SUSTAINABILITY DRIVEN BUSINESS INNOVATION EDUCATION: ITS EFFECTS ON ATTITUDES AND DECISION-MAKING BEHAVIORS

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ABSTRACT

Sustainability is a core agenda for the twenty-first century. As a result, higher educational institutions have been trying their best to enable their learners to have theoretical and practical lessons, and opportunities to participate in and lead the sustainability transformations. Given this, this study attempted to test the relationship between the pedagogy of sustainability based in action methods and student self-reflection and its impact on students' attitudes and intentions to engage in sustainable student behaviors. To determine the nature of the relationship, if it existed, students who took the course on Sustainability Driven Business Innovation for one semester were given pre-and post-tests, which scores were then analyzed. A significant direct effect of students' attitudes on intention to engage in sustainable behavior was ascertained. That is, through effective pedagogical methods, sustainable attitudes could predict students' intention to be engaged in sustainable activities. In addition to effectively participating in class and raising their awareness and becoming passionate about sustainability, the learners demonstrated that they have the intention to participate in sustainable related activities both at a micro-level and can demonstrate their sustainability efficacy by being engaged to conduct environmentally related projects outside the college environment.

Keywords: Sustainability, Pedagogy, Attitudes, Behaviors, Action Methods.

Introduction

Since 1960s, warnings have been sounded in industrialized countries that economic growth is consuming its foundations and depleting the natural resources upon which the base of its future economic and social development depends. Consequentially, in 1987, to promote growth that is socially, environmentally and economically sustainable, the World Commission on Environment and Development (WCED) championed the term 'sustainable' as a key issue for development in the twenty-first century.

Sustainable development was defined as meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). More specifically, the perception of sustainable development was rooted in its ability to address environmental, economic, and social equity as the hallmark for the next wave of innovation and entrepreneurial activities.

At the Earth Summit I held in Rio de Janeiro, Brazil, in 1992, the United Nations Conference on Environment and Development used chapter 36 of Agenda 21 to promote education and bring about changes in human values, attitudes, and behaviors. Again, at the Earth Summit II, held in Johannesburg, South Africa in 2002, the three perspectives and approaches to

environmental education were defined: education in the environment (experiential education), education about the environment (providing information), and education for environment (that critically examines the origins of the environmental problematic and prepares learners for an active role) (Springett, 2005). The United Nations General Assembly applied Resolution 57/254 to declare 2005–2014 as the United Nations Decade of Education for Sustainable Development (DESD). "Education for sustainability was seen as having the power to guide people in reflection and action as they engage with the discourse of sustainability and sustainable development" (Springett, 2005). Thereby, the United Nations Educational Scientific Cultural Organization (UNESCO) was entrusted to lead, coordinate and promote the implementation of the DESD.

Global communities were heavily encouraged to devise sustainable local solutions for poverty and vulnerability (United Nations, 2002). The DESD called on universities "to make education for sustainability a central focus of higher education curricula, research, physical operations, student life, and outreach to local, regional, and global communities" (DuPuis & Ball, 2013). In simple terms, though using an interdisciplinary approach instead of co-opting students, education was tailored to raise the awareness of individuals to become sustainably oriented and practice sustainable living in their diverse cultural and social contexts without damaging the planet for the future (Dyer & Selby, 2004; Calder & Clugston, 2005).

After the Earth Summit II, several of the world's largest companies that once viewed environmentalism as a threat to their survival began to recognize that sustainability was a fundamental part of their social responsibility and ethical commitment. In alignment with this trend, several companies introduced strategic decisions on environmental sustainability that could enhance their competitive advantage in the market place, by reducing "ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the earth's estimated carrying capacity" (WBCSD, 2000; van de Westerlo, Halman, & Durmisevic, 2011).

