TITLE

Gender Differences in Environmentally Sustainable Behavior and its Determinants

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ABSTRACT

*Purpose*

As the green economy grows and organizations look to employees to work toward environmental solutions, awareness of gender differences in environmentally sustainable behavior and its determinants is important to understanding how and why individuals contribute to sustainability. There have been calls for an increased effort in recruiting and encouraging women to assume green leadership positions so that their talent and resources can be utilized in the environmental domain. This paper aims to examine the relationships between gender and environmental values, attitudes, commitment, behavior, and motives in order to determine the direction and magnitude of gender differences and to inform how women can be recruited and encouraged to assume roles related to environmental sustainability at work.

*Methodology*

The authors sought to determine the direction and degree of gender differences by searching for and then meta-analytically combining studies that examined gender differences in environmental values, attitudes, commitment, behavior, and motives.

*Findings*

Women were more appreciative of the environment, held slightly more pro-environmental attitudes, and engaged in slightly more green behaviors. Women were more also more likely to be motivated to engage in green behaviors due to a sense of social responsibility, social norms, and the belief that their actions would have an impact on the environment.

*Research Limitations/Implications*

Overall findings suggest that women are no less committed to the environment than men, and even tend to be more likely to have pro-environmental attitudes and engage in most types of pro-environmental behavior more frequently (although these effects do not generalize). Since women do tend to value the environment to a greater extent than men, organizations will want to take advantage of women’s appreciation of and commitment to the environment by making sure they have a chance to contribute to environmental sustainability at work.

Each meta-analysis examining gender and environmental motives was relatively small, so initial conclusions about gender differences in motives are tentative. Some categories of green behavior were also underrepresented. This indicates that more research is needed examining gender differences in environmental motives and different types of green behavior. Initial findings with respect to motives suggest that when recruiting women for green jobs, it may be beneficial to provide information about females employed in similar positions, as well as emphasize the social responsibility aspect of positions.

*Originality/Value*

To date, there have been no efforts to meta-analytically examine gender differences in environmental values, attitudes, commitment, and motives, and draw implications about how these differences may affect the workplace behavior. Awareness of gender differences in these variables, as well as green behavior itself, is an important step in understanding and supporting employee contributions to organizations’ sustainability efforts, as well as recruiting women for jobs in the growing green economy. In addition, the findings that gender differences are small and generally favor women suggest that the women may be able to leverage these values and behaviors to participate in and contribute to the growing green economy.

Gender Differences in Environmentally Sustainable Behavior and its Determinants

Over the past several years, there has been an increasing interest in incorporating environmentally responsible behaviors into the workplace (Society of Human Resource Management, 2010; United Nations Environment Programme, 2008). Projections indicate that 4.2 million new green jobs will be added by 2038, which could constitute 10% of job growth over the next 30 years (Global Insight, 2008). As the green economy grows it is important to consider how men and women might be differentially attracted to these new positions, and ultimately how they perform in these roles. In their *CNN* article “Wanted: Women leaders in going globally green”, Johnson and Rogers (2011) call for an increased effort in recruiting and encouraging women to assume green leadership positions so that their talent and resources can be utilized in the environmental domain. At present, organizations are at risk of not fully benefitting from women’s interests, skills, and abilities. For instance, women comprised only 26% of employees in science and engineering positions within the U.S. in 2006 (National Science Foundation, 2006). Specifically in the field of forestry and conservation science, women held only 14% of positions. These figures, along with similar statistics about the proportion of women in science, technology, engineering, and math (STEM) careers (Ceci, Williams, & Barnett, 2009), are a cause for concern with respect to women’s participation in the growing green economy. A better understanding of differences in men and women’s environmental values, attitudes, behaviors, and motives is needed in order to determine the resources both genders bring to green jobs, as well as how women’s participation in the green economy can be encouraged.

*Contributions of the Present Meta-Analysis*

Given past findings on gender differences in environmental values, attitudes, behaviors, and motives within household environments, an individual’s gender may contribute to differences in environmental behaviors within the workplace. While gender differences in pro-environmental behaviors have been examined meta-analytically, no previous meta-analysis has examined gender differences in environmental values, attitudes toward specific environmental issues and behaviors, commitment attitudes, or motives. Thus, we conducted a comprehensive meta-analysis to examine the relationships between gender and these environmental criteria and interpret these findings in terms of implications for the workplace.

