Journal of Advertising

ISSN: 0091-3367 (Print) 1557-7805 (Online) Journal homepage: https://www.tandfonline.com/loi/ujoa20

Sustainable Marketing and Social Media

A Cross-Country Analysis of Motives for Sustainable Behaviors

Elizabeth Minton , Christopher Lee , Ulrich Orth , Chung-Hyun Kim & Lynn Kahle

To cite this article: Elizabeth Minton , Christopher Lee , Ulrich Orth , Chung-Hyun Kim & Lynn Kahle (2012) Sustainable Marketing and Social Media, Journal of Advertising, 41:4, 69-84, DOI: 10.1080/00913367.2012.10672458

To link to this article: https://doi.org/10.1080/00913367.2012.10672458

Published online: 18 Apr 2013.

SUSTAINABLE MARKETING AND SOCIAL MEDIA

A Cross-Country Analysis of Motives for Sustainable Behaviors

Elizabeth Minton, Christopher Lee, Ulrich Orth, Chung-Hyun Kim, and Lynn Kahle

ABSTRACT: Increased spending and demand for sustainable advertising necessitates research to understand better how to encourage sustainable thought and behavior effectively, especially in the understudied areas of social media and cross-cultural research. This study, which includes respondents from the United States, Germany, and South Korea (total n = 1,018) who completed an online survey about usage of Facebook and Twitter, examines motives for sustainable behaviors. Kelman's (1958) functional motives, which correspond to the three major philosophies of psychology, were used as the theoretical foundation for this study. For all countries, involvement motives lead to recycling behaviors and green transportation use, but only for the United States and Germany do involvement motives lead to antimaterialistic views and organic food purchase. Collectivist South Korea has the highest level of social media involvement and of sustainable behaviors except in recycling, where Germany leads. Motives are complex, demanding careful analysis from advertisers who plan to deliver green advertisements over social media.

Interest in green marketing is rapidly increasing. According to a recent study by *Environmental Leader,* 82% of companies plan to increase spending on green marketing (Tillinghast 2010). In addition, 74% of these companies planning to increase green-marketing spending plan to do so using the Internet, while only 50% plan to market green advertisements via print media (Tillinghast 2010). In spite of this planned increase in spending on green marketing online, many consumers prefer green-marketing messages through traditional media (e.g., magazines or product labels) versus online media such as Facebook and Twitter (Trevino 2011). However, the rapid increase in use of social media by both consumers and marketers across the globe (Barnhill 2011) signals a need for research looking at the role of these new media in green advertising campaigns.

From a consumer perspective, the spending power of consumers with sustainability and environmental concerns consists of more than $230 billion (Burst Media 2010). It is interesting to note that more than one-third of consumers look to the Internet as a primary source for green products, whereas television and family/friends combined account for just one-quarter of consumers' sources for green product information (Burst Media 2010). In addition, 82% of consumers recognize green claims in advertising, and 43% of consumers trust these green claims to be true (Burst Media 2010). Regardless of whether there is a true change in consumer demand for green products and services or rather companies just desire to integrate the green and sustainable buzzwords into marketing campaigns to have similar strategies as competitors, research shows that spending on green marketing is on the rise (Tillinghast 2010). Therefore, an understanding of consumer receptiveness to green advertisements, specifically in an online environment with the expected increased spending on online advertisements, is particularly useful for the future success of businesses.

By nature, social media strongly center on relationships that are influenced by culture—both individual relationships (i.e., values) and how consumers view themselves (individualist versus collectivist). Therefore, cross-cultural issues need to be taken into account when researching social media. The Green Brands Study conducted by WPP Brands found that developed countries, such as the United States and the United Kingdom, are less likely to pay a premium for green goods in comparison to developing countries, such as China, which place a much higher value on green goods (Longsworth 2011). This willingness to pay a premium for green goods likely translates into interest in green advertising, suggesting differences among countries in attention afforded to and desire for green advertising.

Cross-cultural differences in demand for green goods and green advertising may also vary by advertising medium

Elizabeth Minton (M.B.A., Idaho State University) is a doctoral student, Lundquist College of Business, University of Oregon, Eugene.

Christopher Lee (M.B.A., Arizona State University) is a doctoral student, Lundquist College of Business, University of Oregon, Eugene.

Ulrich Orth (Ph.D., Munich University of Technology, Germany) is a professor and chair, A&F Marketing, Christian-Albrechts-Universität zu Kiel, Kiel, Germany.

Chung-Hyun Kim (Ph.D., University of Oregon) is dean, School of Mass Communication, Sogang University, Seoul, South Korea.

Lynn Kahle (Ph.D., University of Nebraska) is Ehrman Giustina Professor of Marketing and department head, Lundquist College of Business, University of Oregon, Eugene.

Journal of Advertising, vol. 41, no. 4 (Winter 2012), pp. 69–84.

ISSN 0091–3367 (print)/ ISSN 1557–7805 (online)
DOI: 10.2753/JOA0091-3367410405

used. Specifically with social media, large variations between countries exist with the length of time spent on social media. In Russia, for example, the average time spent on social media per month is 10.3 hours (ComScore 2011). In comparison, in the United States, the average time spent on social media per month is just 5.2 hours (ComScore 2011). Even Indonesia, a less developed country, has an average time spent on social media per month of 4.6 hours (ComScore 2011). These figures indicate that around the globe, social media are frequently used, but cross-cultural differences in usage are present.

These cross-cultural differences in social media usage suggest a need to consider advertising media (specifically new media, such as social media, which have been understudied) along with cross-cultural differences in research on green advertising. Therefore, the purposes of this paper are to observe consumer commitment to sustainability in social media while incorporating cross-cultural differences in this commitment and to relate this information to consumer motives and advertising practices.

CONCEPTUAL DEVELOPMENT

Sustainability

Sustainability has become a buzzword used by individuals and businesses alike to convey a sense of caring about the environment, and it is often used interchangeably with other terms such as *green* or *environmentally friendly* (Peattie 1995). One of the first commonly accepted definitions of sustainability comes from the United Nations; it described sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland 1987).

Measurement of sustainability is often morphed into many different forms for various research studies. For example, Thøgersen (2010) uses organic food consumption as a means for assessing sustainable behaviors. Banbury, Stinerock, and Subrahmanyan (2011) used subjective personal introspections and found consumers defining sustainable consumption as reducing overall purchases and consumption, producing more than is consumed, using public transportation, living in smaller homes, reducing purchase of single-serving packages, consuming organic foods, using energy-efficient light bulbs, and using low-flow shower heads.

Advertising messages promoting sustainable goods or services are often labeled as green advertising. Zinkhan and Carlson specifically define green advertising as "promotional messages that may appeal to the needs and desires of environmentally concerned consumers" (1995, p. 1). Green advertising has the potential to evoke various responses in consumers; however, previous research suggests that consumers are reluctant to participate in sustainable behaviors (Zinkhan and Carlson 1995). Instead, consumers adopt sustainable viewpoints to be socially acceptable but may not follow through with sustainable behaviors (Zinkhan and Carlson 1995). This (dis)connection between attitudes and behaviors could be related to conspicuous consumption (i.e., are the green advertisements for products or services that a consumer's peers can easily see the consumer conspicuously consuming?) as well as level of internalization of the sustainable attitudes.

In addition, Chang (2011) finds that consumer response to green ads is complex. Green advertisers making high-effort green claims are more likely to evoke feelings of discomfort and disbelief among consumers that are ambivalent to sustainability; however, this research was not conducted within a context of any particular advertising medium, so differences in evoked feelings may differ based on advertising medium used. For example, Chaudhuri and Buck (1995) show that print media are more likely to evoke analytic or rational responses in comparison to electronic media that evoke more emotional and affective responses due to differences in the intrinsic (e.g., print) versus extrinsic (e.g., electronic) nature of the advertising media. Although very little research on green advertising observes differences in consumer response to green advertisements based on the advertising medium used, foundational research by McLuhan (1994/1964) suggests that the medium used can greatly influence the message conveyed.

