Greening the Antarctic Leadership Venture: Preparing Leaders for a Sustainable Future

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Abstract
In 2008, the Wharton Leadership Venture Program and the Initiative for Global Environmental Leadership cooperated to bring an environmental theme to the Antarctic Leadership Venture. This week-long experiential leadership education trek takes place on King George Island. Wharton MBAs camp out, trekking in an ecologically rich maritime Antarctic environment, primarily working on leadership skills and team dynamics. Following the first year’s experiment, the author volunteered to organize environmental curriculum ahead of the 2009 trek, as a representative of IGEL within the Venture Office. This paper details lessons learned from both 2008 and 2009, and proposes strategies for keeping the Antarctic trek rich with environmental education opportunities moving forward. The paper identifies other candidate Ventures for curriculum development both environmentally and in the broader theme of sustainability. The author recommends that the Venture Office continue to actively engage students on environmental issues ahead of the Antarctic Venture, and continue to welcome trail guests as appropriate. The author recommends that IGEL reevaluate and redefine the role of the IGEL Fellow: to make them responsible for curriculum support ahead of the trek, and perhaps for elements on the trail as well. The author identifies the Atacama, Patagonia, Adirondacks, and Mount Kilimanjaro treks as Ventures with the right foundations to reevaluate for sustainable curriculum development. The author considers what the next steps for both the Antarctic and other potential sustainability-themed Ventures might look like, and urges that they be taken.
GREENING THE WHARTON ANTARCTIC LEADERSHIP VENTURE

Preparing Leaders for a Sustainable Future

Kathleen A. Atkins, M.E.S.

May 2010

Primary Reader: Dr. Eric Orts

Secondary Reader: Dr. Robert Giegengack
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To my family: For everything, forever, thank you.
ABSTRACT

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Kathleen A. Atkins, M.E.S.
Dr. Eric Orts
Dr. Robert Giegengack

In 2008, the Wharton Leadership Venture Program and the Initiative for Global Environmental Leadership cooperated to bring an environmental theme to the Antarctic Leadership Venture. This week-long experiential leadership education trek takes place on King George Island. Wharton MBAs camp out, trekking in an ecologically rich maritime Antarctic environment, primarily working on leadership skills and team dynamics. Following the first year’s experiment, the author volunteered to organize environmental curriculum ahead of the 2009 trek, as a representative of IGEL within the Venture Office. This paper details lessons learned from both 2008 and 2009, and proposes strategies for keeping the Antarctic trek rich with environmental education opportunities moving forward. The paper identifies other candidate Ventures for curriculum development both environmentally and in the broader theme of sustainability. The author recommends that the Venture Office continue to actively engage students on environmental issues ahead of the Antarctic Venture, and continue to welcome trail guests as appropriate. The author recommends that IGEL reevaluate
and redefine the role of the IGEL Fellow: to make them responsible for curriculum support ahead of the trek, and perhaps for elements on the trail as well. The author identifies the Atacama, Patagonia, Adirondacks, and Mount Kilimanjaro treks as Ventures with the right foundations to reevaluate for sustainable curriculum development. The author considers what the next steps for both the Antarctic and other potential sustainability-themed Ventures might look like, and urges that they be taken.
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PREFACE

The Wharton School of Business Center for Leadership and Change Management runs outdoor leadership-building treks for both graduate and undergraduate students. These Leadership Ventures\(^1\) are “optional co-curricular experiential learning opportunities designed to bring participants into remote and difficult environments where they can learn from experience in confronting challenges, solving problems, and leading teams.”[Useem, Klein, and Cline 2009] They occur in locations from the Adirondacks all the way to Antarctica, and feature activities as varied as climbing, kayaking, mountain biking, and sailing.

Over the last two years, Wharton’s Initiative for Global Environmental Leadership (IGEL)\(^2\) partnered with the Venture Office to introduce themes of environmental leadership into the Antarctic Venture. In 2008, IGEL awarded scholarships to assist three graduate students from environmental disciplines at the University of Pennsylvania (author included) to travel with the MBAs to Antarctica. Dr. Eric Orts accompanied the trek as a guest lecturer on climate change and sustainable business.

In 2009, IGEL again assisted three environmentally oriented graduate students to participate, and the author accompanied the Venture as a trail resource. The author also spearheaded a proactive approach to green curriculum preparation and delivery ahead of the trek. Together, the author and the four Venture Fellows\(^3\) developed an

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\(^1\) Wharton Leadership Ventures Web Site: http://wlv.wharton.upenn.edu/
\(^2\) IGEL Web Site: http://environment.wharton.upenn.edu/
\(^3\) Venture Fellows are student leaders from within the MBA program. The Fellows assist the Venture Office in matters of logistics ahead of all trips, and deliver the core leadership curriculum on the trail.
ecoliterate trail philosophy, a trail book, a resource-rich web resource, and a pre-trek lecture.

After two years of experimenting with the green Venture concept, what are the lessons learned? What worked and what did not work? Should Wharton have gone green in Antarctica? Was it distracting from the core leadership lessons, or complementary? Should Wharton even be in Antarctica? If so, is its future green? Would other Ventures benefit from environmental curriculum enhancement? This paper finds some answers to these questions, but before setting out on any path, it’s best to find one’s bearings.

**KING GEORGE ISLAND: SOUTH SHETLAND ISLANDS, ANTARCTICA**

The Venture takes place on King George Island (KGI), on the northernmost part of the Antarctic Peninsula. Often referred to as the capital of Antarctica, it is one of the most-visited places in the region. The 1295 square mile island is dominated by glacial ice across 90% of its surface. Most of ice-free area is concentrated on the Fildes Peninsula, on the southwest end. Ten countries maintain permanent bases on the island, mostly concentrated on Fildes near the airstrip and Maxwell Bay. The Chilean military maintains the airstrip at Frei Base, where both large cargo planes and commercial flights from Aerovias DAP fly in and out as weather permits.
Cruise ships bearing tourists and scientists also frequent the island. Maxwell Bay is a convenient spot to move people and gear on and off boats, and the Chilean base is home to one of Antarctica’s few post offices. People love to photograph the Russian church, and whatever penguins waddle adorably across the shore. Admiralty Bay, however, is KGI’s most famous feature from a tourist perspective. After the rough trip across Drake Passage, the ecologically rich, aesthetically stunning bay is the first real glimpse of Antarctica for tourists sailing from Argentina and Chile.

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4 Map is a composite of Google Earth (background) composed by the author, and another source as the inset.[Fattori 2008]

5 In the 14 seasons spanning 1989-2003, almost 20,000 tourists visited Poland’s famously welcoming base on the bay, Arctowski Station, via Zodiac from cruise ships.[Naveen 2003]
The Wharton Venture approaches the island by air, flying over Fildes to turn around over Maxwell Bay. Passengers are struck by both the volume of ice covering the majority of the island, but also by the dense, colorful concentration of buildings on Fildes. The presence of roads, trucks, metal drums, and blue plastic barrels is a far cry from the icy, windswept scenery of the *March of the Penguins*. The miniature Russian Orthodox church overlooking the airstrip lends an even more surreal feel to the place.

![Figure 2. View of Frei (Chile) and Bellinghausen (Russia) bases, at the edge of Maxwell Bay. (Benavente 2004)](image)

Two major forces drive this concentration of people and things on KGI. The first is geopolitical. It is the easiest place to earn a voting right within the Antarctic Treaty System (ATS). A country must operate a base year-round to gain this right. Many countries are operating robust research programs, while others appear to be mainly taking weather readings and keeping the lights on for their skeleton crews\(^6\).

Why would a country want to operate such a remote base at such great expense, particularly if they’re simply reporting the same weather as another country’s building a

\(^6\) This assertion is largely based on conversations with Anja Nordt, one of the German ornithologists the Venture has encountered in both 2008 and 2009. She is working on an environmental impact statement for the bases on Fildes, and seems unsympathetic to the activities of many bases. The claim is further supported in the popular press, in a 2009 article in *Wired.*[Marlowe 2009]
few kilometers away? The ATS binds member countries to its terms – how conflict is resolved, environmental protection measures, the agreement to not extract any resources - until 2041. In that year, full members will convene to renew, renegotiate, or abolish the System. Countries with voting rights have direct power over whether Antarctica is opened to extraction (of metals, minerals, gas, oil), or remains off-limits for another fifty years. For some countries, the prospect of having a slice of those riches well justifies the cost of running an operation, with or without a robust scientific program.

The second reason is logistical. It is an ideal staging ground for activities elsewhere on the continent. Scientists, tourists, climbers, polar aspirants and gear alike make the stop at KGI. Some board ships to move forward, some stay, some fly onward to other locations on the Peninsula or the greater continent, or stop in on their way back. The only place that rivals KGI for bustle in the austral summer is the Ross Sea, where the large U.S. base (McMurdo) and New Zealand’s Scott base operate. Not only are the bases large, but their proximity to major polar historic landmarks attracts tourist ships.

---

7 Multiple tourist concerns run from the island. Aerovias DAP, the only commercial airline servicing KGI, runs two different land-based trips on the island. On the single-day turnaround trip, a person can fly to KGI, take an escorted walk to see seals, penguins and other birds, visit the Chilean Base (Frei), and hop back on board the plane and go back to Chile. On the two-day trip, guests stay at the hostel in the Chilean “Villa las Estrellas” and cover a little more ground around Fildes [see http://www.aeroviasdap.cl/reyjorge-en.html].

The Antarctica XXI cruise also runs in and out of Maxwell Bay. Guests fly in to Frei, and are transported to the cruise ship via Zodiac for excursions of varying numbers of days before either flying back to Chile from KGI or sailing back to Ushuaia [see http://www.antarcticaxxi.com].

Private expeditions (for the Pole, for Mount Vinson) running out of the Patriot Hills base camp also commonly stage in and out of KGI.[Lamers, Stel, and Amelung 2007]

Robert Swan’s Antarctica 2041 has also set up their ‘E-Base’ on the island in 2008 and 2009, in March months after Wharton has left its shores.[Swan and Reavill 2009]
Once away from the bustling town center, however, King George Island is a beautiful, fierce place of ice, stone, moss, lichen, birds, seals, penguins, breathtaking views, and silence. In the austral summer, daylight is long and wildlife is abundant. The temperature hovers around freezing, and weather conditions are bearable even when it’s blowing, snowing, and on the colder side. Coastlines can be rocky or sandy, sheer.

<sup>8</sup> Map was composed by the author in Google Earth, with KML data from SCAR KGIS [at http://www.kgis.scar.org].
cliffs or gentle beaches, jumbled with ice and boulders, or low, green beaches of moss or algae. Penguins are ever-present at the waterline, other birds are often in the air or roosting nearby, seals wallow in piles, molting and puffing and battling. It is in this setting that the Venture occurs, where lessons are taught by the landscape itself. Over the course of a week, students backpack, snowshoe, haul sledges, summit peaks, climb a glacier, all while camping out in the long, bright days of high latitude summers.

Figure 4. Southern elephant seals (Mirounga leonine)\(^9\) wallow near Camp 3. (Atkins, 2010.)

THE LEADERSHIP VENTURE

Split into teams of four to six people, each group is issued two tents, food for the week, camp stoves and fuel, a map, a GPS unit, a walkie-talkie and batteries. Every day is a new challenge. Sometimes it’s simply breaking, moving, and reestablishing camp. Sometimes this is a straight hike, but sometimes there happens to be a glacier to

\(^9\) Species names throughout from [Rubin 2008; De La Pena and Rumboli 1998]
summit in the middle. Sometimes it’s a seemingly straightforward, point-to-point, GPS-guided hike, but nothing is as simple as it seems. A false summit can appear and the way forward becomes unclear. Weather can change on a dime. Opportunities to disagree, argue, fail, get too cold, get too hungry, lose cohesion, and otherwise get into trouble present themselves regularly.

Reflecting the makeup of the entire Wharton student body, participants on the trek are from incredibly varied backgrounds. The treks in 2008 and 2009 were the largest, with over 40 participants each year, divided into about 7 or 8 tent teams. A single tent team can include citizens of China, India, Columbia, Russia, Korea, Poland, or the United States. Each student’s level of comfort with the outdoors, native language, and level of fitness varies. With all of these differences, their challenge is to make it through each day in one piece. Although it appears that they are simply trying to figure out how to get from point A to point B, it is how that is accomplished, with what definition of success, with what level of fun or hardship, with what style of leadership, that makes or breaks a team’s daily existence. They must work together to stay warm, dry, fed, hydrated, and hopefully, happy. It is up to the team, day to day, hour to hour, to navigate both their physical and psychological terrain.

Structure is clearly provided to facilitate the leadership learning experience. Each day, each team elects a Leader of the Day. That person is primarily responsible for running the schedule, communicating with the expedition staff, and making key decisions. Each morning the team must also secure a guide from the expedition staff, whose role is mainly technical support and safety. Guides do not interfere with decision-
making unless the participants are about to make a truly dangerous mistake, or wander into a protected area\textsuperscript{10}. The team and its leader must figure out how to best marshal their various talents effectively, how to manage conflict, how to conquer passive aggression, how to both assert and ease back on opinions.

At the end of each day, the team, their guide, and the Venture Fellows have an “AAR” or After Action Review\textsuperscript{11}, with each group. A key feature of every Leadership Venture, the AAR allows teams to assess what went right and what went wrong each day. It is a forum for constructive criticism, for congratulation, for jokes, for conflict resolution, for whatever needs to be discussed. The AAR is the Venture Program’s way of implementing the Kolb Experiential Learning Model.[Kolb and Kolb 2006] Participants have concrete experience (a day’s hard trekking in Antarctica), take time to observe and reflect after the experience (AAR), form abstract concepts, then apply new knowledge and insight in situations moving forward (the next day, week, year, lifetime).

This is why the students choose to participate in Leadership Ventures. They leave the conveniences of civilization behind, commit to an intense outdoor experience, and work on their leadership and followership skills. The island itself, the tasks at hand, their basic daily needs, their teammates and the Venture Fellows are all tools to help make each participant a better, more effective leader and team member in their personal and professional lives. This is the raison d’être for the Ventures. The experiential learning platform works well in any rugged, outdoor environment, including King George Island.

\textsuperscript{10} Vertical operates in compliance with guidelines set by the International Association of Antarctic Tour Operators (IAATO), guiding tourist behavior anywhere in the Antarctic, but particularly with respect to ATS-designated protected areas.[IAATO 2008]

\textsuperscript{11} The AAR is an evaluation method employed by the U.S. Marine Corps, who also run an intense leadership development Venture with Wharton at Quantico.[Useem 2006]
For many of the same reasons that KGI is an ideal platform for experiential leadership learning – ice, stone, moss, lichen, birds, seals, penguins, breathtaking views, silence – it is also an ideal platform for an Environmental Leadership Venture.

**WHY GREEN THE VENTURE?**

Antarctica is unique. Antarctica is as far a step back as we can take from the world without stepping off the globe. Antarctica is as close as we can get to space without going to space. It’s a place where our feet are barely on the map, where no country can even claim sovereignty, but where our actions – near and far - have tangible effects. It is a place where personal responsibility often serves as the only real authority. It is the best place on Earth to talk about the connectedness of corporate decisions to the world beyond its walls.

