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Predicting employee responses to an energy-saving intervention
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Abstract

This study examined energy savings, air-quality changes, and employee responses associated with an energy-efficiency pilot program in a university building. Effects of two educational message frames (descriptive vs. moral norms cues) were also tested. Employees' personal moral norm to conserve energy most consistently predicted positive responses. The two message frames had roughly equivalent effects on behavioral responses, although employees who received the descriptive-norms message were somewhat more likely to say they might complain about the program.

Introduction

Energy used by large buildings constitutes nearly 40% of all energy consumed in the United States, and a significant fraction of that percentage is used for heating, ventilation, and air-conditioning (HVAC) systems (United States Energy Information Administration, 2012). Many universities and other organizations are instigating energy programs in order to reduce soaring costs associated with energy use and to become more sustainable institutions (Marans & Edelstein, 2010). Although refitting buildings with more efficient HVAC systems would reduce energy use and costs associated with consumption, the cost of replacing large HVAC systems is often prohibitive (Rahman, Rasul, & Khan, 2010). Therefore, a great deal of work in engineering and related fields has sought to develop ways to increase the efficiency of existing HVAC systems in buildings. Comfort and air quality must be maintained to abide by state codes that typically follow ASHRAE (American Society for Heating, Refrigeration and Air Conditioning Engineers) comfort standard 55.1 and ventilation standard 62.1 (Oldewurtel et al., 2010; Sane & Bortoff, 2006), so efforts to increase efficiency must not result in decreased air quality or decreased comfort of building occupants.

Most efforts to reduce energy use in buildings in the U.S. have focused on the technological approach, which emphasizes more efficient equipment or systems, rather than the behavioral approach, which emphasizes encouraging changes to energy-related actions of building occupants (Azar & Menassa, 2011). Efforts employing a behavioral approach have found that building occupant support is often a critical factor for success (Siero, Bakker, Dekker, & van den Burg, 1996). Unfortunately, building occupants typically receive no material gains from energy saved and often cannot see a direct benefit of changes they are asked to make or endure (Carrico & Riemer, 2010). Therefore, motivation to change behavior or support new

policies might be limited, resulting in low participation rates (e.g., individuals not being motivated to turn off lights and computers whenever possible) or even counter-productive behaviors (using portable fans or heaters in the workspace) (Dixon, Deline, McComas, Chambliss, & Hoffmann, 2014; Carrico & Riemer, 2010). However, few studies have examined how individual differences among building occupants might lead to policy support and/or behavior change in organizational contexts (Scherbaum, Popovich, & Finlinson, 2008) or, specifically, how a behavioral approach might augment a technological approach to saving energy in an organization (Azar & Menassa, 2011). Among private citizens, individual values such as altruism or environmental concern typically predict support for pro-environmental policy changes and behaviors (Stern, 2000). Further, those whose behaviors have a strong moral basis are typically more motivated to enact environmentally friendly behaviors such as saving energy than those with weaker moral commitments to the behavior (Bamberg & Moser, 2007; Hunecke et al., 2001; Stern et al., 1999). Additionally, recent research indicates that cultural values influence perceptions of weather phenomena, suggesting that factors other than air quality or temperature may predict reports of comfort in one's workspace during any type of energy reduction intervention or program (Goebbert, Jenkins-Smith, Klockow, Nowlin & Silva 2012; Myers, Maibach, Roser-Renouf, Akerlof, & Leiserowitz, 2012). Finally, research on social norms perceptions suggests that increased perceptions that those around us (1) are supportive of energy saving efforts and (2) do not experience discomfort might be positively related to support for reduction efforts (Leiserowitz et al., 2008; Schultz et al., 2007). The desire to conform to social norms regarding energy use could be especially strong in an organizational context, wherein one's energy use is directly observable by one's peers (Carrico & Reimer, 2010). Therefore, this study examined the influence of differences in building occupants' values,

