

GREEN CERTIFICATION FOR TOURISM TRAVEL: COMPARING PILOT PROGRAM PARTICIPANTS AND NONPARTICIPANTS

Laura Anderson
University of Vermont
Rubenstein School of Environment and Natural Resources
Burlington, VT 05405

Lisa Chase
University of Vermont Extension

David Kestenbaum
University of Vermont Extension

Abstract

Tourism travel can have significant environmental and social impacts. A pilot certification program for the motorcoach industry was conducted between 2009 and 2011 to increase awareness of the motorcoach as a relatively sustainable form of tourism travel and to promote efficiency and environmental sustainability in the industry. To gauge the impact of this effort, surveys of motorcoach company leaders were conducted at the beginning and conclusion of the program. Comparisons of program participants and the general motorcoach population (nonparticipants) indicated few changes in familiarity with and attitudes towards sustainable practices over the course of the program for either group, though nonparticipant company leaders exhibited slightly more negative attitudes for some items. The percentage of participant companies engaging in sustainable practices increased markedly, while relatively small changes in company behaviors occurred among the nonparticipant group. Findings suggest that the pilot certification program may have contributed to increasing environmental sustainability among participants.

1.0 Introduction

Tourism is a leading industry, providing economic and recreational benefits to communities and tourists in the northeastern United States and across the globe. However, travel to and from tourism destinations can have significant environmental consequences, including greenhouse gas emissions that contribute to climate change, depletion of petroleum resources, impacts to air quality, and generation of consumer waste. Beyond environmental concerns, tourists can be impacted by traffic congestion and accidents resulting from tourism travel (Black and Sato, 2007).

One approach to addressing these issues is to promote more sustainable modes of travel. In a report considering the contribution of different transportation options to climate change, the motorcoach was rated as the best low-carbon option for travelers (UCS, 2008). Motorcoach travel fatalities occur at half the rate as for personal vehicles, making it a relatively safe mode of travel (Nathan and Associates, 2008). Further, each motorcoach has the potential to remove 55 vehicles from the road, reducing road congestion. Of course, even within a relatively sustainable mode of travel, there is room for improvement.

Following these considerations, a pilot certification program for the motorcoach industry was conducted at the University of Vermont in collaboration with the American Bus Association (ABA) and the United Motorcoach Association (UMA). Known as the Green Coach Certification (GCC) program, the pilot initiative sought both to increase awareness of the motorcoach as a sustainable form of travel and to improve efficiency and environmental sustainability within the industry. The pilot program began in May 2009 and concluded in December 2011. By the program's end, 23 companies were participating and about 1,000 motorcoaches had been certified.

Research at the beginning of the GCC pilot program demonstrated that participants were more familiar with green practices, had more positive attitudes towards these practices, and engaged in sustainable practices to a greater degree than nonparticipating companies (Anderson et al. 2011). While participant companies began with a greater degree of environmental consciousness, the question remains as to whether their sustainability increased over the course of the pilot certification. The current analysis addresses this question by comparing changes in environmental familiarity, attitudes, and practices among participant and nonparticipant companies before and after the GCC program.

2.0 Methods

Motorcoach operators who were members of ABA and/or UMA were surveyed in the spring and summer of 2009 and in the winter of 2011. Two separate, but similar versions of a questionnaire were administered to pilot program participants ($n \sim 20$) and to the general motorcoach operator population (i.e., nonparticipants, $n \sim 1,200$). On the questionnaire, respondents were asked to rate their familiarity with and attitudes towards anti-idling policies, use of EPA-compliant engines, use of biodiesel, use of ultra low sulfur diesel fuel, recycling, and green certification. Respondents were then asked whether their company engaged in these and other sustainable practices.

Questionnaires were administered through a controlled online survey program in order to reach a large population of motorcoach operators from across North America in an efficient and cost effective manner. For each survey, respondents were recruited

through an e-mail message that provided a link to the online questionnaire, and additional e-mail reminders were sent to nonrespondents over a period of four weeks. The subject lines and content of these messages were varied to help increase response, and a drawing for \$500 cash or waived registration to an industry meeting was included as an incentive. Non-respondent follow up calls were conducted in both 2009 and 2011 for the general motorcoach operator survey.

