Long-Term Impact of Study Abroad on Sustainability-Related Attitudes and Behaviors

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Abstract: Using study abroad as a vehicle for sustainable education is a growing trend. However, an examination of the impact of study abroad on participants’ sustainability-related attitudes and behaviors years after their programs is scarce. Therefore, the purpose of this study was to explore how a short-term sustainability themed study abroad program impacted students’ sustainability-related attitudes and behaviors. Since long-term personal development and change of attitudes are complex and multidimensional, a qualitative approach was used allowing participants to share their experiences and reflections on the process of learning and internalizing sustainability. A total of 31 study abroad participants were interviewed (20 to 33 years of age) and a grounded theory method was used throughout the study. Participants’ behavioral changes were identified, and the specific study abroad program designs that were associated with such changes were identified and discussed. The three behavioral changes identified by the participants were lifestyle, professional development, and responsible travel behaviors. The effective program design elements include emotion, cognition, and action. Furthermore, the findings suggested revisions to the Value–Belief–Norm model in that more motives should be added whereas, weight of responsibility might need to be reevaluated. This study contributes to the educational tourism and sustainability literature with practical implications for program design, and a better understanding of students’ long-term learning outcomes regarding sustainability.

Keywords: study abroad; sustainability-related attitudes; sustainability-related behaviors; emerging adults; student development; curriculum design

1. Introduction

Study abroad as one of the main channels for global education has grown steadily. For instance, more than 5.5 million students studied abroad worldwide in 2018 [1]. Traditionally, the purposes of study abroad are for learning languages and about cultures. However, with growth and diversification in global education programs, educators have explored the potential of study abroad as a platform for teaching sustainability [2]. As Long et al. [3] noted, the conceptual links between study abroad and education for sustainable development are well matched. Given that sustainability is a global issue, developing global awareness through study abroad may facilitate students to gain a more holistic understanding of sustainability [4]. Furthermore, traveling allows people to learn about other cultures, develop place attachment, and support local economies, which have the potential to contribute to the sustainable development of a destination [5]. Conversely, we should recognize the contradiction inherent in study abroad related to sustainability in that international travel has negative environmental impacts, notably through increasing CO₂ emissions associated with flights. Hence, it is critical to examine if the benefits of...
Despite progress in education for sustainable development and the expansion of educational tourism as a specific segment of tourism [7], the incorporation of sustainability into study abroad program design and evaluation has been slow and only occurred recently [3]. In the early 2000s, a small number of study abroad programs themed on sustainability were developed including the Maymester programs run by the University of Georgia (USA) and later expanded to other universities under the direction of American Universities International Programs (AUIP). Based on such programs, researchers started to empirically examine the impact of study abroad on student development [8–11]. Overall, these studies suggested a positive impact of participating in these study abroad programs on a student’s sustainability-related attitudes and behaviors. However, one of the biggest questions that has remained is how long do these changes last? Or, as Tarrant and Lyons asked [9] (p. 410), if such learning outcomes derived from short-term study abroad programs are “subsequently maintained, enhanced, or indeed extinguished?”

While study abroad and travel have the potential to benefit students’ development, in fact, irresponsible behaviors and the negative impact of tourism on host communities has been critiqued since the early days of mass tourism. As Jafari [12] explained, tourists felt that they were freed from social rules and norms in their everyday life back home. Breaking the rules became “the principles of touristhood” [12] (p. 153). What is even worse is that tourists may refuse to adopt the rules in the host society as well and treat the host community as a playground [13]. To address these negative impacts of tourism, the concept of alternative tourism [14], responsible tourism [15], and sustainable tourism development [5] have been coined and evaluated since the 1980s. Researchers have examined responsible tourism mainly from the supply side with a focus on tourism product suppliers, marketing, government, and host community [16].

Ironically, tourists as those who directly consume the tourism products were the last to be discussed in the responsible and sustainable tourism literature [17,18]. Responsible tourists should be encouraged to understand their impact on local communities, environmentally, culturally, and economically and gain an awareness of the issues related to being in the touristic bubble [19]. However, studies on responsible tourists soon identified gaps between tourists’ attitudes and behaviors regarding sustainability. For example, Juhan and Donicar [20] revealed that even though many tourists were aware of the negative impact of tourism on environments, they tended to find excuses for such behaviors. Similarly, Gao et al. [21] found that Chinese tourists recognized the negative impacts of tourism on local culture, economy, and environment, but such awareness did not significantly influence their ascription of responsibility nor perceptions of responsibility. Gao et al. [21] (p. 285) suggested that Chinese tourists might feel that they “have made enough economic contributions to the destination, offsetting any negative economic impacts” due to the high entrance fees to attractions. Caruana et al. [17] adopted a constructionist perspective and revealed how tourists see their responsibility and make sense of responsible tourism. Their participants depicted an “ideal type” of responsible tourist who would be immersed in the local culture, contribute to the local economy, and have minimum environmental impact. However, this definition was so lofty, as Caruana et al. [17] (p. 123) described, “a radical and consistent moralist,” one that travelers can barely achieve or identify with. Subsequently, the participants associated alternative aspects with responsible tourism such as education, distancing from mass tourists, and avoiding commercialization. These empirical studies showed that promoting sustainable behaviors is difficult and complex, especially in a tourism context.

Therefore, the overall purpose of this study is to examine the potential to educate about sustainability through study abroad. This current research examined a series of U.S. study abroad programs to enucleate the impact of sustainability-focused study abroad programs on long-term attitude and behavioral change among program participants. The programs were short-term (10 days to four weeks), instructor-led, field-based study
abroad programs themed on sustainability visiting three South Pacific countries (Australia, New Zealand, and Fiji). Given the complexity of shifting attitudes and behaviors, an interpretive perspective is taken, and a grounded theory method is used to elucidate this process. Specifically, two guiding research questions were proposed:

1. Did the study abroad program participants report changes in their sustainability-related attitudes and behavior years after the program?

2. If such changes occurred, what elements of the study abroad program did the participants attribute to changes in their sustainability-related attitudes and behaviors?

