The Sustainable Personality: Values and Behaviors in Individual Sustainability

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Abstract

Meaningful societal change begins with individual change. One cannot do for a community what one cannot do for one's self. The topic of Individual Sustainability is a controversial one, as students often appear to be unable to align their demonstrated behaviors with their admirable values related to sustainability. Individual behavior creates the foundation for action in social, economic, and environmental sustainability, and potentially guides our ability to work with one another to make life-affirming decisions. In short, it is a matter of aligning our day-to-day behaviors with our well-stated values that will result in greater sustainable community action.

The general objective of this research is to determine how an interactive website providing multisource feedback on personality motivates students to change their behaviors or values, or to align their behaviors and values. We believe that creating a "cognitive dissonance" between individuals' values and behaviors tends to encourage them to balance more effectively the self-knowledge that motivates intentional personal development towards more sustainable behavior. Most students indicated changes in their awareness, behaviors, and values following the study, but fewer indicated a greater alignment between their values and behaviors.

Keywords: Sustainability, Individual sustainability, Systems theory, Cognitive dissonance, Sustainable Personality

1. Introduction

Meaningful societal change begins with individual change. One cannot do for a community what one cannot do for one's self. The topic of Individual Sustainability is a controversial one, as students often appear to be unable to align their demonstrated behaviors with their admirable values related to sustainability. Individual behavior creates the foundation for action in social, economic, and environmental sustainability and potentially guides our ability to work with one another to make life-affirming decisions. In short, it is a matter of aligning our day-to-day behaviors with our well-stated values that will result in greater sustainable community action.

This research, funded by two National Science Foundation grants, is one of more than a dozen projects we are conducting on Individual Sustainability (also referred to as Sustainable Personality). The purpose of this study was to determine which group of students—first year science and technology students, or upper-level psychology students—would report greater personal changes following using a multi-source feedback platform focused on personality. We define Individual Sustainability as follows:

Sustainable individuals are characterized by creating harmony, interconnection, and relatively high levels of self-awareness in their values, thoughts, behaviors, and actions as well as cultivating continued individual growth in their physical, emotional, social, philosophical, and intellectual abilities. Individual sustainability includes possessing a well-developed and demonstrated value system that acknowledges the importance and interconnectedness of all global biological and social systems, and our appropriate place within them.

In this study, four hundred James Madison University students in two classes, a general education class and an upper-level psychology class, were given a 50-item multi-source feedback online survey, *Sustainable Personality* (on PersonalityPad.org); this survey assessed individual sustainability in the following contexts: emotional, social, physical, economic, and intellectual. Following a post-test, reflective essays, and a later follow-up survey, results

revealed that many students increased their awareness of the topic of individual sustainability and reported changes in their behaviors and values.

2. Objectives

We believe that creating a "cognitive dissonance" between an individual's stated values and demonstrated behaviors tends to encourage these individuals to balance more effectively the self-knowledge that motivates intentional personal development towards more sustainable behavior. In other words, students experience a cognitive dissonance when they realize their behaviors related to sustainability do not reflect their values. We expected students would work to align their behaviors with their values.

This research had three objectives, following students' completing the Sustainable Personality Survey, meant to encourage them to change their everyday behaviors. The objectives are as follows:

1) to increase individual sustainability awareness;

2) to determine, when faced with cognitive dissonance after realizing their behaviors do not align with their values, if and how students were motivated to make changes in their behaviors; and

3) to determine the degree of reported difference in motivation and behavioral change between students who received prior instruction in Individual Sustainability (S & T students) and those who did not (psychology students).

3. Literature Review

An important context missing from most discussions of sustainability, especially within academia (or society in general), is individual sustainability. Living a sustainable lifestyle includes creating harmony, interconnection, and relatively high levels of awareness in one's values, thoughts, and behaviors, as well as maintaining an increasing control over one's physical, emotional, social, philosophical, and intellectual life. The general dispositions that support individual sustainability are awareness, motivation, and the ability to engage in intentional self-development. As well, individual sustainability includes possessing a well-developed and demonstrated value system that acknowledges the interconnectedness of all global biological systems and our appropriate place in the Natural World.