Individual difference variables also affect consumer participation in sustainable behaviors and resulting response to green advertisements. For example, research shows that there is no significant difference in participation in sustainable behaviors between males and females, although females trend toward having greener shopping habits than males (Diamantopoulos et al. 2003). Age negatively correlates with environmental knowledge (i.e., the older a consumer, the less environmental knowledge he or she is likely to have), although older consumers are more likely to recycle (Diamantopoulos et al. 2003). This previous research suggests that age is an important variable to consider in green advertising research because young and old consumers may have different definitions for what green and sustainability represent. It is important to note that consumers across the globe may not respond in the same way to green advertisements. Thøgersen (2010) found that a country's political regulation, financial support for sustainability initiatives, and national labeling systems played a large part in a consumer's consumption level of sustainable products.

Levels of Attitude Commitment and Motivation

Attitudes toward behaviors can be influenced through normative pressures and other tangible and nontangible motivations. For advertisers, an understanding of the influencers of attitude development is important for designing effective advertisements. Kelman (1958) identified levels of attitude commit-

ment to describe the underlying motivations for participation and support of behaviors. Attitude commitment ranges from compliance or responsibility (participating in a behavior through force, such as laws) to identification (participation for advancing complex interpersonal goals) to internalization (no motivation beyond self-definition needed to participate in a behavior). These motives are interesting in part because they correspond to the three major philosophies of psychology: behaviorism, psychoanalysis, and humanism. Each motive implies different activation and change conditions.

Although Kelman (1958) identifies three specific levels of attitude commitment (compliance or responsibility, identification, and internalization), Kahle, Kambara, and Rose (1996) expanded on these attitude commitment levels to distinguish between public and private attitude influencers, creating seven levels of attitude commitment, still ranging from compliance to internalization. The expanded attitude commitment levels are compliance (as a result of control), obligation (private form of compliance representing a societal need), camaraderie (normative pressures), identification with winning/success (desiring pride through success), self-defining experience (private form of identification representing internal identification), unique/self-expressive experience (self-definition), and internalization (no motivation needed). Others have found evidence consistent with this typology (e.g., Lu et al. 2012).

Sustainability-related advertising would benefit from an understanding of what level of attitude commitment consumers adopt to create better targeted advertisements based on consumer wants and needs. Viscusi, Huber, and Bell (2011) find that governmental policies significantly influence participation in recycling, suggesting that many consumers participate in sustainable practices by means of compliance (following the policies) or identification with winning/success (when receiving a monetary reward for recycling). In addition, Bamberg, Hunecke, and Blöbaum (2007) find that perceived guilt and social norms significantly influence use of public transportation, signifying an obligation level of attitude commitment. An understanding of consumers' level of attitude commitment for sustainable behaviors provides advertisers with valuable information as to how to design advertisements (e.g., if normative pressures are effective for encouraging recycling, then advertisements could be created with messages conveying a sense of social pressure to recycle).

Intermingling of Sustainability, Social Media, Culture, and Advertising

Social media and advertising are both parts of integrated marketing communication. Social media provide avenues for broad reach, allow for interactivity, and often come with little cost (Kahle and Valette-Florence 2012). In addition, social media are beneficial for advertisers because consumers self-select into lifestyle groups that make targeted marketing much easier (Kahle and Valette-Florence 2012). In this sense, marketers have easy access to consumers interested in a lifestyle incorporating sustainability by looking to sustainability groups on social media, searching for sustainability-related feeds, and creating ads that display when sustainability-related posts are made. These reasons and others have contributed to the rapid rise of using social media for advertising and marketing communications. Furthermore, social media have the potential to be a more credible advertising tool due to their personal characteristics (e.g., interactions, networking, interpersonal relations); therefore, social media could be a more appropriate platform for green advertising and social campaigns via these electronic word of mouth (eWOM) modes of indirect communication rather than commercial advertising and marketing (Hung, Li, and Tse 2011). The Persuasion Knowledge Model (PKM) states that consumers are experienced and knowledgeable in the mechanisms of marketing and persuasion processes (Friestad and Wright 1994), but Hung, Li, and Tse (2011) suggest that social media are perceived as less persuasive than traditional marketing communications, thereby creating a need for research specifically addressing social media advertising.

Some may contend that social media are not, in fact, advertising, but Tuten and Solomon (2012) state that social media are definitely advertising, and even more important, a marketing platform. Advertisers must respond to consumers' shift to online communication and embrace social media as new advertising media. Tuten and Solomon state that social media are effective advertising media whether the "focus is to improve customer service, maintain customer relationships, inform consumers of our benefits, promote a brand or related special offer, develop a new product, or influence brand attitudes" (2012, p. 14). Barker et al. (2008) add that social media advertising is nevertheless different from traditional advertising because traditional advertising focuses on one-way communication with control (i.e., controlling all content that the consumer receives), whereas social media advertising focuses on two-way communication with contributions (i.e., what can the advertiser contribute to the consumer and how can the consumer contribute to the advertiser?).

This interactive nature of social media allows marketers to not only passively observe consumers using social media, but also to actively develop dialogue with consumers to understand their wants and needs better. For example, Whole Foods Market recently posted on several social media outlets, including Facebook and Twitter, that the company would no longer be selling seafood on the red-rated list (unsustainable) as determined by Blue Ocean Institute and Monterey Bay Aquarium. Thus, Whole Foods Market could passively monitor posts on Twitter and Facebook about the ban on red-rated seafood as well as actively engage in discussion with consumers

regarding the new change. In contrast, traditional print or television media only allow for a passive one-way interaction with consumers. In social media, this interactivity, defined as two or more communication parties acting on each other or the medium (Liu 2002), allows for instantaneous feedback about consumer lifestyle traits, such as consumers' preferences toward recycling or other sustainable behaviors (Kahle and Valette-Florence 2012). In contrast, other advertising media are slower, one-way communication forms.

Consumers nevertheless interact with social media differently depending on individual difference variables. For example, consumers with an interdependent view of self and low psychological well-being are more likely to use social media to connect with others (Hoffman, Novak, and Stein 2012). Consumers with an independent view of self and high psychological well-being, however, are more likely to use social media to interact with content, and are therefore more likely to interact with sustainability advertising and other mass media content (Hoffman, Novak, and Stein 2012).

In spite of prior research on sustainability from a general social marketing perspective (Peattie and Peattie 2009), new research is needed specifically addressing the relationship between sustainability and advertising on social media. McLuhan's (1994/1964) famous saying, "the medium is the message," purports that each communication medium provides a different message in the way that the message is sent over the medium. Following suit with McLuhan's research, the relationship between sustainability and social media needs to be further investigated because prior research on sustainability-focused marketing campaigns investigates other communication media (e.g., television or print) with different characteristics and message mechanisms. Advertisers are aware of the need to understand trends among traditional and emerging media in an effort to reach younger generations of consumers (La Ferle, Edwards, and Lee 2000). Advertising research should keep up with this emphasis on emerging media trends in practice by understanding social media's role in developing effective advertising.

In addition, social media provide a new context for understanding persuasive advertising. Shrum (2004) states that the lines between entertainment and persuasion are becoming increasingly blurred, thereby providing an interesting context for social media research due to the mixture of entertainment, interactivity, and persuasion found in social media. Traditional advertising-based (persuasion) approaches have often failed to change consumer attitudes and behavior (e.g., smoking, unhealthy eating, sustainable consumption). This paper builds on previous advertising research and explores social media's potential (as a soft-persuasion tool) to better understand and target consumer motives with targeted advertising.

Therefore, the purpose of this paper is to assess consumer commitment to sustainability, specifically in the social marketing context, while incorporating a cross-cultural perspective. This cross-cultural perspective for social media research is necessary due to possible communication and cultural differences among countries resulting in variations in understanding (Papacharissi and Yuan 2011).