2. Literature Review

2.1. Education for Sustainable Development

Since the 1970s, an increasing number of researchers started to discuss public opinion on environmental issues and how to educate and change people’s environmentally responsible behavior. The focus was then expanded from the natural environment to sustainability which includes the economic and socio-cultural aspects of development. Early studies started by examining attitudes toward environmental issues. For example, Dunlap and colleagues [22,23] argued that implicit within environmentalism was a challenge to people’s fundamental views about the human–nature relationship. They conceptualized and operationalized this concept by developing the New Environmental Paradigm (NEP) scale. The scale focused on three aspects of beliefs: beliefs about “humanity’s ability to upset the balance of nature”, “the existence of limits to growth for human societies”, and “humanity’s right to rule over the rest of nature (anthropocentrism)” [23] (p. 427). Twenty-five years later, Dunlap et al. [23] reexamined the scale and added two more dimensions: “rejections of exemptionalism” meaning “humans are exempt from the constraints of nature” and the “the likelihood of potentially catastrophic environmental changes” [23] (p. 432).

Later, Stern et al. [24] applied Schwartz’s [25] norm-activation theory of altruism to the environmental movement context and conceptualized a comprehensive model which linked attitudes with behaviors, and integrated the NEP scale into the Value–Belief–Norm (VBN) theory. In the VBN model, values and worldviews are observed as causally antecedent to awareness of environmental consequences. Once people are aware of the adverse consequences of environmental issues, they should ascribe responsibility, which in turn may motivate changes in behaviors and personal norms in order to alleviate environmental problems (Stern, et al. 1995). The VBN model was then adopted and empirically tested in the education for sustainable development literature e.g., [26], the educational tourism literature e.g., [4,11], as well as the sustainable tourism literature e.g., [21,27].

For example, Wynveen et al. [11] applied the VBN model and examined the links among study abroad students’ personal values, environmental world views, awareness of concerns, ascribed responsibility, personal norms, and ecological conscious consumer behaviors. They found the path from awareness of concerns to responsibility, as well as the path from responsibility to personal norms were enhanced after the study abroad program. Their findings indicated that better awareness of environmental problems influenced students’ perceptions about their responsibilities regarding environmental problems and solutions, which could further impact their change in personal obligations. Additionally, Wynveen et al. [11] also identified direct links between personal values and personal norms.

To understand the effectiveness of educational programs and how people progress along the attitude-behavior ladder, several researchers adopted a developmental approach and examined the relationship between environmentalism and significant life experiences [28], life paths [29], life course [30], and environmental identity [31,32]. Chawla [29] interviewed 56 environmental activists and suggested key elements that influenced these people’s environmental attitudes and behaviors at three life stages: childhood, university years, and adulthood. Chawla [29] found that the impacts on children were mainly
from family members and time outdoors in natural areas. During college years, the impact from friends was the most significant. More abstract concerns such as pollution, principles, and religion emerged in adulthood. While Chawla [29] found that education was influential in junior high (7th grade) through university years, she also noted that formal education was not as effective as experiences of natural areas in cultivating the participants’ environmental commitment.

Also examining early-life outdoor experiences, formal education, and their association with environmental attitudes, Ewert et al. [33] surveyed 576 American university students. As expected, they found early-life outdoor recreational experiences were a strong predictor of pro-environmental attitudes. Surprisingly, formal environmental education and involvement in organizations that provide outdoor recreation opportunities were not significant predictors of pro-environmental attitudes. Another similar study on the impact of childhood nature experiences on adult environmentalism was conducted by Wells and Lekies [30] on a larger scale with 2004 participants ranging in age from 18 to 90 years. They found childhood experiences with both “wild nature” (hiking, camping, hunting, fishing etc.) and “domestic nature” (gardening) were significantly associated with adult environmental attitudes, while gender, race, age, income, and education level were held constant [30] (p. 7).

In summary, Stevenson et al. [34] (p. 2) identified five characteristics associated with environmental education: (1) environmental issues are inherently “value-laden” by nature; (2) interdisciplinary; (3) environmental education consists of both changing values and taking actions; (4) environmental education takes place in both formal and informal settings; and (5) environmental education has both a global and local orientation. These characteristics seem to endorse the association between environmental education and study abroad as such programs oftentimes offer a platform for both formal and informal education [35], and educate students about global interconnectivity [36]. Therefore, the connection between sustainability and study abroad is reviewed in the following section.

2.2. Sustainability and Study Abroad

The value of studying abroad has long been recognized. Students are motivated to enroll in study abroad programs to learn about other cultures and language, as well as to be able to travel [37]. Despite the benefits of study abroad, Dvorak et al. [6] (p. 145) argued that “we can no longer use air travel without taking into account the carbon emissions of that form of travel, and if colleges want to keep providing students with study abroad opportunities, a clear rationale must be articulated for this kind of education.” To address this issue, Dvorak et al. [6] suggested carefully designing study abroad programs in a sustainable manner because simply providing students with international travel experiences cannot guarantee any improvement in their understanding of environmental and global issues. This argument was further supported by Tarrant, Rubin et al.’s [38] quasi-experimental study. Tarrant, Rubin et al. compared the impact of course location and course content on environmental citizenship, environmental consumer behavior, and global perspective development. They identified a significant impact of the interaction between location (study abroad versus residential) and course content (sustainability courses versus other courses). In other words, when a study abroad program is intentionally designed to teach sustainability, it is more effective than teaching sustainability in a traditional classroom setting or study abroad programs without any sustainability component.

A few other studies focused on similar short-term summer study abroad programs themed on sustainability (similar South Pacific programs examined in this study) and examined the impact of study abroad on sustainability-related attitudes and behaviors. Three of these studies used a pre-test and post-test design and found positive improvement in students’ environmental citizenship scores post-program [9–11]. Tarrant et al. [10] compared the changes between students who enrolled in the Australia program and the New Zealand program. They found students in both programs improved their scores
associated with ecological conscious consumer behavior upon completing the programs. They also revealed that the Australia program participants scored significantly lower than the New Zealand participants prior to the trip, and such difference was eliminated after the program. Tarrant et al. [10] argued that since the students who chose New Zealand already tended to hold a relatively strong pro-environmental attitude, the study abroad program might not have led to any prominent changes. They also suggested use of Petty and Cacioppo's [39] elaboration likelihood model of persuasion to explain the two different types of students' sustainability-related attitude and behavior changes. Petty and Cacioppo identified two routes of persuasion: central and peripheral. The central route is a cognitive process which deals with arguments and relies on issue-relevant information. The peripheral route, however, influences attitude by affective cues. Accordingly, Tarrant et al. [10] suggested that for students who did not have a sustainability mindset prior to the study abroad program, the central route with cognitive elaboration could be more effective in instilling sustainability.