In order to understand differences in participation in green occupations among men and women, an initial question is whether or not there are differences in men’s and women’s environmental values. Do men and women equally value and appreciate the natural environment? We also examine whether men or women hold more pro-environmental attitudes and if one group is more committed to the environment. We then examine actual behaviors in terms of which gender is more likely to engage in environmentally sustainable behaviors in non-workplace settings. Lastly, we examine the motives men and women cite for engaging in green behaviors, looking at which motives are endorsed more often by men and women. Understanding why individuals engage in green behaviors is crucial to understanding how to best recruit men and women for green positions and how to increase pro-environmental work behaviors.

*Environmental Values*

Environmental values encompass individuals’ appreciation for the natural environment, with the environment being viewed as having utility or merit. Values serve as guiding principles in a person’s life, influencing how individuals define desirable actions and outcomes and how they make important life decisions (Rokeach, 1973; Schwartz & Bilsky, 1987). Lifestyle preferences and interests can affect vocational decisions and career persistence (Ceci et al., 2009; Robertson, Smeets, Lubinski, & Benbow, 2010). Individuals who highly value the environment may be drawn to positions and careers where they can contribute to protecting and improving the environment. Although only a few studies have examined gender differences in environmental values, there is some evidence that women value the environment more highly than men. Mayer and Frantz (2004) found that women valued the environment to a greater extent and felt more connected to it than men across three different samples, with correlation coefficients ranging from .10 to .36. A cross-cultural study of 2,160 participants from 14 countries found a small relationship between gender and eco-centric values (*r* = .10; Zelezny, Chua, & Aldrich, 2000). Given the gender differences that have been found in environmental values, we expect that women may be more likely to value the environment across studies.

*Environmental Attitudes toward Specific Issues and Behaviors*

Environmental attitudes consist of two categories: specific attitudes and environmental commitment attitudes. Specific environmental attitudes are individuals’ positive or negative evaluations of specific environmental issues or behaviors. For instance, individuals are asked to report on their specific attitudes toward issues such as recycling, environmental regulation, or alternative energy development.

Individuals who value the environment may also be more favorable toward specific environmental behaviors, because they are more likely to see the need for pro-environmental behaviors. Findings with respect to gender differences in specific environmental attitudes have been inconsistent. Eisler, Eisler, and Yoshida (2003) found that women had more pro-environmental attitudes toward issues such as preserving nature and providing more ecological education in schools. In another study, men thought it was slightly more important to allocate funds to clean up streams and rivers and to allocate land and water for recreation and protection of fish and wildlife than women (Mohai, 1992). This meta-analysis aims to determine the overall direction and magnitude of the relationship between gender and attitudes toward specific issues and behaviors.

*Environmental Commitment*

Another type of environmental attitude is environmental commitment. Environmental commitment is defined as how committed individuals are to the environment in terms of how willing they are to personally pay or expend effort for particular environmental causes or outcomes. For example, commitment items ask participants to indicate their willingness to pay more for environmental products or services. Fewer studies have examined gender differences in environmental commitment than environmental attitudes toward specific issues. Individuals who value the environment and hold pro-environmental attitudes should also be more willing to commit to environmental action. Interestingly, Andreoni and Vesterlund (2001) found that women were more altruistic when the monetary costs of helping were greater, whereas men were more altruistic when the costs were small. Across studies we would expect women to be more committed to the environment in terms of their willingness to pay more to protect the environment.

*Green Behaviors*

Several literature reviews have focused on gender differences in pro-environmental behaviors within non-workplace settings (e.g., Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003; Van Liere & Dunlap, 1980), with two meta-analyses examining the average magnitude of these gender differences within households (Hines et al., 1986-87; Zelezny et al., 2000). The first meta-analysis (Hines et al.) found a relationship of *r* = .075 between gender and environmental behavior based on four studies, with women more likely to engage in green behaviors than men. To update this meta-analysis, Zelezny et al. summarized 13 relevant studies conducted between 1988 and 1998, with an average gender-environmental behavior relationship of similar magnitude (*r* = .10). Thus, evidence to date has found women to be slightly more likely to engage in green behaviors than men in the household domain. These findings with respect to the relationship between gender and pro-environmental behaviors appear to be robust across cultures. Zelezny et al. (2000) surveyed 1,871 undergraduates from 14 North American, Latin American, and European countries and found that females reported greater participation in pro-environmental behaviors than males in 11 of 14 of these countries, with an overall correlation between gender and pro-environmental behavior of .09.