On King George Island, this is particularly easy. There, one can witness an obvious collision of Antarctica’s ecological riches with humanity’s awkward presence. Arriving on an island, a place that in concept should be some pristine, wild place, only to encounter this trailer park-looking research base with people driving SUVs around is jarring. The bases run on loud petrol-driven generators. The tidiness of trash heaps varies widely base to base. Yet inside the buildings, someone is monitoring ozone, geocoding data, or nursing wounds from birds displeased with being captured, measured, and tagged.
Even away from the airstrip, walking along a beautiful beach where icebergs cut fantastic shapes against the sky and sea, it’s a given that ocean-born plastic garbage will be found nestled in the rounded stones where seals wallow and penguins play. The connection between objects that are produced, marketed, and sold in the global economy and the Antarctic environment’s unique aesthetic and scientific value is in plain sight.

The MBAs who choose to go to Antarctica are a startlingly interesting collection of young, ambitious people from every corner of the world. To not engage them on environmental issues that are as plain as day would be an insult to their intelligence and a disservice to their education as future business leaders. Whether the students are planning entrepreneurial efforts, or are heading for careers in marketing or financial
analysis, every business venture of consequence either already has a sustainability plank in their mission, or is planning to roll one out. Each of these students, whether environmentally active or not, should be equipped to meaningfully engage in a corporate sustainability strategy, particularly if those strategies are to go beyond greenwashing.

Only a decade ago, the voices of sustainability in major corporations were few. Pioneers like Interface Global\textsuperscript{12} had barely started to truly address environmental and social concerns in their own corporate ecosystems. A few clear, persistent voices like Paul Hawken, Amory Lovins, Hunter Lovins, and Fritjof Capra wrote the philosophical and practical templates that now underpin the efforts of conscious corporations as they attempt to find a sustainable future.[Capra and Pauli 1997; Hawken, Lovins, and Lovins 1999]

In 2010, consumers cannot walk down an aisle in the grocery store, or click on the TV, or walk down the street without seeing a product proclaiming its environmental virtues. Cloth grocery bags say “I am not plastic,” cream cheese packages are “Produced with green energy,” and produce with “organic” labels are sold at Walmart. The sophisticated consumer is slowly learning to discern substantive from meaningless claims on green labels, and we can only hope that the businesspeople behind the product are improving at truly delivering on the meaning of those messages. Our businesspeople must grasp that achieving the meaning behind those messages will require a special sort of leadership, and the Venture program is in a unique position to deliver this message.

\textsuperscript{12} Interface Global Web Site: http://www.interfaceglobal.com/
The path to a better way of operating is a long one, as Ray Anderson, CEO of Interface, often points out. Although he has become something of an eco-celebrity, he tends to start his presentations by confessing his status as an environmental criminal. [Anderson 2009] He knocks down false hopes that quick, magic solutions exist. A sustained, carefully targeted plan must be implemented to tackle the environmental impacts of any corporation. Anderson had his awakening in 1994, but his company will not reach the “Mission Zero” goal (zero environmental impact) until at least 2020.13

The methods Interface employs are based on principles set out in Natural Capitalism: radical resource productivity, biomimicry, service and flow economies, investing in natural capital. The company’s elaborate, clear, self-examining plan includes using bio-based raw materials, practicing biomimicry, reducing their carbon balance to zero, engaging their employees in the mission at every step, drastically reducing energy inputs, assessing the lifecycle of all products end to end, closing the loop on their own waste, and constantly monitoring all pieces of their supply chain. They call this method the Natural Step, which has become the basis for other corporations on a similar path, like Nike.[Nattrass and Altomare 2002]

Nike’s projected dates for serious impact are even farther out than Interface’s optimistic 2020.14 The business students in MBA programs now are the ones who will spearhead these sustainability efforts. These leaders will need to sustain that vision over decades to see it through. An academic program that is blind to opportunities to encourage environmental leadership is missing the boat on the 21st Century. If it is

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13 See Interface’s plan for sustainability: http://www.interfaceglobal.com/sustainability.aspx
14 See Nike’s reports on sustainable business and innovation: http://www.nikebiz.com/responsibility/
appropriate to engage students in leadership exercises in remote outdoor settings, is it not also appropriate to engage students in matters of environmental leadership in remote, outdoor settings?

Although challenging to present this sort of nuanced material out in the backcountry, Dr. Orts did so in 2008 – very much in the spirit of experiential learning. The first presentation of the topic was a lecture with time for Q&A following the discussion. The setting was a hillside at the foot of Collins glacier, just above the Uruguayan camp. A few days later, during a visit to the base, the subject was broached again in the company of Antarctic researchers, where the conversation hopped from climate change and carbon to ozone to global ice balance to corporate environmental responsibility. In 2009, the issue was addressed in both a lecture ahead of the trek, and in a substantial set of web-based resources the students were free to explore ahead of the trip.

![Image](image_url)

**Figure 6.** Students listen as Eric Orts discusses corporate environmental responsibility. (Atkins, 2008.)
Whether or not Venture participants go home and read *Natural Capitalism*, the necessity for corporate environmental responsibility is easily laid bare in the Antarctic backcountry. Physically hauling garbage over a glacier to fly it back to South America is not an every day experience. Living in a fragile ecosystem, elbow-to-elbow, with difficult access to water and no sanitation infrastructure is a microcosmic instance of the challenges facing a growing global population, thirsty for resources. A week-long Leave No Trace expedition is a powerful communicator of these matters, with or without extra readings or lectures. In both 2008 and in 2009, the author consistently heard unprompted, offhand remarks like, *wow I didn’t realize it was so hard/stressful to be homeless, not have access to clean water, live under a bridge, not have access to fresh food, have nowhere to clean up…*

To not engage these students on environmental issues while in Antarctica would also be a disservice to their boundless curiosity, and their capacity to teach each other. In 2008 and in 2009, the author met students on the trek with experiences ranging from touring e-cycling facilities in China to working with the Clinton Foundation on development projects. In 2009 in particular, as a floating trail resource, the author was constantly engaged in conversations with the participants. Topics over the course of the week included the Copenhagen Climate Conference,
climate change, geologic history, human evolution, sediment cores, ice cores, ornithology, plastics, e-cycling, world water issues, biochar, biodynamic farming, land preservation financing mechanisms, carbon trading, payment for environmental services, ecological restoration, ozone, the Antarctic Treaty System, and Antarctic exploration stories.

Certainly these Leave No Trace expeditions can occur anywhere, and they do, but it is precisely for Antarctica’s exceptional position in relation to the world – so conceptually disconnected, but still directly impacted by human activity – that anyone visiting Antarctica, particularly MBA students – must engage in environmental issues. And it is precisely for this reason that IGEL partnered with the Venture Office to introduce themes of environmental leadership to that particular trek over all other Ventures.

LEADERSHIP VENTURE CURRICULUM: FUNDAMENTALS

One might wonder how lectures and readings could possibly fit into demanding backcountry days, but lectures and case studies - storytelling – have always been an integral part of the Leadership Venture experience. The program started with a story and a place, in a standard management class taught by Michael Useem, head of the Center for Leadership and Change Management at Wharton. In the 1990s, Useem was using the Battle of Gettysburg as a case study for leadership and decision-making. Since Philadelphia is not so far from Gettysburg, he brought students to the battlefield itself to consider the case. Students walked the very ground where circumstance, chance, risk,
leadership styles, and decision-making collided - and ultimately turned the tide of the U.S. Civil War, and the trajectory of a nation.

After leading this excursion a number of times, it occurred to him that this experiential case study approach to leadership learning would translate brilliantly in other locations. In a giant first leap from the Pennsylvania countryside, Useem targeted Everest Base Camp, then Cotopaxi volcano in Ecuador, using mountaineering cases as he and the students pitted themselves against tough physical challenges.[Useem and Atkins 2010] Over the intervening years, the program has blossomed and continues to evolve. The menu of opportunities for graduate students alone has grown to ten treks, five participating outfitters, a support staff unto itself inside Wharton, and by all accounts, the admiration of all who are able to participate.

<table>
<thead>
<tr>
<th>Venture</th>
<th>Location</th>
<th>Outfitter</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adirondacks</td>
<td>NY, USA</td>
<td>Earth Treks(^{15})</td>
<td>Ice Climbing</td>
</tr>
<tr>
<td>Atacama</td>
<td>Valle de la Luna, Chile</td>
<td>Vertical(^{16})</td>
<td>Desert Trekking</td>
</tr>
<tr>
<td>Antarctica</td>
<td>King George Island</td>
<td>Vertical</td>
<td>Trekking</td>
</tr>
<tr>
<td>Baja</td>
<td>Sea of Cortez, Mexico</td>
<td>National Outdoor Leadership School (NOLS)(^{17})</td>
<td>Sea Kayaking</td>
</tr>
<tr>
<td>Chugach Mountains</td>
<td>Alaska, USA</td>
<td>National Outdoor Leadership School (NOLS)</td>
<td>Mountaineering</td>
</tr>
</tbody>
</table>

\(^{15}\) Earth Treks Web Site: http://www.earthtreksclimbing.com  
\(^{17}\) National Outdoor Leadership School Web Site: http://www.nols.edu/
In terms of readings, a recurrent set of case studies stand at the heart of the leadership curriculum for all Ventures: “Thinking like a Guide,” “The Parable of the Sadhu,” “The Abilene Paradox,” “Life and Death Decisions on the Savage Mountain,” and “In Praise of Followers.” [Useem 2003, 205; McCoy 1997, 54; Harvey 1986, 2; Jordan, Davidson, and Useem 2002; Kelley 1988, 142] And each specific Venture, particularly the Antarctic trek, features additional readings that resonate with that location, or with the people responsible for curriculum facilitation and delivery on the ground. Antarctica is the main character in some of the best leadership stories the world has to offer. Polar exploration tales feature soaring success, horrible tragedy, and all shades of gray in between. Students are encouraged ahead of time to read up independently on the success stories of Amundsen and Shackleton, while taking heed from the tragedy of Scott. The Shackleton case study from Harvard Business School, “Leadership in Crisis,” [Koehn, Helms, and Mead 2003] is the centerpiece reading for the Venture,

18 Steve and Doris Colgate’s Offshore Sailing School Web Site: http://www.offshoresailing.com/
19 United States Marine Corps, Officer Candidate School Web Site: http://officer.marines.com/marine/making_marine_officers/officer_candidates_school

Other key cases presented on the Antarctic trek do not necessarily originate with Useem. In fact, it wasn’t Useem who brought Wharton to Antarctica in the first place. That idea came from a series of chance meetings far from Philadelphia. In about 2000, Dr. Useem found himself on the speaking trail in South America, with stops in Santiago and Buenos Aires. Somewhere along the line, someone, who he can’t quite recall, urged him to meet Rodrigo Jordan – world-class mountaineer, businessman, engineer, and agent for social change in Chile. He said, sure, great, bring him along to the conference. When Jordan arrived, Useem wasted no time putting him on the spot. Without any preparation, Rodrigo took the stage, presented a leadership and decision-making case based on a particular experience on K2, and captured the room.

A special relationship between the two was born. Useem invited Jordan to speak at Wharton on several occasions, where they had time to touch base and talk further. Eventually Jordan suggested to Useem that he should run a leadership expedition in Patagonia, with his company, Vertical, as the outfitter. The first of these took place in about 2002. On one of these expeditions, with both Jordan and Useem present, Jordan suggested that they push on a little farther, and go to Antarctica. [Useem and Atkins 2010]

In 2004, a Wharton Leadership Venture occurred on King George Island for the first time, with a handful of intrepid business students, and both Jordan and Useem in
attendance. When Jordan accompanies the trek, he and his guides, the amazingly multi-talented staff of Vertical, present the same K2 case study that Rodrigo trotted out when he first met Useem. It’s a story of suppressing the drive for personal glory, and instead leading from behind. [Jordan, Davidson, and Useem 2002]

In 2009, when Rodrigo was not present, another mountaineering case from Lhotse was presented, when a choice between trying to save a terribly injured climber presented itself high on the mountain, and what the Chilean climbing team’s decision-making process was in the face of that moral dilemma. One of the guides on the Venture presented the case: Dr. Sebastián Irarrázaval. He was one of the few who attempted to rescue and treat the (fatally) wounded Czech climber.

Vertical is a key component of the Antarctic Venture. Without them, the trek would be not only logistically out of reach, but also without the necessary sense of place, without the certain connectedness to Antarctica itself, without the right voices to tell the right stories. Rodrigo Jordan cares deeply about environmental and social justice, and has personal experience climbing in its interior. And he is not the only one with such passion and personal connection.

Vertical, S.A. is but one of Rodrigo Jordan’s ventures in Chile. The tag line for their Leadership Expedition arm is Developing autonomous and responsible individuals. The philosophy goes for both their clients and for themselves. As accomplished climbers, key staff members have reached the highest peaks of the world, including Everest, K2, and

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[20] Jordan and Vertical’s Kiko Guzman were both part of a four-man expedition in Antarctica in 2002, when they traversed the Ellsworth Mountains on a 250-mile, unsupported endeavor. See Appendix I. for more biographical information.
Lhotse. As social activists in Chile, they have reached out to the poor of Santiago.

Fundación Vertical\textsuperscript{21} takes children out of their tough urban context and into the Andes, teaching them mountaineering, leadership, and social skills, in small camps staffed by their impressive array of mountaineers, ski guides, scientists and educators. They guide corporate and academic clients aside from Wharton in some variation of the Leadership Expedition. More recently they have focused on responding to the needs of people in small towns devastated by the 2010 Concepción earthquake.

In Antarctica, they bring their best. Rodrigo tries to go each year if he can. Kiko Guzman, extremely accomplished international climber and master of expedition logistics, is a standard leader. Gabriel Becker, also an accomplished climber and well-versed naturalist with a gentle but firm demeanor, brings his many years of experience working in the Antarctic to bear. Gabriel lectures on penguin ecology at the Ardley Island rookery, the one designated Antarctic Specially Protected Area students are able to visit.\textsuperscript{[Committee on Environmental Protection 2009]} (See Appendix I. for bios of Vertical staff).

\textsuperscript{21} Fundación Vertical Web Site: http://www.fundacionvertical.cl/
More recently, Camilo Rada, climber, astronomer, and glaciologist, has joined the expedition as a guide, but more importantly, as the representative scientist on staff specifically available to discuss climate change. In 2008 and 2009, he lectured the business students, many of whom have little to no earth science background, on basic glacial processes. His backdrop was the dramatic northern edge of the Collins glacier, as it shears off into the Drake Sea. Birds wheel overhead, the layered wall of ice reflects in tidal pools, penguins and seals dot the coastline. In this environment, uncluttered by media echo chambers, without cell phones, without facebook, without anything except
the sound of the sea and birds, Camilo embodies environmental leadership. Both years, he has fielded pointed questions from these future business leaders of the world on everything from international policy to global ice balance to Milankovitch Cycles with grace, clarity, and good humor.

Figure 9. Camilo Rada lectures. Atkins, 2010.