Data were analyzed separately for program participants and nonparticipants. To consider changes that occurred over the course of the GCC pilot, Mann-Whitney tests were conducted to compare mean values for familiarity and attitude items before and after the program. In addition, the percentage of companies engaging in environmental practices before and after the program was compared.

3.0 Results

Survey respondents represented company decision-makers, holding positions as owners, operations managers, CEOs, and board of directors members. Response rates for the surveys ranged from a low of 13% for nonparticipant companies in 2011 to a high of 100% for participant companies in 2009 (Table 1). Follow-up calls with nonparticipant nonrespondents in both years indicated that nonrespondents did not differ markedly – or significantly at a 90% confidence interval – in their awareness of and interest in the GCC program or in their use of green messages in marketing materials (Table 2). A total of 15 GCC participant company leaders and 55 nonparticipant company leaders completed online questionnaires in both 2009 and 2011, allowing for direct comparisons of the same individuals before and after the GCC program.

	Participants		Nonparticipants	
	n	Response rate	n	Response rate
2009	21	100%	208	18%
2011	18	90%	128	13%
Both Surveys	15	--	55	--

	2009		2011	
	Respondents (n = 208)	Nonrespondents (n = 25)	Respondents (n = 128)	Nonrespondents (n = 393)
Integrate green marketing?	32.0%	30.3%	33.9%	38.0%
Heard of GCC?	44.0%	39.4%	51.6%	59.2%
Consider participating in GCC?	76.0%	79.4%	68.3%	64.0%

* Percentages not significantly different at 90% confidence level

In general, respondents reported higher levels of familiarity with anti-idling practices and EPA-compliant engines, and the lowest levels of familiarity with items related to calculating carbon footprints and purchasing carbon offsets (Table 3). Neither participants nor nonparticipants changed in their level of familiarity before and after the program.

Table 3. Participant and nonparticipant company leader familiarity with green practices before and after pilot ecolabel program

	Participants				Nonparticipants			
	2009 mean* (SD)	2011 mean (SD)	Z	Sig.	2009 mean (SD)	2011 mean (SD)	Z	Sig.
Anti-Idling ^a	4.60 (0.63)	4.67 (0.49)	-0.45	0.66	3.88 (0.98)	3.88 (0.96)	-.04	-.97
EPA Engines ^a	4.20 (1.08)	3.93 (1.39)	-1.41	0.16	3.07 (1.24)	3.09 (1.36)	-.25	0.80
Biodiesel	3.60 (1.30)	3.13 (1.41)	-1.23	0.22	2.81 (1.39)	2.80 (1.29)	-.08	0.94
ULSD	2.13 (1.19)	2.20 (1.21)	0.00	1.00	1.96 (1.23)	1.94 (1.28)	-.07	0.94
Carbon Footprint	2.07 (1.22)	2.40 (1.06)	-1.31	0.19	1.55 (0.88)	1.74 (1.05)	-1.25	0.21
Carbon Offsets	2.20 (1.37)	1.87 (0.92)	-1.08	0.28	1.48 (0.69)	1.59 (0.92)	-1.02	0.31

*mean values based on a scale of 1 = not at all familiar, 2 = somewhat familiar, 3 = moderately familiar, 4 = very familiar, and 5 = extremely familiar. ^aThese two items differed significantly between participants and nonparticipants in 2011 at $p < 0.05$.

Both participants and nonparticipants had the most positive attitudes towards certification and the least favorable attitudes towards items related to carbon footprints and offsets (Table 4). Participant company leaders showed a change in attitude for only one of the 17 items measured, viewing carbon offsets somewhat more negatively. Nonparticipants, on the other hand, exhibited more negative attitudes towards 5 of the items measured. Two of these items related to passenger miles per gallon, two related to carbon footprints and offsets, and one related to idling.