These meta-analyses examining gender differences in behavior were based on the relatively small number of studies and do not examine gender differences by types of behavior. Since the most recent publication over a decade ago, there have been more articles published that could be included in a meta-analysis, as well as an empirical taxonomy of green behavior (Ones & Dilchert, 2009; 2012). Ones and Dilchert identified five meta-categories of employee green behavior which include (1) Working Sustainably, (2) Avoiding Harm, (3) Conserving, (4) Influencing Others, and (5) Taking Initiative. Within the workplace working sustainably includes behaviors such as choosing responsible alternatives and creating sustainable products and processes. In non-workplace settings, this category translates to living sustainably, with the most relevant behavior choosing responsible (i.e., eco-friendly) alternatives. Avoiding Harm consists of behaviors related to preventing pollution, monitoring environmental impacts, and strengthening ecosystems. The Conserving category includes avoiding wastefulness and conserving resources (which includes sub-facets of reducing use, reusing, repurposing, and recycling). Educating, encouraging, and supporting others with respect to the environment fall under the Influencing Others category. Lastly, Taking Initiative encompasses proactive, entrepreneurial behaviors, such as lobbying and activism for the environment. Since these behaviors are functionally and psychologically distinct, there may be differences in the extent to which men and women engage in each type of behavior. In addition, several researchers have made a distinction between “private” and “public” green behaviors in order to distinguish between inherently different categories of pro-environmental behaviors such as recycling at home (a private behavior) and protesting environmental issues with others (a public behavior). Other public behaviors include petition signing, donating to environmental causes, being a member of an environmental organization, and activist behaviors. Studies that distinguish between these types of behavior have found that women are more likely to participate in private green behaviors than men (Hunter, Hatch, & Johnson, 2004; McStay & Dunlap, 1983; Xiao & Hong, 2010).

*Environmental Motives*

Environmental motives are the psychological processes that determine the direction, intensity, and persistence of pro-environmental behavior (Kanfer, Chen, & Pritchard, 2008). Motives that have been examined in the literature include social responsibility, or one’s sense of responsibility to help society at large. Beutel & Marini (1995) found that female adolescents were more likely to value compassion, which encompasses concern and responsibility for others’ well-being. Women were found to be more likely to consider future consequences than men, indicating a concern for future generations rather than the self (Lindsay & Strathman, 1997). As such, we expect that on average, women will be more likely to cite social responsibility as a motive of green behavior.

Another motivating factor can be an individual’s level of self-efficacy. Self-efficacy refers to the individual’s beliefs in their ability to effectively perform green behaviors. Initial studies on environmental self-efficacy suggest that women feel more capable of performing green behaviors than men. For instance, one study found that female high school students were more likely to express environmental self-efficacy than males (*d* = .26; Meinhold & Malkus, 2005). A related construct is knowledge-based efficacy, or the belief that one has the knowledge to effectively perform green behaviors. Men have been found to have higher levels of knowledge-based efficacy (*d* = -.17; Guagnano & Markee, 1995). It is not surprising that men are more confident about their levels of environmental knowledge given that studies have found men display greater knowledge of environmental facts, information, and principles than women (Arcury, Scollay, & Johnson, 1987; Barrow & Morrisey, 1989; Digby, 2010; Schahn & Holzer, 1990).

Another factor influencing individuals’ decisions to engage in green behavior is expectancy, or the perceived likelihood that performing certain behaviors will lead to desired environmental outcomes. A study examined 605 consumers’ judgments about their ability to affect environmental and resource problems through their purchasing behavior (Roberts, 1996). Women reported stronger perceived effectiveness of their purchasing behavior (*d* = .28), indicating that women may be more optimistic about the effects of their actions on the environment.

Lastly, individuals have been asked about the extent to which they are motivated by social norms, or the extent to which pressure from societal or group culture guides green behavior. Women have been found to score higher on the personality trait of compliance, a facet of Agreeableness (Costa, Terracciano, & McCrae, 2001). Since women are more likely to act in accordance with standards and social pressure, we would expect women to be more likely to cite social norms as influencing their green behavior.