Clearly, even without the involvement of Wharton directly, the Venture does tend to inherently offer weighty environmental elements because Vertical is who Vertical is, and they are operating where they are operating.

Aside from perhaps the most mercenary of adventurers, who seem to be few and far between (or at least so below the radar the author has not found evidence of such
people), all tourist concerns in Antarctica contain elements of environmental education. Ships full of eco-curious retirees and birders trying to add oddities to their life lists visit the icy south every year, exactly because it is what it is. Lecturers come standard with every ship, and every Zodiac trip to the shore is wrapped in some shroud of academic interest: ecological, geological, or historical. Some argue that these shrouds run from robust in reason to thin in justification, but either way, Antarctic tour operators do environmental education.

**VENTURE CURRICULUM: ENVIRONMENTAL ENHANCEMENT**

Because Vertical is such an exceptional outfitter, it is arguable that Wharton itself need not be involved in providing environmental education to students on the Antarctic Venture. But when Wharton and Vertical are *both* active in creating opportunities for environmental reflection, the experience is significantly much more rewarding for participants. In a survey following the 2009 Venture, participants were asked: “Did you think there was too little, too much, or just about the right amount of environmental enrichment on this leadership venture?” 61.9% responded that it was *About right*. No one chose *Too much* or *Way too much* (see Appendix VI. Question 7).

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22 Vertical included – it is part owner of the Antarctica XXI cruise operator, running eco-tourism cruises in and out of Maxwell Bay.
<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRE-EXPEDITION</strong></td>
<td>10/13: Rodrigo Jordan &amp; Jon Bowermaster, lecture, Q&amp;A</td>
<td>12/2: Venture Fellows &amp; the author, presentation</td>
</tr>
<tr>
<td></td>
<td>12/2: Presentation slides made available on Webcafé</td>
<td>12/2: Curriculum support web site released</td>
</tr>
<tr>
<td></td>
<td>12/23: Bulk pack</td>
<td>12/28: Fernando Yáñez Celedón, Vertical, lecture, Q&amp;A</td>
</tr>
<tr>
<td><strong>ON KING GEORGE ISLAND</strong></td>
<td>Rodrigo Jordan, opening remarks</td>
<td>Alejo Contreras, lecture, Q&amp;A</td>
</tr>
<tr>
<td></td>
<td>Alejo Contreras, rules, Q&amp;A</td>
<td>Alejo Contreras, lecture, Q&amp;A</td>
</tr>
<tr>
<td></td>
<td>German researchers, lecture, Q&amp;A</td>
<td>German researchers, lecture, Q&amp;A</td>
</tr>
<tr>
<td></td>
<td>Rodrigo Jordan, lecture</td>
<td></td>
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<tr>
<td></td>
<td>Gabriel Becker, lecture, Q&amp;A</td>
<td>Gabriel Becker, lecture, Q&amp;A</td>
</tr>
<tr>
<td></td>
<td>Eric Orts, lecture, Q&amp;A</td>
<td></td>
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<tr>
<td></td>
<td>Camilo Rada, lecture, Q&amp;A</td>
<td>Camilo Rada, lecture, Q&amp;A</td>
</tr>
<tr>
<td></td>
<td>Symposium at Uruguayan base</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vertical guides, casual</td>
<td>Vertical guides, casual</td>
</tr>
<tr>
<td></td>
<td>Eric Orts, casual</td>
<td>The author, casual</td>
</tr>
</tbody>
</table>

The Environmental Opportunity Matrix table clearly shows even at a glance that the opportunities for students both before and during the trek are ample and varied.
(Appendices II. and III. provide summaries of each element.) In 2008 there were more elements on the trail than preparation ahead of time, while in 2009, pre-Venture preparation made up for the less bountiful array of events on the ground. In 2009 in particular, imagine if there had been no lecture, no web site, no IGEL Fellows as participants, and no environmental curriculum support on the ground (the author). Note also that a visit to the Uruguayan research base only panned out in 2008. In 2009, the base was between batches of scientists, so only the support crew was in residence when the Venture camped nearby.

In 2009, without the enrichment elements delivered by the author and the Venture Fellows, Vertical and the Fellows would have very successfully delivered the core leadership curriculum. Vertical would have also treated participants to the trip to Ardley Island, arranged the visit to camp by the Germans, Camilo’s excellent lecture, and the presence of Antarctic legend, Alejo Contreras23. Their high-quality, multi-talented guides would have handily answered all kinds of questions as usual, and ensured that participants followed IAATO guidelines.

But after two solid years of enrichment, a group of enthusiastic participants, and an exceptional expedition partner to work with, to stop marshaling Wharton’s resources for environmental enrichment would be a step backwards. The Opportunity Matrix would be riddled with empty rows, the students’ curiosity unslaked, the opportunity to

23 Complete biographical information on Alejo is hard to come by, but he is rumored to be the best fixer an expedition can hope for on the Peninsula. He’s been to the South Pole (including at least one unassisted skiing/sledge trip) multiple times, and has climbed Mount Vinson multiple times (in the double digits). He is a walking wealth of knowledge, and is dedicated to educating anyone who crosses his path about Antarctica’s fierce beauty, and the indignities it increasingly suffers at our hands.
provide potential sustainable business leaders with a moving, visceral understanding of the challenges ahead left by the wayside.

When asked if the environmental aspects of the Venture interfered with the core leadership curriculum, 95.2% of responding students (on the 2009 Venture) replied No. This was by design, and was the result of unique teamwork on the curriculum well ahead of the trip.

Preston Cline, Associate Director of the Wharton Leadership Ventures, expressed a long-held desire to introduce ecoliterate philosophy into the program, as espoused by Fritjof Capra. The most significant challenge for Cline, the author, and the Venture Fellows24 was finding a way to connect ecoliterate systems thinking into the conversation on the ground. The daily AAR analysis of team dynamics and leadership had to somehow connect to the ground beneath their feet. To do so, the team had to find a simple image, a simple metaphor.

Capra’s Principles of Ecology are about as abstract as they come, but are deliberately flexible as a metaphor. They would form the fundamental philosophical starting point. If we wanted to talk about sustainability, we needed to change the fundamental conversation. Why? Capra says it best:

“...what is sustained in a sustainable community is not economic growth or development but the entire web of life on which our long-term survival depends. In other words, a sustainable community is designed in such a way that its ways of life, business, economy, physical structures, and technologies do not interfere with nature’s inherent ability to sustain life. The first step in

24 The amazing, dedicated, tightly-knit Venture Fellows in 2009 were Judy Wu, Mimi Shih, Gareth Keane, and Bert O’Neal.
this endeavor, naturally, must be to become "ecologically literate," i.e., to understand the
principles of organization that ecosystems have developed to sustain the web of life. To do so,
we must learn to think systemically—in terms of connectedness, context, and processes.[Capra
2000, 49]

These principles form the basis for ecoliterate K-12 curriculum in California, as well as
the Natural Step, used by Starbucks, Nike, and Whistler Mountain to guide their steps
towards more sustainable business models. Ecoliterate educational opportunities are
already embedded in the Venture – in any Venture, for that matter: people, goals, and
limited physical resources and the location itself.

With Capra’s Principles located on KGI, in the Venture context (people, materials,
goals, challenges, events, progress, leadership, group dynamics), participants and
Venture Fellows would find many opportunities to make connections between the daily
challenges teams face on the ground to maintain a sustainable existence, and therefore
the challenges communities across the world face in achieving a sustainable existence.
Every seeming limit to the conditions of existence (people, materials, events, challenges
etc), is opportunity knocking: for leadership, creativity, discussion, making connections
and growth. As previously discussed, these associations tend to rise organically from the
experience, but capturing them formally inside the AARs was a novel thought.

Systems or process thinking, in the ecoliteracy context, can be broken down into six
Principles of Ecology.
Table 3. Capra’s Principles of Ecology.

| **NETWORKS** | All members of an ecological community are interconnected in a vast and intricate network of relationships, the web of life. They derive their essential properties and, in fact, their very existence from these relationships. |
| **NESTED SYSTEMS** | Throughout nature we find multi-leveled structures of systems nesting within systems. Each of these forms an integrated whole within a boundary while at the same time being a part of a larger whole. |
| **CYCLES** | The interactions among the members of an ecological community involve the exchange of energy and resources in continual cycles. The cycles in an ecosystem intersect with larger cycles in the bioregion and in the planetary biosphere. |
| **FLOWS** | All organisms are open systems, which means that they need to feed on a continual flow of energy and resources to stay alive. The constant flow of solar energy sustains life and drives all ecological cycles. |
| **DEVELOPMENT** | The unfolding of life, manifesting as development and learning at the individual level and as evolution at the species level, involves interplay of creativity and mutual adaptation in which organisms and environment co-evolve. |
| **DYNAMIC BALANCE** | All ecological cycles act as feedback loops, so that the ecological community regulates and organizes itself, maintaining a state of dynamic balance characterized by continual fluctuations. |

Copied directly from the Center for Ecoliteracy Web Site (http://www.ecoliteracy.org)

The Venture Teams are essentially simple communities (networks), part of a larger community (nested system), internal issues (cycles), external factors (flows), growth opportunities (development) and balance (dynamic balance).
On the ground, Venture Fellows (VFs) could reframe Capra’s principles in terms of energy and material flows. A good leader, or a good team member, needs to be aware of the ebbs and flows of materials and energy within and through their community. When opportunities for growth arrive – a crisis, a key decision, the setting of goals, the changing of expectations – teams and leaders find the chance to think quickly and creatively, act and grow. Throughout the experience, Venture Teams and leaders need to sustain their team, and keep their balance as best they can. The same can be said for any sized community: team, town, country, world.

The first two pieces set the stage, and act as the ground floor of the concept (Team & Context). The next two are ways to talk about ebbs and flows of materials and energy in Team and Context (Cycles, Flows), the fifth is the crux of the leadership matter (Change), and the sixth is what teams, business people, local communities, cities, the world shoots for: Balance.

But how would the VFs communicate these ideas to the MBA students without steering into deeply abstract territory? How could we connect these ideas to students whose lingua franca is concrete, where the platform is experiential?

VF Bert O’Neal cracked the case. With the help of our group discussions, with the same academic coursework under his belt as the participants, and with NOLS\(^{25}\) training for the trail, he found both a verbal and visual way to connect ecoliteracy to the on-the-ground leadership learning experience. He connected Capra and his NOLS training to a specific class in the MBA curriculum (MGMT 652) with a few simple visuals.

\(^{25}\) National Outdoor Leadership School.
The VFs would integrate the Team as Ecosystem metaphor into the AARs. They would tie the Ecosystem to the Seven Dimensions of Leadership (from MGMT 652) by discussing how those dimensions affected the team ecosystem each day. These Seven Dimensions and the Ecosystem concept slot into the Kolb model as abstract concepts.

To connect the Team as Ecosystem to the Antarctic (and by extension, the global) environment, the author also used graphics to communicate the metaphoric leap.

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26 Graphics redrawn by author based on original presentation by Bert O’Neal.
27 This and all subsequent curriculum support graphics composed by the author, with fair use of icons from FAMFAMFAM, at http://www.famfamfam.com
This is the Venture’s nested system. The team ecosystem’s bonds, strength and resilience are built on relationships and connections. The strength and flexibility of these connections grows with the work done to make those relationships positive and productive.

![Figure 12. The Team as Ecosystem.](image)

Just as the team is an ecosystem, composed of individuals and their relationships, flows, and cycles, so too is Antarctica part of the global ecosystem, where policy, science, pollution, and people are the connections. Science emerges from Antarctica and often sets agendas for unprecedented global cooperation (as in the case of ozone). Policy decisions far from the continent, business decisions far from the continent, and waste streams created far from the continent, are flows into the Antarctic ecosystem. Scientists and visitors are also inputs that flow back out into the world, and can bear witness to the effects policy and pollution have on Antarctica, and the world.
**Figure 13.** The Global Ecosystem.

This is the essence of the presentation delivered to the students ahead of the Venture, and served as an entrée into the three cases presented on the web site with respect to Antarctic environmental issues: Ozone, Carbon & Climate, Waste & Sustainability.

Each case consists of a short essay introducing the topic, a brief discussion of each in terms of the Seven Dimensions, and a collection of carefully curated outbound links to further information. The site is documented in depth in *Appendix IV* and *V*.

The fundamental concept is compelling and potentially reusable in future Ventures. The Team as Ecosystem metaphor translates into any outdoor setting, although the survey shows that the concept could use some refinement.²⁸ The Seven Dimensions are part of the MBA curriculum and hence familiar to the participants. The penguin in the nested world graphic could be replaced with something emblematic of another Venture’s location. The single elements in the world ecosystem could be replaced with other context-specific ingredients. These simple tools could be used to connect teams.

²⁸ Only 48% found it clear, and 38% found it useful. See *Appendix VI.* for complete survey results.
climbing Mount Kilimanjaro to world water issues, HIV, or resource-driven warfare in Africa. The metaphor is not bound to simply environmental issues, for sustainability is not just about the environment, but also about the people who live in it.

RECOMMENDATIONS

The Antarctic Venture

The Antarctic Venture, as long as it runs, will always have an environmental core. Vertical will not only always uphold its basic obligations under IAATO, it seems that they will exceed these obligations whenever possible. If Vertical were somehow short on that ability in a given year, the trek would not happen. All stakeholders (IGEL, Ventures, Vertical) agree: If the main environmental stars of Vertical cannot be present, the trek is off. Antarctica is not to be trifled with.

The answer to the question - should both Wharton and Vertical provide environmental enrichment - is clearly yes. Wharton should commit to preparing students ahead of the trek with respect to environmental issues. Whether a special faculty member comes along or not, whether IGEL funds Fellows or not, the opportunity to engage their students on issues of sustainability from that exceptional platform should not be overlooked.

What could this enrichment look like moving forward, after two years of experimentation? So far, new elements have included IGEL Fellows, a guest on the trail, a web site, and a pre-Venture lecture combining traditional leadership and environmental leadership.
Although each of these new pieces has its strengths, some pieces could use a little refinement. One must also consider the carrying capacity of the Leadership Venture Office (LVO) to facilitate quality enrichment. The LVO must carefully walk the line between delivering the core leadership curriculum and muddying the learning experience. Consider the following potential resource configurations:

**The Leadership Venture Office and Vertical only.**

The existing web site could be updated (check for dead links, add some new ones) to support the trek. The Carbon & Climate section would need serious updating (events since Copenhagen), or removal. But the Ozone and Waste case content is more static. Or, if there isn’t in-house competency to handle that particular site, perhaps skip the site altogether but provide some hard-copy articles. The author does not officially recommend this approach, but if handed out well ahead of time, hard copy might suffice as a minimum effort.

The Team as Ecosystem concept could also be fleshed out and reused. In its pilot year, the concept did not come across too clearly, and how much it was used on the ground and to what effect is unknown. If the LVO is committed to an ecoliterate perspective, it may well be worth writing a LVO-authored case on the concept, for inclusion in the trail book alongside the core articles on Shackleton, the Sadhu and company.