Against the conventional educational framework, business corporations vigorously argued since higher educational institutions have cutting-edge faculty thinkers, these institutions needed to produce experts who could develop the environmental sustainability movement beyond the campus, and promote an environmentally healthy atmosphere. More specifically, universities were challenged by businesses to make their graduates be proactive change agents of sustainability for their future employers, who could then help businesses design environmentally viable enterprises and conduct green or stewardship initiatives in their own business ventures (Desta, 2006). Stated differently, businesses challenged higher educational institutions to redesign their curriculum and "produce employable graduates armed with theoretical and practical knowledge that is vital to transforming and creating a socially responsible business environment" (Desta, 2006).

As higher educational institutions gained higher prominence as a vital crosscutting factor in the promotion of sustainable development, some universities were willing to change and initiated courses on sustainability that catered to the needs of the new century. Thereby, courses on sustainability were purposely designed to incorporate the core basis in economic, social, and environmental dimensions. In their teaching, learning, and research process, several higher educational institutions made their sustainability education courses inter-disciplinary, practically and service-oriented, critically examine trends, and cultivate diversity of thoughts.

Accordingly, higher educational institutions attempted to embrace environmentally sound management of natural resources so that the school graduates could be aware, sensitive, and concerned for the environment and be active at all levels in solving environmental issues (Kofi & Desta, 2008). Using the new approaches of sustainable thoughts and actions, business courses were tailored to make the leaders of tomorrow the best decision makers for future workplaces, communities and personal lives (Cortese, 2003; Hidalgo & Fuentes, 2013; Rieckmann, Barth, & Sanusi, 2011).

To successfully implement and harmonize socio-economic and environmental issues, several universities made sustainable education part of the campus culture. In addition to intellectual growth, courses on sustainability incorporated experiential learning and encouraged students to be involved in practical-oriented environmental problems that included community outreach services.

As sustainability-related subjects were included in the curricula and offered as an elective course, other schools went further and integrated sustainability as a core course. For example, the University of Vermont started requiring undergraduates to complete the university's general education course in sustainability to help the students have foundational knowledge and be able to address sustainability when they graduate and enter the workplace (Giudice, 2015).

As suggested by the Association for the Advancement of Sustainability in Higher Education, a sustainability curriculum needs "to develop strategies for ensuring that all students in higher education have access to education for sustainability and opportunities to learn how to participate in and to lead the sustainability transformation" (2010). For this to happen, faculties were challenged to integrate sustainability into their courses. Rather than stand alone as an elective subject, university courses integrated attitudinal and behavioral aspects of suitability (See Christensen et al., 2007; Rajaram, 2013).

To foster this, universities operated as test site grounds for their students to align theoretical with experiential, service, sustainable practice-based learning on their campuses and community outreach projects before they moved forward and became engaged with the workplace.

For example, at the Barowsky School of Business, Dominican University of California, sophomore, junior, and senior students take a Sustainability Driven Business Innovation course for one semester. By the end of the semester students are expected to:

1. Increase their knowledge of sustainability as future decision makers;
2. Reflect on the relationship between the triple bottom perspectives of sustainability;
3. Apply sustainability assessment techniques;
4. Evaluate sustainability concerns as competitive and innovative opportunities for making business decisions; and
5. Craft sustainable business strategies and act entrepreneurially on sustainability issues.

To accomplish these student learning outcomes (SLOs), the students are required to:

a. Read a wide range of books;
b. Review environmentally-sensitive journals;
c. Evaluate videos;

d. Assess environmentally related websites to harness the advancement of information and communication technology;
e. Learn from guest speakers;
f. Facilitate a discussion with the class on one case study per week;
g. Lead a presentation of one detailed case study per semester on sustainability; and
h. In pairs, assess the status of two companies to determine if they are involved in Cradle to Cradle (C2C) or Cradle to Grave (C2G) ventures.

This paper investigates the effects of a course on Sustainability Driven Business Innovation on the learner's attitudes and behaviors. The specific questions of the study include:

1. Does a course on sustainability help tomorrow's business managers have pro-environmental attitudes?
2. Does a course on sustainability empower tomorrow's business managers to make favorable decisions on issues related to environmental problems?
3. Do the attitudes obtained from the course on sustainability prepare learners to be change agents and assist business organizations to be engaged in sustainable behaviors in their decision process?