METHODS

*Meta-Analytic Database*

We performed a thorough search to locate all articles published between 1970 and 2011 which examine gender differences in relation to our environmental criteria: environmental values, attitudes toward specific environmental issues and behaviors, environmental commitment attitudes, and environmental motives. Studies were located by a systematic search of ten journals related to the environment, business/economics, and psychology, and included: the *Academy of Management Journal*, *Environment and Behavior*, the *Journal of Applied Social Psychology*, the *Journal of Applied Social Psychology*, the *Journal of Environmental Education*, *Environment*, *Population and Environment*, the *Journal of Environmental Psychology*, *Harvard Business Review*, and the *Journal of International Management*. Google Scholar and the PsycInfo database were also searched using combinations of the following keywords: environment, green, pro-environmental, sustainable, sustainability, sex, and gender. Reference sections of articles obtained via the first two search methods were also searched for relevant articles.

One exclusion criterion was set prior to the literature search. Articles with samples of participants under the age of 14 were excluded given that 14 is the legal age of employment for a majority of the United States (U.S. Department of Labor, 2010). While the meta-analytic database comprised studies in non-workplace settings, one purpose of this meta-analysis is to be able to generalize findings to workplace settings and explore the implications these gender differences have for the workplace. Thus, only samples with individuals who were legally eligible to work were included in the meta-analysis. Given our exclusion and inclusion criteria, 46 studies that examined the relationship between gender and at least one of our environmental criteria were located and contained enough statistical information to compute a *d* value between gender and the criterion of interest.

*Meta-Analytic Procedure*

Hunter and Schmidt’s (2004) meta-analytic procedure was used to compute average effect sizes were for environmental variable: environmental values, specific attitudes, commitment attitudes, and each of the five categories of green behavior as well as scales that included a combination of different types of green behavior (i.e., “general” behaviors), and each of five environmental motives. Individual *d* values were corrected for dichotomization. The meta-analysis was corrected for attenuation due to sampling error and unreliability in the criterion. For each meta-analysis, a distribution of the reported reliability coefficients was constructed. Across studies, there were 62 coefficient alphas that were reported. Table 1 lists the average reliabilities for each criterion measure and other details about the reliability distributions. Measures of environmental values were the reliable, with an average coefficient alpha of .86 (*SD* = .05) across 12 studies. The lowest and most variable reliabilities were observed for measures of environmental commitment attitudes, which averaged .65 (*SD* = .28) across four studies.

RESULTS

Table 2 presents the meta-analytic results. Overall, women were more likely to value the environment (*robserved* = .19, *k* = 18, *N* = 15,011). After correcting for statistical artifacts (sampling error and criterion unreliability), the resulting corrected *d* value was .20. This effect size indicates that women on average scored .20 standard deviation units higher in terms of their environmental values. The 90% credibility interval ranges from .05 to .36, indicating that these findings generalize across settings.

Specific environmental attitudes were also examined with respect to gender. Across 31 studies and 24,092 individuals, an observed average effect size of .09 was obtained (*dcorrected*= .11). This indicates that women held slightly more pro-environmental attitudes. However, the standard deviation around the corrected *d* value was large (.23) and the amount of variance accounted for low (10.99%). As such the credibility interval was large, ranging from -.28 to .49, indicating that the effect does not generalize across settings.

The second component of attitudes was commitment. Women were found to be more committed to the environment than men (*dobs* = .22, *dcorrected* = .28, *k* = 7, *N* = 3,540). The credibility interval ranges from -.04 to .60, so while the effect is close to generalizing, it may not generalize across all settings.

Women were somewhat more likely to engage in green behavior (*dobs* = .23, *dcorrected* = .28, *k* = 17, *N* = 12,275). Since the credibility interval includes zero (-.11 to .67), this finding does not generalize across settings. In terms of specific behaviors, women were also somewhat more likely than men to engage in behaviors related to Conserving (*dobs* = .26, *dcorrected* = .29, *k* = 10, *N* = 5,442), Responsible Product Choices (*dobs* = .25, *dcorrected* = .27, *k* = 8, *N* = 5,292), and Taking Initiative (*dobs* = .15, *dcorrected* = .17, *k* = 14, *N* = 8,056), however these findings also did not generalize. Similarly, while men were more likely to engage in behaviors related to Influencing Others, these findings did not generalize across settings. Lastly, only one study was available that examined Avoiding Harm, with little difference between gender in these behaviors.