personal moral norms to conserve energy, and social norms perceptions on self-reported comfort and supportive behaviors regarding an occupancy-based HVAC control pilot program in a university building in the Southeastern U.S. A greater understanding of individual differences that can influence occupant responses can help those planning similar energy-use-reduction efforts to predict which groups of occupants might (1) be less supportive of changes and (2) perceive environmental conditions as less comfortable than others and/or than other environmental and physiological indicators would suggest. Such an understanding could help administrators find ways to address occupants' concerns. Additionally, building occupants must typically be informed of or educated about energy-use-reduction programs, and the type of information received influences occupant responses (Carrico & Riemer, 2010; Scherbaum et al., 2008). Therefore, in order to help administrators devise strategies for disseminating information about similar programs and to further test theories predicting effects of norms cues in environmental messages, we examined the relative influence of highlighting descriptive social norms vs. personal moral norms in a message describing the program on responses to the program and reports of workspace comfort. By concurrently examining efficiency changes along with occupant motivations and responses to different educational messages, the current study investigated a strategy for combining a technological approach with a behavioral approach to an organizational energy-use-reduction effort.

Background on the occupancy-based HVAC control pilot program

The HVAC pilot tested the ability of an occupancy-based control system to reduce energy consumption while maintaining indoor air quality and occupant comfort. Sensors were installed throughout the building to detect the temperature as well as presence and number of occupants in building rooms. When the rooms were occupied, the system was programmed to

maintain the temperature and air flow in a range considered comfortable for more than 80% of occupants according to ASHRAE standard. 55, 2010. When rooms were unoccupied, the system was programmed to allow the temperature of the room be either higher or lower than this range, depending on whichever was likely to consume less energy. To ensure indoor air quality, the system ensured that the rate of outside air flow delivered to a room was not smaller than the minimum required by ASHRAE ventilation standard 62.1, 2010.

The main difference between this and other energy efficiency solutions lies in its use of real-time occupancy measurements. A number of wireless devices deployed in the rooms also measured CO₂ concentration, temperature, and relative humidity, which are indicators of thermal comfort and indoor air quality (IAQ).

In addition to the air quality measures collected by the sensors, it was important to consider occupants' self-reported responses to the pilot and their motivation to accept such changes to the indoor environment. Previous research has noted that occupant "buy in" is critical to achieving the goals of energy-use-reduction efforts in organizations, and may include such behaviors as dressing differently (e.g., lighter clothes in summer), forgoing the use of space heaters and personal fans, or turning off lights and other equipment when not in use (Marans & Edelstein, 2010; Siero et al., 1996). However, Scherbaum, et al., 2008, noted a paucity of studies of responses to energy-use-reduction programs in the organizational context, which are needed in order to determine the extent to which theories and models tested outside the organizational context can be generalized within it. Further, very little research has examined individual differences among building occupants that might predict positive responses to energy-use-reduction programs in universities or other, large institutions (Marans & Edelstein, 2010).

Existing research conducted outside the organizational context has identified a stable set of individual and contextual factors that predict practice or support of pro-environmental behaviors (Stern, 2000), a category into which reduced energy use can be, and often is, classified. Individual factors such as stable values or worldviews (e.g., altruism, egalitarianism, valuing environmental protection) typically predict support for policy changes and pro-environmental behavior, while self-enhancement values (e.g., valuing power, achievement, wealth) are sometimes negatively associated with a desire to reduce energy use or practice pro-environmental behaviors (Milfont et al., 2010; Schultz & Zelezny, 2003; Stern, 2000). These values, directly or indirectly (via awareness of the negative impact of current behavior on cherished objects or states of being), tend to activate a personal, moral obligation -- a personal moral norm -- to behave in a way that protects cherished objects or states, such as conserving energy in order to protect air quality or to mitigate climate change (Stern et al., 1999). Therefore:

H1: (a) Self-transcendent values will be positively related, and (b) self-enhancement values will be negatively related to a personal moral norm to conserve energy.