Hypotheses

Three countries are examined: Germany, South Korea, and the United States. South Korea is considered a more collectivist country than the United States and Germany, considered more individualistic (Hofstede 2001; Triandis et al. 1988). According to Hofstede (2001), a collectivist culture stresses belonging and relationships, whereas an individualistic culture emphasizes privacy and independence. Given the emphasis on "social" media, which is collectivist by nature of the phrase, the following is hypothesized:

Hypothesis 1: Social media will play a more prominent role in South Korea, a collectivist culture, than in the United States or Germany, which are individualistic cultures.

Each type of medium has its own unique characteristics. Twitter tends to be more public than Facebook, given the prevalence of public profiles and ability to search public tweets. In contrast, Facebook relationships tend to be embedded in more complex and enduring social interactions (i.e., close family and friends). As such, Hughes et al. (2011) found that consumers who desire openness tend to use Twitter, whereas consumers who are seeking information and who wish to fulfill social needs have a preference for Facebook. Therefore, the following is hypothesized:

Hypothesis 2: Different social media (i.e., Twitter and Facebook) will invoke different motives and communication patterns, with Facebook showing more elaborated, social motivations.

Each type of sustainable behavior has its own complex history and causes. Kollmuss and Agyeman (2002) suggested that the relationship between sustainable attitudes and behaviors is strongest when only small cost or effort is necessary. For example, even if a consumer has a positive attitude toward sustainability, he or she may only follow through on the behavior if the sustainable good is low cost or sustainable action is convenient. Therefore, the following is hypothesized:

Hypothesis 3: The pattern of motivations for engaging in sustainable behaviors will vary from one type of behavior to another.

METHOD

Respondents and Procedures

Respondents were chosen from one advanced country in each of the Northern Hemisphere's three continents. Countries

TABLE 1
Demographic Profiles of Respondents by Country (Mean Values)

	United States	Germany	South Korea
Age	34	27	33
Female	64%	64%	43%
Received college degree	20%	56%	74%
Single	91%	92%	50%
Primary shopper	80%	84%	71%
Works full time	63%	40%	71%
Twitter usage*	5.1%	5.0%	54.8%
Facebook usage*	86.6%	88.3%	77.7%

* Use social medium at least once per month.

with advanced levels of technology development were desired that would perhaps be leaders showing where other countries may follow. The total of 1,018 respondents includes (1) 337 respondents from the United States collected via Amazon.com's Mechanical Turk service, which is valued for academic research (Buhrmester, Kwang, and Gosling 2011; Paolacci, Chandler, and Ipeirotis 2010); (2) 358 respondents from Germany collected via UniPark, a comparable German Internet survey organization; and (3) 323 respondents from South Korea collected via EZ Survey (a company of Embrain and the leading online survey company in South Korea). The opt-in sampling system was chosen to limit participants to active Internet users, thereby causing the response rate to become less germane. In the United States, 86.6% of respondents use Facebook at least once a month, and 5.1% of respondents use Twitter at least once a month. Similarly, in Germany, 88.3% of respondents use Facebook at least once a month, and 5.0% of respondents use Twitter at least once a month. In contrast, in South Korea, 77.7% of respondents use Facebook at least once a month, and 54.8% of respondents use Twitter at least once a month.

Respondents had an average age of 32, 57% were female, 62% had received a college degree, 44% were single, 79% were primary shoppers, and 38% worked full time (see Table 1 for demographic profiles by country). An online survey was completed by each participant in his or her native language. In South Korea and Germany, the questions were translated and backtranslated until a panel of three multilingual experts each agreed that all items were as comparable as possible. The survey took an average of 6 minutes, 18 seconds, to complete, and respondents were compensated financially.

Measures

The survey contained questions regarding the respondent's sustainable behaviors, use of social media, and attitude commitment levels (Kahle, Kambara, and Rose 1996) relating to sustainable expression on social media, as well as basic demographic variables. (See Table 2 for attitude commitment questions, Table 3 for sustainable behavior questions from the survey, and Table 4 for descriptive statistics of these variables.) Survey questions were measured on a nine-point Likert-type scale ranging from "strongly disagree" to "strongly agree."

For the level of attitude commitment, the data file was randomly split into two equal halves; exploratory factor analysis (EFA) was conducted on the first half and confirmatory factor analysis (CFA) was conducted on the second half. The EFA was conducted through principle axis factoring with promax rotation using 14 attitude commitment variables that were adapted from Kahle, Kambara, and Rose (1996). Three factors (responsibility, involvement, and internalization) were identified, which explained 77% of the variability in attitude commitment. These three levels approximately correspond to Kelman's (1958) three levels, but do not replicate the more complex Kahle, Kambara, and Rose (1996) constructs. It is likely that the factor analysis produced only three factors similar to Kelman's (1958) three levels because Kahle, Kambara, and Rose's (1996) expanded attitude commitment levels involved private and public forms of attitude commitment. By their nature, social media are public; therefore, in measuring social media motives, consumers would likely only be engaging with public motives. The three identified factors represent (1) responsibility to support sustainability on social media, (2) a need to be involved and associated with sustainability on social media, and (3) internalized attitudes about supporting sustainability on social media as a means of self-definition and self-expression. The CFA was conducted using LISREL 8.8 (Jöreskog and Sörbom 1996), had relatively good model fit, and confirmed the factor structure in the EFA (see Table 5 for results of the EFA and CFA for attitude commitment). Evidence of good internal consistency is provided by composite reliability and coefficient α. Composite reliability is a LISREL-generated estimate of internal consistency analogous

TABLE 2
Survey Items for Levels of Attitude Commitment (Adapted from Kahle, Kambara, and Rose [1996] to Sustainability and Social Media)

Construct	Items
Compliance	1. I only follow sustainable companies on [this social media site] because it fills my news feed with sustainable news, making me appear a more sustainable person. 2. I'd be more likely to visit [this social media site] if friends and relatives were to see me interacting with sustainable companies.
Obligation	1. People have an obligation to support sustainability organizations or causes on [this social media site]. 2. [This social media site] represents my friends and me, and our values for sustainability.
Camaraderie	1. I'd be more likely to visit [this social media site] if I knew it contained interesting postings relating to sustainability. 2. I'd be more likely to visit [this social media site] if there were more sustainability-related activities that allowed me to contribute to the spirit of the site.
Identification with winning/success	1. I'd be more likely to visit [this social media site] consistently if it had better coverage of sustainable issues than other media. 2. I'd be more likely to visit [this social media site] if it won awards as a sustainable business.
Self-defining experience	1. When I participate in discussion on [this social media site], I imagine myself influencing sustainability in the future. 2. I feel a sense of accomplishment when [this social media site] helps to encourage sustainable behaviors.
Unique, self-expressive experience	1. [This social media site] allows me to share ways that I am uniquely sustainable. 2. Viewing sustainable companies and ads on [this social media site] is more enjoyable than off [this social media site].
Internalization	1. I consider myself more knowledgeable about sustainability than most other people on [this social media site]. 2. [This social media site] is a good place to follow my favorite sustainable companies

Note: [This social media site] was substituted for both Facebook and Twitter in two separate attitude commitment inventories in this study.

TABLE 3
Sustainable Behavior Survey Items

Construct	Items
Recycling	1. I regularly recycle newspapers. 2. I regularly recycle cans and bottles.
Organics	1. I regularly purchase organic fruits. 2. I regularly purchase organic vegetables.
Transportation	1. When available, I take public transit rather than driving my own car. 2. When purchasing a car, I specifically look for an energy-efficient model.
Antimaterialism	1. I seek to reduce the overall number of purchases I make to help the environment. 2. Buying more than I need hurts the environment.
Charitable organizations/causes	1. I volunteer time to organizations and causes that support sustainability. 2. I donate money to organizations and causes that support sustainability.

to coefficient α (Fornell and Larcker 1981). Also included in Table 5 are the average variance extracted (AVE) estimates, which assess the amount of variance captured by a construct's measure relative to measurement error, and the correlations (φ estimates) among the latent constructs in the model. AVE estimates of .50 or higher indicate validity for a construct's measure (Fornell and Larcker 1981). All constructs achieved this criterion.