Lastly, studies examining gender differences and environmental motives were meta-analyzed. Women were more likely to cite social responsibility as a motive of pro-environmental behavior (*dobs* = .15, *dcorrected* = .15, *k* = 2, *N* = 977). Women were also more likely to cite social norms than men (*dobs* = .45, *dcorrected* = .45, *k* = 2, *N* = 504). Women reported higher levels of self-efficacy (*dobs* = .26, *dcorrected* = .29, *k* = 4, *N* = 1,478), as well as expectancy (*dobs* = .25, *dcorrected* = .27, *k* = 3, *N* = 1,046). All of these effects were generalizable with the exception of expectancy; however, the small number of studies contributing to each meta-analysis limits conclusions about generalizability. The only factor on which men were more likely to score higher was knowledge-based efficacy, although this was based on only one study (*dobs* = -.17, *dcorrected* = -.20). While the study had a relatively large sample size (*N* = 2,922), more studies would be needed to examine the generalizability of the effect.

DISCUSSION

*Gender Differences in Environmental Values and Attitudes*

Women were more likely to value the environment, be committed to the environment, and were slightly more likely to hold pro-environmental attitudes toward specific environment issues and behaviors. There seems to be a disconnect between women’s appreciation for and commitment to the natural environment and their participation in STEM careers, although more studies are needed on men’s and women’s involvement specifically in environmental careers. There are several explanations for the gender disparity in STEM occupations, with one potential contribution being gender differences in interests (Ceci et al., 2009; Su, Rounds, & Armstrong, 2009). A meta-analysis of interests found that men are more interested in realistic and conventional vocations and in science, engineering, and mathematics careers (Su et al., 2009). While women value the environment more than men, it does not appear that their appreciation for the natural environment extends to a greater interest in working in environmental or STEM fields.

This meta-analysis found that women held slightly more pro-environmental attitudes. However, this was the weakest relationship observed and it does not generalize across settings. It is likely that this effect did not generalize due to the wide range of specific environmental issues and behaviors assessed. For instance, attitudinal measures ranged from questions about attitudes toward ecological education in schools to organic products to the importance of forest certification (Eisler et al., 2003; Gotschi, Vogel, Lindenthal, & Larcher 2010; Ozanne, Humphrey, & Smith, 1999). Larger gender differences were observed for commitment attitudes, with women more likely to be willing to commit money or effort to help the environment. Since these commitment attitudes are much narrower in scope, this may be why the effect size is larger for commitment attitudes than for attitudes toward specific issues and behaviors.

*Gender Differences in Environmental Behaviors*

In non-workplace settings, women are somewhat more likely to engage in green behaviors in general, as well as specific behaviors related to conserving, making responsible product choices, and taking initiative. Men, on the other hand, were slightly more likely to engage in behaviors related to taking initiative. On the whole, the gender differences between women and men are small, with women somewhat more likely to engage in behaviors that support environmental sustainability. Within workplace settings, however, individuals may face an increased number of barriers to environmental behavior within the workplace, where individuals are expected to work toward organizational goals and objectives, and follow organizational guidelines. For instance, women are less likely to be in positions of power within the workplace (Bowler, 1999; Wolfers, 2006). Women’s slightly higher levels of pro-environmental values and general behaviors may have less of an impact at work given that they are less likely to be involved in decisions about running the company, including initiating programs and policies and making major purchasing decisions that incorporate environmental sustainability. Thus, workplaces may not benefit fully from women’s involvement if they are underrepresented in leadership positions and environmental careers.

*Gender Differences in Environmental Motives*

In terms of environmental motives, women were more likely to be motivated to act on behalf of the environment by a sense of social responsibility, social norms, self-efficacy, and expectancy. These effect sizes were small to moderate, but were based on a small number of studies contributing to each meta-analysis. However, these initial findings are still of interest in terms of implications for encouraging pro-environmental behavior at work. The largest gender difference in motives was for social norms, indicating that women are more likely to act on pressure from societal or group culture to engage in eco-friendly behavior than men. Establishing social norms for green behavior or encouraging others to join their coworkers in green behaviors would be particularly helpful for influencing women’s green behavior. Women seem particularly attuned to social norms, and these norms may be especially effective in workplace settings where norms of coworkers are especially salient. Women were also more likely to endorse social responsibility as a motive for green behavior. When recruiting women for green jobs, the positive impact on future generations should be highlighted.