A considerable number of psychologists, educators, philosophers, and engineers have noted the complex nature of what constitutes personality and how it manifests itself, and some have indicated that personality characteristics are dependent upon each other in order to produce a highly functioning individual. What these writers have in common is the understanding that personality is related to a variety of factors, and that these factors comprise a complex system…and that a change in one factor may well produce unpredictable changes in the other factors.

If one understands the complexities and interconnectedness of one's own individual sustainability contexts, then he or she might well transfer this systems understanding to address community environmental, social, and economic problems. Such growth may be difficult for some, and the challenges to individual development may be hindered by personal, career, family, and psychological issues, as well as a dysfunctional relationship with time or technology (Pappas & Pappas, 2011).

The are countless historical roots here. Bertrand Russell, in his lecture on Belief, outlines the mutually dependent components of a holistic intellectual life which consists of "beliefs, reasoning, theories of knowledge, and metaphysics...out of which our philosophical outlook evolves" (Russell, 1921/2005, p.139). Hegel (1892) views the "whole" of existence as a non-self-contradictory complex system. His philosophy always considers Reality as a whole. James (1890/1950) delineates the constituents of the self as "the material self, the social self, the spiritual self, and the pure ego" (p.292). These factors, he says, provide the human foundation for self-seeking and self-preservation, an understanding of one's self in the broadest sense.

John Dewey (1910/1997) refers to consciousness as composed of "natural and social operations" (p.244) and is a "connected course of experience" (p.249). Further, he proposes the synthesis of human processes "in which elements combine into complex wholes and series" (p.245). He notes "knowing, willing, feeling [are the] name states of consciousness" (p.252), and acts and attitudes all found in experience. He later refers to consciousness as a "system of truth" (p.257). A few years later, Dewey outlines a similar system guiding successful education: "Education, we received from three sources—Nature, men, and things"…that the "concurrence of three kinds of education is necessary to their completeness" (p.108). Each kind of education, he stresses, determines the success of the other two.

Abraham Maslow (1968) describes the 13 characteristics of a self-actualized individual as follows:

1) Superior perception of reality

2) Increased acceptance of self, others, and of nature

3) Increased spontaneity

4) Increase in problem-centering

5) Increased detachment and desire for privacy

6) Increased autonomy and resistance to enculturation

7) Greater freshness of appreciation, and richness of emotional reaction

8) Higher frequency of peak experiences

9) Increased identification with the human species

10) Changed (the clinician would say improved) interpersonal relations

11) More democratic character structure

12) Greatly improved creativeness

13) Certain changes in the value system (p.24)

He notes these characteristics as a path to "a fuller knowledge of, and acceptance of, the person's own intrinsic nature, as an unceasing trend toward unity, integration, or synergy within the person" (p.25).

Carl Rogers (1980), a decade or so later, notes the "Qualities of the Person of Tomorrow," twelve characteristics of a highly functioning and balanced individual, a list clearly reminiscent of Maslow's and characterized by "a world in which the mind, in its larger sense, is both aware of, and creates, the new reality" (p.352). These are as follows:

1) Openness

2) Desire for authenticity

3) Skepticism regarding science and technology

4) Desire for wholeness

5) The wish for intimacy

6) Process persona

7) Caring

8) Attitude toward Nature

9) Anti-institutional

10) The authority within

11) The unimportance of material things

12) A yearning for the spiritual

Capra (1982) offers his systems view of personality "based on awareness of the essential interrelatedness and interdependence of all phenomena—physical, biological, psychological, social, and cultural" (p.265). He notes that there is no established framework for such an approach, either conceptual or institutional, that would accommodate paradigm change, but that individuals, communities, and networks develop their own approaches to such growth. In addition, Capra notes that "systems thinking is process thinking, form becomes associated with interaction, interrelation with interaction…" (p.267). Csikszentmihalyi (1993) takes a similar interactive approach and reflects on the complexity of consciousness, stating that knowledge or intelligence need be in harmony with feelings and actions—"to create harmony between goals and desires, sensations and experiences" (p.207).