For sustainable behaviors, the same split data file was used to conduct an EFA on the first half and a CFA on the second half. The EFA was conducted through principle axis factoring with promax rotation using 13 sustainability variables that were

TABLE 4
Means and Standard Deviations for Attitude Commitment and Sustainable Behaviors

Attitude commitment variables			Sustainable behavior variables				
	Facebook	Twitter		United States	Germany	South Korea	Overall
Compliance1	2.56 (2.02)	4.14 (2.35)	Recycle1	7.22 (2.72)	7.46 (2.55)	7.06 (1.86)	7.25 (2.42)
Compliance2	2.82 (2.33)	4.44 (2.47)	Recycle2	7.70 (2.33)	7.91 (2.15)	7.31 (1.67)	7.65 (2.09)
Obligation1	3.52 (2.31)	4.64 (2.33)	Organic1	3.98 (2.58)	4.01 (2.59)	4.97 (1.70)	4.30 (2.38)
Obligation2	3.22 (2.31)	4.65 (2.40)	Organic2	3.97 (2.58)	4.01 (2.58)	4.96 (1.72)	4.30 (2.38)
Camaraderie1	3.22 (2.49)	4.80 (2.50)	Transportation1	4.99 (2.91)	5.21 (2.82)	6.59 (2.16)	5.57 (2.75)
Camaraderie2	3.40 (2.54)	4.91 (2.39)	Transportation2	6.75 (2.33)	6.91 (2.27)	7.19 (1.39)	6.95 (2.06)
IDwWin1	3.29 (2.46)	4.90 (2.45)	Materialism1	4.21 (2.57)	4.18 (2.50)	5.67 (1.63)	4.66 (2.38)
IDwWin2	3.27 (2.43)	4.72 (2.37)	Materialism2	5.95 (2.61)	6.12 (2.54)	5.81 (1.88)	5.96 (2.38)
SelfDef1	3.39 (2.53)	4.82 (2.40)	Charity1	2.01 (1.89)	1.89 (1.78)	4.25 (1.93)	2.68 (2.15)
SelfDef2	3.69 (2.54)	4.91 (2.35)	Charity2	2.31 (2.24)	2.22 (2.19)	4.22 (1.95)	2.88 (2.32)
SelfExp1	3.52 (2.48)	4.89 (2.30)					
SelfExp2	2.86 (2.22)	4.37 (2.24)					
Internal1	3.68 (2.31)	4.48 (2.18)					
Internal2	3.33 (2.34)	4.68 (2.23)					

Notes: N = 1,018.

For a description of all attitude commitment variables, see Table 2. For a description of all sustainable behavior variables, see Table 3.

All variables were measured on a nine-point Likert-like scale ranging from "strongly disagree" to "strongly agree."

TABLE 5
Measurement Model Results: Attitude Commitment*

EFA results

Variable name	Factor 1 (Responsibility)	Factor 2 (Involvement)	Factor 3 (Internalization)
Compliance1	.864		
Compliance2	.885		
Obligation1	.676		
Obligation2	.820		
Camaraderie1		.918	
Camaraderie2		.940	
IDwWin1		.915	
IDwWin2		.792	
SelfDef1			.777
SelfDef2			.819
SelfExp1			.817
SelfExp2			.747
Internal1			.536
Internal2			.782
Percent of variance explained: 77%			

CFA fit

	χ^2	*df*	CFI	RMSEA	SRMR
Measurement model	430.31	74	.98	.097	.03

Internal consistency

	Composite reliability	Average variance extracted	Cronbach's α
Responsibility	.918	.738	.915
Involvement	.953	.837	.952
Internalization	.909	.628	.908

Notes: EFA = exploratory factor analysis; CFA = confirmatory factor analysis; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean residual.

* The data set was randomly split into two equal halves. EFA was conducted on the first half, and CFA was conducted on the second half.

developed for the purposes of this research. Six factors were identified that explained 82% of the variability in respondent sustainability. These six factors were expected to be grouped together because each factor is composed of two questions relating to the same concept (e.g., recycling newspapers and recycling cans or purchasing organic fruits and purchasing organic vegetables). The CFA was conducted using LISREL 8.8, had relatively good model fit, and confirmed the factor structure in the EFA (for results of the EFA and CFA for sustainable behaviors, see Table 6). Evidence of adequate internal consistency is provided by composite reliability and coefficient α. Also included in Table 5 are the AVE estimates, and all but two constructs achieved the .50 AVE criterion (i.e., .30 for the two indicators of transportation and .46 for the two indicators of antimaterialism).

Results

Structural equation modeling (SEM) was used to test the relationship between level of attitude commitment to social media motives and sustainable behaviors (see Figure 1 for a path diagram). The overall fit for the full model (i.e., all countries, all social media) is good with CFI (comparative fit index) (.98), RMSEA (root mean square error of approximation) (.07), and SRMR (standardized root mean residual) (.05) values, all being well within the recommended cutoffs suggested by Hu

TABLE 6
Measurement Model Results: Sustainable Behaviors[a]

EFA results

Variable name	Factor 1 (Recycling)	Factor 2 (Organics)	Factor 3 (Transportation)	Factor 4 (Antimaterialism)	Factor 5 (Charity)
Recycle1	.832				
Recycle2	.839				
Organic1		.984			
Organic2		.975			
Transportation1			.574		
Transportation2			.548		
Materialism1				.668	
Materialism2				.717	
Charity1					.952
Charity2					.716
Percent of variance explained: 82%					

CFA fit

	χ^2	*df*	CFI	RMSEA	SRMR
Measurement model	92.67	25	.97	.073	.05

Internal consistency

	Composite reliability	Average variance extracted	Cronbach's α[b]
Recycling	.743	.593	.730
Organics	.977	.955	.978
Transportation	.453	.293	.451
Antimaterialism	.624	.462	.598
Charity	.825	.704	.823

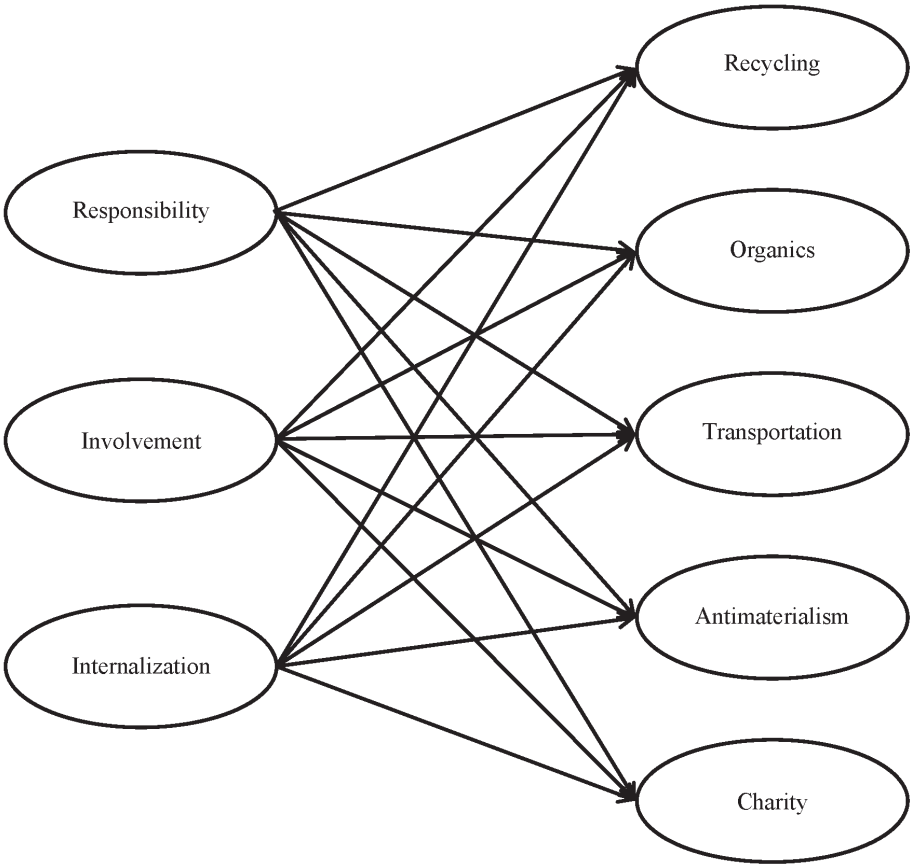
Notes: EFA = exploratory factor analysis; CFA = confirmatory factor analysis; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean residual.