**The Leadership Venture Office, Vertical, and IGEL.**

The IGEL Fellows concept is a good one, and is worth refining as well. Students from several schools outside of Wharton are required to submit a resume and letter, to
compete for financially supported seats on the Venture. In 2008, a group of students from various quarters of the Earth & Environmental Science (EES) department accompanied the trek with Dr. Orts. In 2009, one Fellow was from EES, one was an Education graduate student, and another was from the Design School. The cross-pollination concept beyond Wharton is a good one, as the various Schools at Penn tend to operate independently.

However, it became clear, particularly in the second year when the author freely mixed with the entire Venture group, how many of the MBA students were just as deserving of a green scholarship as students from other graduate programs. In future years, if IGEL continues to offer scholarships, the pool of candidates should again include Schools outside of Wharton, but should also include the MBAs themselves.

The role of the IGEL Fellow is also indistinct. In the first year, it was clear that the Fellows were on the trek to both benefit from the leadership experience, and also to embody environmental leadership on the trail. The three (author included) were given a chance to talk about their work at the Uruguayan base, and were able to talk about a wide range of environmental issues casually on the trail.

In 2009, the roles were not quite so defined, and the candidates were not quite so strong. One student was able to stimulate discussion, and had a great handle on international environmental policy vis-à-vis business. Another student had only one semester under his belt in his School, and was not yet well exposed to environmental issues in his discipline. The third was completely unable to address environmental
issues. The uneven quality of the 2009 Fellows bred resentment in the MBA population, and reflected poorly on IGEL.

Discussions following the Venture between the author, LVO and IGEL have addressed this unfortunate turn of events. One possible preventative measure is changing the way the scholarships are announced and awarded. Offer an indeterminate number of scholarships, rather than finding bodies to fill three specific slots. If one strong candidate emerges, and others appear less able to contribute, simply award a larger financial support package to a single candidate, or split it between two good prospects. Maintaining a high bar of quality among IGEL Fellows, and opening scholarship opportunities to MBA students would go a long way to scuttle resentment from the larger group of participants towards the financially assisted IGEL Fellows.

The LVO and IGEL may also consider truly transforming the role of the IGEL Fellow into a robust one, not unlike that of the author in 2009. The (non-IGEL) Venture Fellows are trained well ahead of their Venture, work on the logistics of their Venture, and work to deliver curriculum on the trail with the Venture participants every day – almost every moment of every day. To watch these extraordinary students in action is a learning experience in itself. On the 2009 trek in particular, even after the long day, after the AARs with every team individually, the Fellows were not finished. They were often found hashing over the events of the day - the conflicts, the personalities, the nuances of each circumstance - with Fernando Celedón of Vertical, and strategizing for the day to come.
The IGEL Fellows, because they are called “Fellows” seem less deserving of the term when lined up with the traditional Venture Fellows. If the IGEL Fellows are not required to take responsibility for something in particular, the terminology should change to something more like “IGEL Participants.”

If the role were truly redefined however, the terminology change would not be necessary. A single Fellow or group of Fellows could be made responsible for aspects of environmental leadership curriculum. IGEL would need to identify their Fellows well ahead of time. The email soliciting applications would need to go out at the very beginning of the Fall term at Penn, so the Environmental Leadership Fellows, or ELFs, would have enough time to integrate with the Venture Fellows and put together quality resources. The application might include proposals for what they could contribute to the endeavor.

The ELFs should have a role both before and during the Venture. Before, they would work together (with the VFs) to prepare a pre-Venture presentation on various Antarctic-specific environmental issues, and prepare materials for the participants in support of these issues. They also might be required to step on the island prepared to formally present an environmental leadership case to the students sometime during the week.

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29 The author strongly recommends sticking with the web-based approach for environmental support materials. None of the readings or lectures are compulsory for the participants, so the topics and materials should be presented in as attractive, interesting, and engaging a package as possible. With such resources online, the students can engage with the topics anywhere, anytime, and have the ability to extensively explore any issue by clicking links away from the primary web site. (See Appendix V. for more on the author’s web design approach).
A fully realized ELF role would go a long way toward keeping the Venture green from the Wharton side, to enriching the experience for the participants, without much additional investment from any of the stakeholders. A shift in schedule for IGEL, and a commitment from the LVO to continue to partner its VFs with an ELF (or ELFs) is all that is truly required.

What about guests? Can ELFs be expected to recruit and coordinate curriculum with guest faculty, or a corporate guest? Yes and no. The development of a potential roster of guests is well outside the role of a Fellow. This sort of activity is better handled by either IGEL or the LVO. The list and relationships must be based on existing connections, and developed over time. It’s a competency to be cultivated at a professional level for the benefit of the organization as a whole, not just for a single Venture. ELFs could, however, help integrate that guest’s materials into a pre-Venture lecture, or into a support web site. If they are already preparing these elements, flowing a guest’s materials in with their own is not much more work. This aspect of the ELF role would also ensure that the ELFs develop a relationship with the guest, and deliver a message in harmony with that person’s given agenda. Perhaps the guest is an energy executive, so they might focus more on content to support those issues than about marine biology.

Who might these guest lecturers, for before or on the trail, be? In 2008, IGEL sent their own representative, Dr. Eric Orts, to lecture on climate change and sustainability on King George Island. In 2009, IGEL did not find that special candidate from the pool of Penn’s faculty, and (together with the LVO) elected instead to send the author as an

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30 The 2009 participants had a few thoughts on the matter. See Appendix VI. Question 17.
environmental guide and conscious observer. In the future, an active, targeted recruitment process may yield more guests, from either within the Penn community or from outside that circle. 31

With a focused effort, a list of enthusiastic professors and corporate connections could emerge. Inside Penn, IGEL and the LVO might want to host a social information session, with interested faculty, a few Venture participants from the previous year, and representatives of IGEL and the Venture Office. This might attract the more social type of professor an experience like backcountry trekking requires, and might drum up a little healthy competition.

On the corporate side, a promising place to start might be the offices of sustainability within the pool of IGEL’s corporate advisors. 32 Particularly interesting on the current roster are GE, Interface, and International Paper – a company engaged in the future of global energy production, a leader in sustainable business practices, and a business that relies on heavy forest resource use on the global scale. Both the LVO and IGEL must also have a host of connections otherwise, and Mike Useem’s connections should not be ignored either.

**Beyond Antarctica: Building Competencies, Building Relationships**

Within the bounds of the Antarctic Venture, a redefinition of the ELF role may well be all that Wharton need do to develop and maintain an abundant array of environmental

31 The first Antarctic Venture featured a special guest, Arthur Sulzberger, Jr., publisher of the New York Times. Although not an environmental lecturer, Mike Useem invited him along to present a case on the paper in such a setting, and he leapt at the chance.

enrichment opportunities. But if the greening effort extends beyond King George Island, the LVO needs to think strategically.

The effort involved to recruit a single, appropriate, quality guest – annually - for the Antarctic Venture seems disproportionate to the result. The cultivation of these relationships, both within Penn and outside of Penn, would require an active, focused effort, sustained over time. If the fruits of those efforts could be shared with treks other than Antarctica, the effort to result proportion looks a little more even. It’s also possible that if the LVO or IGEL were speaking with someone with the intent to recruit him or her for Antarctica, but it turns out that he or she has experience ice climbing, or is passionate about the social issues surrounding sustainability, that person might better match up with another Venture.

The LVO and IGEL must also continue to have a feel for what sort of person would be a good trail resource, and who might instead be a pre-Venture lecturer. Ventures are not for the weak of body, nor for the weak of spirit. Living outside in a tent with strangers is not for everyone. The author can speak from experience that the position of ‘guest’ on the trail is a little odd. That person does not fit neatly into a larger group in the social ecosystem on the ground. The tent teams have each other to live and trek with, and the Fellows and guides have their work cut out for them. The role is neither this nor that, so the guest must carve out their place in the Venture carefully, productively, and joyfully. The trek is hard work equally as much as it is an enthralling, beautiful experience. One must be fit and capable, have a robust sense of humor, flexibility, and requisite gravitas.
What other assets from the Antarctic Venture’s green experiment could be leveraged in other Venture contexts? The web site, whether as is or re-imagined, is an element well worth propagating. In the most practical sense, this allows the trail book to remain essentially identical across Ventures, reducing or eliminating the time to re-author the book for every trek, every time. The web site can be the mutable element. This assumes competency and infrastructure inside the LVO that did not exist in 2009, but web infrastructure upgrades are being made that might make this possible. If a person inside the LVO learns to make one site in support of a single Venture, that person can repeat the exercise again and again for others without the learning curve up front for each subsequent Venture. Having a student make a one-off site every time is unnecessary effort. Having a template-driven site that LVO staff, VFs, and ELFs can drop content into for each Venture is not a waste of effort. Hopefully this is what the changes afoot in the LVO will help accomplish.

IGEL itself is an interesting element when considered separately from the entire endeavor. It represents a step by the LVO to grow through partnerships with other organizations. Perhaps a search (inside and outside of Penn) for other groups willing to partner in a similar role is warranted. For instance, imagine a health organization participating in an AIDS awareness climb up Kilimanjaro.

**Scaling Up: Holding Steady**

It is important to stress that Leadership Ventures are just that: Leadership Ventures. The mission of the LVO is not environmental. Some of the Ventures occur in
environmentally compelling locations - others do not. If environmental curriculum would be disruptive or otherwise inappropriate in a given context, there is no reason to introduce those elements just for the sake of doing so. While it is true that the outdoors is an entirely appropriate location to engage management students in environmental issues, the core mission of the LVO must be solid, and remain so, to provide a platform to talk about the environment in terms of leadership. It is through this lens that environmental enrichment works in the Venture context.

If IGEL or other interests within Wharton, or Penn at large, were interested in outdoor experiences specifically engineered to be about environmental leadership, they exist outside of the LVO. In fact, the closest comparable program to the Wharton Antarctic Venture is precisely that. Robert Swan’s Antarctica 2041 organization ran the Inspire Antarctica cruise to the Peninsula from 2003-2008, and for the last two years, has run the E-Base on King George Island. The E-Base is a little shack that runs entirely on renewable energy for about two weeks at a time in March, right next to Russia’s Bellinghausen base. From there, Swan and his colleagues run pre-arranged interviews with media organizations and classrooms across the world via the Internet. The earlier Inspire Antarctica cruises included many of the same elements of a Wharton Leadership Venture, but without the rugged expeditionary format. Each year Swan recruited a group of academics, corporate leaders, and students from across the world to board a ship and cruise to the Peninsula. On board, the group ran lectures, discussions, and activities surrounding issues of environmental leadership with respect to the Antarctic
environment. A few stops (including KGI) were included, for participants to put their boots on the ground, to get close to wildlife, to mail postcards.

Swan’s mission is 100% about environmental leadership. The origin of his leadership mission was the environment, the natural world he confronted on his many adventures. The origin of Wharton’s outdoor environmental engagement is leadership, making for an interesting mirror image. Swan too is contemplating what sustainable leadership means now, what it could mean in the future, what goals need accomplishing to make the global environment a healthy place for humans and all they are connected to moving forward.

If Wharton and Vertical were unable to do the Antarctic Venture for one, or for many years, the LVO might direct interested students to participate in whatever Antarctic environmental leadership activity Swan is working on that point.33

One of the key accomplishments of both Inspire Antarctica and the Wharton program has been bringing young, diverse people to Antarctica. The only ways to visit Antarctica are as a researcher, as a base employee, as a member of the military running certain bases, as an eco-tourist, or as an adventure tourist. According to a 2005 IAATO report, from 1995-2005, “approximately 65% of the nationalities of the tourists’ visiting Antarctica come from the United States, Germany, the United Kingdom and Australia.”[IAATO 2005] These people have time, money, and are specifically interested enough in Antarctica to go well off the beaten track. The people that Wharton and Swan have brought to the South would likely have never ended up there had neither

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33 And for the very, very interested, the University of Canterbury in New Zealand offers a postgraduate Certificate in Antarctic Studies, see http://www.anta.canterbury.ac.nz/courses/gcas.
organization made it possible. Strange how the only two tourist operations that are neither purely eco-tourism nor extreme adventure-driven have occurred in overlapping locations in overlapping timeframes, and are both leadership-oriented. Yet each seems unaware of the other, despite sharing support staff (Alejo) and, clearly, spirit. One came with the soul of an environmentalist, trying to find a new definition of leadership. The other arrived with a clear grasp of leadership, but is now seeking to include environmental leadership in its mission, perhaps even beyond the frozen South.

**Scaling Up: Next Steps**

Aside from Antarctica, which of the graduate Ventures might dovetail nicely with themes of sustainability?

To answer this, one must first delimit the scope of these potential themes by reviewing the meaning of “sustainability.” Interface’s Characteristics of the Prototypical Company of the 21st Century are excellent guidelines, very much in line with Natural Capitalism’s concepts and Capra’s ecoliterate perspective. According to these guidelines, any sustainably-minded company should be:

- Strongly service-oriented
- Resource-efficient
- Wasting nothing
- Solar-power driven
- Cyclical (no longer take-make-waste linear model)
- Strongly connected to constituencies (community, customers, suppliers, one another)
- Communities are stronger and better education
- Customers prefer to work with us and suppliers embrace our vision
- Ahead of the regulatory process
- Just - giving social equity its appropriate priority
- Expanding market share at the expense of inefficient adapters
• Growing while extracted throughput is declining - eventually to reach zero
This list greatly widens the field of possible themes to match up to the graduate
Ventures, including social responsibility. Sustainability is just not limited to resource use,
pollution, and other aspects of the physical environment. People live in the
environment, interact with corporations, and these corporations interact with their
environment. If a company is serious about sustainability, a social responsibility plank
must be included. And if the Venture Office, Wharton, and Penn are committed to
sustainability, so must each part tend to social responsibility.

But for any Venture to feature enrichment in line with any of these characteristics, it
must make sense in its particular context: the vendor, the location, the activities. A
glance at the menu of Venture opportunities shows five vendors that partner with the
Venture office as outfitters and guides. Vertical, for the Chilean/Antarctic Ventures. The
Marines for Quantico. NOLS for Baja and Alaska. A sailing school in the Caribbean. Earth
Treks for Kilimanjaro, Cotopaxi, and the Adirondacks.

**Vertical.**

Clearly the Venture Office and Vertical seem to be gaining good footing on how to
deliver on the core leadership development mission of the Antarctic trip, and
demonstrate environmental leadership at the same time. The Venture Office should
consider sustainability in its broadest sense when applying this balanced approach on
their other joint Ventures, in the Atacama Desert and Patagonia. Note that three of the
Characteristics (in italics, added by author) pay heed to people. Vertical has a strong
connection to people seeking social equity throughout Chile, via Fundación Vertical.
Exploring the potential to work with the Fundación either before or after the trekking
portion of a Venture is well worth the effort. The Antarctic Venture is one of these possibilities, but so are the Atacama high desert and the Patagonia treks.

**United States Marine Corps (USMC).**

At the opposite end of the spectrum from Vertical, there is the USMC-led Venture. This short trip consists of the Marines putting students through the first thirty-six hours of Officer Candidate School at Quantico. It happens outdoors, but the location is Virginia by way of hell. This trip is not a candidate for sustainable curriculum enhancement.