Some writers, like Thoresen (2004), delineate a sustainable personality, what she considers responsible citizenship, from the perspective of "empathy, relationships, critical skills, co-operation, self-awareness, equality, feeling concerned" (p.8)—individual attributes that would increase our chances of survival. She groups over two dozen human behaviors and values into three general areas: "Biological determinants, Social expectations, and Moral imperatives." While Thoresen's approach is not quite as expansive and inclusive as those of Maslow, Rogers, or Capra, her approach does cover an extensive variety of intellectual, affective, and ethical skills and dispositions as well as provides a foundation for instruction in higher education.

Encouraging curriculum change in higher education to foster individual sustainability, Kagawa (2007) suggests problem solving skills, creative and critical thinking, and self-reflection as necessary components to encourage

sustainable development and points out "And what kind of development do we want to sustain: social, cultural, political, spiritual and/or economic? (And are these separable?)" (p. 325).

Education for sustainably "should foster learning new attitudes, perspectives, and values that guide and impel people to live their lives in a more sustainable way" (p.63), according to Gadotti (2009). Feeling, simplicity and quietness, identity, justice, and a culture of peace characterize sustainable societies, notes the author, who further encourages political and social revolution based on an "anthropocentric and individualistic view of humanity's well-being" (p.96). Stone's (2010) approach to curricular change includes instruction in "cognitive, emotional, active, and connectional" (p.44) topics, similar to integrating approaches to personality in Goleman, Barlow, & Bennett (2010). Employing a similar structural format, Lowenstein, Martusewicz, and Voelker (2010) focus on a social approach related to the discourses that shape our modern industrial cultures.

Three methodologies inform this work. First, this research employs a systems theory methodology (which stresses that the interrelationship of factors in a unified system depend upon the unpredictable nature of the relationship of these individual factors). Second, we consider values, whether they be corporate, government, community, or individual, as the principle guiding force for defining and solving sustainability problems (Pappas, 2011). Third, following years of researching and teaching sustainability, we understand it is an individual's demonstrated behaviors and skills, not simply his or her knowledge of, or attitudes toward, sustainability that support and promote sustainability. It appears that offering the opportunity to learn about sustainability does not necessarily lead to more sustainable behavior (Leiserowitz, Kates, & Parris, 2006). We recognize that developing an individual's values may provide motivation to behave in a manner more congruent with sustainability principles (Shields, Solar & Martin, 2010). This transformative process employs instructional theory and methodologies that offer students greater insight into, and understanding of, sustainability problems...far greater than traditional instruction that focuses on increasing "student knowledge" or learning basic laboratory skills. Most importantly, creating a "cognitive dissonance" between an individual's values and behaviors tends to encourage them to balance more effectively the self-knowledge that informs decision making and problem solving (Pappas, 2013).

4. Methodology

This study utilized a unique multi-source feedback platform developed by three James Madison University faculty members: Morgan Benton, Jesse Pappas, and Eric Pappas. Personality Pad (www.PersonalityPad.org) is a fully automated on-line experience in which participants generate and interpret individual sustainability feedback based on their values, as well as several friends' and/or family members' external perspectives on their (the participants') values and behaviors, in order to engage in intentional self-development in the direction of sustainable thought and action (Benton, Pappas, & Pappas, 2011). The site offers five sources of multi-source feedback based on methods commonly used in organizational settings for professional development (real, ideal, friends and family, peer real, and peer ideal). Research has consistently shown that, when conducted effectively, the multi-source feedback process can lead to greater evaluative accuracy and higher levels of participant acceptance compared to single source evaluation alone (London & Smither, 1996). It is also more likely to increase motivation and lead to specific developmental actions (Bono & Colbert, 2005).