Further, those whose behaviors have a strong moral basis may be more motivated to make sacrifices in order to conform to their own standards of conduct (Bamberg & Moser, 2007; Hunecke et al., 2001; Stern et al., 1999) and so may be more likely to support energy reduction programs than those with less strong moral commitments to the behavior. Some have suggested that moral norms motivations, which are stable, predict energy and environmental behaviors better than financial incentives, which tend to dissipate (DeGroot & Steg, 2009). This prediction is of particular interest for reduction programs in organizations, where, as noted, financial rewards are typically not available to individuals. Indeed, personal moral norms have been found to predict non-activist, pro-environmental behaviors more consistently than all other relevant

individual differences and to predict energy-related behaviors just as well as economic incentives (Hunecke, et al., 2001; Stern et al., 1999). In an organizational context, the behavioral response of interest can be a change in personal energy consumption (such as powering off equipment) but it can also be a bit more passive and akin to a type of policy support (e.g., support for/willingness to accept technological changes to the work environment that might result in less comfort or more effort). When the energy-use-reduction program is largely technological, we believe both types of behavioral responses are important to consider and, therefore, investigated the influence of moral norms on two feasible responses to the pilot program:

H2: Occupants' personal moral norms to conserve energy will be a) positively associated the supportive behavioral intentions of willingness to dress differently and b) negatively related to the unsupportive behavioral intention of intention to complain about the HVAC pilot program.

Recent research on motivated reasoning led us to consider another potential impact of moral norms on responses to the pilot: perceived comfort in the workspace. Cultural values (such as individualism or egalitarianism) and political ideology have been found to significantly influence (often inaccurate) perceptions of temperature and weather conditions among residents of the southwestern U.S. and among a larger sample of Americans (Goebbert, Jenkins-Smith, Klockow, Nowlin & Silva 2012; Myers et al., 2012). These studies suggest culture-driven values and beliefs may predict building occupants' perceptions of comfort better than environmental indicators such as temperature, air flow, and humidity (Dear & Brager, 2002). Therefore, it may be possible to predict which groups of occupants will perceive environmental conditions as less comfortable than others and/or than other environmental and physiological indicators would suggest. Broad cultural values and political ideology are typically correlated with more specific values such as altruism, environmental concern, and self-enhancement, which in turn, predict

personal moral norms (Daneshvary et al., 1998; Hansla, Gamble, Juliusson, & Gärling, 2008; Schultz & Zelezny, 2003; Slimak & Dietz, 2006; Zettler & Hilbig, 2010). Based on these established relationships and recent findings regarding the influence of values on perceptions of environmental conditions, we examined the ability of personal moral norms to predict self-reported comfort during the HVAC pilot.

H3: Personal moral norms to conserve energy will be positively associated with self-reported workspace comfort levels.

Additionally, research on social influence finds that perceptions of descriptive social norms (our perceptions of what most others in our community or society typically do in a given situation) can directly influence energy-related and other behaviors in several contexts (Goldstein, Cialdini, & Griskevicius, 2008; Lapinski, Maloney, Braz, & Shulman, 2013; Schultz et al., 2007). For example, the perception that many other students rode the bus was associated with increased bus use on a college campus (Heath & Gifford, 2002), and the perception that many others conserved energy was found to be associated with reduced energy use among a large sample of Americans (Leiserowitz, et al., 2008). As noted above, normative influences might be particularly strong in organizational contexts because many behaviors can be witnessed by one's peers (Carrico & Reimer, 2011) and because individuals typically do not want to deviate from perceived group norms in a negative way (Schultz et al., 2008). Finally, Steg & DeGroot (2010) have suggested that, for problems that require collective-action solutions (such as environmental problems), we often only take action when we believe a sufficient number of others are acting to solve the problem as well. From these findings, we extrapolate that the perception that many others in the organization support reduced energy use in general should be associated with one's support for the HVAC pilot.

H4: Descriptive norms perceptions (that most other occupants favor energy conservation) will be a) positively associated with the supportive behavioral intention of willingness to dress differently and b) negatively associated with intention to complain about the program.

