

USING CARBON FOOTPRINT ANALYSIS TO ENCOURAGE PRO-ENVIRONMENTAL CHANGES IN STUDENTS' CONSUMPTION BEHAVIOR

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Abstract

The Carbon Footprint Analysis (CFA) assignment strives to demonstrate to students that their lifestyles have significant environmental and social impacts, and that they can reduce these impacts over the course of the quarter through changes in consumption practices. Our marketing students cannot be change agents, i.e., leaders in promoting sustainable business practices and sustainable consumption, unless they first believe that change is possible. Just as importantly, this project introduces sustainability metrics, helping students to understand how firms can measure and reduce their environmental impact; this will allow them to be advocates for such metrics within their place of employment.

This Abstract briefly describes a project, assigned in a 400-level marketing elective on *Marketing Strategies for Sustainability*, in which students calculate the size of their personal carbon footprint and identify three actions (e.g., walk to school instead of drive, switch to green power) which they take to reduce that footprint over the course of the ten weeks. Students maintain a weekly blog on their progress. Public commitment, sharing, regular feedback, and visualization tools are incorporated into the project as a means of increasing the likelihood of success. Several existing metrics first developed to assess the success of a firm's footprint reduction efforts are used to assess project effectiveness.

CFA allows us to evaluate the environmental impact of our consumption behavior by calculating the amount of earth's resources required to support a particular lifestyle. Most CFA methods operationalize our "impact" by measuring how many tons of carbon dioxide an

individual produces each year, i.e., his/her “carbon footprint.” The carbon footprint is 54% of humanity’s overall ecological footprint and its most rapidly-growing component; in fact, humanity’s carbon footprint now exceeds global bio-capacity by more than 20% . CFA translates the amount of carbon dioxide we produce into the amount of productive land and sea area required to sequester carbon dioxide emissions and accommodate our waste. Most CFA calculators assess the total amount of land required for the consumption categories of food, housing, transport, consumer goods, and services (e.g., health care, infrastructure).

There are many WEB-based footprint calculators, but two were selected for the present project (after trying several others): (1)

www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint/ developed by the Global

Footprint Network, and (2) www.StepGreen.org , developed by researchers at Cornell,

Carnegie-Mellon and MIT. The *Global Footprint Network Calculator* calculates an individual’s footprint for each of the consumption categories noted above based on specific input data that often requires research (e.g. electricity bill/month), and visually depicts the number of planets that would be needed if everyone consumed at the same overall level you did for a year (see

Figure 1a). The *StepGreen Calculator* calculates the projected per-year carbon-dioxide savings and projected per-year dollar savings for each action you commit to (e.g., walk to school instead of drive, restrict meat consumption to one day a week, switch to green power) (see Figure 1b).

The verbatim instructions given to students are provided in Figure 2. Students are given a week to calculate their footprint, decide on their CF reduction goals and commit to them on *StepGreen.org*, and set up their blog with the first posting. At the beginning of each class session 2-3 students are asked to share this information from their blogs with classmates; Blackboard’s blog function is used to enable easy blog sharing. Student blogs and the sharing of student postings are an important part of this project because research has found that public commitment to environmental goals improves goal achievement. As the quarter progresses,

students report on their progress (and receive helpful suggestions from classmates) and also share relevant videos, events, articles, websites, etc. about businesses that are adopting sustainable business practices (this is another required assignment). The last blog posting of the quarter must include the original and re-calculated footprint, the total CO2 and dollars saved from actions carried out at *StepGreen.org*, a discussion of successes/failures, and plans to honor their commitments once the course is over. Students also hand in a hard copy of their blog analytics report for the quarter.

Please contact the author for a complete copy of the paper, which describes the measures of effectiveness used and the challenges and concerns encountered. Overall, this project was successful at reducing students' carbon footprint and generated significant feelings of personal accomplishment among participants.

Figure 1a

Global Footprint Network: Example of Output from CF Calculations



Figure 1b

StepGreen.org: Possible Footprint Reduction Actions

Browse Actions		Search Actions				
		Can't find the action you are after? Create a new action!				
		<< Previous 1 2 3 4 5 6 7 8 Next >>				
		Name	Dollar / CO2 savings	Rank	Comments / Updated	
<ul style="list-style-type: none"> All Popular Newly Created Not Applicable 	showering dishes glass	Turn off the lights when you exit the house in the morning for the day.	\$6.24/year 87.04 lbs/year	1	Feb 18 1 comment	Discuss I am doing this. Uncommit
	appliance year	Brush teeth the old-fashioned way.	\$0.80/year 10.56 lbs/year	2	Jan 22 6 comments	Discuss I am doing this. Uncommit
	round unplug not at	Use a manual razor instead of an electric one.	\$0.16/year 1.76 lbs/year	3	Jan 22 2 comments	Discuss I already do this Commit N/A
	home magazines cans	Turn off the lights if you are leaving a room for more than 10 minutes.	\$0.32/year 4.32 lbs/year	4		Discuss I am doing this. Uncommit
	operating save trees spring	Wash only full loads of clothes.	\$1.19/year 16.28 lbs/year	5	Sep 03 4 comments	Discuss I already do this Commit N/A

Figure 2

CFA Project Instructions Given to Students

Carbon Footprint Calculation (beginning of quarter): Calculate your personal carbon footprint at www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint/ . Get as close an estimate of the correct answer as you can. Which consumption category contributes the most to your Footprint? Next, visit www.StepGreen.org and commit to at least 3 recurring actions and 2 non-recurring, one-time actions you will take to reduce your carbon footprint during the quarter. Download the *StepGreen* applet to your blog so that all can view your commitments and your weekly report on your progress. Finally, post the visual print-out of your CF calculations from the *Footprint Network*, your reduction plans from *StepGreen.org*, and a short reflection on them to your blog.

Progress re Reduction Goals: Each student will keep a weekly blog. Use the blog to record progress toward your goal. Think of it as a diary – how difficult is it to stick to your commitments? What are some of the challenges? How do you feel about these CF actions you are taking (resentful, proud, less guilty)? Students will give periodic updates in class on how these efforts are proceeding. Halfway through the quarter, you will re-evaluate your CF reduction actions/commitments and either add new ones or determine to more religiously comply with your existing ones. I expect, at the very least, to see one blog posting per week. Please use www.google.com/blogger to host your blog; blog analytics can be accessed from the “stats” link.

Carbon Footprint Re-calculation (end of quarter): You will re-calculate your CF at the end of the quarter, posting on your blog your (1) re-calculated CF, (2) original CF, (3) total CO₂ and dollars saved from your commitments at StepGreen.org, and (4) a reflection on your efforts.