Furthermore, based on the same type of study abroad programs themed on sustainability, Landon et al. [8] compared changes in attitude toward climate change before and after the program. Also, they compared between study abroad programs and residential courses [8]. Their results showed environmental worldview was the strongest predictor of attitude toward climate changes. Further, Landon et al. suggested that although basic beliefs about the human–nature relationship were resistant to change, nature-based experiences and framing of climate-related messages could contribute to education for sustainability.

The research reviewed above tested and confirmed that students changed their sustainability-related attitudes and behavioral intentions after participating in study abroad programs. Furthermore, Bell et al. [40] and Strange and Gibson [41] used transformative learning theories [42] to investigate the process associated with how the students changed their attitudes and behaviors through the programs. Bell et al. [40] argued that the new experiences brought by studying abroad challenged students’ norms. Such discomfort gave the students a different vantage point to reconsider their sustainable practices. Eventually, the newly acquired awareness and knowledge about sustainability as well as their adjusted attitudes toward sustainability were integrated in establishing new behaviors such as changing career paths and everyday sustainable practices. Furthermore, Bell et al. found that the students had an improved understanding of all three aspects of sustainability: a new connection with the natural world, a new sociocultural awareness, and economic considerations in terms of economic cost and investment in environmental action. Also, they found that beyond the new awareness of sustainability issues, many students planned to actually take action for protecting the environment.

The literature review above illustrated that study abroad programs which were carefully designed with a sustainability component may have the potential to improve participants’ sustainability-related attitudes and behaviors. Also, as Bell et al. [40] and Landon et al. [8] suggested, follow-up qualitative studies are needed to explore further whether the impact of study abroad programs on participants’ sustainability-related attitudes and behaviors is long-lasting or not. Therefore, this study seeks to use former study abroad participants’ narratives and reflections to address the long-term effect of their study abroad experiences.

3. Methods
3.1. Study Context and Data Collection

The two goals of this study were to explore the changes among study abroad participants in attitudes and behaviors over time and the program mechanisms associated with these changes. With this goal in mind, an interpretivist qualitative approach was adopted [43]. Former study abroad participants were given the chance to recall their study abroad experiences and reflect on if/how the programs can be associated with integrating
sustainability into their lives. Furthermore, a grounded theory approach was adopted for exploring the meaning of the study abroad programs to the participants [44]. While identifying the themes from the interviews, the two cumulative research questions were also addressed.

The study abroad programs examined in the current study were short-term summer programs in the South Pacific including Australia (four weeks), New Zealand (four weeks), or Fiji (10 days). These study abroad programs were operated by a public university in the Southeastern U.S. The three programs had similar designs which were instructor-led field-based study tours. The theme for all of these programs was sustainability and encompassed content on the local natural environment, culture and social issues such as indigenous culture and history, as well as economic development from a sustainable-tourism perspective. The students were accompanied by two instructors from their home university throughout the trip. While visiting each place, local experts would give lectures and guide field-trips to facilitate students’ experiential learning. The Australia program and New Zealand program usually comprised a group of 15–20 undergraduate students. The Fiji program usually had 10–15 students. Each program was offered once a year in May and June since 2007.

A total of 31 former program participants were interviewed between 1 March and 2 May 2020. Among the interviewees, eight were males and 23 were females which mirrored the gender distribution of the program participants. One-on-one in-depth semi-structured interviews were conducted through Zoom or phone. The interviews lasted from 60 to 90 min, with a mean of 78 min (Table 1).

| Pseudonym | Year | Age | Gender | Program | Education |
|-----------|------|-----|--------|---------|-----------|
| Crystal   | 2009 | 31  | Female | New Zealand and Fiji | Parks and recreation (major) | Sustainability (minor) |
|           |      |     |        |         | Higher education (Master’s) |
| Kim       | 2010 | 30  | Female | Sydney and New Zealand | Advertising |
| Lucy      | 2012 | 28  | Female | Australia and Fiji | Pre professional biology |
|           |      |     |        |         | Physician’s assistant school |
| Snow      | 2012 | 27  | Female | Australia | Spanish (major) |
|           |      |     |        |         | Pre-physician assistant Medical school |
| Adeline   | 2013 | 28  | Female | New Zealand | Hospitality and tourism, MBA |
| Eason     | 2013 | 26  | Male   | Australia | Biology (major) |
|           |      |     |        |         | Fisheries and aquatic sciences (minor) Medical school |
| Skye      | 2013 | 27  | Female | Australia | Sustainability Law school |
| Yi³       | 2013 | 30  | Female | Fiji | Sociology (major), psychology (major), Tourism (Master’s) |
| Kelly     | 2013 | 26  | Female | Australia and Fiji | Marine biology |
|           |      |     |        |         | Biology (Ph.D.) |
| Yue³      | 2013 | 33  | Female | Fiji | Sociology |
|           |      |     |        |         | Tourism (Master’s) Non-profit management (Master’s) |
| Fiona     | 2014 | 25  | Female | Australia | Medical anthropology (major) |
|           |      |     |        |         | Sustainability (minor) |
|           |      |     |        |         | Public health (Master’s) |
| Name | Year | Age | Country | Major/Program                                      |
|------|------|-----|---------|---------------------------------------------------|
| Blake| 2014 | 26  | Female  | Australia Tourism Management                      |
| Adel | 2014 | 25  | Female  | Australia Psychology                              |
| Nora | 2015 | 26  | Female  | Australia Sustainability (major)                  |
|      |      |     |         | International development (minor)                 |
|      |      |     |         | Sustainability (Master’s)                         |
| Eva  | 2016 | 23  | Female  | Australia and Fiji Video production               |
| Sarah| 2016 | 23  | Female  | Australia and Fiji Advertising                    |
| Maya | 2017 | 23  | Female  | Australia Tourism Management (major)              |
|      |      |     |         | Business Administration (minor)                  |
| Jacob| 2017 | 22  | Male    | Australia Sport Management (Bachelor’s and Master’s) |
| Lily | 2017 | 22  | Female  | Australia Education (major), Sustainability (minor) |
|      |      |     |         | Education (Master’s)                             |
| Zoey | 2017 | 22  | Female  | Australia Natural resources conservation (major)   |
|      |      |     |         | International study (minor)                       |
|      |      |     |         | Ecological restoration (Master’s)                 |
| Ella | 2017 | 21  | Female  | Australia Tourism and event management            |
| Mason| 2017 | 22  | Male    | Australia Political sciences                      |
| Madden| 2017| 21  | Male    | New Zealand Applied Kinesiology                   |
| Aria | 2018 | 21  | Female  | Fiji Nutrition management (major)                 |
|      |      |     |         | Sustainability (minor)                           |
| Liam | 2018 | 23  | Male    | Australia Sport Management                       |
| Henry| 2018 | 21  | Male    | New Zealand and Fiji Microbiology (major)         |
|      |      |     |         | Anthropology (major)                             |
| Claire| 2018| 22  | Female  | Australia Sustainability (major), Communication (minor), Sustainable development (Master’s) |
| Lucas| 2018 | 22  | Male    | Australia and Fiji Political sciences            |
| Wan  | 2019 | 24  | Female  | Fiji English, Tourism (Master’s)                  |
| Edison| 2019| 21  | Male    | Australia Sustainability (major), Geography (minor) |
| Gianna| 2019| 20  | Female  | New Zealand and Fiji Sustainability (major), Public relation (major) |