LITERATURE REVIEW

Conventional universities generally attempt to create "knowledge with individual experts in siloed disciplines who research and transfer codified knowledge using didactic pedagogies" (DuPuis & Ball, 2013). Going one step further, some universities have pursued estate-management greening initiatives that addressed sustainable campus operations such as energy usage, food service, waste disposal, recycling, landscaping, transportation, reduction in greenhouse-gas emissions, building maintenance, etc.

Considering how essential universities are for the training of the professional citizens of tomorrow and realizing that sustainability is the agenda for the twenty-first century, more recently, thinkers and practitioners of sustainability argue that in addition to estate-management, higher educational institutions need to take more challenging areas of curricula, research, and outreach that are re-oriented toward a holistic, interdisciplinary, system approach to precipitate a profound change in mindset that would provide cutting-edge resources for student activities, be they classroom study, extra-curriculum activities, or internships (Koehn & Uitto, 2017).

To pursue such changes, institutions of higher education have been reorienting their curriculum to address sustainability that "involves an understanding and action competence around the interdependence of all [the] pillars of sustainability" (Kuzich, 2016). Instead of treating their students as passive recipients, university leaders and faculty are in the process of teaching their learners to be active participants by making them integrate interdisciplinary, apply collaborative ways of knowing, and practice sustainable values and beliefs.

As persuasively suggested by the AASHE (2010), universities need to help their students genuinely preserve the existing resources to meet the socio-economic and environmental needs of the present generation and encourage them to preserve resources so that future generations can have resources to meet their needs.

In line with this, higher educational institutions are attempting to socialize their learners by motivating them to be aware of the different concepts of sustainability and are attempting to apply different types of sustainability related issues. Applying sustainability to curricula,

reflection and research (basic and applied), campus operations, and community outreach, universities apply a five-stage process for the adoption of sustainable innovation. As proposed by Rogers (1962), the process of sustainable innovation goes through:

1. Developing awareness (i.e., when individuals are exposed to the concept or idea);
2. Having interest (i.e., when the individuals become motivated towards the concept under discussion);
3. Undertaking evaluation (i.e., when the students try the idea and judge its future potential);
4. Implementing it at a micro-level; and
5. Adopting and putting it into practical operations (Lozano, 2006; Franson, 2008).

When students are exposed to a course on sustainability, they may develop an interest in the subject. In order to do so, they must be exposed to case studies, group discussions, guest lectures, and need to be encouraged to empirically test what they learned either at home, campus fields, or in school incubators. For example, in the 1970s, University of California, Davis students challenged the conventional agricultural curriculum. Instead, the student-initiated opportunities suggested that they needed to be exposed to interdisciplinary analyses of agriculture and field-based experiential learning that included Student Experimental Farm (SEF) as a site for experiential educational projects, classroom and field-based courses focusing on sustainable and organic agriculture (Parr and Horn, 2006).

As the students undergo these holistic systems of thinking and incorporate social, economic, and ecological factors in their learning process, it is possible to assume that graduates can most likely integrate sustainability framework in their everyday lives and in their decision-making process. As a result, the learners would have the necessary "grounds for questioning the prevailing belief that individuals acquisition of responsible environmental behavior can drive changes on the global political scale" (Eilam & Trop, 2012; Franson, 2008).

Closely related to this, for example, the University of California, Santa Cruz's *Sustainable Engineering* and Ecological Design (*SEED*) curricula is experimenting with pedagogy that embraces the reflexive nature of sustainability. As a concept sustainability is not viewed as a problem, but is used as a dynamic concept and an opportunity that raises new ways of thinking about the world. Under this scenario, the challenge is how to design the curriculum around an unfixed concept so that students could be engaged with multiple modes of knowing without creating an unfocused strategy, agenda, and pedagogy (DuPuis & Ball, 2013). Based on this argument, it is possible to argue that when environmental attitudes and behaviors are adequately measured, it is possible to arrive at a conclusion that favorable values can generally influence positive environmental behavior.