Table 4. Participant and nonparticipant company leader attitudes towards green practices before and after pilot ecolabel program								
	Participants				Nonparticipants			
	2009 mean (SD)	2011 mean (SD)	Z	Sig.	2009 mean (SD)	2011 mean (SD)	Z	Sig.
Certification								
Positive for industry ^a	2.20* (0.86)	2.00 (1.20)	-0.88	0.38	1.26 (1.47)	1.06 (1.31)	-1.12	0.26
Standards should be introduced ^a	2.20 (0.86)	1.93 (0.59)	-1.26	0.21	0.80 (1.53)	0.76 (1.62)	-0.16	0.87
Passenger MPG								
A good idea	2.07 (1.22)	1.87 (0.83)	-1.00	0.31	1.02 (1.32)	0.46 (1.06)	-2.52	0.01
A good business practice	1.27 (1.48)	1.33 (0.90)	-0.21	0.83	0.81 (1.36)	0.26 (1.15)	-2.46	0.01
EPA Engines								
A good idea ^a	1.53 (1.19)	1.07 (1.91)	-1.04	0.30	0.34 (1.44)	0.15 (1.34)	-0.43	0.67
Standards as positive impact	0.40 (1.81)	0.47 (1.96)	-0.30	0.76	-0.40 (1.64)	-0.16 (1.37)	-1.19	0.23
Biodiesel								
Help reduce impact ^a	0.53 (1.73)	0.07 (1.67)	-1.21	0.22	0.56 (1.51)	0.24 (1.44)	-1.57	0.12
A good idea	0.33 (1.63)	0.33 (1.23)	-0.09	0.93	0.18 (1.51)	-0.12 (1.05)	-1.49	0.14
Lasting trend	0.53 (1.19)	0.20 (1.15)	-0.85	0.39	-0.17 (1.25)	-0.08 (1.12)	-0.29	0.77
Recycling								
Drivers should recycle customer trash ^a	0.13 (2.17)	0.40 (1.68)	-0.46	0.64	-0.67 (1.62)	-0.47 (1.60)	-0.71	0.48
Employees should recycle at company	1.87 (1.25)	1.71 (0.82)	-0.30	0.76	0.67 (1.68)	0.63 (1.89)	-0.02	0.98
Carbon								
Offsets based on conclusive science ^a	0.36 (1.22)	0.00 (1.13)	-1.67	0.10	-0.44 (1.02)	-0.22 (0.84)	-1.26	0.21
Should calculate footprint	0.67 (1.23)	0.40 (1.18)	-0.92	0.36	0.09 (1.34)	-0.40 (1.10)	-2.24	0.02
Purchasing offsets will reduce impact	0.00 (1.60)	-0.50 (1.69)	-0.85	0.40	-0.22 (1.36)	-0.75 (1.35)	-2.36	0.02
Offsets a good idea ^a	0.67 (1.80)	-0.50 (1.45)	-2.69	0.01	0.00 (0.83)	-0.21 (1.31)	-0.98	0.33
Idling								
Important to implement ^a	2.47 (0.52)	2.47 (0.64)	0.00	1.00	1.71 (1.33)	1.16 (1.44)	-2.40	0.02
Should be required ^a	1.93 (1.28)	2.00 (1.36)	-0.14	0.89	0.70 (1.84)	0.45 (1.69)	-0.73	0.46

*mean values based on scale of -3 = strongly disagree, -2 = disagree, -1 = somewhat disagree, 0 = unsure, 1 = somewhat agree, 2 = agree, and 3 = strongly agree. ^aThese eight items differed significantly between participants and nonparticipants in 2011 at $p < 0.05$.

Both study populations had the highest level of participation in recycling at headquarters and the lowest levels of participation in items related to carbon mitigation (Table 5). The percentage of participant companies engaging in green behavior increased for 9 of the 11 practices measured. Recycling on buses, green marketing, reduced idling, and tracking of passenger miles per gallon increased among more than a third of companies. Slightly more nonparticipant companies participated in carbon footprint calculations or purchasing carbon offsets after the program, and 11.6% more companies established an environmental policy during this time.

Table 5. Green practices at participant and nonparticipant companies before and after pilot ecolabel program

	Participants			Nonparticipants		
	2009 %	2011 %	% change	2009 %	2011 %	% change
Recycle at Headquarters	86.7	93.3	+6.6	55.8	55.6	-0.2
Recycle on Buses	33.3	66.7	+33.4	40.7	40.7	None
Green Marketing	46.7	86.7	+40.0	32.1	30.2	-1.9
Environmental Policy	40.0	53.3	+13.3	11.5	23.1	+11.6
Carbon Footprint	7.1	6.7	-0.4	1.9	5.6	+3.7
Carbon Offsets	6.7	6.7	0.0	1.9	3.8	+1.9
Integrated Environment	73.3	93.3	+20.0	--	--	--
Reduce Idling	53.3	86.7	+33.4	--	--	--
Track MPG	25.7	66.7	+41.0	--	--	--
Monitor Load	60.0	73.3	+13.3	--	--	--
Calculate Deadhead Miles	46.7	60.0	+13.3	--	--	--