Women are also more likely to report feeling that they were able to perform pro-environmental behaviors and have an impact on environmental outcomes. Men may benefit from reassurance that they can effectively perform green behaviors and that these behaviors can make a difference. Men were more likely to report higher levels of knowledge-based efficacy, indicating that they possessed sufficient environmental knowledge of how to engage in green behaviors, however this was based on only one study.

*Strengths and Limitations*

Each meta-analysis of gender-environmental motives was relatively small: no meta-analysis exceeded a total of four studies. Some categories of green behavior were also underrepresented. Clearly more research is needed examining gender differences in environmental motives, as well as categories of green behavior such as Avoiding Harm and Influencing Others. Given the small number of studies contributing to each meta-analysis, initial conclusions about gender differences in motives are tentative. However, there are some interesting implications of the findings. For instance, the strongest gender difference in motives was in the social norms category. Given that women are responsive to social norms, they may be particularly responsive to social norms within the workplace where they are surrounded by coworkers.

A common concern with meta-analyses is that the meta-analytic database will not be representative given reporting bias (termed the file drawer problem; Rosenthal, 1979). Many of the studies contributing to this meta-analysis examined several demographic variables in relation to sustainability criteria. These studies often reported on findings from all predictors, even if the size of these effects did not reach statistical significance. This common way of reporting in studies contributing to the meta-analysis helped ensure that non-significant findings were represented in the meta-analysis. Given these features of the contributing studies, meta-analytic estimates in this study should reflect accurate estimates of the true relationship between gender and environmental sustainability criteria.

*Conclusion*

While women are less likely to be employed in careers related to environmental science such as forestry and conservation science, this meta-analysis indicates that women are just as committed to the environment and likely to engage in green behaviors as men. In fact, women tend to value the environment more than men. They are even somewhat more likely to have pro-environmental attitudes and engage in green behaviors, although the differences do not generalize across settings. When recruiting women for green jobs, it may be beneficial to emphasize the social responsibility aspect of positions, as well as provide information about females employed in similar positions. As the green economy grows and organizations look to employees to work toward environmental solutions, it is important not only that women have opportunities to contribute, but that organizations take advantage of their enthusiasm and commitment to the environment. By being aware of these gender differences, researchers and practitioners can better understand how male and female employees may be best suited to contribute to environmental efforts within organizations, as well as how to train and support employees to minimize the organization’s environmental impact.

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\*A full list of articles contributing to the meta-analysis is available upon request.

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Table 1

*Descriptive Information on Reliability Distributions Used to Correct Correlations*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sustainability Variable** | | **No. of values** | ***M*** | ***SD*** | **Mean of the square roots of reliabilities** | **Std. dev. of the square roots of reliabilities** |
| *Attitudes* | |  |  |  |  |  |
|  | Commitment | 4 | .65 | .28 | .79 | .14 |
|  | Specific Issues/Behaviors | 19 | .77 | .10 | .88 | .06 |
| *Values* | | 12 | .86 | .05 | .93 | .03 |
| *Behavior* | |  |  |  |  |  |
|  | General | 13 | .71 | .11 | .84 | .06 |
|  | Avoiding harm | 1 | .84 | .16 | .91 | .09 |
|  | Conserving | 1 | .81 | -- | .90 | -- |
|  | Influencing others | -- | -- | -- | -- | -- |
|  | Responsible product choices | 2 | .86 | .07 | .92 | .04 |
|  | Taking initiative | 4 | .77 | .04 | .87 | .02 |
| *Motivation* | |  |  |  |  |  |
|  | Social Responsibility | -- | -- | -- | -- | -- |
|  | Self-efficacy | 3 | .78 | .03 | .88 | .01 |
|  | Expectancy | 2 | .84 | .16 | .91 | .09 |
|  | Lack of Knowledge | 1 | .77 | -- | .88 | -- |
|  | Social norms | -- | -- | -- | -- | -- |