Similarly, other studies establish that several antecedents of pro-environmental attitudes such as personality traits, cross-cultural differences, age, gender, and economic status could have influence when individuals select a course of action related to sustainable business decisions (Ng & Burke, 2010). For example, Ryu and Broody (2006) found that age and income are negatively related to ecological footprints. Sahin et al. (2012) also found that values and attitudes that are important for individuals' manners of acting and feeling are the determinants of university students' behaviors pertaining to sustainability (Barr, 2003; McMillian et al., 2004).

While lauded, other empirical evidence that considers environmental sustainability as part of social responsibility and ethics see that there is a wide gap between values/attitudes and

actual behaviors (Ng & Burke, 2010). As argued by Giudice (2015), while many individuals may have positive values and attitudes, their actions may not support positive, holistic sustainability outcomes because they may:

1. Lack the time, knowledge, training, perceived efficacy to translate sustainability values into action;
2. Encounter structural barriers such as infrastructure or available technology that could prevent them from putting their sustainable management values into action;
3. Face routines and bad habits that take time and energy to overcome; and
4. Face non-supportive management systems.

Thomas (2005) argued that business schools have integrated sustainability into their curricula. However, students and faculty have raised the legitimacy of sustainability because it is assumed that it could contribute to a loss for the bottom line. This means that sustainability needs to be committed to education as a transformative learning process and needs to be developed effectively as "an instrument capable of assessing individual attitudes and consider sustainability an integral part of the managerial decision-making process" (Thomas, 2005).

Studies indicate that attitudes contribute to intentions, and intentions are powerful predicators of behavior (Ajzen, 1991). However, when environmental awareness is used as a moderating variable, there seems to be a weak relationship between knowledge about environmental issues and environmental behavior. The "strategies required for influencing attitudes are different from those required for influencing behaviors" (Eilam & Trop, 2012). Among adults, the longitudinal studies that were conducted over the past 30 years ascertain that a relationship between the two constructs (i.e., attitude-behavior connections) is not linear (Eilam & Trop 2012; Sahin et al., 2012).

Despite the importance of value changes that a course on sustainability would equip future professionals with the right knowledge, skills, values and attitudes to make right decisions to create a sustainable future, "there is relatively little known about the long-term global trends in values, attitudes, and behavior that will both help or hinder a sustainability transition" (Mabogunje, 2004).

On the other hand, Franson's (2008) research based on pre-test and post-test scores indicates "classroom exposure did elicit a change in behavior but not in attitude. A possible cause for change may be that students felt they already understood the concept of sustainability prior to the classroom exposure, but the course might have provided them with new ideas of how to integrate sustainability into their behaviors through the classroom exposure."

Also, Sahin, Ertepinar and Teksoz (2012) indicate that gender emerges as a strong variable that shapes the university students' behavior toward sustainability. More specifically they found that female students have more favorable attitude and behaviors than men towards sustainable life styles. That is, women were more likely to hold feelings of concern toward survival of humanity, willingness to change their life styles radically, and readily take the necessary actions than male students (See Franson, 2008).

THEORETICAL FRAMEWORK

Longitudinal research assumes that a course offered to business students that incorporates lectures, group discussions, assignments, case analysis, guest lectures, in class-videos, and on

campus and community outreach projects on sustainability would equip students to be environmentally friendly. That is a sustainable course that has the right knowledge, values, attitudes and behaviors would enable the graduates to make sustainable-oriented managerial decisions in their daily lives and in their future professional tasks. Given this premise, tertiary educational institutions bear a profound responsibility to increase awareness, knowledge, skills, and values to their learners to acquire environmental-friendly attitudes and enable the graduates to behave sustainably in their future professional undertaking (Cortese, 2003).