Finally, carefully planned messages are an important part of successful interventions aimed at reducing household and building occupant energy consumption (Dietz, Gardner, Gilligan, Stern, & Vandenberg, 2010; Marans & Edelstein, 2010). Several studies indicate that using messages to cue (activate in memory) or influence descriptive norms perceptions can lead to positive environmental and energy-related behaviors (Goldstein, Cialdini, & Griskevicius, 2008; Schultz et al., 2007). However, more recent research indicates that emphasizing the moral imperative of responsible energy use (i.e., cuing or attempting to influence *moral* norms) may also be effective in such contexts (Feinberg & Willer, 2012; Nisbet, 2009). No study known to the authors has simultaneously tested the relative influence of descriptive norms versus moral norms cues in messages related to energy-use reduction. Therefore, we posed the following research question:

RQ: Will a message emphasizing descriptive norms or a message emphasizing moral norms motivations for supporting the HVAC pilot more strongly influence supportive behavioral intentions?

Method

The occupant-based HVAC pilot was conducted in late April of 2013. Building occupants, who included faculty, staff, and some graduate students, were approached by one of the PIs and asked to participate in the study, which included responding to three questionnaires and allowing a sensor to be placed in her/his workspace. Participants could choose to opt out of

either form of participation. The sensors were placed in workspaces one week later. One week after that the pilot was conducted.

Participants were sent an e-mail link to the first questionnaire two weeks before the pilot/one week before the sensors were installed (Wave 1). They were sent a link to the Wave 2 questionnaire one week later, after the air quality sensors had been installed but before the pilot began, and were sent a link to the Wave 3 questionnaire one week after that, during the pilot/intervention time. All participants were given a \$5 Starbucks gift card after Waves 1 and 2.

Variables

Because occupants were asked to complete each questionnaire during the workday, we emphasized questionnaire brevity. Accordingly, most variables were measured with a single item in order to encourage questionnaire completion.

Individual factors/motivations. Individual motivations previously found to be associated with interest in saving energy were measured during Wave 1. Items assessing *self-transcendent values* (Schwartz, 1994) were measured by asking participants to indicate, on a scale from 1-4, how important each of two actions -- “protecting the environment, ” and “striving for equal opportunities for all” -- was as a guiding principle in their lives (*Not important* = 1; *Very* = 4). *Self-enhancement values* (Schwartz, 1994) were measured in the same manner by having participants rate the value of “being successful,” “achieving wealth,” and “being ambitious.” *Personal moral norms* were measured with one item asking how much, on a scale from 1-7, participants agreed they had a “personal, moral obligation to conserve energy” (1 = *Strongly disagree*; 7 = *Strongly agree*). *Descriptive norms perceptions* were measured with one item asking how much participants agreed that “most of their colleagues try to conserve energy” (1 = *Strongly disagree*; 7 = *Strongly agree*).

Comfort. Comfort in buildings can be measured by assessing temperature, humidity, and air speed, as well as personal (such as clothing and activity) and physiological factors (Dear & Brager, 2002). We used two items that asked occupants to report their comfort levels at all three Waves: one asked about perceived humidity and ventilation (how *stuffy or stale* = -5/ *fresh* = +5 the air was in their workspace) and how comfortable, in general (*very uncomfortable* = -5/*very comfortable* = 5), they felt the air was in their workspace.

Supportive behavioral intentions were measured at Waves 2 and 3 by asking respondents how likely they were to (1) wear lighter clothes in summer or heavier clothes in winter in order to help save energy at work and (2) complain about the changes being made to the HVAC system in their building. Similar items have been termed “willingness to sacrifice” in previous research and have been considered a marker of policy support (Stern et al., 1999).

Moral norms vs. descriptive norms cues/message exposure. When participants were recruited and asked to complete the Wave 1 questionnaire, they were only told the HVAC system was being modified in order to save energy. In the Wave 2 questionnaire description, an additional, stated reason for the change was randomly assigned to participants. The reason appeared and was underlined on the first screen following the consent form in the Web-based questionnaire. Half of the participants read a description that indicated “These changes are occurring because they save the University energy, and most building occupants in your type of workspace do not mind the change or notice any difference in comfort” (the *descriptive norms cue*). The other half of participants read a description that indicated “These changes are occurring because they save the University energy, and they allow us to fulfill our moral obligation to use energy responsibly” (the *moral norms cue*).