[a] The data set was randomly split into two equal halves. EFA was conducted on the first half, and CFA was conducted on the second half.

[b] More accurately, this is a Pearson's *r* correlation because there are only two variables per construct.

and Bentler (1999)[1] (see Table 7). The χ^2 is significant for the full model, but this result is most likely due to the large sample size of 1,018 and artificial inflation of the χ^2 values (Bagozzi 2010; Steiger 2007). In the full model, attitude commitment at the responsibility level significantly leads to organic food purchase (t = 3.39), antimaterialistic views (t = 3.44), contributions to sustainable charities (t = 5.26), and decreased green transportation use (t = –1.90). Attitude commitment at the involvement level only significantly leads to increased green transportation use (t = 4.52). Attitude commitment at the internalization level significantly leads to antimaterialistic views (t = 2.27), contributions to sustainable charities (t = 5.12), and increased green transportation use (t = 1.91). Therefore, the pattern of motivations for engaging in sustainable behaviors is different for each behavior, thereby supporting H3. Additional analysis shows that age, gender, income, marital status, and employment status are significant predictors of level of attitude commitment, with consumers who are significantly younger (t = 1.82), female (t = 8.58), less wealthy (t = –2.33), married (t = 5.49), and not employed full time (t = –2.41) more likely to hold a responsibility level of attitude commitment. However, many of these relationships between level of attitude commitment and sustainable behaviors may be confounded by country or type of social medium. Therefore, individual SEM models were run to test for differences between type of social medium (Facebook, Twitter) and country (United States, Germany, South Korea).

FIGURE 1
Conceptual Model



Country Differences

Before assessing individual country differences, cross-national measurement equivalence was assessed following the procedures recommended by Steenkamp and Baumgartner (1998). Results across the three countries reveal sufficient support for configural, metric, and scalar equivalence based on (1) good overall fit ($\chi^2[120] = 1515, p < .001$, RMSEA = .10, CFI = .95) for configural equivalence; (2) slight change in fit indices ($\Delta\chi^2[10] = 301, p < .001$, RMSEA Δ = .01, CFI Δ = .01) for metric invariance; and (3) good overall fit ($\chi^2[156] = 1{,}816$, $p < .001$, RMSEA = .098, CFI = .94) and slight change in fit indices ($\Delta\chi^2[26] = 301$, $p < .001$, RMSEA Δ = .01, CFI Δ = .01) for scalar invariance (constraining loadings and intercepts). Together, these results provide reasonable fit to the aggregate data, and therefore, the estimated coefficients for each country can be validly examined to reveal the specific relationships by country for each construct.

Motives for participating in sustainable behaviors were then tested between countries (United States, Germany, South Korea) and compared to a full model (all countries) using SEM. (The results for the overall fit of the structural models are presented in Table 7.) The χ^2 is significant for all models, but this finding is most likely due to the large sample size of 1,018 (and at least 300 for each country) and artificial inflation of the χ^2 values (Bagozzi 2010; Steiger 2007). Overall model fit for all models is good, with CFI and SRMR falling within the recommended cutoffs suggested by Hu and Bentler (1999), but RMSEA falling outside of these cutoffs. However, Browne and Cudeck (1993) suggest that RMSEA values less than or equal to .10 can produce adequate model fit. Following these guidelines, all models provide at least adequate model fit.

As expected, South Korea, a collectivist country, exhibited motivation patterns for sustainable behaviors that differed from those in the United States and Germany, which are individualistic cultures, thereby providing partial support for H1. For the United States, Germany, and South Korea alike, the responsibility level of attitude commitment significantly leads to organic food purchase (United States, t = 2.28; Germany, t = 2.88; South Korea, t = 6.61), antimaterialistic views (United States, t = 3.96; Germany, t = 4.32; South Korea, t = 6.79), and contributions to sustainable charities (United States, t = 3.94; Germany, t = 3.70; South Korea, t = 3.52). However, for the United States and Germany, the involvement

TABLE 7
Structural Model Results: Country Comparison

	Fit				
	χ^2	*df*	CFI	RMSEA	SRMR
Model 1: All countries	235.93	40	.98	.07	.05
Model 2: United States	444.50	40	.95	.10	.05
Model 3: Germany	409.85	40	.95	.09	.05
Model 4: South Korea	417.82	40	.97	.09	.03

	Completely standardized path estimates and (*t*-values)							
	Model 1 (All countries)		Model 2 (United States)		Model 3 (Germany)		Model 4 (South Korea)	
Recycling								
Responsibility → Recycling: γ_{11}	−.03	(–.38)	−.07	(–1.38)	−.01	(–.30)	.02	(.26)
Involvement → Recycling: γ_{12}	.03	(.39)	.20	(3.91)	.16	(3.36)	.13	(2.28)
Internalization → Recycling: γ_{13}	.01	(.14)	.04	(.88)	.01	(.31)	−.04	(−.56)
Organics								
Responsibility → Organics: γ_{21}	.24	(3.39)	.11	(2.28)	.13	(2.88)	.38	(6.61)
Involvement → Organics: γ_{22}	.07	(.96)	.10	(2.14)	.11	(2.49)	−.07	(−1.33)
Internalization → Organics: γ_{23}	.03	(.48)	.03	(.63)	−.02	(−.33)	.14	(2.40)
Transportation								
Responsibility → Transportation: γ_{31}	−.20	(−1.90)	−.10	(−1.40)	−.10	(−1.59)	−.06	(−.71)
Involvement → Transportation: γ_{32}	.47	(4.52)	.21	(3.20)	.28	(4.26)	.43	(4.54)
Internalization → Transportation: γ_{33}	.19	(1.91)	.15	(2.27)	.19	(2.87)	−.02	(–.23)
Antimaterialism								
Responsibility → Antimaterialism: γ_{41}	.27	(3.44)	.22	(3.96)	.23	(4.32)	.43	(6.79)
Involvement → Antimaterialism: γ_{42}	.07	(.95)	.15	(2.82)	.16	(3.07)	–.05	(−.94)
Internalization → Antimaterialism: γ_{43}	.17	(2.27)	.10	(1.99)	.14	(2.80)	.29	(4.61)
Charity								
Responsibility → Charity: γ_{51}	.33	(5.26)	.20	(3.94)	.18	(3.70)	.21	(3.52)
Involvement → Charity: γ_{52}	.05	(.73)	.03	(.67)	−.05	(−1.11)	.05	(.87)
Internalization → Charity: γ_{53}	.31	(5.12)	.21	(4.43)	.30	(6.39)	.25	(4.08)

Notes: CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean residual.

See Figure 1 for models.

All χ^2 statistics were significant at the .01 level; *t*-values of 1.65 or greater are significant at the .05 level, and *t*-values of 2.33 or greater are significant at the .01 level.

level of attitude commitment significantly leads to recycling (United States, $t = 3.91$; Germany, $t = 3.36$), organic food purchase (United States, $t = 2.14$; Germany, $t = 2.49$), green transportation use (United States, $t = 3.20$; Germany, $t = 4.26$), and antimaterialistic views (United States, $t = 2.82$; Germany, $t = 3.07$). In comparison, for South Korea, the involvement level of attitude commitment significantly leads to only recycling ($t = 2.28$) and green transportation use ($t = 4.54$). Finally, for both the United States and Germany, the internalization level of attitude commitment significantly leads to green transportation use (United States, $t = 2.27$; Germany $t = 2.87$), antimaterialistic views (United States, $t = 1.99$; Germany, $t = 2.80$), and contributions to sustainable charities (United States, $t = 3.94$; Germany, $t = 3.70$). For South Korea, the internalization level of attitude commitment significantly leads to organic food purchase ($t = 2.40$), antimaterialistic views ($t = 4.61$), and contributions to sustainable charities ($t = 4.08$).

