neighborhood and broader cultural norms strongly affected individuals' preference for sustainable landscape designs, and the more localized norms to have the most influence. These findings indicate that emphasis on social norms within neighborhoods have more power than those emphasized on a larger scale.

Hijazi et al. (2006) reported the use of social norms in the Jordan RIAL Project. Previously disapproving views toward water reuse have been transformed by using successful community members to demonstrate their use of reclaimed water, and the positive exposure "has a far deeper impact on public perception than more remote behavior change techniques such as training by outside experts and media campaigning" (Hijazi et al., 2006, p. 6213).

Audience commitment. The articles reviewed in the first stage did not utilize commitment, a behavior change strategy that has proven highly impactful in encouraging

durable audience behavior change (Kotler & Lee, 2005; Lokhorst, Werner, Staats, van Dijk, & Gale, 2013) in other areas. Commitment as a social marketing tool refers to an individual or group act of affirming intent to participate in a behavior. Commitment may be public or private, group or individual, written or verbal, and public written commitments tend to be exceptionally effective (Lehman & Geller, 2004). This strategy works best with individuals who have some motivation to act but have not yet made any changes; it works because commitment changes the way people see themselves (Lehman & Geller, 2004). Wanting to be consistent, individuals are likely to follow through on practices they have committed to. Asking an audience to pledge or commit to doing something not only makes them more likely to do so, but also more likely to agree to a more challenging behavior (Kotler & Lee, 2005; McKenzie-Mohr, 2011). In a study on grass clipping recycling, Cobern, Porter, Leeming, and Dwyer (1995) discovered people who committed to this practice in writing and also agreed to promote this behavior to their neighbors had the most positive effect on environmental behavior change. While the social marketing tool of social diffusion is not discussed at length in this literature review, it should be noted the Cobern et al.'s (1995) results emphasize the increased effect the combination of multiple tools can have on behavior change. In this case, social diffusion paired with commitment results in greater change than commitment alone. While commitment has been shown to strongly increase environmental practices, there is a call for more research to understand why this tool works so well (Lokhorst et al., 2013).

Incentives/disincentives. Incentives, or rewards for positive behaviors, are useful in encouraging sustainable practices when motivation to act is low (Lehman & Geller,

2004; McKenzie-Mohr, 2011) and can serve to reduce the overall perceived social cost of adopting a behavior. Two of the campaigns used or recommended a payment for watershed protection practices approach in high poverty locations (Bonnerdeaux, 2012; Paschyn, 2013). In the highly successful WfWet campaigns, community members received payment for removing invasive plants which in turn benefitting the community and environment by increasing water flow (Bonnerdeaux, 2012). Disincentives may also be used to discourage undesirable behavior. The RANON'ALA project made use of disincentives in the form of fines (Bonnardeaux, 2012).

Meagy, Rashid, Barker, Islam, and Islam (2013) explored Bangladeshi farmers' perceptions of the local agricultural extension needs assessment approach and cited a lack of incentives as a reason for poor participation. Li and Lindner (2007) found concerns about incentives were barriers to the diffusion of Web-based distance education among China Agricultural University faculty members. Kristiansen (2006) discussed sustainability in the context of encouraging organic agriculture on a global scale, emphasizing that incentives such as market opportunities could be used to encourage behavior change in less developed countries. Similarly, in a policy brief, the United Nations Educational, Scientific, and Cultural Organization (Calvo et al., 2009) discussed key findings of an assessment to inform future sustainable agriculture progress, recognizing that incentives were critical to the advancement of crops that support poor farmers.

A study on factors which influence IPM adoption in Trinidad and Tobago revealed economic incentives were a primary driver for farmers who had adopted sustainable pest management practices (Wynn, Coppedge, & Strong, 2013). The authors asserted increased incentives would increase conservation practices and a lack of incentives would prevent adoption.

Prompts. Prompts are useful "visual or auditory aids that remind us to carry out an activity that we might otherwise forget" (McKenzie-Mohr, 2011, p. 84) and contribute to the accessibility of the social mix. Prompts can be highly useful in encouraging one-time or ongoing sustainable behaviors. They should be easy to understand, noticeable, and placed as close to the location and time where the behavior should occur (McKenzie-Mohr, 2011). Kennedy (2010) described the value of prompts in that they provide "mental cues to encourage change and its benefits" (p. 1144).