**National Outdoor Leadership School (NOLS).**

The curriculum offered by NOLS is standard, extremely respected, and not likely to change. NOLS does what it does, and does it well. It is a School, not an expedition company with a vision, so their pedagogy is distinct. According to Preston Cline, there is little to no precedent of cooperative curriculum development with NOLS, so for the time being, Baja and Alaska should remain as is.

**Earth Treks.**

Earth Treks, on the other hand, is an independent operator like Vertical, staffed by another extremely experienced group of mountaineers. Chris Warner, a man not entirely unlike Rodrigo Jordan, founded the company. He has an eye-popping climbing resume, is an entrepreneur, has published a book on leadership,³⁴ and keeps up an ample speaking schedule bouncing between universities and corporations. Earth Treks has partnered with a non-profit with a mission to help fund breast cancer research,

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Climb for Life, so it seems as though messages are potentially mixable in their three locations.

Of all their locations, the Adirondacks seem the least interesting on the surface, but from an environmental perspective it has a fantastic story to tell. This large, forested area, rife with lakes and streams, was the canary in the coalmine for uncovering and ultimately curbing acid rain. The sulfur dioxide and nitric oxide reduction and trading systems implemented by the US EPA in response to this crisis (and their definitive and continuing success) are often cited as models for potential carbon trading systems.

Enhancement curriculum could easily revolve around this theme. If the Venture were in partnership with IGEL (or other similar organization), an ELF could write a case study for the trail book, or prepare a robust web resource. Any number of Earth & Environmental Science faculty members could lecture on the environmental issues. This trip also presents an opportunity for a Penn faculty member or corporate partner to lecture on carbon trading or the many possible futures of energy. The location is also less cost-prohibitive to support scholarship spots and guest faculty. The ice-climbing challenge would demand a very special sort of guest, but this sort of person may very well exist. This trip seems the most accessible to enhancement of all the Earth Treks locations.

On the other end of the scale, Mount Kilimanjaro offers their grandest stage. Particularly because it is the highest peak on the African continent, the potential is limitless. Major topics that come to mind are resource-based warfare, HIV-AIDS, and water. If Earth Treks is open to cooperative curriculum development and to enhancing
the message a bit beyond pure leadership development, this is the trek with the most potential for high impact. Because the problems facing an entire continent, particularly Africa, are so varied and difficult, the search for guest faculty could range much farther than any other Venture.

Inside Penn, the search need go no farther than IGEL, whose major initiative is in world water issues. This search could also include the medical community – the School and the Hospital. The Venture Office might start with the Botswana-UPenn Partnership, an initiative to increase the country’s capacity to address the HIV-AIDS epidemic by improving medical education at the University in Botswana. Although Botswana is a few countries to the south, the challenges faced by that country are a window into a continent-wide epidemic. The Partnership itself is an act of leadership.

CONCLUSION

If showing leadership in sustainability is a goal of the Leadership Venture Office, of Wharton, of Penn, it should be addressed whenever the opportunity is available and appropriate. There is perhaps no more appropriate place, no better opportunity, than these long stretches of time spent outdoors with future international businesspeople.

Whether in the New York State, in Antarctica, or standing on top of Africa, each of the locations discussed has a story to tell. If the circumstances of the Venture – the physical challenge, the particular outfitter, the place itself, and the amount of time –

35 UPenn-Botswana Partnership Web Site: http://www.upenn.edu/botswana/
allow for enhanced curriculum, it should be offered. To do less would be irresponsible and tone-deaf.

How much or how little, who comes, who funds, all these details will certainly change a bit from year to year, but a nimble group like the Venture Office should be ready and able to add another ball to juggle. The program has grown from a few trips here and there with Dr. Useem in 1999 to ten graduate treks across the globe annually, and many smaller undergraduate treks. Now adept at running a high volume of experiences, the Office should afford itself a moment to cultivate the details, and grow inward on the existing trips rather than creating more.

Within the current set of experiences, the foundations of the core leadership curriculum look strong - the fruit of many years of effort. If an ecoliterate, sustainable philosophy is to be woven into select Ventures, it too should have the benefit of careful tending. Green shoots are growing around the program, and could become an inspiring, fascinating garden with the proper time and attention. The author urges that efforts continue in this direction, and wishes all stakeholders the best of luck.
APPENDIX I: BIOGRAPHIES

Below are bios of key players in curriculum creation and support at both Wharton School of Business and Vertical, during the 2008 and 2009 Ventures. The biographical information and photographs were pulled together, usually in direct quotation, from four sources:

- The Wharton School of Business web site (for Michael Useem and Eric Orts)36
- The Leadership Ventures brochure (for Preston Cline)
- The Vertical web site (for all Vertical staff)
- Direct communication (with Sebastian Varela)

Wharton

Michael Useem

Michael Useem is William and Jacalyn Egan Professor of Management and Director of the Center for Leadership and Change Management at the Wharton School, University of Pennsylvania.

Professor Useem’s university teaching includes MBA and executive-MBA courses on leadership and change management, and he offers programs on leadership, teamwork, governance, and decision making for managers in the U.S., Asia, Europe, and Latin America. He also edits the monthly electronic bulletin, Wharton Leadership Digest. He holds a B.S. from the University of Michigan and a M.A. and Ph.D. from Harvard University.

Professor Useem has completed several studies of corporate organization, ownership, governance, restructuring, and leadership. He has delivered numerous programs on leadership, decision making, governance, and change with companies and organizations in the private, public, and non-profit sectors in the United States, Asia, Europe, and Latin America, including Abbott, American Express, Cargill, CEO Academy, Cisco, Coca-Cola, DuPont, Estee Lauder, Fidelity Investments, Goldman Sachs, Hewlett-36 http://www.wharton.upenn.edu/faculty/faculty-profiles.cfm


The author of multiple books, his publications include The Go Point: When It’s Time to Decide, The Leadership Moment: Nine True Stories of Triumph and Disaster and Their Lessons for Us All, and Investor Capitalism: How Money Managers are Changing the Face of Corporate America.

Eric Orts

Eric Orts is the Guardsmark Professor at the Wharton School of the University of Pennsylvania. He is a professor in the Legal Studies and Business Ethics Department with a joint appointment in the Management Department. He directs the Initiative for Global Environmental Leadership (IGEL) at Penn/Wharton. He serves also as an academic co-director of the FINRA at Wharton certificate program for securities compliance and regulatory professionals. His primary research and teaching interests are in environmental law and policy, corporate governance, and professional ethics. His scholarly work is widely published in academic journals (mostly law reviews) and books.

Prior to joining Wharton's faculty in 1991, Orts practiced law at Paul, Weiss, Rifkind, Wharton & Garrison in New York City and was a Chemical Bank fellow in corporate
social responsibility at Columbia Law School. He has taught at the University of Pennsylvania Law School and visited at the UCLA School of Law, University of Michigan Law School, Tsinghua University, Sydney Law School, and NYU School of Law. He has also been visiting Fulbright professor in the law department of the University of Leuven, the Eugene P. Beard Faculty Fellow at Harvard University’s Center for Ethics and the Professions, and a faculty fellow in the Center for Business and Government at the Kennedy School at Harvard.

Orts is a graduate of Oberlin College (BA), the New School for Social Research (MA), the University of Michigan (JD), and Columbia University (JSD). He is a member of the bar of New York and the District of Columbia, an elected member of the American Law Institute, and belongs to a number of other professional and academic associations.

At Wharton, he teaches undergraduate and MBA courses in environmental management and policy, corporate law and governance, introduction to law, and professional ethics. In addition to the FINRA at Wharton program, he has taught in a number of executive education programs, including, the Directors’ Institute (in Philadelphia, London, and San Diego), the International Forum (in Philadelphia, Bruges, and Kyoto), the Investment Management Consultants’ Association, and various custom programs for companies.

**Preston Cline**

Preston Cline is the Associate Director of the Wharton Leadership Ventures. Preston is responsible for the management and delivery of the Wharton Leadership Ventures Program. Prior to Wharton he spent 8 years as the Founder and President of Adventure Management, providing operational risk management services to governments and organizations that work in remote environments. Preston has extensive wilderness experience including 4 years leading 60-day wilderness expeditions. He holds a B.S. from Rutgers University and a M.Ed. from Harvard University. Preston is the author of Adventure Management Systems: Organizational Crisis Response.
Vertical
Rodrigo Jordan

Born in 1959, Rodrigo Jordan Fuchs studied at The Grange School in Santiago, graduating as the best student in his class in 1976. He also received the Garcia Oldini Cup as the best student in physics and mathematics and the prize for the best student in physics. During his time in school, he was captain of the school rugby team and member of the Chilean national junior rugby team.

He earned both an undergraduate and graduate degree of civil industrial engineering at the Pontifical Catholic University of Chile. Upon graduating in 1983, he received the "Roberto Ovalle Aguirre" Prize for the best engineering thesis, which is given by the Engineers Institute of Chile. Following the completion of his Graduate studies, Jordan studied at Oxford University, England, from 1987 to 1990 to earn a Ph.D in Organizational Administration. Today, Jordan is a part-time lecturer in Innovation Processes and Management at Pontifical Catholic University of Chile School of Business and is also on the engineering faculty at University Adolfo Ibanez.

During his undergraduate days in Chile, Jordan began mountaineering throughout South America and the United States. In 1984, he won the award as the best university athlete, and, in 1985, the best mountain climber, awarded by the Sports Journalists Circle of Chile. He continued climbing while at Oxford, during which time he also took a specialized course as a mountain-climbing instructor at the British National School of Outdoors Activities. He won the "Irvine Travel Award" in 1987, given by Oxford University to the best expedition of the year, for the trip to the Mount Kenya and Mount Kilimanjaro in Africa.

After two failed expeditions, in 1992, Jordan led a successful Chilean expedition to the summit of Mount Everest, the first ever from Latin America to reach the summit and only the second in the world to do so by way of the difficult East Face. In 1996, Rodrigo led a Chilean team to a successful ascent of K2, the world’s second tallest peak. In 2002,
he led a four-person team in an unsupported 250-mile (420-kilometer) traverse, much of it unexplored, of the Ellsworth Mountains in Antarctica. In 2004, Jordan once again led a successful expedition to the summit of Mount Everest. In 2006, he led a very successful Expedition to Mount Lhotse, the world’s fourth highest mountain, putting eleven climbers and four sherpas on the summit. All these experiences have produced in turn a series of books and TV documentaries.

Jordan served as Honorary Vice-president of the International Union of Alpine Associations (UIAA) and he is a full member of the Royal Geographical Society of the United Kingdom.

Upon completing his doctorate, Jordan began to take an active role in improving education in Chile. From 1990 to 1994, he was Director of the Distance Education Office of the Pontifical Catholic University of Chile (TELEDUC) and in 1994, Jordan founded Vertical S.A., which conducts education and training programs at outdoor locations. That same year, Jordan was appointed Executive Secretary to the Sports and Recreation Advisory Council of the President of the Republic of Chile.

Over the past twelve years, Jordan and Vertical have worked actively with many corporations, universities and other non-profit organizations to bring his leadership message to the classroom, lecture hall, and to the great outdoors in places such as Chile’s Patagonia region and Antarctica. He has lectured in the US with diverse companies and not-for-profit organizations such as J.P. Morgan Executive Group, Outward Bound Conferences Series, Babson College Leadership series, Wharton Leadership Conferences Series, UNCC-MBA conference series, and the United States Naval Academy among others. They have recently developed joint programs with New York University’s Leonard N. Stern School of Business, the MIT-Sloan School of Business, UNC-Charlotte Belk Business School and Wharton School of Business. Vertical’s corporate clients have included Shell, Unilever, Coca Cola Export, Pepsi, Exxon, Citibank, Procter & Gamble, Boston Bank, J.P. Morgan, Pfizer, Merck, Santander Bank, and others. In 1995, Time magazine identified him as one of the leaders of the "new millennium." In 1997, he was selected as an Endeavor Entrepreneur (U.S.A.) for “giving back to the
community in a meaningful and creative way”. In addition, He was appointed a member of the selection committee for the 2000 Rolex Awards for the Spirit of Enterprise

Jordan is the author of Everest: The Challenge of a Dream, K2: The Ultimate Challenge and Antarctica Planet. He is currently co-authoring Summits of Chile. He has contributed articles to several magazines and newspapers as well as a chapter in Leading Up: How 9 Leaders reached their summits, a book edited by Wharton Professor Michael Useem, published by Random House in 2003. He frequently produces television documentaries and programs. In 1996, he produced and hosted a 13 part television series entitled "The Adventure of Change" aired by Chilean television broadcasting network Canal 13, the Television Corporation of the Catholic University of Chile, the most important private commercial television station in the country, where he served as Executive Director from 1998 to 2000. There he conducted an organizational re-engineering process and created two new communications media: Canal 13 Internet and Canal 13 Cable. Other production work includes Mundo Emprendedor (Entrepreneur World) for Chilean broadcasting network Canal 11. His ascent of K2 was featured in 2001 in the National Geographic Television series Quest for K2 and his footage of the Antarctica expedition was part of the National Geographic Television series Adventure Challenge in 2004.

Dr. Jordan directs Fundación Vertical, the non-for-profit arm of Vertical to serve the underprivileged students of the poorest schools in Chile as well as promoting the enjoyment, responsible use and conservation of the environment. In 2004 he received the highest honor given by the Chilean Ministry of Education - The Order of Gabriela Mistral - for his contribution to Chilean education.

Due to his long involvement (more than twenty years) with social development and poverty issues Jordan was chosen to be the present chairman of the Chilean National Foundation for the Overcoming of Poverty, the most important NGO dealing with Poverty and Social Development today in Chile. The Foundation runs various programs throughout the country involving more than two hundred professionals and one thousand volunteers.
Rodrigo lives with his wife and three daughters in Santiago at the foot of the mountains.

Kiko Guzman

Kiko is an Agricultural Engineer of the Pontifical Catholic University of Chile. For the last seven years he has taken part in a number of ascents in South America. Member of the Team Cumbres Australes, with whom he has undertaken journeys and first ascents in Patagonia, Indonesia and Alaska. His winter climb of Mount San Valentin, the highest peak of Patagonia, is noteworthy. In 2002 he took part of the Chilean Antarctic expedition, to be the first unsupported crossing of the Ellsworth Mountains. In May 2004 he reached summit of Mount Everest and in 2005 he climbed the highest mountains of Alaska (Mt. McKinley) and Indonesia (Carstensz Pyramid). In 2006, he added Mt. Lhotse, the world’s 4th highest mountain to his list of summits. Currently he is the Operations Manager and a Lecturer at Vertical S.A.

Camilo Rada

Camilo holds a degree in Astronomy and is in the final stages of a Masters degree in Geophysics focusing in Glaciology, Volcanology and Remote sensing. He has over ten years of experience in altitude mountaineering, technical and difficult climbing and long term expeditions.