Results

Sample

Twenty-seven participants completed questionnaires from all three Waves, and 22 chose answer the demographic questions. Of those respondents: 57% were White, 9% African-American, and 26% Asian; 78.3% were female; 39% had a master's degree, 30.3% had a doctoral or professional (MD or JD) degree, and 13% had a 4-year college degree.

Energy savings and air quality

Overall, the pilot program was associated with a 37% savings in energy use without compromising indoor climate and air quality. More details about the energy savings and air quality measures are provided in a separate report (Brooks, et al. 2014).

Overall occupant responses to the HVAC pilot

In general, building occupants/participants responded positively to the pilot, with more than 84% rating the air as fresh (above the 0/midpoint of the scale) and as comfortable (above the 0/midpoint of the scale) at all three Waves. More importantly, paired-samples *t*-tests indicated no significant differences in reported comfort of air in the workspace between the time of the pilot test (Wave 3), $M = 2.75$, $SD = 2.00$, and the control periods of Wave 1, $M = 2.71$, $SD = 1.92$, $t(23) = -.07$, $p = .94$, and Wave 2, $M = 2.95$, $SD = 1.47$, and, $t(18) = .53$, $p = .60$. Interestingly, participants perceived greater air freshness during the pilot period (Wave 3), $M = 2.82$, $SD = 1.59$, than during the first control period (Wave 1), $M = 1.64$, $SD = 1.65$, $t(21) = -3.78$, $p < .010$. However, there were no significant differences in perceived air freshness the Wave 2 control period and the time of the pilot test (Wave 3), $M = 3.00$, $SD = 1.61$, $t(17) = -.22$, $p = .83$. In short, the pilot test was not associated with decreases in self-reported occupant comfort.

Influence of individual differences on responses

Because this was a pilot study with a limited number participants available (and thus limited statistical power), we used fairly simple statistical methods to test hypotheses and research questions. Structural Equation Modeling would be preferable for testing relationships among the variables in this study, but not advisable with so few cases. For the same reasons (pilot test; small sample) and because the procedure has been found to not be optimal in many cases (*c.f.*, Perneger, 1988) we do not correct for inflated Type 1 error associated with multiple tests. Finally, because many of the values variables were somewhat skewed (means for many of the individual factors were close to the ceiling/upper point of the scale with little variance), we use Spearman's Rho tests of correlation for related hypotheses and research questions. See Table 1 for means and standard deviations.

[Table 1]

H1 predicted that (a) self-transcendent values would be positively related, and (b) self-enhancement would be will be negatively related to a personal moral norm to conserve energy. Spearman's-rho correlations tests indicated that both self-enhancement items – valuing equality and valuing protecting the environment -- were positively associated with moral norms. None of the three items measuring self-enhancement values were correlated with moral norms [See Table 2 for correlations.] Therefore, H1a was supported, but H1b was not.

[Table 2]

H2 predicted that personal moral norms would be associated with supportive behavioral intentions of willingness to dress differently and lack of intention to complain about the program. Spearman's Rho correlation tests indicated mixed support for this hypothesis. [See Table 3 for correlations.] Personal moral norms were significantly and positively related to willingness to

dress differently at both Waves 2 and 3 but were not associated with intention to complain at either Wave.

[Table 3]

H3 predicted that personal moral norms would be associated with perceptions of comfort in occupants' workspaces. We examined correlations between moral norms and the two measures of comfort at Wave 2 and Wave 3. Moral norms were not correlated with either perceptions of air humidity/ ventilation, $r_s(25) = .12, p = .56$, or air comfort in workspace, $r_s(25) = -.02, p = .94$, at Wave 2. They were moderately correlated with comfort in the workspace at Wave 3, $r_s(24) = .36, p < .05$, one tailed, but not with perceptions of air humidity and ventilation, $r_s(25) = .22, p = .28$. Therefore, this hypothesis received limited support.