Effective sustainability curriculum integrated with pedagogical classroom exposure and problem-based practical learning experience can expose students to:

1. Be aware,
2. Develop and reflect in depth interest,
3. Try sustainability at micro-level,
4. Eventually integrate sustainability to their daily life-style and,
5. Initiate innovative and practice sustainable ideas within their future professional work experience (Rogers, 1962; Lozano, 2006).

Therefore, business students exposed to effective methods of teaching sustainability courses are very likely to grasp an understanding of sustainability, lead sustainability-oriented lives, and adopt sustainable behavior in their future work experience. The process of sustainable education can have an impact on business students to develop positive attitudes and practice sustainable behaviors as they keep progressing through the academic, daily, and professional environment.

Given this, while the independent variable chosen for this study is the exposure of business students to courses related to sustainability and the dependent variables are changes in students' attitudes (feelings) and the adoption (action) of sustainable behaviors in their future lives.

H1: The scores of business students who took the post-test on sustainable feelings (attitudes) are likely to be more and statistical significant than their pre-test scores.

H2: The scores of business students who took post-test on adopting sustainable behaviors are likely to be more and statistical significant than their scores on the pre-test.

H3: Pre-test scores of business students exposed to sustainable attitudinal activities would predict their post-test scores related to sustainable behavior.

METHODOLOGY

This study used a survey questionnaire to examine if a course offered on sustainability socializes business students to demonstrate the linkage of attitudes and intentions to behave in sustainable ways. After the questionnaire was approved by the Dominican University Institutional Review Board established for the Protection of Human Participants (IRBPHP Application #10581), the pre-and-post questionnaires were administered to the 25 undergraduate students enrolled in Bus 3016, Sustainability Driven Business Innovation at the Barowsky School of Business, Dominican University of California during the 2017 January-May semester.

More specifically, the study attempted to investigate if the twenty-five business students enrolled in Bus 3016: Sustainability Driven Business Innovation for one semester, taught for about two hours and thirty minutes a week, were more equipped with the right knowledge

and changes that pertained to attitude and behaviors that subscribe to sustainable issues at the end of the semester.

The survey questionnaire was comprised of items related to attitudinal aspects and behavioral dimensions pertaining to sustainability that were originally developed by Kagawa (2007). The survey questionnaire was completed anonymously. The attitudinal aspects of sustainability were based on seven Likert-type questions. They ranged from a scale of 1 (strongly disagree) to 5 (strongly agree). On the other hand, the fifteen behavioral items were based on four scales that ranged from never acted (1) to frequently acted (4). In addition, demographic profiles such as gender and class standing (i.e., sophomore, junior, and senior) were collected.

To ascertain the internal consistency of the questionnaire, Cronbach's alpha was calculated for the attitude and behavior domains. Cronbach's alpha for the seven items on the attitudes and the fifteen behavioral aspects were 0.834 and 0.803 respectively.

Data Analysis

As a background for the study, the demographic characteristics of the relationship between female and male students and their class standing in relation to their attitudes and behavior toward sustainable life style is examined.

Furthermore, the hypotheses narrated above were tested using pre-test (bench-mark scores) and post-test scores to ascertain if there were significant changes in attitudes and behavior of the 25 business students who took a course on sustainability driven business innovation for one semester. The data was analyzed using Statistical Package for the Social Science (SPSS). However, the small counts in individual cells were collapsed into fewer cells to get larger counts.

As shown in Table 1, 66.7 percent of the female students but only 53.8 percent of the male students either agree or strongly agree that they have favorable attitudes (feelings) towards sustainability.

Table 1: The Relationship between Gender and Attitudes on Sustainability Attitudes (N=25)

Gender	Disagree & Strongly Disagree	Neutral	Agree & Strongly Agree
Male	7.7% (1)	38.5 % (5)	53.8% (7)
Female	0	33.3% (4)	66.7% (8)

As shown in Table 2, about 61.6 percent of the male business students sometimes or frequently practice sustainable. On the other hand, only 25 percent of the female students sometimes practice sustainable behavior or undertake sustainable decision process within their daily lives.