Notes: 1. Year: The year that the student participated in the study abroad program. 2. Age: The age of the participants when they were interviewed. 3. First year female international students in tourism management at the master level when they took part in the study abroad program while other students were undergraduate students. Two of them were from Taiwan and one from mainland China. 4. Entering a master level program in fall semester.

The interviewees had all participated in the study abroad programs between 2009 and 2019. An average of 4.65 years has passed since the participants had taken part in the program. Their age when they were interviewed ranged from 20 to 33 (M = 24.5 years). All three of the destination countries were represented with 16 of them from the Australia program, two from New Zealand, four from Fiji. Five participants had studied in both Australia and Fiji, a further three in New Zealand and Fiji, and one in New Zealand and Australia (Sydney; this program was only offered in 2010). The participants’ bachelor’s degree covered a variety of majors including sustainability (n = 5), tourism management (n = 4), biology (n = 4), communications (n = 3) and other majors such as Spanish, sociology, psychology, sport management, political sciences, applied physiology and kinesiology, nutrition management, and English. Among these 31 participants, 19 of them had, or were pursuing a graduate level degree. Three of the participants were master’s students in tourism when they participated in the study abroad programs. The three graduate students were all female, and they had participated in the Fiji program. Two of them were...
from Taiwan, one from mainland China. All of the other participants were U.S. under-
graduate students when they took part in the study abroad program.

The interviews started with a general question asking the participants to recall their
study abroad experiences and to reflect on the association between the program and their
personal development. These introductory questions were intentionally designed to avoid
highlighting sustainability in order to reduce bias and yield rich description (Kvale and
Brinkmann, 2009). If the participants mentioned memories and changes related to sustain-
ability, follow-up questions were asked to retrieve more details about their experiences
and reflections. If the participants did not mention sustainability, probing questions were
asked specifically about learning sustainability through the programs and how this might
have subsequently influenced their attitudes and behaviors.

3.2. Data Analysis

The interviews were transcribed verbatim. The transcripts were read thoroughly and
coded following the procedure of open coding, axial coding, and selective coding [44].
Constant comparison was used to compare between interviews, categorize themes, and
compare the newly identified themes with extant literature. NVivo 12 was used for track-
ing the nodes, memos, and themes.

The open coding step identified key events and concepts reported by the participants.
For example, the specific sustainable practices participants mentioned. The axial coding
step organized the codes generated from the open coding into higher level categories to
explore the relationship among them. For example, the various sustainable practices men-
tioned by the participants were first identified and then grouped into three categories:
everyday life, professional development, and travel style. The selective coding step was
used to make sense of the relationship between the categories generated from axial coding
and refine the theoretical structure. Therefore, the changes in behavior were then linked
with the design of the study abroad programs to explain what elements in the programs
are effective in instilling a sustainability mindset. Memos and diagrams were created to
flesh out the analysis process and the evolution of the theoretical framework.

The first author was a teaching assistant with the programs in Australia and Fiji for
three summers. The second author has led at least one program per summer since 2007
and she has led students to all three of the countries. Our firsthand experiences with the
programs were used to help us interpret the data and understand the experiences the pro-
gram participants discussed during their interviews.

4. Findings

Two main themes were identified. The first theme revealed the changes study abroad
participants made regarding their sustainability-related attitudes and behaviors. The sec-
ond theme further explored the study abroad program design and captured elements that
can be associated with effective education for sustainability. The quotations reflect the
participants’ actual words, phrasing and expressions.

4.1. Long-Term Impact on Sustainability-Related Attitudes and Behaviors

4.1.1. Maintain Sustainability-Related Attitudes

While specific facts learned from the study abroad programs were likely to be forgot-
ten, a sustainable mindset was retained or further developed by many of the participants
after the program. For example, when asked if the sustainability mindset had faded, Snow
(2012, Australia (the year indicates which year the interviewee took part in the study
abroad program, and the country is the location of the program)) commented, “maybe the
specific examples, they faded. I don’t think I remember everything, but the general topic,
the general theme, I remember. I think it is on my subconscious even if I don’t think about
it. It’s been eight years.” Immediately, she linked the topic to the coronavirus disease 2019
(COVID-19) pandemic, a special historical event encountered while this interview was
conducted. During this timeframe, pictures and opinions had been shared on social media platforms suggesting that due to the pandemic, human activities had slowed, which seemed to have had beneficial effects on the environment. For example, air pollution was found to be reduced in the area where lockdowns were implemented, and wild animals were spotted more often than before [45,46]. Snow (2012, Australia) said:

The crisis, the Corona, this has been going on. The Earth has been thriving. Carbon emissions have gone... I remember I posted on Facebook like, this is the bright side of everything, like the Earth is getting a break from us. Um, so it’s kind of like a wake-up call to all this like, look how toxic we’ve been, look how we’ve been polluting the earth.