He has climbed and participated in expeditions in Patagonia, Antarctica, both Patagonian Ice Fields, Cordillera Blanca (Peru), the Chilean North and Central Andes, Ecuador and Argentina, accumulating more than 600 effective climbing days.
Camilo completed the first winter ascents of Mount San Valentín and San Lorenzo (highest summits in Patagonia), holds the record for first ascents of Cerro Largo and Mounts Anderson, Giovinetto and many others in Antarctica. In addition to hard rock climbing in Punta Zanzi and Saint Exupery spire in the Fitz Roy area.

**Gabriel Becker**

Gabriel has been mountaineering and climbing since he was 13 years old, qualifying as a Chilean Mountaineering Guide (special test under UIAA).

He has participated in numerous expeditions in the Northern and Central Andes and in Patagonia. In addition, he has participated in scientific and commercial expeditions to the Chilean South Patagonia Ice Fields, Mont Kilimanjaro Africa, Campo Base Everest and in Antarctica, where he has worked for the past 5 years as Logistics Manager on an Expedition Air Cruise and Antarctica XXI.

He has worked for Vertical SA. an adventure learning and consultant company for 9 years, and joined the team full time as General Coordinator of Programs and Logistics, in programs of education and social skills development with many national and international companies and universities. (MIT, Wharton, Harvard, McColl, UNCC, Lan, El Mercurio, Kimberly Clarke, etc.) He recently summited his first 8,000m peak with Vertical’s successful ascent of Mount Lhotse (8516mt), the fourth highest mountain in the world. He has been an aircraft pilot since 10 years in training to be a commercial pilot and has been a qualified Wilderness First Responder since 2005.

**Fernando Yáñez Celedón**

Fernando is currently finishing his Agricultural Engineering degree in the University of Chile. Growing up in New Zealand the Kiwi outdoor culture influenced him from young age. It was
there where he first set eyes on beautiful mountains and true wilderness. Fernando has been working in Vertical since 2002, currently forming part of the senior staff. Besides a natural liking towards farming he is an avid mountaineer, climbing mostly in the central and northern Andes of Chile. The National Mountaineering School (ENAM) trained him in Rock Climbing, Mountaineering and Ice Climbing. Most recently, he climbed as an assistant guide Mt Aconcagua (although not summited), the highest mountain outside the Himalayas. He has also worked as a trekking guide in Chile’s remote Patagonia.

When not working for Vertical, Fernando is most probably outside in one of the many crags near Santiago, as he’s also passionate for rock climbing. He also dedicates his free time to horses, being an expert rider he’s been known to spend more time with his mare than he would like to admit. He enjoys show jumping as much as fording rivers in his many excursions on horse back in Chile’s Patagonia.

**Sebastian Varela**

Sebastian graduated as a forest engineer from the University of Chile and recently finished his MSc in Landscape and Urban Ecology at the College of Environmental Science and Forestry at State University of New York. He has focused his research on ecology of cities and its contribution to urban sustainable design.

Currently, he works with the Centro de Transporte Sustentable, part of the EMBARQ network, the World Resources Institute's arm dedicated to catalyze environmentally and financially sustainable transport solutions, to improve quality of life in cities. He also cooperates as consultant for Universidad Autonoma de Mexico (UNAM) and University of Florida with research projects quantifying the role of urban nature in providing environmental services to cities.

He has explored much of the Darwin Cordillera in Tierra del Fuego, including making a number of first ascents. Sebastian has also run a number of leadership programs, including Pumalin for Wharton in 2005, 2006 and 2007, and in the Southern Ice Fields.
for MIT in 2005. In 2006, Sebastian successfully summited Mt. Lhotse, his first 8,000m peak.
APPENDIX II: 2008 ENVIRONMENTAL OPPORTUNITIES

Pre-Expedition

The late publication and release of the bulk pack decreased its potential for widespread impact. For the few able to pick up the bulk pack in Philadelphia on December 23, and the few who were able to borrow it on the trip down to Punta Arenas, it made for great reading on long plane rides and for some, even longer layovers. And although participants were encouraged to bring the book to the island, few actually did so due to its weight and size.

On King George Island

Rodrigo Jordan, opening remarks

Standing a short distance away from the airport, but before the group left the road to strike out for camp, Jordan brought it to a halt. He impressed upon the participants the extremely unique experience they were about to have, and the weight of responsibility that comes with such a privilege. Major IAATO rules were covered, and some standards of general decorum were also reviewed.

Alejo Contreras, short talk, Q&A

At Camp One, Alejo was introduced and underlined much of the gravitas put forth by Jordan earlier in the day. There was a brief Q&A on some of his Antarctic exploits.
**German researchers, lecture, Q&A**

Three researchers visited camp to discuss their work. Ornithology was the first order of business with a good chat on skuas (both South polar and Great, *Catharacta maccormicki* and *Catharacta skua*) and how they are tracked, while the environmental impact of human activity (mostly the bases, but to some extent ship-based tourism) on Fildes Peninsula was the second. A Q&A followed. The guests were invited to dinner by Vertical and stayed a little longer.

**Rodrigo Jordan, lecture**

After walking across a small spit of land to Ardley Island (Antarctic Specially Protected Area Number 150), Rodrigo stopped the group a hundred meters or so from a low cliff where giant petrels (*Macronectes giganteus*) were roosting, landing awkwardly and occasionally launching off to fly. Antarctic terns (*Sterna vittata*) are also roosting on the ground nearby, and the group is within eyesight of the thousands of penguins standing on the high, algae-green cliffs. He made it absolutely clear what the IAATO rules are for visiting such places are, and sketched out a broad picture of the Antarctic Treaty System. He emphasized how IAATO had formed not out of legal necessity but out of a self-driven sense of responsibility on the part of the tour operators, and used this as a foil to address general issues of personal responsibility and ethics, environmentally and otherwise.
Gabriel Becker, lecture, Q&A

Gabriel briefly described the breeding and chick-rearing timetables and habits of Gentoo penguins in particular, but also touched on Chinstraps, Adelies, giant petrels and skuas as time permitted.

Eric Orts, lecture, Q&A

Overlooking the Uruguayan research base, perched on a hill between the edge of Collins glacier and Maxwell Bay, Dr. Orts covered the connections between climate change and sustainable business practices, from policy and finance to issues of scientific dispute. During the Q&A, a variety of readings were recommended. Paul Hawken seemed to come up more than a few times.

Camilo Rada, lecture, Q&A

Camilo gave the students a crash course in glacial processes, standing on a dramatic shoreline where the edge of Collins glacier meets the Drake. He spoke specifically about the glacier standing behind him and of what he and Rodrigo saw in Greenland. He focused in on the Greenland ice sheet in particular, covering melt water, albedo, and the mechanics of how something like that size could melt off entirely, and quickly. Following the basic earth science lecture, the students had time for Q&A, and were particularly keen on hearing the basic science behind climate change in an uncluttered environment.

Symposium at Uruguayan base

Upon returning to the camp above the base, the group was informed that everyone was welcome to visit the base, all together. After some coffee, juice and cake so kindly
shared by the Uruguayans, Dr. Orts called the group to order. After explaining to the base inhabitants what the Venture was, and why he was along for the trek, he invited them to please share what research was happening at the base.

A woman running the Uruguayan ozone-monitoring project spoke very briefly. Two young German glaciologists spoke at length about the glacier the Venture had just climbed and traversed, and had been drinking from for days. The students’ curiosity ranged from the substantive to the whimsical: whether the glacier was melting, how data were collected, shared and analyzed, and how the researchers moved around to different sites on the ice. Camilo jumped in here and there to clarify little issues from time to time as well.

With a little time to spare following the glacier Q&A, the Venture participants were welcomed to share – in two minutes or less - any of their environmental work or academic experiences. The three IGEL Fellows were tapped specifically to speak about their areas of expertise (greenhouse gas emissions from thawing permafrost; world water issues; land conservation and management), and a variety of MBA students chimed in as well.
APPENDIX III: 2009 ENVIRONMENTAL OPPORTUNITIES

Pre-Expedition

Rodrigo Jordan & Jon Bowermaster, lecture, Q&A

Although not explicitly inside the timeframe of the Venture, it warrants an entry. Anything Jordan does at Wharton acts a form of marketing for Vertical-run Ventures, and this presentation was quite specifically an opportunity for Antarctic environmental education.

Jordan and Bowermaster kayaked along the Antarctic Peninsula as well as the coast of Greenland as a part of Bowermaster’s National Geographic project, Oceans 8. They lectured jointly on Leadership and Climate Change, with Jordan tackling much of the leadership angle, and Bowermaster sharing what he saw kayaking the coastal lowlands of the world.37

Venture Fellows & the author, presentation

Venture participants met at Huntsman in early December. After some introductions and a light pizza lunch, the Venture Fellows presented key logistical details leading up to the expedition. Bert O’Neal then spoke about the leadership education aspect of the trip, and introduced the concept of the Team as Ecosystem. The author then stretched that concept into the Nested World picture, and briefly presented the three environmental issues highlighted on the web site (Ozone, Carbon & Climate, Waste & Sustainability). The URL of the curriculum support web site was emailed to the students

37 Oceans 8 Expeditions Web Site: http://www.jonbowmaster.com/oceans8/
later the same day. The slide presentation was made available on Webcafé. WEMBA (Working Executive MBA) students were able to watch the event via a live web stream.

**Fernando Yáñez Celedón, Vertical, lecture, Q&A**

In Punta Arenas, Fernando gave a slide presentation and lecture on the wildlife commonly encountered on King George Island, and the various environmental conditions to be expected in terms of terrain and weather. In addition to introducing these ‘what to expect’ types of information, he informed the group of IAATO guidelines for tourists with respect to behavior towards wildlife, and Leave No Trace trekking.

**On King George Island**

**Alejo Contreras, lecture, Q&A**

Alejo was given a rousing introduction by Kiko Guzman, who cited some of his most impressive statistics like number of times to the South Pole and on the summit of Mount Vinson. Alejo then launched into a passionate speech emphasizing the uniqueness of Antarctica, the special privilege of sleeping under its skies, the respectful, Leave No Trace behavior expected of the expedition, and the consequences (both practical and cosmic) of not doing so.

The student Q&A session was particularly lively. He was able to hold forth on topics as wide-ranging as how to not lose your mind while skiing to the South Pole, changes in technology in his decades of tenure, and the terrible mess that people are leaving behind (particularly the bases). The expedition was frequently graced with his presence
as an expedition support person, but also as a guest. His son, Benjamin, was also a fixture on the expedition as his father’s right-hand man.

**German researchers, lecture, Q&A**

Four researchers\(^{38}\) visited the first camp on the second day. They spoke about their areas of focus, ornithology (skuas and Wilson’s storm petrels, *Oceanites oceanicus*) and the environmental impact of people (the bases) on the ecology of Fildes Peninsula. The students asked many, many questions and pulled a lot of great stories and information from the guests, who were invited to stay for dinner with the Vertical staff. Following the humble camp meal and a great deal of laughter, one ornithologist attempted to capture a skua to re-attach a GPS device to its leg. The attempt was not a success, but it was a treat to watch an impromptu demonstration of how science is done in the field.

**Gabriel Becker, lecture, Q&A**

On a particularly blustery, damp day, the group was ferried in small groups via Zodiac to visit the penguin rookery on Ardley Island in Maxwell Bay (Antarctic Specially Protected Area Number 150). Gabriel briefly described the breeding and chick-rearing timetables and habits of Gentoo penguins in particular, but also touched on Chinstraps, Adelies, giant petrels and skuas as time and weather conditions permitted.

**Camilo Rada, lecture, Q&A**

Camilo gave the students a crash course in glacial processes, standing on a dramatic shoreline where the edge of Collins glacier meets the Drake. He spoke specifically about the glacier standing behind him and his work in Valdivia. Following the basic earth

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\(^{38}\) Anja Nordt, Christina Braun, Matthias Kopp, Jan Esefeld.
science lecture, the students wasted no time asking pointed questions about climate change. His descriptions of the state of affairs stuck close to facts, from Milankovitch cycles to extinction events to carbon to ice coring. In about three quarters of an hour, he clearly communicated simple facts while painting the outlines of what the unresolved science is, and why debate persists.

Essentially his message was this: Yes the climate is changing, it always is. The world climate is currently in the upswing of a Milankovitch cycle, and has been for some thousands of years. But there’s been a sharp spike in the last two hundred years, which is correlated with this and that data, but we’re not entirely sure what this all means because climate is complex. There are some really good guesses and most of them have the world looking very different in a thousand years or so. But the reality is, the world is warming. Whether it’s entirely due to natural processes or also influenced by our use of fossil fuels, the consequences are not great, and will vary depending on how high we swing up in this cycle. At the highest summits of these warm peaks, the world’s biodiversity suffers. When there is less biodiversity, there is less abundance to draw from and thrive with as a species.

The argument persists over whether carbon and temperature have more than a correlative relationship, whether there is causation. But whatever the case is, and whether it’s in the area of carbon or mercury or lead or garbage or whatever the problem is, we must work on cleaner, healthier solutions for living in the world, to preserve the biosphere in a state that is conducive to human life. Sebastian Varela also
stepped in towards the end of this fruitful Q&A to put a fine point on the ethical issue at hand: responsibility to future generations.
APPENDIX IV: ENVIRONMENTAL CURRICULUM SUPPORT WEB SITE

http://wlp.wharton.upenn.edu/antarctica/index.html

Environmental Leadership Home

This page frames the three case studies. The Antarctica/World Nested System graphic accompanies the following text:

Humans have a conflicted relationship with the southern continent. On one hand, the international community cooperates on an unprecedented scale to simply survive in Antarctica, let alone to accomplish scientific research. However it is also in Antarctica that our failures to function together as a sustainable society are most starkly outlined.

In this system, science emerges from the Antarctic, while policy, pollutants and people cycle in from the world. When our leadership functions at its highest and best level, the Antarctic system is positively impacted. When it fails to communicate and effectively negotiate, the system is negatively impacted.

We'll have opportunities to speak to researchers on KGI about their work, and the environmental impact of global leadership - both political and corporate. Consider these successes and failures before you go:

The Ozone Hole
Within two years of discovering the Antarctic ozone hole, an international agreement was inked to start phasing out the production and use of ozone-depleting chemicals worldwide. More...

**Carbon & Climate**

The slow pace of international agreement on greenhouse gas regulation could threaten the Antarctic Peninsula more than anywhere else in the world, and consumes most of our political leaders' attention on the world environmental stage. More...

**Waste & Sustainability**

Garbage on the Antarctic shoreline is an increasingly frequent sight, proving that there is no such place as "away" when it comes to throwing things out. Trash, its many sources, reasons and cures, is not particularly high on the international political agenda. But it is creeping higher and higher on the international business agenda. More...
The Ozone Hole

A Model for Success

Page text:

The revelation of the Antarctic ozone hole to the world in 1985 spurred unprecedented global cooperation to solve an environmental crisis as a unit. For a decade, the ability of chlorofluorocarbons (CFCs) to destroy ozone and allow ultraviolet (UV) radiation to penetrate the atmosphere unchecked had been proven by science. International decision-making stalled until this dire proof of danger to human health and the environment was in hand.