This study compared the results of two groups of students during the Spring 2013 semester: 1) 300 students in a general education science and technology class geared to intentional self-development (about 80% of whom are first-year students) and 2) 96 upper-class psychology students in a required psychology course in which there was no instruction related to individual sustainability. Both groups took the Sustainable Personality Survey (see Appendix A) on Personality Pad: a 50-item survey that assesses individual sustainability in the following contexts: emotional, social, physical, economic, and intellectual using a seven-point Likert Scale (strongly disagree—strongly agree).

Sample *Sustainable Personality* survey questions:

    I am a person who

        ...feels the need to have a lot of material possessions.

            (Economic context)

        …demonstrates openness, acceptance, and respect in my relationships.

            (Social context)

        …actively seeks new knowledge.

            (Intellectual context)

…frequently experiences significant stress in my life.

(Emotional context)

…actively pursues good physical health habits and activities.

(Physical context)

"Friends and Family" responses were phrased in this manner:

(Student's name)…actively pursues good physical health habits and activities.

Following the Sustainable Personality Survey, students were directed to reflect upon their responses in a post-survey, and write and submit short reflective essays to the following questions: 1) Do you think the values expressed in the survey are relevant to your personal life? and 2) Do you demonstrate these values in your daily life? Six weeks later, a 12 question follow-up survey (see Appendix B) and narrative required students to assess whether the previous surveys and reflections resulted in any changes that helped them align their behaviors with their values related to individual sustainability. Each student was asked to list up to five behavioral changes she experienced due to participating in this study (if, indeed, she had experienced any changes).

Study students were awarded a small amount of course credit (equal to two homework assignments) for simply completing the study, regardless of their investment in the study or quality of their participation. In general, students seemed interested in the study since the focus was on personal development. For this reason, we consider students' responses and narrative essays mostly authentic. The study was conducted with no class discussion about the survey in either of the classes, apart from clarifying instructions.

5. Results

5.1 Reliability Analysis

The present study was exploratory in nature and included the first broad administration of the Sustainable Personality Survey. As such, it presented an opportunity to conduct a reliability analysis to determine a degree of internal consistency. A popular estimate of reliability is Chronbach's Alpha (α), which ranges from zero to one with higher values indicating more internal consistency. A commonly accepted threshold for responsible instrument use is 0.7 (Nunnally, 1978). We computed this reliability coefficient for the Sustainable Personality Survey and obtained an alpha level of 0.72. This marginally acceptable value indicates that the whole scale can be used responsibly; its internal consistency may be improved by revising or eliminating certain items, a task we will engage in a future study. It is important to note that this instrument was used in a relatively unusual manner for the purposes of the present study. Our primary goal was to use the survey to initiate cognitive changes and motivate intentional development activities rather than to achieve reliable estimates of sustainability. For this reason, we used participants' responses to follow-up questions, rather than the survey itself, to determine the relative success of the intervention in two classes.