In other words, the sustainability mindset as emphasized by Snow seemed to give participants a different lens through which they could see the positive side, even during a pandemic.

The results also showed that the study abroad programs themed on sustainability attracted both students who were passionate about sustainability and students who were less interested in this topic prior to the program. For some of those students who did not have a strong sustainability-related attitude before participating in the program, the study abroad experience could be a turning point for them in changing their mindset and lifestyle afterward. For example, Jacob (2017, Australia) grew up in a household where sustainability “was not even a consideration.” When he was asked to talk about something meaningful to him about the study abroad trip, the first thing he talked about was to be “sustainably minded.” He said:

I didn’t think going into it I would, you know, consider myself someone that’s eco-friendly or sustainably minded or that wasn’t a priority for me, but realizing the impact that I have as a global citizen and that my behaviors and my lifestyle choices do affect the big picture of the whole world, that was a big takeaway for me. So, I think since Australia, I don’t think I’ve used a plastic water bottle since in the last three years. I try to change on my own level, my own personal conscience, and my own lifestyle.

Kim (2010, New Zealand and Sydney), still lived a low waste life 10 years after the program. She said, “now it’s a bit trendier, right? I don’t think I thought about it until the trip.” She explained that she had forgotten most of the academic content from the trip, but the main takeaway was “to reduce your footprint” which she remembered and practiced. Therefore, among the former program participants, sustainability was instilled in many of them as a mindset which was carried over by them and influenced the way they think when they encounter new events. The participants shared examples of their sustainable practices and how their changes in behavior were related to the study abroad programs. Three areas of change that were mentioned most often included everyday life behaviors, professional development, and travel style.

4.1.2. The Everyday Life Domain

Most of the participants were willing to make changes especially if these could be conveniently incorporated such as switching to reusable water bottles and reusable shopping bags. Some participants who were more passionate about sustainability extended their pro-environmental consumer behaviors to all three stages of responsible consumption including acquisition, use, and disposal [47]. For example, five participants talked about purchasing clothes at thrift shops and two developed a zero-waste lifestyle. Edison (2019, Australia) and Eason (2013, Australia) became vegetarian after the program. In short, sustainability became another consideration factor when they purchased and consumed products besides financial concerns. Some participants mentioned not only had they changed their own habits, but also that they influenced their family members to change their behaviors as well. As Stern et al. [24] pointed out, in environmental
movements, social changes have to be driven by personal changes rather than letting existing social norms shape personal norms.

However, it was also worth noting that even for those who live a sustainable lifestyle, they also admitted that some behaviors such as driving and travel by plane were hard to avoid and were less likely to be altered. The students from the Australia program had a lecture during their program learning about sustainable tourism. From that lecture, they realized the fact that they had just taken a long-haul flight from the U.S. to Australia which caused a large amount of carbon emission. In reflecting on this, Lucas (2018, Australia and Fiji) said, “it’s funny you’re here in a sustainability tour, but you kind of just did a super unsustainable thing to get here.” It was clear that the students were aware of their impact on the environment. However, no one actually claimed to be “responsible” for the negative impact.

4.1.3. The Professional Development Domain

Consistent with findings in the existing study abroad literature, our study abroad program provided students with a chance to explore their career direction [48]. Being exposed to sustainable development, some students discovered opportunities that matched their interests. For example, Eva (2016, Australia and Fiji) described her exploration process. When she applied to college, she had the “save the world” mentality, but did not have any “concrete plan.” She started with journalism because she liked writing and traveling. The study abroad programs then showed her a new option, and she said:

I knew there were environmentalists, and I knew there was tourism, but no one had ever introduced it to me together. And that was just mind blowing... At some point [during the trip], it just clicked. It was like, wow! I am going to do something in sustainable tourism. Maybe I’ll make documentaries to educate other people. I don’t know. But definitely sustainable tourism is my path. That is what I need to be focusing on.

While Eva’s change was relatively drastic, more often, the participants incorporated sustainability into their existing plans for the future. For example, after the programs in Australia and Fiji in 2018, Lucas chose environmental law as his specialization after entering law school. He had already been interested in history, cultures, and planned to apply to law school before taking part in the study abroad program. However, it was not until the program that he had a specific area on which to focus once in his pursuit of a law degree. He said he “really enjoyed learning” from the trip which helped him to clarify what he wanted to do. When asked what it was about sustainability that he enjoyed learning, he explained:

I really liked the idea of how global it was because it shows that stuff we do today doesn’t just impact us, it impacts future generations and people all over the world. And once I really think of the gravity of that and how much that really meant, that really interests me. Because you realize how big of a scope that it can all be ... How the world is changing so much. Going to the Great Barrier Reef and seeing the coral bleaching firsthand. That was one of the highlights of my whole life. I want to be able to preserve that for future generations to be able to see the same thing. I don’t want them to just be able to, you know, Google a picture of it or see it in textbook and that’s the only chance to see.

For some other participants, even if the decision of working in sustainability was not made immediately after the study abroad program or graduation from college, the goal of wanting to work in the field of sustainability might be maintained and achieved years later. For example, Crystal (2009, New Zealand and Fiji), worked for a municipal parks and recreation department until 10 years after her trip to New Zealand and Fiji in December 2009, she finally switched to work for a non-profit organization focused on conservation. “This new job,” she said, “I feel like my values are more aligned with the job in terms
of conservation and sustainability, so that’s a big thing.” As Guichard [49] argued, to echo the United Nation’s Sustainable Development Goals, career intervention should facilitate people to design an active life which supports sustainable development.