Social media motives for participating in sustainable behaviors are distinctly different between countries and in comparison to an all-country model. Separate motive models by country reveal significant relationships between involvement

and recycling behaviors, involvement and organic food purchase, and involvement and antimaterialistic views that were shown to be nonsignificant in the all-country model. Therefore, research in social media motives and social media advertising would generally benefit from a cross-cultural analysis.

With regard to specific sustainable behaviors, there are significant differences between countries in recycling behaviors, $F(2, 1012) = 3.67$, $p = .026$; organic food purchases, $F(2, 1013) = 19.73$, $p < .001$; green transportation use, $F(2, 1006) = 18.31$, $p < .001$; antimaterialistic views, $F(2, 1011) = 10.68$, $p < .001$; and contributions to sustainable charities, $F(2, 1013) = 154.16$, $p < .001$. Respondents from South Korea consistently participate in more sustainable behaviors than respondents from the United States or Germany, with the exception of recycling, where German respondents are the most frequent recyclers.

Social Media Differences

Before assessing individual differences in type of social media, measurement equivalence was assessed following the procedures recommended by Steenkamp and Baumgartner (1998) and Byrne and Stewart (2006). Results across the two types of social media reveal sufficient support for configural, metric, and scalar equivalence based on (1) adequate overall fit ($\chi^2[80] = 1236$, $p < .001$, RMSEA = .12, CFI = .95) for configural equivalence; (2) adequate overall fit ($\chi^2[85] = 1276$, $p < .001$, RMSEA = .12, CFI = .95) for metric invariance; and (3) adequate overall fit ($\chi^2[98] = 1276$, $p < .001$, RMSEA = .11, CFI = .95) for scalar invariance (constraining loadings and intercepts). Together, these results provide adequate fit to the aggregate data, and therefore, the estimated coefficients for each type of social medium can be validly examined to reveal the specific relationships by social media type for each construct.

Motives for participating in sustainable behaviors were then tested between social media (Facebook and Twitter) and a full model (all social media) using SEM. (The results for the overall fit of the three structural models are presented in Table 8.) The χ^2 is significant for all models, but this result is most likely due to the large sample size of 1,018 and artificial inflation of the χ^2 values (Bagozzi 2010; Steiger 2007). Overall model fit for all models is good, with CFI and SRMR falling within the recommended cutoffs suggested by Hu and Bentler (1999), but RMSEA falling outside of these cutoffs. However, after following the Brown and Cudeck (1993) suggestion that RMSEA values should be less than or equal to .10, only the Twitter model falls outside of the recommended guidelines for RMSEA.

As expected, Facebook and Twitter exhibited different motivation patterns for sustainable behaviors, thereby providing partial support for H2. For Facebook, the responsibility level of attitude commitment significantly leads to organic food purchase ($t = 3.45$), antimaterialistic views ($t = 3.31$), contributions to sustainable charities ($t = 4.03$), and decreased green transportation use ($t = -2.05$). In contrast, for Twitter, the responsibility level of attitude commitment significantly leads to organic food purchase ($t = 3.39$), antimaterialistic views ($t = 2.52$), and contributions to sustainable charities ($t = 2.57$). For the involvement level of attitude commitment, motivations are the same for Facebook and Twitter, which significantly leads to green transportation use (Facebook, $t = 3.84$; Twitter, $t = 3.58$). Finally, for Facebook, the internalization level of attitude commitment significantly leads to green transportation use ($t = 2.30$), antimaterialistic views ($t = 2.75$), and contributions to sustainable charities ($t = 6.99$). For Twitter, however, the internalization level of attitude commitment significantly leads only to antimaterialistic views ($t = 2.94$) and contributions to sustainable charities ($t = 5.46$).

With regard to specific sustainable behaviors, there are significant differences between heavy users (at least once per week) of Facebook and Twitter in organic food purchases ($t[918] = -2.23$, $p = .026$), green transportation use ($t[918] = -3.752$, $p < .001$), antimaterialistic attitudes ($t[918] = -2.04$, $p = .042$), and contributions to sustainable charities ($t[918] = -8.67$, $p < .001$). Compared with heavy Twitter users, heavy Facebook users are significantly less likely to participate in all sustainable behaviors.

DISCUSSION

Findings show significant differences in social media motives for sustainability among countries and type of social medium. Thus, advertisers using social media should be cautious in creating blanket advertising plans to cover all countries and all social media. Instead, advertisers should target distinct sets of motives that apply to each country (e.g., targeting involvement motives for Germany and the United States to encourage organic food purchase) and to each social medium (e.g., targeting internalization motives for Facebook to encourage green transportation use).

More specifically, South Korea is the most collectivist or social of the three countries surveyed. Respondents from South Korea showed the most activity in social media and sustainability. It is interesting to note that South Korean respondents used Twitter substantially more than respondents from the United States or Germany. Dholakia (2006) confirms that South Koreans have high levels of technological adoption for both genders, even when comparing South Korea to other countries with a higher gross domestic product and suggests that these high adoption rates are due to successful use of public policies. In addition, Dholakia (2006) shows that general Internet use is highest for South Koreans (males = 15.9 hours per week, females = 12.1 hours per week), in contrast to consumers from the United States (males = 13.1 hours per week,

TABLE 8
Structural Model Results: Facebook and Twitter Comparison

	Fit				
	χ^2	*df*	CFI	RMSEA	SRMR
Model 1: All social media	235.93	40	.98	.07	.05
Model 2: Facebook	383.70	40	.97	.09	.06
Model 3: Twitter	535.02	40	.96	.11	.06

Completely standardized path estimates and (t-values)

	Model 1 (All social media)		Model 2 (Facebook)		Model 3 (Twitter)	
Recycling						
Responsibility → Recycling: γ_{11}	−.03	(−.38)	−.10	(−1.35)	.14	(1.52)
Involvement → Recycling: γ_{12}	.03	(.39)	.03	(.44)	.01	(.11)
Internalization → Recycling: γ_{13}	.01	(.14)	−.05	(−.67)	−.01	(−.11)
Organics						
Responsibility → Organics: γ_{21}	.24	(3.39)	.23	(3.45)	.29	(3.39)
Involvement → Organics: γ_{22}	.07	(.96)	.07	(.99)	.09	(1.12)
Internalization → Organics: γ_{23}	.03	(.48)	.04	(.66)	.07	(.84)
Transportation						
Responsibility → Transportation: γ_{31}	−.20	(−1.90)	−.21	(−2.05)	.08	(.72)
Involvement → Transportation: γ_{32}	.47	(4.52)	.39	(3.84)	.39	(3.58)
Internalization → Transportation: γ_{33}	.19	(1.91)	.22	(2.30)	−.12	(−1.14)
Antimaterialism						
Responsibility → Antimaterialism: γ_{41}	.27	(3.44)	.24	(3.31)	.23	(2.52)
Involvement → Antimaterialism: γ_{42}	.07	(.95)	.07	(1.04)	.11	(1.27)
Internalization → Antimaterialism: γ_{43}	.17	(2.27)	.19	(2.75)	.25	(2.94)
Charity						
Responsibility → Charity: γ_{51}	.33	(5.26)	.23	(4.03)	.22	(2.57)
Involvement → Charity: γ_{52}	.05	(.73)	.08	(1.48)	−.05	(−.65)
Internalization → Charity: γ_{53}	.31	(5.12)	.38	(6.99)	.43	(5.46)

Notes: CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean residual.

See Figure 1 for models. All χ^2 statistics were significant at the .01 level; *t*-values of 1.65 or greater are significant at the .05 level, and *t*-values of 2.33 or greater are significant at the .01 level.

females = 10.1 hours per week) and Germany (males = 12.4 hours per week, females = 10.7 hours per week). Therefore, the higher technology adoption rates in South Korea may have led South Koreans to be early adopters of Twitter, perhaps leaving consumers in the United States and Germany to adopt this social medium more highly in the near future.