H4 predicted that descriptive norms perceptions would be positively associated with supportive behavioral intentions. Spearman's Rho correlation tests found that descriptive norms perceptions were not related to willingness to dress differently at either Wave 2 or 3. [See Table 3.] Contrary to our prediction, norms perceptions were *positively* associated with intention to complain at Wave 2. They were not associated with intention to complain at Wave 3. Therefore, H4 was not supported.

Effects of descriptive versus moral norms framing of educational message about pilot

The Research Question asked if a message emphasizing descriptive norms or one emphasizing moral norms related to the HVAC pilot would more strongly influence supportive behavioral intentions. Two independent samples *t*-tests compared responses to the two intention items at Wave 2 (when the message about the intervention was manipulated/disseminated).

There were no significant differences between participants in the Descriptive Norms message condition, $M = 6.00; SD = 1.24$, and the Moral Norms message condition, $M = 5.46; SD = 1.98$,

in terms of willingness to dress differently, $t(25)=-.85, p = .40$. Interestingly, occupants in the Descriptive Norms condition, $M = 3.36; SD = 1.45$, were more likely to say they would complain about the pilot than occupants in the Moral Norms condition, $M = 2.38; SD = 1.04$, at a level approaching that of traditional statistical significance, $t(25)=-1.99, p = .058$. Therefore, across all tests, both messages seemed fairly equivalent in terms of encouraging positive responses, but the Descriptive Norms message seemed slightly less effective in terms of intention to complain.

Discussion

This study examined energy savings, air quality, and occupant responses associated with an occupant-based HVAC control pilot program in a university building. Stern (2000) has noted that environmental behaviors such as energy use are driven by multiple personal factors and are highly context-dependent and so should be examined in specific contexts. In the university context of this study, participants' values (e.g., high levels of self-transcendent values) and personal moral norms were highly conducive to energy-use-reduction behaviors. Not surprisingly, support for the pilot was high. However, a ceiling effect and small sample size likely restricted the ability of participants' values to predict some of our outcomes of interest. In practical terms, the overall levels of support and high levels of environmental concern and moral norms suggest that other institutions with similar occupant profiles can modify the HVAC systems in these large buildings to save energy without encountering much resistance. However, additional research in organizational contexts in which there is more variance in occupant values would surely be helpful to further expand knowledge in this area.

Our finding that self-enhancement values were not, as predicted, negatively related to moral norms is not unprecedented. Although most studies find self-*transcendent* values predict moral-norms-based motivation to practice pro-environmental behaviors such as conserving

energy, the influence of self-enhancement values has been less consistent (Author1; Stern, 2000). Some recent research suggests that Americans who typically hold these values (self-enhancement) and values typically related to them may also be motivated to conserve energy for economic reasons and/or moral reasons, such as following Biblical prescriptions to protect “God’s creation” and to conserve natural resources for loved ones or offspring (Nisbet, 2009; Maibach, Roser-Renouf, Akerlof, Leiserowitz, & Nisbet, 2010; Smith & Leiserowitz, 2013). [This is in contrast with a motivation to conserve energy in order protect the environment or for the sake of unknown others, which should be more likely among those with stronger self-transcendent values.] It would seem, then, that self-enhancement concerns need not be inversely related to motivations to conserve energy, although they might not be a strongly related to motivations as self-transcendent values. It is also possible that two of the items we used to measure self enhancement – desire for achievement and success -- are likely goals of those who seek graduate education and/or an academic career. The descriptive data indicate that the value of success was nearly as strong as the value of protecting the environment. Among these participants, however, the high levels of self-transcendent values seemed to be most influential in predicting program response.