4.1.4. The Travel Style Domain

The participants’ sustainable practices not only were integrated into their everyday life and professional development, but also influenced their future travel. Many of the students suggested that the study abroad trip inspired them to travel more. Therefore, there are many occasions where they could directly apply the knowledge and skills they had learned about sustainable tourism from the study abroad programs. Also, the study abroad experiences influenced their travel style. They were more interested in local culture and community, and to be environmentally responsible while traveling.

It could be general awareness; as Crystal (2009, New Zealand and Fiji) said, the study abroad trip “made me think about how I spend time and money as a tourist and even on other trips.” The summer after her study abroad trip, she graduated from college and traveled in Africa. She said:

We did a very similar thing to New Zealand where we like rented a car in the capital of Namibia and traveled around the country, kind of in a circle. And just, you know, got to learn about that country and the people and we did lots of hiking and exploring and, you know, a world away from New Zealand but felt like a very similar trip model.

Similar thoughts were shared by other participants as they planned their trips later based on their study abroad itinerary in Australia, New Zealand, and Fiji. Throughout the program, the students also experienced different accommodations including hostels, homestay, extended-stay apartments, camping etc. Maya (2017, Australia) talked about her trip in Europe after the Australia program, and she started “leaning more towards AirBnb” because she stayed in “independently run accommodations and people’s houses” while in Australia she was more comfortable with these types of accommodations as well as she “wanted to have that cultural experience.”

Beyond being exposed to local cultures and responsible traveling styles, the students learned about the impact of tourism from local residents’ perspectives which gave the students a new vantage point to understand the importance of responsible tourism choices and behaviors. For example, Sarah (2016, Australia and Fiji) talked about how, immediately after her study abroad program ended in Fiji, her family went there for a family vacation. Her parents decided to stay in an all-inclusive luxury resort, but Sarah had the Fijian people’s life in her mind at this point. She said:

I just feel sick knowing what normal people in Fiji are living in. And then now we’re in this super fancy resort with air conditioning with all of the things that you would want in a resort. And it was just very interesting and hard for me to merge those two experiences. But I tried to tell my parents about my trip and my experiences and kind of give them more background. It’s not just this is the country, and this is the resort (See Figure 1).
In a follow up question asking about her parents’ responses to her, she described a “family-wide debate” which showed not only had the program impacted her, but it could also intrigue family and friends if they talked about such issues. Sarah said:

I remember sitting at dinner at the resort and having this family-wide debate with my dad and my brother. And, my mom is just sitting there listening, and my brother arguing that we don’t really need to do anything because technology will save us basically. Me arguing my ideas about sustainability community and stuff. And then my dad just kind of challenging me, but not in a negative way. He just wanted more answers. And I think that was probably one of the first times I felt very understood and heard by my parents with the sustainability stuff. Because in high school we were not seeing eye to eye on it. I would ask them to stop purchasing certain things, and they didn’t want to hear it... Since then, they’ve been way more receptive. It’s not their passion, but they have changed a lot of their habits and things have to adjust to a more sustainable lifestyle.

In conclusion, the students’ behavioral changes appeared to be manifested in three areas over time. The next step was to explore which experiences from the study abroad programs facilitated such changes. These are identified in the next theme.

4.2. Study Abroad Program Design

The results concerning how the study abroad program impacted students’ pro-environmental attitudes and behaviors were categorized into three aspects: (a) emotionally connected with the places visited; (b) cognition (know why); and (c) behavior (know how).

4.2.1. Emotional Connection

For both types of participants with or without a strong sustainable mindset prior to the program, the firsthand experiences in nature such as snorkeling on the Great Barrier Reef, holding a koala, hiking in the world’s oldest rainforest, walking on a glacier in New Zealand, and star gazing on the beach of an outer island in Fiji, all contributed to a personal connection with place and nature. Such a place attachment would inspire people to want to protect the environment and “keep the world beautiful and clean” (Maya, 2017,
Australia). While the students were in awe of nature’s beauty, they were also exposed to its degradation directly. For example, three years after Lily’s (2017) trip to Australia, she was still emotional when talking about coral bleaching. She said:

To this day, I always tell my friends when it’s brought up in the conversation about climate change and the coral reef and bleaching and I’ll tell them about my Australia trip. I’ll be like, when I was there, I was in charge of recording dead and live coral and I was I constantly marking off “dead.” It was actually, you know, incredibly sad to see. It’s one thing to learn about it in textbook, and read about it online, but to actually be there and be like, wow, there’s no fish in this area or like it’s super gray here. I’m tearing up right now. It’s really impactful.

Beyond having outdoor experiences in the field, the students also engaged in service learning and were shown best practices for sustainable tourism. These experiences could be inspirational and showed the optimistic side of sustainable practices. For example, the students stayed in a resort powered by solar energy, visited non-profit organizations dedicated to conservation such as a cassowary sanctuary, and helped with tree planting and beach cleanup. Not only did the students learn about the environment, places, and management, but also they got to know the people who were running those organizations. For Eva (2016, Australia and Fiji), learning these best practices showed her “concrete plans” of how sustainable tourism could be managed. Some students may have held doubts about the possibility of achieving sustainability goals, but knowing what had been achieved and there were people dedicated to sustainability “at least gave me hope” as Maya said (2017, Australia).

While the inspirational element may resonate with some students, it was not as prevalent as place attachment which was associated with positive emotions and willingness to protect the environment [50]. Two participants reported a feeling of “hopeless” or “pessimism” about sustainability after the trip. As Wan (2019, Fiji) explained:

My attitude toward sustainability is a bit pessimistic. I think people will only realize the gravity of sustainability after the environment is drastically damaged. For Fiji, whether it can achieve sustainability depends on those who have money, whether they want this place to be sustainable or not. Some hotels were just green-washed. She acknowledged that there were people actively working in fields trying to address environmental issues such as the scholars and guides we met on the trip, but she still thought, “everybody’s talking about sustainability, but acting differently. I’m not sure how it could be achieved in the hospitality industry. The more you learn about it, the more confused you are.”