5.2 Group Comparisons

Responses to four questions from the follow-up survey were examined; these indicate the degree to which students reported that the Sustainable Personality feedback produced a greater awareness of individual sustainability, motivation to change behaviors and values, and alignment of behaviors with values. A series of four independent samples t-tests were conducted to determine if reported study outcomes were significantly different in the science and technology (S&T) class compared to the psychology class. Participants reported significantly more awareness of issues related to individual sustainability in the S&T class ($M = 6.2$, $SD = 0.67$) compared to those in the Psychology class ($M = 5.7$, SD = 1.00), [$t(195) = 4.15$, $p< 0.001$]. Reported motivation to change behaviors was significantly higher in the S&T class ($M = 6.0$, $SD = 0.96$) than in the Psychology class ($M = 4.5$, SD = 1.47), [$t(195) = 8.67$, $p< 0.001$]. Reported motivation to change values also was significantly higher in the S&T class ($M = 5.0$, $SD = 1.49$) than in the Psychology class ($M = 3.9$, SD = 1.48), [$t(195) = 5.34$, $p< 0.001$]. Finally, reported alignment of behaviors with values following the study was again significantly higher in the S&T class ($M = 5.8$, $SD = 1.01$) than in the Psychology class ($M = 4.2$, SD = 1.39), [$t(193) = 9.17$, $p< 0.001$]. These results are summarized in Figure 1.
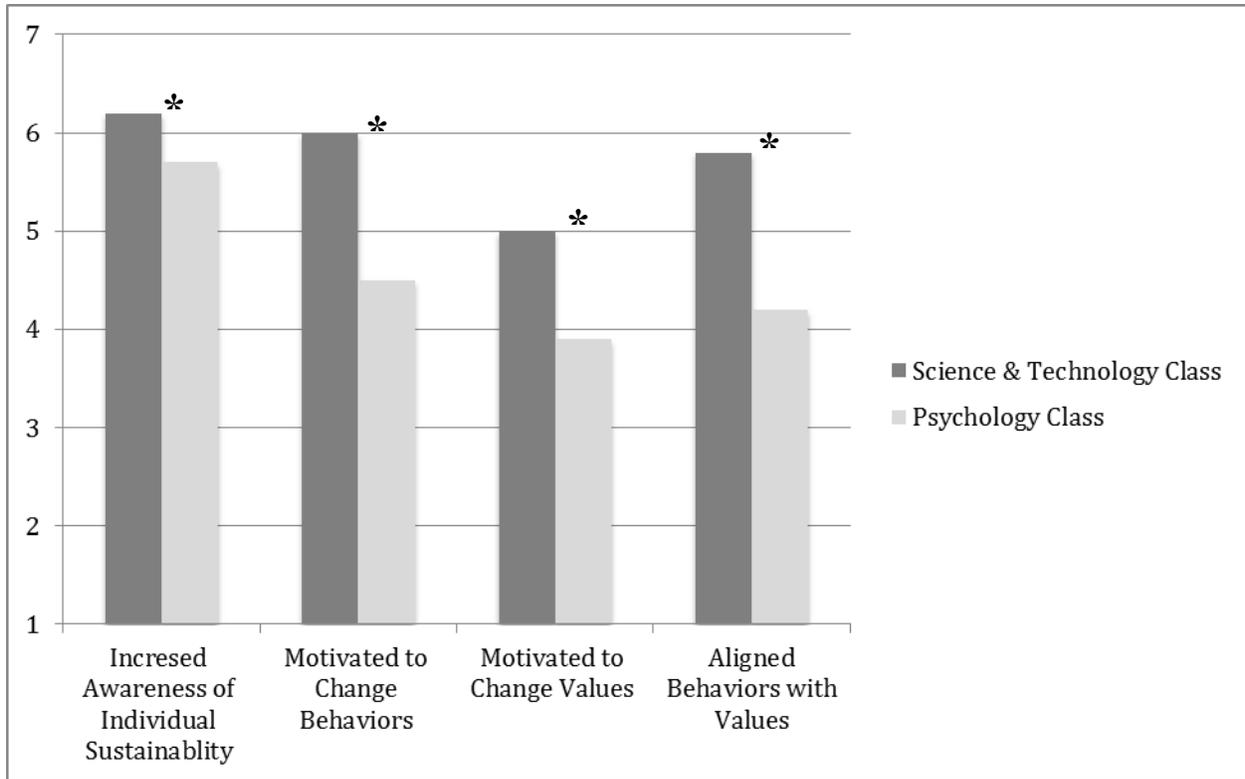
Note: * = p < 0.001

Figure 1. Comparison of participants' reported outcomes in the science and technology class to reported outcomes in the psychology class (seven-point Likert Scale: strongly disagree—strongly agree)

In the interest of providing a more detailed description of interventional outcomes, a frequency distribution of student responses to each of the four follow-up questions (by class) is presented below.