Table 2: Association between Gender and Behaviors on Sustainability (N=25)

Gender	Never	Rarely	Sometimes	Frequently
Male	7.7% (1)	30.8% (4)	23.1% (3)	38.5% (5)
Female	33.3% (4)	41.7% (5)	25% (3)	0

As shown in Table 3, while 69.2% and 80% of the junior and senior students have a positive attitude towards sustainability, about 42.9% of the sophomore students seem to have negative

feelings about sustainability. Similarly, as shown in Table 4, while 67.4 percent of the sophomore business students rarely practice sustainable behavior, only about 23 percent of the junior and 20 percent of senior students rarely practice sustainability.

Table 3: Relationship between Class Standing and Sustainability Attitudes (N=25)

Class Standing	Disagree & Strongly Disagree	Neutral	Agree & Strongly Agree
Sophomore	42.9% (3)	28.6% (2)	28.6% (2)
Junior	23.1% (3)	7.7% (1)	69.2% (9)
Senior	20% (1)	0	80% (4)

Table 4: Relationship between Class Standing and Sustainable Behavior (N=25)

Class Standing	Never	Rarely	Sometime	Frequently
Sophomore	0	67.4% (5)	14.3% (1)	14.3% (1)
Junior	30.8% (4)	23.1% (3)	23.1% (3)	23.1% (3)
Senior	20% (1)	20% (1)	40% (2)	20% (1)

Rogers (1962) and Lazano (2006) argue that universities generally attempt to apply five stages (create awareness; motivate the students to develop interest; help the students reflect the future potential of the sustainable idea; try the idea at a micro-level; and finally put the idea into practical operations) to help students adopt sustainable driven innovation. Thereby, paired T-Tests were used to determine the changes in student attitudes and behavior.

Table 5: Changes in Student Attitudes and Behavior (N=25).

	Mean	N	St. Deviation	St. Error mean	T-value	df	Sig. (2-tailed)
Aware1	**3.96**	**25**	**.734**	**.147**	**3.09**	**24**	**0.005****
Aware 2	**4.40**	**25**	**.707**	**.141**			
Adopt1	4.08	25	.640	.128	1.57	24	.129
Adopt 2	4.36	25	.700	.140			
Interest1	4.28	25	.614	.123	.492	24	.627
Interest 2	4.36	25	.700	.140			
Recycled 1	4.32	25	.627	.125	2.28	24	.032*
Recycled 2	4.60	25	.500	.100			
Puchase1	2.48	25	.872	.174	1.03	24	.313
Purchase2	2.72	25	.678	.135			
Vote1	2.36	25	.907	.181	2.02	24	.050*
Vote2	2.92	25	1.04	.207			
Action1	2.68	25	.900	.180	1.62	24	.118
Action2	3.12	25	.781	.156			
Shopbag1	2.80	25	.913	.183	7.96	24	.434
Shopbag2	3.04	25	1.60	.212			
Reusepaper1	2.64	25	.952	.190	2.107	24	.046*
Reusepaper2	3.08	25	.812	.162			
Reuseplastic1	2.96	25	1.17	.234	2.828	24	.009**
Reuseplastic2	3.76	25	.523	.104			

*Statistical significance at .05 and 0.01

The results of the pre-and post-test of the Dominican University students who took the Sustainability Driven Business Innovation course seem to indicate that the course has created

significant sustainability awareness in the students. As shown in Table 5, the students were heavily involved in recycling, reuse of paper and plastic products, and the participants stood for pro-environment issues, supported and voted for government and non-government officials based on their environmental issues.

Moreover, as shown in Table 6, the paired samples, which test for the difference in two means by the same respondents, indicate the mean scores of business students' post-test results (Attitude 2) are significantly different than the pre-test scores (Attitude 1). This result therefore confirms the hypothesis (#1) that classroom exposure through effective teaching would contribute to sustainable attitudes. Please notice that while the mean values for the post-test results are significantly different than the pre-test results, the t-value is negative because the results of the pre-test results were subtracted from the post-test results.