4.2.2. Cognition (Know Why)

The interviews showed that merely being influenced emotionally was not enough. Concrete reasoning is key to changing sustainability-related attitudes [39]. Understanding the science of ecology helped the students to see how their everyday life has an impact on the environment and why they should take action. For example, after Jacob (2017, Australia) talked about how he did not “consider myself someone that’s eco-friendly” prior to the program but was changed afterward, he was asked, “is it a specific moment or a certain lecture in the program or the overall theme about sustainability [that made you change your behaviors?]” Jacob explained:

I remember one that was especially prominent and memorable was from; I believe his name is [guide’s name]. And he was explaining, we were in the Daintree rainforest at the beautiful overlook. And we’re looking out at the coral reefs and he was explaining the process in between the deep ocean and how that kind of connects to the coral reefs which connects estuaries that feed into the
rainforest what affects the rain forest, which affects the rainfall and the whole country... So that was something like a light bulb that went off for me... I would have never thought that all of these things were so connected and that one small factor affects life on land and rivers, life in the deep sea, life in, you know, the whole world (See Figure 2).

Figure 2. Mount Alexandra Lookout in Daintree Rainforest, Australia, where the students learned about interconnectivity between coral reefs, mangroves, and rainforest. 5/28/2017. Photo courtesy of author.

Interconnectivity as a concept can be taught in a traditional classroom setting. However, considering the scope of this abstract concept, students were able to resonate with it better after they had been to the rainforest outlook where they could see the reef and forests and when they saw bleached corals with their own eyes. The field trips enlightened the students and helped with understanding abstract concepts. Also, being exposed to a different environment and knowing the unique problems people faced in that environment opened students’ eyes. For example, Wan (2019, Fiji) recalled learning about the operation of a resort on an outer island in Fiji, and the challenges of doing laundry on that island. She said:

Operating a resort on an island is so hard. I remember meeting with those women who worked in the laundry room. They can’t really do laundry on the island because they don’t have enough water. They have to pack [the sheets] in a huge sack and ship them to the main island and wait a couple of days for them to be shipped back. I was absolutely shocked!

Having the passion and willingness to take action on behalf of sustainability is one thing and having the skills to achieve it is another. The next sub-theme focuses on how the students appreciated specific sustainable practices learned from the program.

4.2.3. Behavior (Know How)

Even for the students who had decided that they would work in the field of sustainability, it was unclear for many of them how to achieve this goal. For example, Sarah (2016,
Australia and Fiji) is someone who majored in advertising, but dedicated her personal life and professional goals toward sustainability. She described taking the advanced placement environmental science class in high school, it “put a sense of urgency in me.” However, she was frustrated about not knowing “what to do about it.” For her, the content learned from the study abroad program equipped her with concrete skills and steps to enact sustainable practices. She helped with a sustainability audit of the church in her home community. She interviewed the church employees and explained to them “where I thought most of their wastes were coming from and made suggestions.” She was able to link sustainability with Christianity and explain it to the people who went to the church. In other words, she used her audience’s language to communicate about sustainability with them. Sarah adopted the framework for doing the sustainability audit from the course project she conducted in Fiji. The project provided students with guidelines for assessing resort management and its environment. Sarah then explained how she adopted the framework in her audit:

[In Fiji], I was only focused on what my team was doing for the project at the time. But I saw the different categories that we were looking at, you know, someone was looking at water waste, someone’s looking at trash, someone was looking at something else. And then we would all come together and talk about what we found. So, because we did those projects, I was able to come back home and go to my hometown church, which is my dad’s church, and sit there and say, okay, let’s look at these different categories. Let’s break it down and then observe these systems.

Similarly, with a passion for sustainability, other participants also continued growing and integrating sustainability into their lives over the years. The specific examples about behaviors were introduced in the second theme on students’ behavioral changes. Overall, it appears that a legacy of these programs instills a broader understanding of sustainability and specifically a sense of responsible tourism in the participants and could be applied more generally in educational tourism to change tourist culture and teach students who are likely to be future travelers to understand why and how to be responsible.

5. Discussion and Conclusions

The findings addressed the first research question, “did the study abroad program participants report changes in their sustainability-related attitudes and behavior years after the program?”, by showing the long-lasting changes in participants’ attitudes toward sustainability and three aspects of their changes in behaviors, i.e., changes in everyday life, career path, and travel style. More importantly, the results identified three aspects of the study abroad program design, emotion, cognition, and action that are effective in influencing participant development thereby addressing the second research question, “what elements of the study abroad program did the participants attribute to changes in their sustainability-related attitudes and behaviors?”

In line with the VBN theory and previous findings on student development after studying abroad, our findings support an attitude-behavioral connection in learning and changing sustainable behaviors [4,24]. Our program participants showed that once the sustainability-related attitudes are instilled, they tend to be resilient. The change in attitude is critical in particular for those students who did not have a strong sustainability attitude prior to participating in the study abroad program [10]. We found some of the students may reach a turning point solely because of their study abroad experiences [40]. Conversely, about half of the study abroad participants who chose this program were passionate about sustainable development prior to the program. The impact of the program on these students is more likely to be a reinforcement of sustainability rather than a “wake-up call.” Such difference in students pre-trip sustainability-related attitudes were noticed by previous researchers [9,10]. They suggested that those who had stronger sustainability attitudes prior to the trip had little room left for their sustainability mindset to
be further improved. Therefore, institutions might specifically target resources to students who tend to be less sustainably cautious such as those who had no prior international experiences so that the transformation of students’ environmental attitudes might be more effective and efficient. However, our interviews also showed for the students who were interested in sustainability prior to the program, the study abroad experience was equally critical to their personal development. The value of study abroad experiences on student development tended not to be captured by previous researchers in measuring environmental citizenship using statistical research likely because they did not take the students’ developmental stage into consideration [29].

College students and emerging adults are at the life stage of searching for their passion, identity, and career. This life stage can last from 18 to 30 years of age [51]. Even for those who were passionate about sustainability and majored in sustainability sciences or conservation, they were still actively searching for opportunities and trying to decide if they want to work in the field of sustainability or not. Some students might be concerned about sustainability, but increased awareness of the consequences of climate change led to a sense of hopelessness instead of being motivated to take action. Therefore, it is important to use such experiences as study abroad to showcase the successful organizations and potential career opportunities in fields with a sustainability focus to those who are already interested in sustainability. In so doing, the program may help them solidify their career direction. To link the influence of study abroad on solidifying career choice with the VBN model [24], the findings indicate that the relationship between attitude and action should not be unidirectional. The VBN model should be a cycle in which the new sustainable practices students learned about may in turn enhance their beliefs and values.