Survey Question: *The surveys and reflections tended to make me more aware of these personal topics (in percentage of students).*

Table 1. Students' Reported Increased Awareness of Individual Sustainability

	S&T Class	Psychology Class
Strongly Agree	33%	14%
Agree	55%	52%
Somewhat Agree	12%	28%
Neither Agree nor Disagree	0%	2%
Somewhat Disagree	0%	1%
Disagree	0%	3%
Strongly Disagree	0%	0%

Survey Question: *Taking the surveys and writing the reflections motivated me to make some changes in my behaviors (in percentage of students).*

Table 2. Students' Reported Motivation to Change Behaviors

	S&T Class	Psychology Class
Strongly Agree	29%	6%
Agree	46%	21%
Somewhat Agree	20%	33%
Neither Agree nor Disagree	4%	13%
Somewhat Disagree	0%	14%
Disagree	0%	11%
Strongly Disagree	0%	1%

In the science and technology class, 66% of students listed at least one behavioral change they had initiated in their lives due to taking the Sustainable Personality survey. In the psychology class, 50% of the students listed at least one behavioral change they were undertaking. It would seem, considering the content of the S & T class was individual sustainability, that the changes noted by these students would be more substantial than those in the psychology class, most of whom likely did not know what "individual sustainability" was prior to the survey. The reported changes in behaviors for both classes were comparable, however, and included changes related to improving emotional stability, reducing stress and anxiety, economizing, working out more often, eating better, being more environmentally balanced, communicating more openly, and spending less time using technology.

Survey Question: *Taking the surveys and writing the reflections motivated me to make some changes in my values (in percentage of students).*

Table 3. Students' Reported Motivation to Change Values

	S&T Class	Psychology Class
Strongly Agree	15%	2%
Agree	30%	1%
Somewhat Agree	28%	27%
Neither Agree nor Disagree	13%	18%
Somewhat Disagree	7%	18%
Disagree	6%	23%
Strongly Disagree	0%	2%

In the science and technology class, 41% reported a change in their values, while in the psychology class, 22% reported a values change; in both cases, this was roughly half of those reporting some *motivation* to change.

Survey Question: *Taking the surveys and writing the reflections have resulted in me changing some behaviors in order to better align my behaviors with my values (in percentage of students).*

Table 4. Students' Reported Alignment of Behaviors with Values

	S&T Class	Psychology Class
Strongly Agree	22%	2%
Agree	46%	16%
Somewhat Agree	22%	30%
Neither Agree nor Disagree	8%	19%
Somewhat Disagree	1%	19%
Disagree	0%	14%
Strongly Disagree	0%	1%

6. Discussion

The data from this research indicate that student awareness of personality topics increased. The science and technology students reported slightly higher levels of increased awareness than the psychology students (100% vs. 94%); while this difference is insignificant, it may be due to students' exposure to the topic in the S & T class. Whatever the case, in both groups, virtually all students agreed that their awareness had been increased. Considering such topics are outside the typical university curriculum, these numbers are not surprising. Also, it could be assumed that most individuals have at least a fundamental interest in the composition or workings of their personality.

While more S & T students reported greater *motivation* toward behavioral changes than the psychology students (96% vs. 60%) or engaging in *actual* behavioral changes (66% vs. 50%), both groups had substantial numbers making personal changes. That fewer psychology students reported behavioral changes is likely due to the fact that the S & T class curriculum focuses on individual sustainability and behavioral change. These students are more accustomed to the topic and likely more agile in the methodologies related to making changes. That all members of the psychology class were psychology majors, one would think such topics related to behavioral change might be more familiar, but for the fact that no classes in the undergraduate psychology curriculum address individual behavioral change.