The finding that descriptive norms perceptions were positively related to intention to complain at Wave 2 can potentially be explained by some research that finds descriptive norms information or perceptions can sometimes lead to outcomes opposite of those intended. In many cases descriptive norms perceptions influence action by indicating to us which behaviors others have found to be effective in a given context (Schultz et al., 2008). However, some research suggests such perceptions may provide a cue about when our action is/is not needed because others are not/are acting (Author 1; Darley & Latané, 1968; Schultz et al., 2007, Schultz et al.,

2008). For example, those who believe many others are acting to protect a resource or help others may believe their own action is not necessary. We believe our findings indicate the inverse of this phenomenon: perhaps those who were somewhat unhappy with the HVAC pilot but thought most others were supportive of the program might have felt they would have to be the ones to complain because no one else would. It is likely not a coincidence that the correlation between descriptive norms perceptions and intention to complain occurred during Wave 2, when half of the participants received a descriptive norms cue in the message describing the reason for the pilot program: the cue likely made participants' existing descriptive norms perceptions temporarily more salient and so, perhaps, their perceived need to be the ones to complain more strong. These relationships certainly seem to merit additional testing in similar contexts.¹

This study benefited from a field setting and a non-undergraduate-student population but is limited by other important factors. First, the field setting and ability to conduct the pilot in just one building resulted in a small sample size that limited statistical power to tests hypotheses and research questions. Second, the sample was fairly homogenous in terms of individual values, which limits ability to detect differences in responses based on those values. Finally, only one, fairly simple message about the energy-use-reduction program was provided to occupants. In sustained efforts to reduce institutional energy use, multiple and varied messages/educational efforts, disseminated over time, would be ideal (Marans & Edelstein, 2009).

In conclusion, we believe the current study provides insights that will be helpful for universities or other large organizations planning energy-use-reduction efforts, particularly those with occupants who have high levels of self-transcendent values. Additionally, we believe the findings suggest a need for additional investigations of how behavioral approaches can be

integrated with technological approaches to energy-use reduction efforts in organizations in order to increase positive outcomes.

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Table 1

Means Scores (SD) and Range for Individual Factors

Variable	Mean (SD)	Possible	Actual	Skewness
		Range	Range	
Value of Wealth	2.58 (.81)	1-4	1-4	.42
Value of Success	3.26 (.82)	1-4	1-4	-.92
Value of Ambition	3.00 (.82)	1-4	1-4	-.39
Value of Equality	3.68 (.60)	1-4	2-4	-1.74
Value of Protecting Environment	3.45 (.77)	1-4	2-4	-1.01
Personal moral norm	6.03(1.14)	1-7	3-7	-1.37
Descriptive norms perceptions	4.87 (1.15)	1-7	2-7	-.44

Table 2.

Spearman's Rho Correlations between Individual Factors

Variable	PMN	VW	VS	VA	VE	VPE
Personal Moral Norm	-					
Value of Wealth	-.08	-				
Value of Success	.04	.45**	-			
Value of Ambition	.13	.61***	.72***			
Value of Equality	.35*	.16	.23	.32*	-	
Value of Protecting Environment	.44**	-.22	.23	.05	.21	-

Note. *Ns* for these correlations = 31.

* $p < .05$; ** $p < .01$; *** $p < .001$ for one-tailed tests.

Table 3.

Spearman's Rho Correlations between Norms and Behavioral Intentions

Variable	PMN	DNP	WDD2	LC2	WDD3	LC3
Personal Moral Norm	-					
Descriptive Norms Perceptions	.40**	-				
Willing to Dress Differently, Wave 2	.41*	.16	-			
Likely to Complain, Wave 2	.27	.41*	.08			
Willing to Dress Differently, Wave 3	.52**	.08	.80***	-.08	-	
Likely to Complain, Wave 3	.13	.31	-.12	.63***	.04	-

Note. *N*s for these correlations range from 23 to 31.

* $p < .05$; ** $p < .01$; *** $p < .001$ for one-tailed tests.

Endnotes

¹ When descriptive norms perceptions or cues seem likely to give individuals “permission” to engage in maladaptive or undesirable behaviors the inclusion of injunctive norms information (information about what type of behavior is *expected* or sanctioned by one’s community or society) can mitigate such responses (Cialdini, Reno, & Kallgren, 2000; Schultz et al., 2007; Schultz et al., 2008).