Not only is direction in the VBN model relevant, but the role of “ascription of responsibility” in the model was challenged by our findings. In the VBN model, Stern et al. [24] suggested “ascription of responsibility” as the bridge between awareness and actions. In other words, the tenets suggest that individuals think they are responsible for environmental problems and in turn are responsible for addressing them and encouraging them to act [52]. However, during the interviews, “responsibility” was not among many of the motives the participants mentioned for changing their sustainability attitudes and behaviors. What was missing from the participants’ language shed light on the way they think. Talking about “responsibility” is either not effective in communicating about sustainability with students, or it needs to be expressed with more advocacy as the students did not consider responsibility as a reason why they support sustainability. Relating to the ideas of life span development, emerging adults are involved in the exploration of different identities and tend to eschew responsibility [53]. Thus, as Landon et al. [8] argued, framing is critical in teaching about climate change, especially among emerging adults with anthropocentric world-views. It may partially explain the discrepancy between tourists’ perceptions of negative impacts of tourism and perception of responsibility in tourism research [21].

While the “ascribing of responsibility” might not be effectively motivating for emerging adults in inspiring them to make a difference, the participants talked about many other drives for them to be sustainable such as being in awe of nature, developing place attachment, understanding global interconnectivity, and concern about damaging the environment. Additionally, a sustainable lifestyle is to some participants “cool,” “trendy” and may be associated with a sense of pride. Certainly, change in their sustainable behaviors were evident. Three major domains of changes were revealed: everyday life, career development, and travel style. These findings may suggest a revision of the VBN model [24] in that there were other factors connecting personal values and personal norms regarding sustainability beyond the path through environmental world view, awareness of concerns, and ascription of responsibility.

To effectively cultivate sustainability-related attitudes and long-lasting behavioral changes, study abroad programs should be designed with three aspects in mind: emotion, cognition, and action. These elements can be applied in study abroad designs, and also
support the application of Petty and Cacioppo’s [39] elaboration likelihood model of persuasion. The cognition aspect concerns raising awareness of environmental issues and global interconnectivity. Also, it is important to explain the science of ecology and concepts related to cross-cultural understanding to program participants. In line with Tarrant et al.’s [10] argument, we found that the central route of persuasion using cognitive elaboration was more effective in explaining sustainability to students without a pre-existing sustainable mindset [39]. In contrast, the emotion and affect cues as the peripheral route of persuasion were influential for students who were passionate about sustainability prior to the program. In addition to using the central (elaboration) and peripheral (non-elaboration) routes of persuasion for teaching about sustainability [39], our findings suggest an additional aspect of advocating for sustainable behaviors. The third dimension is to provide students with specific and doable action plans which helped with reducing frustration among the participants caused by not knowing how to engage in sustainable practices.

In terms of the specific behavioral changes among college students regarding sustainability, researchers have discussed college students’ everyday behaviors such as recycling, consumption of energy and food, use of transportation etc. [26]. When it comes to career development and sustainability, studies have shown that study abroad has positive impacts on students’ exploration of career paths. Also, as Guichard [49] argued, to echo the United Nation’s Sustainable Development Goals, career intervention should facilitate people to design an active life which supports sustainable development. What has not been raised is the potential of study abroad to educate responsible travelers. Our study showed a direct impact of study abroad experiences on the participants’ behaviors in their travel style. Many of the participants suggested that the study abroad trip inspired them to travel more and in a less resource-intensive way. In their subsequent travels, there were many occasions where they could apply the knowledge and skills they learned about sustainable tourism from the study abroad programs.

Learning about a responsible travel style includes understanding the travelers’ impact on local communities and gaining awareness of the issues associated with touristic bubbles [19]. Some of the participants simply had never been exposed to alternative forms of travel so the study abroad program becomes an opportunity to showcase how travelers should behave as well as how tourism businesses should be operated. Some students may have been aware of the negative impacts of tourism, but chose to ignore their impact because “touristic culture” is about freedom and enjoyment [54]. Study abroad programs could provide first-hand experiences for the students to learn about the impacts of tourists on local communities so students understand why the negative impacts of tourism should not be overlooked. Furthermore, as some of the participants pointed out, responsible travel styles are not considered by many travelers, especially novice independent travelers, as dealing with the preparation and planning for travel is already burdensome. Also, as Dolnicar [55] argued, people might be able to arrange their living conditions at home in an environmentally friendly manner, but the destination infrastructures are less familiar and often beyond travelers’ control. Therefore, people tend not to take the extra effort to plan their trips in a more environmentally and socially responsible manner. For the study abroad program discussed in this study, the itinerary was prepared by the university and a specialist logistics provider. A carefully planned study abroad itinerary can be used as a model to teach students about responsible travel which is another legacy which may offset study abroad trips’ negative impact on the environment in terms of carbon emissions [6].

It has to be acknowledged that this study has some limitations. First, ideally, the development of students over time should be examined using a longitudinal approach which tracks the changes in students after participating in a study abroad program at different time points. However, such a design was not feasible for this study which was part of a dissertation and had to be completed in one year. To minimize this limitation, former study abroad participants who took part in the program from different years were
interviewed. Second, as this study focuses on a specific type of educational tourism program generalizability is delimited to similar study tour programs at the university level. The advantage of such a design is that the study’s context is specific and the sample itself is homogenous. Future studies are recommended to explore other forms of study abroad programs and their impact on sustainability-related attitudes and behaviors and responsible tourism skills. Third, in terms of developmental stages, this study focuses on emerging adults aged between 20–33 years. Participants beyond the age of 33 were not accessible because the study abroad programs examined were first operated in 2007 and the interviews were conducted in 2020. Future studies are recommended to expand the scope of study to the impact of study abroad on participant’s sustainability-related attitudes and behaviors across the entire life span, for example high school programs and educational tours for mid- to later-life adults.

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The above text is a continuation of the enumeration, listing various research and study contributions in the field of sustainable tourism, including researchers' names, titles of their works, and publication details.
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