Fewer students report making changes in values due to their interaction with the website and survey. Over 73% of S & T students and 40% of psychology students reported *motivation* toward making some changes in values, and 41% vs. 22% reporting *actual* changes in values. This is tricky territory, as religious and family values often constitute students' strong core values, and these may be more resistant to change. Such values may not be subject to change—whether it be instruction in a semester-long class, or even more so, an on-line survey that requires no more than two or three hours of interaction. Students did, in their narratives, specify what changes in values did occur, but did they not specify the degree of change (i.e. what their values were prior to the change). Some examples of topics noted by students in the narrative section (asking them to specify which values had changed) include the following: individual values, self-perception, the environment, relationships, health, perceptions of others; and values related to money, material things, and social conventions. While these statements are in response to a question that asked what values had *changed*, we must assume that a *relative* change in some value constitutes a change…not necessarily only a dramatic change in values.

The final issue, whether the survey process helped students align their behaviors with their values, is the most important one and, as well, the most relative. Science and Technology students reported 90% agreement, and psychology students reported 48% agreement. While this particular question did not require students to explain the degree of their "improved alignments," these numbers are encouraging whatever the case. Perhaps students never before thought of aligning their behaviors and values, so the question was of high interest. The fact that the first-year students in the S & T class reported higher numbers here than the upper-class psychology students may be explained by the course content and instruction in the S & T class.

Our results in this study are encouraging, and we continue to research these effects. If students' self-reports are to be believed to any degree, this study has yielded measureable changes in personal awareness, values, and behavioral change. Most importantly, because students experienced some success in these improved behaviors (that is, behaviors aligned with their values), their narratives reflected an improved sense of personal integrity and self-esteem. It is true here, perhaps, that if a change in one's behaviors improves daily life, then those behaviors tend to be repeated and perhaps become a personality characteristic (Pappas & Pappas, 2011).

One of the major challenges to this systems approach is that the five sustainability contexts influence each other in complex ways, and understanding these interactions requires increased awareness. It appears that determining individual sustainability depends upon the careful and complete *assessment and evaluation* of a range of human factors. As noted earlier, because sustainability factors comprise a *complex system*, a change in one sustainability factor is likely to result in an unpredictable change in the others. It is quite possible that one context in sustainability will be quite in conflict with another—that is, that making a positive change in one factor may produce some unwanted effects in another. Too little work has been done to understand and assess the reciprocal influences this complex system creates.

7. Conclusions

Measuring educational outcomes using behaviors is the central objective of our overall efforts. We believe that student behaviors, more than content knowledge or attitudes, measure learning more thoroughly and effectively (especially long-term). The fact that successful behaviors may tend to become personality characteristics drives our research and experimentation. Our research indicates that students' desire for integrity and individual value consistency often taught

to them in childhood, as well as revered (if not often practiced) in American culture, tend to move them to align their values and behaviors.

We fully recognize the limits of self-report, especially when a study is conducted in an academic class, but the overwhelming number of positive responses related to behavioral change is encouraging and supports our ever-evolving work in this area. The most attractive feature of this research, now in its sixth year of funding, is the idea that short interventions (in this case about two hours) may precipitate a lasting behavioral or values change. We are reporting no conclusive success in the present (or previous) studies, only continuing encouraging data…often accompanied by almost overwhelming positive student verbal and written responses. We recognize, as well, that these changes may be temporary, but an earlier longitudinal study we conducted on behavioral change substantiated the lasting effects of some intentional behavioral change (Pappas & Pappas, 2011).

Unfortunately, in terms of how universities focus their curricula, these results are disturbing. That such important topics would find little or no place in a university curriculum illustrates an educational system dramatically misguided.

8. Future Work

Two substantial National Science Foundation grants have afforded us the means for conducting nearly a dozen studies related to individual sustainability, and values and behaviors, over the past six years. Our work developing the multi-source feedback platform, Personality Pad, and the *Sustainable Personality* survey, continues, and we hope to have a version suitable for wide distribution in 2015. The Personality Pad platform will be ready for more widespread use in 2015 and will provide multi-source feedback in a wide variety of applications, both in academia and, as well, for government organizations, non-profits, and other organizations that measure growth and success in terms of human productivity rather than profit.

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Conflict of Interest

The author declares no conflict of interest.

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