Table 6: T-Test of the Pre-test and Post-test Scores on Sustainable Attitudes (N=25)

Pairs	Mean	St. Dev	St. Error of mean	T-value	df	Sig.
Attitude1	27.96	3.45	0.69	-2.553	24	0.02*
Attitude2	30.28	3.68	0.73			

*Statistical significance at .01

Similarly, as shown in Table 7, results of the paired t-test indicate that the mean value of the pre-test behavior was 36.48 whereas the mean value of the post-test scores on behavioral related factors was 42.44. The behavioral score difference of the mean value (5.96) was found to be statistically significant at 0.01. This confirms the hypothesis number 2 that post-test score on sustainable behaviors are higher than pre-test score.

Table 7: T-Test of the Pre-test and Post-test Scores on Sustainable Behaviors (N=25)

Pairs	Mean	St. Dev	St. Error of mean	T-value	df	Sig.
Behavior 1	36.48	6.68	1.34	-2.982	24	0.01
Behavior 2	42.44	6.67	1.33			

*Statistical significance at .01

Finally, as shown in Table 8, the mean post-test behavioral score of 45.96 was statistically different than the pre-test mean attitude scores of 27.96. This confirms hypothesis 3 that indicates that classroom exposure to sustainability issues using lectures, class discussions, guest lectures, videos, and out of class activities can substantially change or induce learners to be active in recycling and reusing, have the intention to vote for environmentally conscious candidates, and be active in conservation efforts.

Table 8: The T-test Mean Difference between the Changes from Pre-test to Post-test scores of 25 Business Students on Sustainable Related Behaviors

Pairs	Mean	St. Dev	St. Error of mean	T-value	df	Sig.
Attitude 1	27.96	3.44	3.45	-11.453	24	0.00
Behavior 2	45.96	6.85	6.85			

*Statistical significance at .01

Conclusions

This study investigated to determine if classroom exposure to a course on sustainability could equip the students with the right knowledge and changes that pertained to attitude and

behaviors related to sustainable issues. The finding of this study indicates that female students seem to demonstrate pro-sustainable attitudes. On the other hand, once exposed, male students seem to be engaged in sustainability related activities. In addition, the junior and senior students in the sample seem to be more pro-sustainability than the sophomore students because the junior and senior students had been exposed to more sustainable courses than the sophomore students. Thus, in line with Roger's (1962) and Lazano's (2006) adoption model, the business students at the Dominican Universities seem to be aware, developed interest in sustainability, even have started applying micro-level sustainability practices at home and had the intentions to be driven by remarkable innovation activities in the school compound. Stated differently, this study has fully ascertained that sustainable attitudes positively contribute to students' intentions to be engaged in sustainability behaviors.

However, it needs to be ascertained that the results of the study cannot be generalized because the study was based on only 25 participants. In addition, as argued by Swaim et al (2014), "research on the effectiveness of sustainability pedagogical methods should be applied longitudinally with direct ties to learning outcomes to increase long-term efficacy of sustainability teaching." Therefore, since this study was based on a longitudinal basis, it did not go further to ascertain the pedagogical tools necessary to increase the effectiveness of teaching sustainability that could shape student's attitudes and behaviors related to sustainability.

Stated differently, a longitudinal research method needs to be conducted to ascertain which methods of teaching (i.e., lecture method, group discussions, showing videos, inviting guest lectures, working on term papers, engaging in green-related activities, the involvement of students in outside activities through internship programs or a combination of these techniques) could enhance the effective methods of teaching sustainability and contribute to the extension of academic learning to the work place. In addition to scaling up education for sustainability, faculty needs to be provided "with incentives support, resources, knowledge, and skills for changing their practice" (AASHE, 2010).

The most important lesson that could be drawn from this study is that since sustainability is a core agenda for the twenty-first century, business students' mindsets need to be exposed to sustainable efficiency. That is, through effective pedagogical methods, learners could become sustainability oriented and be encouraged to integrate sustainability into their lives and apply sustainability to decision-making processes within their professional practice.

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