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HUMANITIES AND TECHNOLOGY

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Humans Using Machines, Humans as Machines: Implications for Teaching and Learning

David Leech Anderson
Illinois State University

What is the relationship between computers and human beings? Whether or not humans are essentially computers, as some theories assert, learning does involve “information processing.” Some educational methods (computer-based and otherwise) require students to handle information in a mechanical way that undermines both the development of critical skills and a genuine understanding of the material. This essay is a reflection on the ways in which computers in education can undermine student learning, especially in the development of advanced cognitive abilities, and the ways in which it can greatly enhance it, by providing challenges that foster critical analysis and genuine understanding. Inspiration is drawn from Neal Stephenson’s novel, *Diamond Age*, and his belief that students ought to live “interesting lives” and be “subversive.” Examples of interactive virtual learning experiences are drawn from David Leech Anderson’s work with *The Mind Project*, a research and curriculum project in the cognitive and learning sciences.

Keywords: computer-aided instruction, educational technology, The Mind Project, Turing Test, Ray Kurzweil, Neal Stephenson, subversive, virtual labs

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Introduction

I am a philosopher and a cognitive scientist; I have one foot in the humanities and one in the sciences. When I teach philosophy, the central method is to pour over the details of primary texts with my students using a piece of chalk and a chalkboard. I also teach cognitive science. When I do, central elements of the curriculum are interactive, computer-based virtual experiences which I have spent the past decade helping to produce as Director of *The Mind Project* (Anderson, 2002 to 2008). The students' primary instructor in those contexts is a *machine*.

From the time that I first entrusted my students to the care of a machine, I have been exercised by the worry that this is ultimately a pact with the devil and that I have sacrificed my most deeply held convictions and sold my soul to a master that will ultimately devour its subjects. What follows are reflections on the human-machine relationship and how I have (tentatively) come to peace with this homo-machina collaboration.

The Relationship Between Computers and Humans

How are we to understand the relationship between technology and humanity? And in particular, how are we to understand the relationship between computers – the quintessential technology of the 21st century – and human beings (Wiener, 1948, pp. 57, 96.)? In considering the role that computers might play – for good or for ill – in the intellectual development of students, it is difficult to avoid some of the deeper, more metaphysical questions about the nature of human cognition and the relationship that human intelligence might bear to the “artificial” intelligence exhibited by computers today and promised for the future.

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In Spring of 2008, I spent a delightful day with Ray Kurzweil, a brilliant engineer and a famous futurist who predicts that by 2029 there will be robots as intelligent as humans and ten to fifteen years after that it will be possible to download your “mind” into a computer-controlled robot which will make you immortal. If the robot breaks down, just replace the parts; if the software becomes corrupted, just re-install the back-up copy that will be wirelessly saved every three minutes for your protection. You might lose the last three minutes of your mental life, but once the software is reloaded, you will be *identical to* that version of yourself (i.e., you’ll be the *same person*) that existed a mere 180 seconds ago (Kurzweil, 1999 and 2005).

Some people reading this are young enough that if Kurzweil’s predictions are accurate, these readers will live forever. Nice work if you can get it. But are these predictions reasonable? There is a long and fascinating history of research and speculation into these issues (Wiener, 1948; Moravec, 1988). Suffice it to say that there are countless technological breakthroughs that would have to be made to accomplish these goals and most experts in artificial intelligence are not as sanguine as Kurzweil about their likelihood, especially in such a short period of time; furthermore, the technology will be the easy part compared to settling the deeper metaphysical questions about the essence of personhood and the tracking of “personal identity” through time and through “body transplants” (Phillips, 2000). What is important for the current discussion is not the accuracy of Kurzweil’s predictions, but rather the powerful influence of the theories of mind and person that he is presupposing.

Kurzweil is assuming that *you* are fundamentally computer software. This view begins with the widely held assumption that your mental states (your beliefs, desires, commitments, pains, fears, and hopes) play a central, constitutive role in your identity as a person. It is then postulated that those mental states are reducible to the

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functional states of your brain, which are information processing states implemented in the neuronal signals in your brain that can be read off of the firing rates, weighted connections, and dynamic interactions of clusters of neurons. Kurzweil's claim is that these essential features of your brain can (in principle) be captured as input-output functions and uploaded into any machine capable of implementing those functions. So long as the machine states of the robot play the same *causal role* as those biological states in your brain and central nervous system, then your mental states will be preserved. This theory of mind is most descriptively referred to as the "computational theory of the mind" and is a species of a broader theory known as "functionalism." Functionalism comes in many flavors (Levin, 2004; Anderson 2003) and has been (arguably) the most popular theory of mind among analytic philosophers and cognitive scientists for the past thirty years.