The Montreal Protocol is a well-constructed, flexible piece of policy. Starting with 24 signatories in 1987, it now has grown to include over 190 participating nations. The problem was not attacked in one motion of the pen, nor was it attacked at the same speed for all nations. The most dangerous chemicals were targeted for phase-out first, and by developed nations first. Additional chemicals have been added as their properties have been proven as ozone-depleters. Context-sensitive deadlines for developing nations and the sharing of new technologies with developing nations have made the Protocol particularly successful in constructing a feasible, fair solution.
Estimates show that we still have a few more years of large holes over the Antarctic, but that in the next ten years, we will see it shrink, and ultimately disappear well before the 21st Century is over.

**The 7 Dimensions**

The solving of the ozone depletion problem clearly demonstrates aspects of Teamwork, Organizational Awareness, Decision-Making, Communication, and Diplomacy. In the late 70's through the early '80s, the science flowing outward from the research community was clearly communicating the problem, but decision-making lagged in the international political community. Naysayers claimed the science was too unclear, the cost to industry too high, the varying abilities of different countries to respond too difficult to negotiate.

But then came the alarm call in 1985 - a clear picture of the hole in our protection from harmful UV radiation - that finally forced international action. Decisions were made rapidly as the world political team kicked into gear and functioned at a high level in the face of a major crisis. This incredible diplomatic effort continues to this day. The Montreal Protocol is a living, breathing piece of policy, and a model for success in international climate legislation.

**Works Cited, Annotated**

"La Base Cienífica Antártica Artigas." *Instituto Antártico Uruguayo.*

<http://www.iau.gub.uy/baseartigas/baseartigas.htm>
The home page of the Uruguayan base, where ozone monitoring takes place on King George Island.


A succinct highlighting of lessons learned from implementing a successful international environmental treaty.


Thoughts on applying lessons learned from the ozone problem resolution to the climate change debate.


A succinct minute and a half video on the discovery of the ozone hole. According to the Weather Channel: "Scientist discovered in the 1970s that dandy hair-dos came at a price. The spray being used to hold up that big hair was giving the Earth a little bit of a bald spot."


A brief, factual summary of the chemical interactions that cause the ozone layer to deplete, and projections for the future resolution of the problem. Excellent animations and narration.

<http://www.epa.gov/ozone/science/effects/index.html>

A succinct summary from the EPA, with links to more extensive information.


<http://ozone.unep.org/Publications/MP_A_Success_in_the_making-E.pdf>

A slick, informative long-format brochure on 20 years of progress in addressing damage to the ozone.


Two and a half page summary of the successful international environmental treaty.

"Ozone Hole Watch." NASA. <http://ozonewatch.gsfc.nasa.gov>

NASA's site is a well-designed, friendly gateway to anything one might want to know, past or present, text or multimedia.
Carbon & Climate

International Fumbling

Page text:

Much like the worldwide effort to tackle the ozone hole, an effort has been in the works for decades to regulate carbon, a prime culprit in global climate change. And much like the advance warning on ozone, scientific flags were raised as early as the 1970s that man-made greenhouse gases (GHGs) might be having an adverse impact on global climate.

In contrast to the ozone effort however, the world still waits for a coherent plan of action. Greenhouse gases occur in both natural and man-made settings. The regulatory landscape that must be created (emissions targets varying by country, cap and trade schemes) is much more complex than the simple banning of ozone-depleting chemicals, which are man-made.

Complicating matters further, debate continues in some corners as to whether carbon is a driver of climate change, or if it is merely a natural consequence of naturally rising temperatures.

To tackle this problem effectively, the whole world community needs to be at the negotiating table. However, the United States - one of the world's most significant
emitters of man-made carbon dioxide - has declined to make promises about capping emissions. And because they have not been willing to commit, other heavy emitters - like China - have also been reluctant to commit to concrete caps. Until now.

The next major climate summit is in December 2009 in Copenhagen. The original goal was to sign a new Protocol with all parties agreeing to emissions caps, but that is not going to happen. Although President Obama is attending, he will only verbally offer an emissions target for the U.S. This may or may not bring China and India closer to the table. Obama also has a tough road to haul in the U.S. Congress to make such a promise meaningful.

**The 7 Dimensions**

At a glance, if the world were a team, it looks entirely dysfunctional when it comes to action on greenhouse gases. Almost every Dimension is in play in its most negative form. The U.S. is not using its Influence as a leader in a positive way. It is not exhibiting the key elements of Teamwork, Diplomacy, Organizational Awareness, or Emotional Intelligence. Decisions are not being made, Communication is ineffective.

At least this has been the case so far. Under the surface, the picture is far, far more nuanced. The first international climate agreement, the Kyoto Protocol, was embraced in some corners (Europe) and a failure in others (everywhere else). Suffice it to say that it did nothing to exact promises from the top GHG-producing countries in the world. In the meantime, other environmental problems like clean water, pollution and disease, are given less attention. Most of the world's energy is collectively focused, rationally or not, on carbon dioxide.
And now the U.S. seems willing to come to the table as Kyoto's expiration date approaches (2012).

- Will the agreement be a better arrangement than Kyoto?
- Will the big GHG-emitting nations sign the next agreement?
- Commit to emissions caps?
- At what point does it stop making sense to be the odd man out?
- At what point does NOT making a decision begin to hurt the whole system?

**Works Cited, Annotated**


A 60-second summary for the short attention span, in both transcript (with links) and mp3 formats.

"Changes in the Air: What Will Come of the Copenhagen Climate Summit?"

*Knowledge@Wharton*. December 9, 2009.  

From Knowledge@Wharton: "More than 100 world leaders gathered in Copenhagen on December 7 for a two-week summit meeting whose ambitious aim is to renew the Kyoto protocol on climate change. The issues being discussed include reducing emissions of green-house gases and setting a price for carbon, among others. What are the likely business implications of these issues? What new challenges and opportunities will they create during the coming months?"
Knowledge@Wharton discussed these topics with Wharton legal studies and business ethics professor Eric Orts; Howard Kunreuther, Wharton professor of decision sciences and public policy; and Erwann O. Michel-Kerjan, managing director of the Wharton Risk Management and Decision Processes Center."

"The Copenhagen Diagnosis, Executive Summary." *Climate Change Research Centre, University of New South Wales.*


A group of 26 scientists attempt to fill the long gaps between UN IPCC reports with summaries of various papers on climate-related studies with this web resource.


The BBC's dedicated coverage leading up to, covering, and following up on, the Copenhagen Summit.


NASA's visually pleasing, interactive site with any kind of information imaginable. Sections include Key Indicators, Evidence, Causes, Effects, Uncertainties and Solutions.


At the center of all debate.


<http://www.nature.com/climate/timeline/icp/index.html>

An inviting, expanding and collapsing time line starting in 1979 with the UN environmental conference in Stockholm.
  <http://www.youtube.com/watch?v=FgEZpX3n5mo>
  Animated, narrated lesson on the carbon cycle.

  Penn's own outspoken environmentalist sets the details straight.

  Connecting the abstract concepts to the island underfoot.

  <http://www.youtube.com/watch?v=VEuEqgdJXHg>
  NASA's animated, narrated take on sea level rise - extent, causes and effects.

  <http://news.bbc.co.uk/2/hi/science/nature/8278973.stm>
  A concise Q&A to catch up to the debate ahead of the Summit.
Waste & Sustainability

Business to the Rescue

It won’t take too long for someone to run across an old, sun-bleached plastic bottle on the shores of King George Island. Even as remote as Antarctica seems from the civilized world, it is connected to its mistakes and oversights by the air and sea. On King George Island, we are also required to manage our day-to-day waste and garbage, which can make for some unique challenges. Simply pulling this off with a few people in one spot will be revelatory to how difficult this can be to manage on a global scale.

In the case of ozone, the input came by air. In the case of carbon, it comes by air and sea. In the case of material pollution, it comes primarily by sea. When any buoyant plastic item makes it into a current that flows to the sea, there is floats, frays to bits, and persists. And with 2 billion more people on the way by 2050, we simply aren’t going to have anywhere to put it all if this model remains static.

With the continued expansion of the Pacific Garbage Patch, increasing consumer awareness, and the rise of the sustainable business movement, leaders are emerging, and innovation is occurring. And with so much geopolitical attention focused on climate change, the onus of responsibility has shifted away from government regulation, and towards initiative in the private sector.
So how do these new leaders propose to stop the flow of material waste? By fundamentally re-imagining the traditional production, delivery and end-of-line process into a closed-loop system, much like an ecosystem.

Sustainable businesses re-evaluate every step of their process, not just the end-of-line, to become cleaner and more innovative while remaining profitable. One might think that regulatory incentives (carbon) or international mandates (ozone) would be necessary to make this go, but in this case, business and the consumer are driving progress.

Advances have been made in the voluntary collecting and recycling of items after use (from common municipal recycling to old computer collection), but the true goal of a sustainable business is to thoroughly minimize or completely eliminate harmful, persistent materials at all stages of production. One of the most successful, transparent companies working on attacking all angles of their sustainability is Nike. They freely share their Design Ethos online. Although Nike started their march to sustainability in 1999, they have a long way to go before reaching zero impact.

For now, the waste stream at the end of the consumer goods chain is enormously problematic, but the goal of sustainability represents an equally enormous opportunity for business leadership. The mere fact that corporations large and small are stepping into this leadership void well ahead of political leaders is remarkable and hopeful.

**The 7 Dimensions**

Sustainable business leaders display all 7 Dimensions in their most positive expression. The Influence of a profitable, progressive business model is impossible to
underestimate. One of the most influential leaders, Ray Anderson of Interface Global, is probably more in demand as a speaker than a carpet manufacturer. The more proof of concept, the more sustainable models are sought.

Teamwork, Diplomacy and Decision-Making, Emotional Intelligence and Organizational Awareness work together both inside and outside a company as it takes a hard look at its connections to the natural world. Such fundamental self-evaluation can be daunting, but if the team buys in to the process, the experience can be a transformative team-builder. Decisions must be made carefully to craft a step by step, piece by piece way forward. For instance, one cannot simply throw out an entire manufacturing division, or sever ties with packaging vendors wholesale. One might instead approach a vendor about whether they offer more sustainable materials, and if not, encourage them to do so. This forward motion coupled with the re-working of existing solutions can make the whole system stronger in the end.

Communication is also a key element to a successful corporate sustainability initiative. Internally, good communication sets clear goals and inspires confidence over uncertainty. Externally, consumers are demanding transparency and truth behind green claims. No company can claim to be 100% eco-friendly, but a company can be factual about goals and accomplishments.

Works Cited, Annotated

   <http://www.ted.com/talks/capt_charles_moore_on_the_seas_of_plastic.html>
From TED: "Capt. Charles Moore of the Algalita Marine Research Foundation first
discovered the Great Pacific Garbage Patch -- an endless floating waste of plastic trash. Now he's drawing attention to the growing, choking problem of plastic debris in our seas."

"Cradle to Cradle." <http://www.mcdonough.com/cradle_to_cradle.htm>

From the book's author, a quick introduction to the self-proclaimed "manifesto calling for the transformation of human industry through ecologically intelligent design.".

"From Soup to ... Corporate Social Responsibility: Campbell's Efforts to Lead the Way." Knowledge@Wharton. November 11, 2009.

<http://knowledge.wharton.upenn.edu/article.cfm?articleid=2378>

A profile of Dave Stangis, Campbell's vice president of corporate social responsibility, and Campbell's efforts to implement successful CSR strategies.


Nike's corporate responsibility reports, environmental and otherwise.

"Part 4: Integrating Sustainability into Corporate Innovation, BSR Conference 2009."


<http://www.youtube.com/watch?v=chvmFYbhuSE>

Nike's Hannah Jones discusses Nike's journey towards and long-range planning for systemic sustainable practices. A fascinating, nuanced peek into CSR.


<http://www.scientificamerican.com/podcast/episode.cfm?id=plastic-not-fantasticin-the-ocean-09-08-21>

60-second summary of why plastic in the ocean is bad, in both written transcript and mp3 formats.


<http://www.ted.com/talks/lang/eng/ray_anderson_on_the_business_logic_of_sustainability.html>

From TED: "At his carpet company, Ray Anderson has increased sales and doubled profits while turning the traditional "take / make / waste" industrial system on its head. In a gentle, understated way, he shares a powerful vision for sustainable commerce.".


<http://www.youtube.com/watch?v=KzNTRwxIRKg>

Interview with a co-author of the hugely influential book, Natural Capitalism. She discusses the main strategies for the future as laid out in print.
APPENDIX V: WEB METHODOLOGY: DESIGN, RESEARCH, & IMPLEMENTATION

http://wlp.wharton.upenn.edu/antarctica/index.html

Design: Parameters

A design, however rudimentary, is never arbitrarily executed. Even a choice to not do something is a choice. The range of design options for a web site is delimited by the conditions under which it can be developed. The conditions and choices together shape the final design and functionality of a given site. In this instance, the three driving factors behind the curriculum support site were platform, time, and contents.

On the platform side, the first incarnation of the site was as a Google Site[39]. Google’s WYSIWYG (what you see is what you get) editor lives in the cloud (on the internet, not on a privately-operated server), and it has some great advantages like built-in layouts and password protection, tools like news feeds, slideshow widgets, embeddable calendars and audio players – all this, and ample storage space for any uploaded files.

However, a Wharton-branded site should be hosted on a Wharton web domain, to provide the project site with a legitimate URL. Working from inside Wharton’s web infrastructure does provide the URL, but removes the potential to use any sort of built-in functionality that robust, cloud-based freeware like Google Sites offers. Wharton does have a web content management system with some authoring tools available, the quick turnaround we required (instantaneous) for full access to that toolset was well out of scope.

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However, once the determination was made to go with a Wharton URL, and the right messages got to the right people, the speed with which the IT department provided me with an account and access, with all of the other urgent requests they field in a given week, was remarkable.

Ultimately, the site started with an empty folder, and a URL. With this combination of something and nothing, the site was destined to be a self-contained, simple entity, constructed entirely out of HTML, CSS, and images. With no server-side scripting available (which makes most dynamic, fun content possible), no WYSIWYG editor, no fun tools, the task list was correspondingly simple and clear. First, sketch out a simple organizational scheme for the content. Second, find a freely available, already coded layout as a starting point. Third, find some free icons to serve metaphoric purposes. And of course, make it interesting.

The simplicity of the site in some senses played to the project’s advantage. With few distracting choices to make like which audio player to use and how to get it to point to all the right podcasts and so forth, I was free to accomplish other tasks. On the other hand, without the advantages of a one-click layout editor, much of that time went back into fiddling with layout code to make it work.

Once the Venture Fellows embraced the Team as Ecosystem concept, my tasks feel easily into place. I sketched out the nested world concept (with analog pencil and paper technology), chose which Antarctic environmental case studies to feature, and went on a hunt for supporting design and content elements.
Web Content Research Methods

Before choosing a layout, it’s important to know what that layout will frame: the conceptual purpose of the site, the functional purpose of the site, the organization of the content, the content itself, and the users destined to interact with it.