4.0 Discussion

A primary goal of the Green Coach Certification pilot program was to improve efficiency and environmental sustainability in the motorcoach industry. The applied research presented in this proceedings paper considers whether the program was successful in meeting this goal. A common approach to assessing program effectiveness is to conduct assessments before and after an intervention (Rockwell & Kohn, 1989). However, over the course of an 18-month program, there are many possible variables (e.g., changes in green consumerism, changing economic conditions) that could influence company receptiveness and commitment to sustainability. This study took steps toward accounting for these potential factors by comparing the pilot program participants with non-participating companies. In other words, if different types of changes occurred in participant companies and nonparticipant companies over the course of the pilot program, this could be an indicator of the program's influence.

In the case of company leader familiarity with sustainable practices, no change was observed for either group. This is perhaps a surprising finding, given the increase in the number of participant companies that engaged in environmental practices over the course of the program. For example, the percentage of participant companies that took steps to reduce idling increased by a third, but no increase in leader familiarity with these practices was found. On the other hand, a lack of increase in carbon reduction practices among participant companies matches a lack of increased familiarity. In considering this variable, it is worth noting the potential limitation of "familiarity" as a self-evaluation of knowledge. Participant company leader knowledge about green practices may have in fact increased over the program, but no objective measure of knowledge was included in the survey.

Company leader attitudes were also relatively homogenous over the course of the pilot program. This finding is in keeping with recent surveys of American attitudes towards climate change (Leiserowitz et al., 2012) – a major issue addressed in the pilot program. However, where attitudes differed, they did so in a negative direction. Nonparticipant company leaders expressed more negative attitudes for five items, while participant company leaders indicated a more negative attitude for just one item. This finding suggests that the pilot program, or some other characteristic of its participants, may have played a role in preventing a decline in attitudes towards environmental practices. However, it should also be noted that the magnitude of these differences was relatively small.

Perhaps the most striking changes observed in the analysis relate to environmental practices at participant companies. While nonparticipant companies showed a small increase in carbon mitigation practices, and a moderate increase in establishing formal environmental policies, these companies remained steady or decreased slightly in their participation in the other three practices measured. Participant companies, on the other hand, saw increased participation in almost every category – the exception being carbon mitigation practices.

Findings from this study suggest that a certification program like the GCC may be a promising approach to increasing efficiency and environmental sustainability in the tourism travel industry. While company leader familiarity with and attitudes towards sustainable practices (factors that changed little in this analysis) are potentially important factors in a company's ecological responsibility (Bansal and Roth, 2000), on-the-ground changes in a company's practices are the ultimate objective of an environmental outreach program. It is clear from this analysis that participant companies increased their participation in environmental practices to a greater degree than nonparticipant motorcoach operators. At the same time, the current analysis focused only on participation versus nonparticipation. A future effort might focus on determining the magnitude of this impact (e.g., the amount of fuel and emissions saved through anti-idling programs). These types of insights may be gained as the pilot program transitions into a permanent certification program for the passenger transportation sector.

5.0 Citations

- Anderson, L., Chase, L., Kestenbaum, D., & Mastrangelo, C. (2011). Ecolabels for passenger transportation: Understanding motorcoach company receptiveness to a pilot green certification program. *Journal of Sustainable Transportation*, doi: 10.1080/15568318.2011.626889.
- Bansal, P., & Roth, K. (2000). Why companies go green: A model of ecological responsiveness. *Academy of Management Journal*, 43, 717-736.
- Black, W., & Sato, N. (2007). From global warming to sustainable transport 1989-2006. *International Journal of Sustainable Transportation*, 1, 73-89.
- Leiserowitz, A., Maibach, E., Roser-Renouf, C., & Hmielowski, J. (2012). Climate change in the American Mind: Americans' global warming beliefs and attitudes in March 2012. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication.
- Nathan Associates Inc. (2008). The economic impact and social benefits of the U.S. motorcoach industry. Available online: <http://www.buses.org/files/Report08.pdf>.
- Rockwell, S., & Kohn, H. (1989). Post-then-pre evaluation. *Journal of Extension*, 27(2).
- UCS. (2008). Getting there greener: A guide to your lower-carbon vacation. Washington, DC: Union of Concerned Scientists.