South Korea's overall social media use is greater than that of the United States or Germany, thereby partially supporting H1 that social media will play a more prominent role in South Korea. The evidence from this study is consistent with the observation that the more collective a society is, all other things being equal, the more sustainable its motivations and activities will be. However, arguably the most important finding from this study (and in support of H3) is that the pattern of motives for sustainability on social media is more complex than expected, thereby stressing caution to advertisers involved in any way with green marketing on social media. Responsibility motives consistently lead to organic food purchase, antimaterialistic views, and contributions to sustainable charities for all countries. Responsibility invokes behaviorism as its primary change mechanism, where rewards and punishments shape behavior. Changing simple rewards can change patterns of motivation. In fact, a long history of social engineering shows that mild rewards can indeed motivate many sustainable behaviors (e.g., Kahle and Beatty 1987). These findings have large implications for green advertising. Advertisers involved

in the organic food market, social marketing campaigns to decrease materialism, or with sustainability-related charities should identify ways to reward consumers on social media for participating in sustainable behaviors. For example, a company selling organic foods could reward consumers with a coupon for a free organic food product after every 10 times a consumer uploads a receipt to the company's Facebook page showing purchase of the company's organic food product. Or a company could reward a customer with a free sustainable product sample after the customer follows the company on Twitter.

Involvement motives feature distinctly different patterns of behaviors among countries. In all countries, consumers with involvement motives are significantly more likely to recycle and use green transportation. However, involvement motives for consumers from the United States and Germany also significantly lead to organic food purchase and antimaterialistic views. It is particularly interesting that all countries associate involvement motives rather than responsibility motives with recycling and green transportation use. This means that consumers have moved past a stage of needing to be rewarded for recycling behaviors and green transportation use; they would rather feel involved with other consumers and with companies as encouragement to recycle and use green transit. Given that green advertising can be defined as promoting a green lifestyle with or without highlighting a product or service (Banerjee, Gulas, and Iyer 1995), green advertisers can capitalize on these findings by creating advertising campaigns where the consumer feels that he or she is doing a part in sustaining the future of the world. For example, a company could send a message out on social media that the company uses 50% recycled parts in making final products and tell consumers that by recycling, the consumer is taking a part in making more recycled goods and sustaining the planet. In addition, for advertisers involved in the transportation industry (e.g., city buses, energy-efficient cars), these findings suggest that consumers want to feel involved before committing to using sustainable transit. An energy-efficient car company could easily invoke this motive by posting ideas for new cars and seeking consumer feedback on social media, thereby involving the consumer in the design process. Specifically for the United States and Germany, both responsibility and involvement motives lead to organic food purchase and antimaterialistic views, suggesting that advertisers desiring to influence these behaviors can target either the motives of responsibility (e.g., rewards) or involvement (e.g., being part of a larger sustainable group).

Internalization, the highest level of attitude commitment, also exhibited different relationships to behaviors among countries. Respondents from all countries saw internalization motives as significantly leading to antimaterialistic views and contributions to sustainable charities. Only South Korean participants associated internalized motives with organic food purchases, and only participants from the United States and Germany associated internalized motives with green transportation use. In South Korea, it is likely that internalized motives do not lead to green transportation use because using public transit is more of a necessity and a way to fit in with the community than a personal choice toward sustainability. Also, it is particularly interesting to note that both responsibility and internalization motives, but not involvement motives, lead to contributions to sustainable charities for all countries. This finding shows that donations of time and money to sustainable charities are coming about from two means—either the consumer feels obligated to support a company and desires a reward (e.g., a free T-shirt) the company will give in response to a contribution or the consumer internally supports sustainability and desires to support the company with no reward in return desired. Sustainable charities could benefit by targeting each of these groups. For consumers with internalized motives, charities need to ensure that they have a social media presence where consumers can find the company and make a contribution. For consumers with responsibility motives, charities should provide rewards to encourage charitable contributions (e.g., a bumper sticker, hat, or a post on the consumer's social media page thanking them for donating). Ironically, internalized motives are probably used to influence consumers more often than these motives are actually exhibited by consumers. It is likely that many of the advertisers devising strategies to influence sustainability have a core self-image tied to sustainability that is not found as strongly among the consumers whom advertisers are trying to reach with green advertisements, although further research would be needed to test this theory. To influence sustainable purchase and nonpurchase behaviors effectively, advertisers should take time to identify a target market clearly and appropriately to integrate the motives of this target market into green advertising design.

In terms of social media, Twitter and Facebook presented very different patterns in motivations, as expected from H2. Of all motive levels, the greatest differences between Facebook and Twitter occurred at the responsibility level of motivation. Facebook shows a significant negative relationship between responsibility motives and green transportation use, whereas Twitter shows no significant relationship. Also, although not significant, responsibility motives are negatively associated with recycling on Facebook, but positively associated with recycling on Twitter. Perhaps because communications tend to be longer and relationships more complex on Facebook, it provides more opportunity for extensive, deep social interaction and for motivations to manifest themselves (Tuten and Solomon 2012). Following this line of thought, consumers on Facebook would be more likely to hold involvement motives that relate to these deep social interactions rather than responsibility motives that are purely based on obligation and

reward. With its shorter and less-involved communication, Twitter would thus be more likely to have users desiring less involvement and motivated more by responsibility, which is supported by the findings of this study. Between social media and among countries, motives on social media are quite different as to how they relate to sustainable behaviors. Advertisers need to acknowledge these complex relationships to be successful in social media marketing efforts.

CONCLUSION

Social media provide an ideal advertising medium for green advertisers because consumers can self-select into sustainable lifestyle groups. In addition, social media, as advertising media, may be especially important in understanding sustainability and green advertising because sustainability is inherently social. This research provides an initial look into how sustainability motives on social media differ by country and social medium. This research also provides advertisers with details about which motives to target on which social media and in which countries. If they want to achieve maximum advertising effectiveness and encourage consumers to go green, advertisers need to heed caution in developing mass-marketing campaigns blanketing all consumers and instead delve into the specific motives that consumers in different locations hold.

NOTE

1. Hu and Bentler (1999) recommend cutoffs of less than .06 for SRMR, less than .05 (great fit) to .08 (adequate fit) for RMSEA, and less than .95 for CFI.

REFERENCES

Bagozzi, Richard P. (2010), "Structural Equation Models Are Modelling Tools with Many Ambiguities: Comments Acknowledging the Need for Caution and Humility in Their Use," *Journal of Consumer Psychology,* 20 (2), 208–214.

Bamberg, Sebastian, Marcel Hunecke, and Anke Blöbaum (2007), "Social Context, Personal Norms and the Use of Public Transportation: Two Field Studies," *Journal of Environmental Psychology,* 27 (3), 190–203.

Banbury, Catherine, Robert Stinerock, and Saroja Subrahmanyan (2012), "Sustainable Consumption: Introspecting Across Multiple Lived Cultures," *Journal of Business Research,* 65 (4), 497–503.

Banerjee, Subhabrata, Charles Gulas, and Easwar Iyer (1995), "Shades of Green: A Multidimensional Analysis of Environmental Advertising," *Journal of Advertising,* 24 (2), 21–31.

Barker, Melissa S., Donald L. Barker, Nicholas F. Bormann, and Krista E. Neher (2008), *Social Media Marketing: A Strategic Approach,* Mason, OH: South-Western, Cengage Learning.

Barnhill, John (2011), "Internet, Advertising, and Marketing," in *Green Culture: An A-to-Z Guide,* Kevin Wehr and Paul Robbins, eds., Thousand Oaks, CA: Sage.

Browne, Michael W., and Robert Cudeck (1993), "Alternative Ways of Assessing Model Fit," in *Testing Structural Equation Models,* Kenneth A. Bollen and Scott J. Long, eds., Newbury Park, CA: Sage.

Brundtland, Gro H. (1987), *World Commission on Environment and Development: Our Common Future,* Oxford: Oxford University Press.