The primary purpose of this site was to present the Antarctic environmental case studies to the Venture participants. The cases would consist of a short essay introducing the topic, and a collection of carefully curated outbound links to further information. These cases would support and flesh out the nested world philosophy. The site should be both informative and engaging. Its existence would make possible the transformation of the print-format support element from an unwieldy bulk pack to a lightweight journal.

The users were thirty-nine MBA students from every corner of the world, and three non-MBA Masters students with equally diverse backgrounds. These are educated, web-savvy, busy people. The choice to even look at the site was theirs. If a student did choose to look at it, it should be clear and engaging at a glance. For the more than casual user, it should present substantial, authoritative, but not overly detailed resources.

Because the content should support the environmental arm of the nested world philosophy in context, it separated naturally into three areas: the Leadership Venture, Environmental Leadership, and an Antarctic FAQ.

The Venture participants, like most web users, are accustomed to encountering a variety of media formats on the web, and in a multi-tasking world, one must present
multiple methods of engagement with such users. Some are happy to sit and read a long article, or glance over bullet points. Some will scan headings and images and see if there’s anything particularly interesting that jumps out at them. Some simply want to watch a video, some want to download podcasts to listen to on the subway or in the gym. To support these various possible methods of engagement, the site should feature multiple media types per topic: text, audio, and video.

The three key entry points to the web were search tools: Google\textsuperscript{40}, iTunes\textsuperscript{41}, and YouTube\textsuperscript{42}. When I was fishing for something particular, I’d search diligently within a few specific sites, but often the best site-searcher was Google (using the ‘site’ prefix) rather than a site’s native search engine.

After gathering a large pool of resources, choosing which items would make the final cut was simplified by provenance. The source of each item had to hold some credibility, either as a scientific or governmental body, as a primary source (e.x., a reputable first-person or agency presentation on video), or as an authoritative news organization. In the Environmental Leadership category, this decision-making method plus the vagaries of what is actually available freely on the web, produced a final media type count per topic as follows:

\textsuperscript{40} http://www.google.com
\textsuperscript{41} http://www.apple.com/itunes
\textsuperscript{42} http://www.youtube.com
<table>
<thead>
<tr>
<th></th>
<th>Ozone</th>
<th>Carbon &amp; Climate</th>
<th>Waste &amp; Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>General web site</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Full length article</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Summary text</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Video</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Audio</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Interactive tool</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

The Leadership section draws from materials prepared originally by the Venture Fellows, and a few odds and ends picked up along the way. Because the bulk of the Leadership curriculum was to be supported by the trail journal and of course, experience on the ground, so the online section had no need to be more than contextual glue.

The materials in the Antarctica section faced the same scrutiny in terms of authority, but were chosen in a less conceptually organized way. Those materials are essentially the most interesting things I ran across as I looked for Ozone, Carbon, and Waste materials.

The post-Venture survey (see Appendix VI., Questions 10, 11, 12) indicates that students did engage with the web site, and took advantage of multiple media formats.
Design: Implementation

With a pool of resources and an organized concept in hand, the search for a readymade layout was possible. The GoFlexible template by Gerhard Erbes, found at Open Source Web Designs\(^{43}\) ultimately fit the bill. It is free, platform-neutral, and alterable. It features a tabbed display across the top - a common, easily understood metaphor for high-level navigation. Inside each major grouping is a sidebar on the left-hand side, to expose and provide navigation to the subtopics. GoFlexible offers these characteristics, and also features the ability to create a column on the right side of the page, a perfect place to highlight outbound links to each set of resources.

On each cases study page, the right column contains one item of visual interest (an image) at the top, leading to an article, video, or animation. Each box below the visual callout contains a set of related resources with a clear title, and directives to READ, WATCH or LISTEN to the linked resources. In two cases, direct connections to King George Island were not only possible, but supported by existing web content. This material is highlighted with a pale red color in contrast to white, black and gray used throughout the site.

Some custom work was done to the code to make it breathe a little better with the cases, but its soul is GoFlexible. The icons used in the nested world concept are from the freely available Silk icon set at FAMFAMFAM\(^{44}\), but the final graphic work is mine. Photos are credited on the site.

\(^{43}\) [http://www.oswd.org/](http://www.oswd.org/)

\(^{44}\) [http://www.famfamfam.com](http://www.famfamfam.com)
APPENDIX VI. POST-VENTURE SURVEY

The author composed the following survey using Survey Monkey.

<table>
<thead>
<tr>
<th>1. Previous to choosing a venture, were you aware that any ventures included any environmental education elements?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

answered question | 21
skipped question | 0

<table>
<thead>
<tr>
<th>2. Previous to choosing a venture, were you aware that the Antarctica venture included environmental education elements?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

answered question | 21
skipped question | 0

<table>
<thead>
<tr>
<th>3. If you did know ahead of time, did this influence your decision to choose Antarctica over other ventures?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>I did not know</td>
</tr>
</tbody>
</table>

answered question | 21
skipped question | 0

<table>
<thead>
<tr>
<th>4. If you did not know, do you think would you still would have chosen Antarctica had you known?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>----------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
</table>
5. Did any (one or more) of the environmental elements enhance the leadership experience?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>95.2%</td>
<td>20</td>
</tr>
<tr>
<td>No</td>
<td>4.8%</td>
<td>1</td>
</tr>
</tbody>
</table>

Anything in particular?

<p>| answered question | 21 |
| skipped question  | 0  |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Mar 1, 2010 3:38 PM</td>
<td></td>
<td>Being more aware helps taking a more active role in environmental issues, not just about Antarctica but in general.</td>
</tr>
<tr>
<td>11 Mar 2, 2010 5:32 AM</td>
<td></td>
<td>I was continually impressed with the even handed nature in which human impacts on Antarctica were handled. I am used to being preached to by those who wish to educate me about the environment – being treated as an interested, engaged and active participant was a refreshing change.</td>
</tr>
<tr>
<td>12 Mar 8, 2010 3:39 PM</td>
<td></td>
<td>Glacier talk, input form the German scientists</td>
</tr>
<tr>
<td>13 Mar 12, 2010 12:04 AM</td>
<td></td>
<td>Kate Atkins, of course.</td>
</tr>
<tr>
<td>14 Mar 18, 2010 1:00 PM</td>
<td></td>
<td>Really enjoyed the glacier session</td>
</tr>
</tbody>
</table>

**6. Did any (one or more) of the environmental elements interfere with the leadership experience?**

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4.8%</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>95.2%</td>
<td>20</td>
</tr>
</tbody>
</table>

Anything in particular? 0

answered question 21

skipped question 0

**7. Did you think there was too little, too much, or just about the right amount of environmental enrichment on this leadership venture?**

<table>
<thead>
<tr>
<th>Amount</th>
<th>Way too much</th>
<th>A little too much</th>
<th>About right</th>
<th>Could be more</th>
<th>Not nearly enough</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>61.9% (13)</td>
<td>33.3% (7)</td>
<td>4.8% (1)</td>
<td>-0.43</td>
<td>21</td>
</tr>
</tbody>
</table>

answered question 21

skipped question 0

**8. Did you attend (or watch) the kickoff presentation (slide presentation and pizza with Gareth, Judy, Mimi, Bert and Kate)?**

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>71.4%</td>
<td>15</td>
</tr>
<tr>
<td>9. Did you attend the lecture in the fall, when Rodrigo Jordan and Jon Bowermaster spoke at Wharton?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Response Percent</td>
<td>Response Count</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9.5%</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>90.5%</td>
<td>19</td>
</tr>
</tbody>
</table>

answered question 21
skipped question 0

| 10. Did you look at the web site? (choose all that apply) |
|--------------------------------------------------------|------------------|----------------------|
| Response Percent | Response Count |
| Before the venture | 66.7% | 14 |
| After the venture | 33.3% | 7 |
| Never | 23.8% | 5 |

answered question 21
skipped question 0

| 11. If you looked at the site, which sections did you check out? (choose all that apply) |
|---------------------------------------------------------------------------------------|------------------|----------------------|
| Response Percent | Response Count |
| I did not look at it | 23.8% | 5 |
| Home page | 57.1% | 12 |
| Leadership section | 47.6% | 10 |
| Environmental section | 52.4% | 11 |
| Antarctica section | 76.2% | 16 |
12. If you used the site, did you... (check all that apply)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not use it.</td>
<td>23.8%</td>
<td>5</td>
</tr>
<tr>
<td>Glance over the site only?</td>
<td>19.0%</td>
<td>4</td>
</tr>
<tr>
<td>Read text on the site?</td>
<td>66.7%</td>
<td>14</td>
</tr>
<tr>
<td>Read a linked resource?</td>
<td>28.6%</td>
<td>6</td>
</tr>
<tr>
<td>Watch a linked video?</td>
<td>33.3%</td>
<td>7</td>
</tr>
<tr>
<td>Listen to a linked podcast?</td>
<td>9.5%</td>
<td>2</td>
</tr>
<tr>
<td>Read a suggested book?</td>
<td>14.3%</td>
<td>3</td>
</tr>
<tr>
<td>Watch a suggested movie?</td>
<td>23.8%</td>
<td>5</td>
</tr>
</tbody>
</table>

13. Did you do independent research on Antarctica (reading books, watching movies, web research)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47.6%</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>52.4%</td>
<td>11</td>
</tr>
</tbody>
</table>

Anything you would recommend? Yes

<table>
<thead>
<tr>
<th>#</th>
<th>Response Date</th>
<th>Anything you would recommend?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb 24, 2010 1:05 AM</td>
<td>Alfred Lansing's book.</td>
</tr>
</tbody>
</table>
2 Mar 1, 2010 3:40 PM Shackleton movie


4 Mar 12, 2010 12:06 AM Movies are great. I also watched into the wild on the plane and it got me psyched.

14. Did you read any part of the trail journal? (check all that apply)

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before the venture</td>
<td>57.1%</td>
<td>12</td>
</tr>
<tr>
<td>After the venture</td>
<td>23.8%</td>
<td>5</td>
</tr>
<tr>
<td>During the venture</td>
<td>28.6%</td>
<td>6</td>
</tr>
<tr>
<td>Never</td>
<td>28.6%</td>
<td>6</td>
</tr>
<tr>
<td>Anything in particular?</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

answered question 21
skipped question 0

Did you read any part of the trail journal? (check all that apply)

<table>
<thead>
<tr>
<th>Response Date</th>
<th>Anything in particular?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 24, 2010 1:05 AM</td>
<td>Read ALL of it. Really.</td>
</tr>
<tr>
<td>Feb 24, 2010 1:32 AM</td>
<td>I liked the case study and the excerpt about the Sadhu</td>
</tr>
<tr>
<td>Mar 12, 2010 12:06 AM</td>
<td>The stories and back history</td>
</tr>
</tbody>
</table>

15. Did you write in the journal?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23.9%</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>76.2%</td>
<td>16</td>
</tr>
</tbody>
</table>

answered question 21
skipped question 0
16. Did you find the concept of the team as an ecosystem... (click all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful</td>
<td>38.1%</td>
<td>8</td>
</tr>
<tr>
<td>Not useful</td>
<td>9.5%</td>
<td>2</td>
</tr>
<tr>
<td>Clear</td>
<td>47.6%</td>
<td>10</td>
</tr>
<tr>
<td>Unclear</td>
<td>28.6%</td>
<td>6</td>
</tr>
</tbody>
</table>

answered question: 21
skipped question: 0

17. If you could go back next year and bring a dream person on this trek - the type of person you’d like to have a few hours to walk with, talk with, and share a meal with while watching penguins waddle along the shore - who would that person be? You can be specific (Professor so and so, the CEO of x company) or general (marine biologist, Antarctic historian), or simply say ‘no one.’

<table>
<thead>
<tr>
<th></th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

answered question: 9
skipped question: 12

If you could go back next year and bring a dream person on this trek - the type of person you’d like to have a few hours to walk with, talk with, and share a meal with while watching penguins waddle along the shore - who would that person be? You can be specific (Professor so and so, the CEO of x company) or general (marine biologist, Antarctic historian), or simply say ‘no one.’

<table>
<thead>
<tr>
<th>#</th>
<th>Response Date</th>
<th>Response Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb 24, 2010 1:10 AM</td>
<td>Bill Gates: Apparently he is currently on a trip to Antarctica. Al Gore would be awesome too.</td>
</tr>
<tr>
<td>2</td>
<td>Feb 24, 2010 1:41 AM</td>
<td>Someone like Alejo</td>
</tr>
<tr>
<td>3</td>
<td>Feb 24, 2010 3:24 AM</td>
<td>marine biologist and geologist</td>
</tr>
<tr>
<td>4</td>
<td>Feb 24, 2010 4:19 AM</td>
<td>Leaders of the world who delay taking any action on environmental issues....</td>
</tr>
<tr>
<td>5</td>
<td>Feb 24, 2010 4:59 AM</td>
<td>No one. This trek was special because of the people on it, yes, but it was also discovering how random people one meets can be interesting and amazing. I don't have anyone to pick specifically. Although I guess Antarctic historian would be cool.</td>
</tr>
</tbody>
</table>
6 Mar 2, 2010 5:37 AM  A survivalist. It would be fascinating to know what someone can do when the chips are down in a place like Antarctica. It would make the Shackleton tale much more visceral.

7 Mar 8, 2010 3:41 PM  no one.

8 Mar 12, 2010 12:12 AM  Kate Atkins

9 Mar 18, 2010 1:02 PM  Someone with a holistic understanding of environmental issues and Antarctica's place in the world. Sort of like a really good policy / environmental work who knows a lot about Antarctica and is also a great trekker.

### 18. Other thoughts?

<table>
<thead>
<tr>
<th>Response Count</th>
<th>Answered Question</th>
<th>Skipped Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>

### Other thoughts?

<table>
<thead>
<tr>
<th>#</th>
<th>Response Date</th>
<th>Response Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb 24, 2010 1:10 AM</td>
<td>Please continue NOT marketing Antarctica as an environmental trek. If it was pitched as an environmental trek, all the green-conscious people would go. It would crowd out us marginally-aware-of-the-environment people. We would not have had the chance to feel humbled by Antarctica and realize that hey, we should care a lot more about the planet!</td>
</tr>
<tr>
<td>2</td>
<td>Feb 24, 2010 1:41 AM</td>
<td>It was perfect, don't change it.</td>
</tr>
<tr>
<td>3</td>
<td>Mar 2, 2010 5:37 AM</td>
<td>The environmental sections were seamlessly incorporated. As my previous answers may have indicated, I get an allergic reaction to most things &quot;green&quot;, but this venture was handled with class and panache and in a way that aided my understanding of the great southern continent. It succeeded in making me more thoughtful about these topics.</td>
</tr>
<tr>
<td>4</td>
<td>Mar 12, 2010 12:12 AM</td>
<td>I loved learning about environmental responsibility. No more suitable environment exists in which to study and practice sustainable living. I also underestimated the impact that the other participants would have on me. They were incredible and a pleasure to interact with during the venture.</td>
</tr>
</tbody>
</table>
WORKS CITED


Useem, Michael, Jeff Klein, and Preston Cline. 2009. *2009-2010 Graduate Programs Wharton Leadership Ventures (Brochure).*