Table 2

*Overall Meta-Analyses for Sustainability Variables*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sustainability Variable** | | ***N*** | ***K*** | **Mean**  ***dobs*** | ***SDobs*** | ***SDres*** | **Mean**  ***dcorrected*** | ***SDcorrected*** | **% variance SE** | **% variance acc. for** | **90% Credibility Interval** | | |
| *Attitudes* | |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Commitment | 3540 | 7 | .22 | .18 | .16 | .28 | .20 | 23.86 | 27.53 | -.04 | - | .60 |
|  | Specific Issues/Behaviors | 24092 | 31 | .09 | .22 | .20 | .11 | .23 | 10.91 | 10.99 | -.28 | - | .49 |
| *Values* | | 8981 | 18 | .19 | .13 | .09 | .20 | .10 | 50.46 | 50.62 | .05 | - | .36 |
| *Behavior* | |  |  |  |  |  |  |  |  |  |  |  |  |
|  | General | 12275 | 17 | .23 | .21 | .20 | .28 | .24 | 12.14 | 12.73 | -.11 | - | .67 |
|  | Avoiding harm | 370 | 1 | .02 | -- | -- | .02 | -- | -- | -- | -- |  | -- |
|  | Conserving | 5442 | 10 | .26 | .30 | .29 | .29 | .32 | 8.28 | 8.28 | -.23 | - | .82 |
|  | Influencing others | 2106 | 3 | -.10 | .20 | .18 | -.10 | .18 | 14.40 | 14.40 | -.40 | - | .21 |
|  | Responsible product choices | 5292 | 8 | .25 | .22 | .20 | .27 | .22 | 13.08 | 13.20 | -.08 | - | .63 |
|  | Taking Initiative | 8056 | 14 | .15 | .31 | .30 | .17 | .34 | 7.15 | 7.16 | -.40 | - | .73 |
| *Motivation* | |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Social Responsibility | 977 | 2 | .15 | .07 | .00 | .15 | .00 | -- | -- | .15 | - | .15 |
|  | Self-Efficacy | 1478 | 4 | .26 | .16 | .13 | .29 | .14 | 40.44 | 40.48 | .06 | - | .53 |
|  | Expectancy | 1046 | 3 | .25 | .23 | .20 | .27 | .22 | 21.65 | 22.20 | -.10 | - | .64 |
|  | Lack of Knowledge | 2922 | 1 | .17 | -- | -- | .20 | -- | -- | -- | -- |  | -- |
|  | Social Norms | 504 | 2 | .45 | .07 | .00 | .45 | .00 | -- | -- | .45 | - | .45 |
| *Note. K =* number of effect sizes included in the meta-analysis. Mean *d*obs = sample size weighted mean observed *d* value (standardized group mean-score difference; positive values indicate women scored higher on average). *SD*obs = sample size weighted standard deviation of observed effect sizes. *SDres =* residual standard deviation (after corrections for criterion unreliability and sampling error). Mean *d*corrected = corrected *d* value. *SDcorrected =* standard deviation of the corrected *d* value. % variance SE = percentage of variance due to sampling error; % variance acc. for = percentage of variance due to all corrected statistical artifacts. | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | |

**Author Bios**

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**Deniz S. Ones** is the Hellervik Professor of Industrial Psychology and a Distinguished McKnight Professor at the University of Minnesota. Her research focuses on individual differences in work settings (e.g., personality, cognitive ability, job performance, counterproductive work behaviors, environmental sustainability behaviors). She has received numerous prestigious awards for her research, among them the 1998 Ernest J. McCormick Award for Distinguished Early Career Contributions from the Society for Industrial and Organizational Psychology (SIOP), as well as the 2003 Cattell Early Career Research Award from the Society for Multivariate Experimental Psychology. She is a Fellow of the Association for Psychological Science and the American Psychological Association (Divisions 5 and 14 – SIOP), for which she also chaired the Committee on Psychological Testing and Assessment (CPTA). Previously, she co-edited the two-volume *Handbook of Industrial, Work and Organizational Psychology* (2001) and served as an editor-in-chief of the *International Journal of Selection and Assessment* and associate editor of the *Journal of Personnel Psychology*. Most recently, she co-chaired the 2011 SIOP Theme Track on Environmental Sustainability, and edited (with Susan Jackson and Stephan Dilchert) the latest volume in the SIOP Professional Practice Series dedicated to *Managing Human Resources for Environmental Sustainability*. In her applied work, Ones helps organizations select, train, and motivate their employees for environmental sustainability.