None of the campaigns identified in the first-stage literature review capitalized on prompts; however, the second-stage review revealed campaigns that have used this tool. To encourage public acceptance, the RIAL project used a recognizable logo and piping to create a visible and consistent presence for water reuse in Jordan (Hijazi et al., 2006). Goldstein, Cialdini, and Griskevicius (2008) found a prompt to reuse hotel towels resulted in practice adoption by approximately 35% of study participants. Combining a norms approach with an emphasis on the desired norm resulted in an even better adoption rate of approximately 44% (Goldstein et al., 2008). Because prompts are relatively low cost tools (Lehman & Geller, 2004), agricultural and extension professionals may find them useful to encouraging environmental behavior change and easy to incorporate into their programming.

Participatory approach. The success of a behavior change is dependent on the participation and goodwill of involved entities, and this element of a participatory approach in a behavior change campaign covers the stakeholder

engagement of the social mix (Peattie & Peattie, 2011). Both the Sugar Creek Partners project and the Protecting Our Children's Water campaign utilized a highly participatory approach (Campbell et al., 2011; Feurt, 2009). A participatory approach has been described as a means to "reduce the barriers between outside researchers and the community" (Franz et al., 2010, p. 38).

Failure to incorporate a participatory approach was offered by Yengoh, Ato, and Svensson (2009) as a reason why farmers in sub-Saharan Africa were not adopting agricultural technologies. The participatory approach is yet another social marketing principle that is well-aligned with international extension as the ever-expanding role of extension professionals requires a movement beyond conveying knowledge to practicing participatory extension methods (Roling & Pretty, 1997).

Conclusions

The literature presents social marketing as a well-demonstrated, research-based approach to behavior change that may be effective in increasing the efficacy of international extension and agricultural education. It was concluded, based on the literature, that social marketing should be considered when planning educational programs related to natural resource use, agriculture, and sustainability in international extension education. Although there is a dearth of literature that met all of the criteria, much of the literature reviewed presented solid foundations for future social marketing campaigns. Findings reveal a need for an increase in awareness of social marketing within extension. Many of the identified campaigns incorporated some elements of social marketing, but most did not integrate all possible elements. Consideration for the complexities of human behavior was missing from the majority of campaigns. Emphasis needs to be placed on

changing human behaviors to solve global environmental problems; this emphasis should include a research-based analysis of the target audience's perceptions towards the behavior; audience segmentation; the articulation of specific, measurable behavioral goals; and the use of specific social marketing tools and principles.

Recommendations and Implications

International agricultural and extension educators are working to build environmental, financial, and community sustainability throughout the world through agricultural, health, environmental, and capacity-building programs. However, findings reveal this field has only minimally used social marketing principles as a change strategy. It is recommended that social marketing be recognized as a tool in creating behavior change through international extension education. Consideration for the local context is what makes social marketing effective (Conroy & Allen, 2010), making this approach useful for extension, where consideration of the audience's local, cultural, and human attributes is also critical to success. Given its proven outcomes in other areas (e.g., health campaigns), international extension professionals' exploration of social marketing and application to sustainable behaviors would be advantageous to their global clientele.

Findings from this integrative literature review reinforce Cairns et al.'s (2011) finding that the "practice of social marketing in developing countries and its evaluation is somewhat unknown" and there are "lost learning opportunities for the global social marketing community in the developed and developing worlds" (p. 341). It should be noted there was a dearth of peer-reviewed publications on the application of social marketing to sustainability and natural resources-focused agricultural and extension programs, which

supports Lefebvre's (2001) contention that the majority of social marketing campaigns are not published, and those that do fail to provide ample detail. A goal of this study was to encourage colleagues in international agricultural and extension education to consider utilizing social marketing as a new approach to behavior change and also encourage those who are using it to consider filling the gap in the literature by sharing their successes and challenges. Increased visibility of social marketing and behavior change strategies through the literature can in turn increase their implementation in practice.

The campaigns explored in this study could increase their impacts by incorporating additional social marketing elements. Thus, it is critical to educate individuals working in agricultural and extension education regarding the elements of social marketing and effective implementation strategies. Future research should be conducted to identify the specific competencies needed by extension educators to apply social marketing to their extension programming and to determine best practices to conduct professional development training about social marketing. Additionally, those who are implementing social marketing programs should document their work in the form of case studies to provide guidance and encourage adoption and diffusion of social marketing practices and principles among those considering this approach to environmental behavior change.

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