Buhrmester, Michael, Tracy Kwang, and Samuel D. Gosling (2011), "Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data?" *Perspectives on Psychological Science,* 6 (1), 3–5.

Burst Media (2010), "Consumers Willing to Spend More Green to Go 'Green,'" available at www.greenmarketing.com/files/2010_01_01.pdf (accessed February 12, 2013).

Byrne, Barbara M., and Sunita M. Stewart (2006), "Teacher's Corner: The MACS Approach to Testing for Multigroup Invariance of a Second-Order Structure: A Walk Through the Process," *Structural Equation Modeling,* 13 (2), 287–321.

Chang, Chingching (2011), "Feeling Ambivalent About Going Green: Implications for Green Advertising Processing," *Journal of Advertising,* 40 (4), 19–31.

Chaudhuri, Arjun, and Ross Buck (1995), "Media Differences in Rational and Emotional Responses to Advertising," *Journal of Broadcasting and Electronic Media,* 39 (1), 109–125.

ComScore (2011), "Average Time Spent on Social Networking Sites Across Geographies," available at www.comscoredatamine.com/2011/06/average-time-spent-on-social-networking-sites-across-geographies/ (accessed February 12, 2013).

Dholakia, Ruby R. (2006), "Gender and IT in the Household: Evolving Patterns of Internet Use in the United States," *Information Society,* 22 (4), 231–240.

Diamantopoulos, Adamantios, Bodo B. Schlegelmilch, Rudolf R. Sinkovics, and Greg M. Bohlen (2003), "Can Socio-Demographics Still Play a Role in Profiling Green Consumers? A Review of the Evidence and an Empirical Investigation," *Journal of Business Research,* 56 (6), 465–480.

Fornell, Claes, and David F. Larcker (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research,* 18 (1), 39–50.

Friestad, Marian, and Peter Wright (1994), "The Persuasion Knowledge Model: How People Cope with Persuasion Attempts," *Journal of Consumer Research,* 21 (1), 1–31.

Hoffman, Donna L., Thomas P. Novak, and Randy Stein (2012), "Flourishing Independents or Languishing Interdependents: Two Paths from Self-Construal to Identification with Social Media," Social Science Research Network, available at http://ssrn.com/abstract=1990584/ (accessed February 12, 2013).

Hofstede, Geert (2001), *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations,* Thousand Oaks, CA: Sage.

Hu, Li-tze, and Peter M. Bentler (1999), "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives," *Structural Equation Modeling: A Multidisciplinary Journal,* 6 (1), 1–55.

Hughes, David J., Moss Rowe, Mark Batey, and Andrew Lee (2011), "A Tale of Two Sites: Twitter Vs. Facebook and the Personality Predictors of Social Media Usage," *Computers in Human Behavior,* 28 (2), 561–569.

Hung, Kineta, Stella Y. Li, and David K. Tse (2011), "Interpersonal Trust and Platform Credibility in a Chinese Multibrand Online Community," *Journal of Advertising,* 40 (3), 99–112.

Jöreskog, Karl G., and Dag Sörbom (1996), *LISREL 8 User's Reference Guide,* Lincolnwood, IL: Scientific Software.

Kahle, Lynn R., and Sharon E. Beatty (1987), "Cognitive Consequences of Legislating Postpurchase Behavior: Growing Up with the Bottle Bill," *Journal of Applied Social Psychology,* 17 (9), 828–843.

———, and Pierre Valette-Florence (2012), *Marketplace Lifestyles in an Age of Social Media: Theory and Method,* Armonk, NY: M.E. Sharpe.

———, Kenneth M. Kambara, and Gregory M. Rose (1996), "A Functional Model of Fan Attendance Motivations for College Football," *Sport Marketing Quarterly,* 5 (4), 51–60.

Kelman, Herbert C. (1958), "Compliance, Identification, and Internalization: Three Processes of Attitude Change," *Journal of Conflict Resolution,* 2 (1), 51–60.

Kollmuss, Anja, and Julian Agyeman (2002), "Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-Environmental Behavior?" *Environmental Education Research,* 8 (3), 239–260.

La Ferle, Carrie, Steven M. Edwards, and Wei-Na Lee (2000), "Teens' Use of Traditional Media and the Internet," *Journal of Advertising Research,* 40 (3), 55–65.

Liu, Yuping, and L. J. Shrum (2002), "What Is Interactivity and Is It Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness," *Journal of Advertising,* 31 (4), 53–64.

Longsworth, Annie (2011), "Green Brands Survey," Cohn & Wolfe; Landor Associates; Penn, Shoen, & Berland; Etsy Environmental Partners, available at www.cohnwolfe.com/en/ideas-insights/white-papers/green-brands-survey-2011/ (accessed February 12, 2013).

Lu, Zhi, Lynn R. Kahle, Sang M. Lee, and Sing-Young Lee (2012), "Football Fans' Contrasting Motivations: China, S. Korea, and the USA," *Asia Pacific Journal of Innovation and Entrepreneurship,* 6 (1), 9–32.

McLuhan, Marshall (1994/1964), *Understanding Media: The Extensions of Man,* Cambridge: MIT Press.

Paolacci, Gabriele, Jesse Chandler, and Panagiotis G. Ipeirotis (2010), "Running Experiments on Amazon Mechanical Turk," *Judgment and Decision Making,* 5 (5), 411–419.

Papacharissi, Zizi, and Elaine Yuan (2011), "What If the Internet Did Not Speak English? New and Old Language for Studying Newer Media Technologies," in *The Long History of New Media: Technology, Historiography, and Contextualizing Newness,* David W. Park, Nicholas W. Jankowski, and Steve Jones, eds., New York: Peter Lang.

Peattie, Ken (1995), *Environmental Marketing Management: Meeting the Green Challenge,* London: Pitman.

———, and Sue Peattie (2009), "Social Marketing: A Pathway to Consumption Reduction?" *Journal of Business Research,* 62 (2), 260–268.

Shrum, L. J. (2004), *The Psychology of Entertainment Media: Blurring the Lines Between Entertainment and Persuasion,* Mahwah, NJ: Lawrence Erlbaum.

Steenkamp, Jan-Benedict, and Hans Baumgartner (1998), "Assessing Measurement Invariance in Cross-National Consumer Research," *Journal of Consumer Research,* 25 (1), 78–107.

Steiger, James H. (2007), "Understanding the Limitations of Global Fit Assessment in Structural Equation Modeling," *Personality and Individual Differences,* 42 (5), 893–898.

Thøgersen, John (2010), "Country Differences in Sustainable Consumption: The Case of Organic Food," *Journal of Macromarketing,* 30 (2), 171–185.

Tillinghast, Tig (2010), "Customers Reward Marketing and Advertising That Employs 'Green' Messages, According to New Report from Environmental Leader," Business Wire, available at www.businesswire.com/news/home/20100107005422/en/Customers-Reward-Marketing-Advertising-Employs-%E2%80%9CGreen%E2%80%9D-Messages/ (accessed February 12, 2013).

Trevino, Marcella B. (2011), "Communication, Global, and Regional," in *Green Culture: An A-to-Z Guide,* Kevin Wehr and Paul Robbins, eds., Thousand Oaks, CA: Sage.

Triandis, Harry C., Robert Bontempo, Marcelo J. Villareal, Masaaki Asai, and Nydia Lucca (1988), "Individualism and Collectivism: Cross-Cultural Perspectives on Self-Ingroup Relationships," *Journal of Personality and Social Psychology,* 54 (2), 323–338.

Tuten, Tracy, and Michael Solomon (2012), *Social Media Marketing,* Englewood Cliffs, NJ: Prentice Hall.

Viscusi, W. Kip, Joel Huber, and Jason Bell (2011), "Promoting Recycling: Private Values, Social Norms, and Economic Incentives," *American Economic Review,* 101 (3), 65–70.

Zinkhan, George M., and Les Carlson (1995), "Green Advertising and the Reluctant Consumer," *Journal of Advertising,* 24 (2), 1–6.