What are we to make of this theory that humans are not simply influenced by computers, they *are* computers (and in something more than a mere metaphorical sense)? How plausible is this claim? Personally, I am not convinced. Unquestionably, the human brain does perform "information processing" tasks. Very few would deny that the brain states which are implicated in my belief that "There is a shrub in the yard" do, indeed, *carry information* about the current physical state of the plants in my yard. But that is a far cry from saying that my belief *reduces* to a computational state. Nonetheless, even if functionalism ultimately fails, there remain good reasons why so many researchers in cognitive science have had successful research programs built on the foundation of this particular model of the human mind. Even if it is false, it will likely turn out to be false in ways sufficiently subtle that the final truth will retain vestigial features of the functionalist picture as some part of the story, since mental states do (among other things) "carry information" about the world. Further, I suggest that insights can be gained by tracking the

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various ways in which both humans and machines “process” information – the ways in which human teachers and students handle information (sometimes intelligently, sometimes “mechanically”) and the ways in which machines do the same (Wiener, 1948). Ultimately we are seeking insights that help us more successfully to promote rich, flexible, expansive intelligence in the classroom and in our lives.

Diagnosing Some of the Failures of the US Educational System

In 2003, the Organization for Economic Cooperation and Development (OECD) conducted a comprehensive study of the “literacy” of fifteen year olds in forty-nine countries. Called the Program for International Student Assessment (PISA), this study sought to measure students’ ability to apply knowledge in real-world situations. The OECD identified three levels of accomplishment in the critical area of “problem-solving,” with the highest being level 3.

Level 1: Basic problem solvers

Level 2: Reasoning, decision-making problem solvers

Level 3: Basic reflective, communicative problem solvers

The students were given real-world problems to solve and their success rate placed them into four categories: The lowest category were those students who did not even reach Level 1, followed by those who only achieved Level 1, those who achieved Level 2, and those who achieved the highest Level 3.

According to this report, to be competitive in the world’s 21st century economies, workers will need skills which place them in the top two categories. By that measure, in 2003, fifteen year olds in the USA ranked 29th in the world in percentage of students who met the Level 2 threshold. US students are not in the company of those nations with the

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highest scores (Finland, Korea, China, Japan), rather they rank immediately below Latvia and the Russian Federation. And the vast majority of countries who rank ahead of the US, spend considerably less per student on education.

Some commentators who were shocked at the high percentage of US students in the lower two categories, insisted that surely the US excelled in the percentage of students who qualified as the “best of the best” (Level 3). Unfortunately, measuring only the percentage of students reaching Level 3, the US fares only slightly better with a rank of 25th in the world.

There are undoubtedly a wide range of explanations for why US students fare so poorly in problem-solving tests and I do not pretend to offer anything like a definitive analysis of the problem. Nonetheless, I do believe that it is reasonable to suggest that problem-solving, like many other higher order cognitive functions, is not a set of facts to be memorized but a complex skill that can only be acquired by effective engagement with increasingly challenging problem-situations. Creating learning environments which consistently provide students with the opportunity for such cognitive engagement is no small task. In the science of learning literature, this goal is often described as one of “transference” (Bransford, J., Brown, A., and Cocking, R., 2000). Learning to solve one particular problem is a relatively insignificant accomplishment unless that skill generalizes and thus “transfers” to a wide range of other related but not identical problems.

The primary point of asking science students to conduct experiments on bread mold is not that the idiosyncrasies of bread mold are of particular importance to life in the 21st century. Rather, bread mold is simply an occasion for them to learn the scientific method and to exercise the higher cognitive faculties required in its application. While the scientific method consists of implementing a relatively short list of basic activities – identify a research question, design and conduct an experiment, gather data, interpret data, draw salient

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conclusions – it is notoriously difficult to create a classroom activity so that students understand the significance of each step in the process and actually master the broader cognitive skills of which this one experiment is only an instance. The goal is not primarily to convey information about bread mold but to impart skills which will “transfer” to the next science experiment as well as to puzzles in other domains that also require disciplined reasoning.

Not only is it difficult to achieve this kind of transference it is often difficult simply to recognize whether or not you have achieved it. Instructors are often chagrined to discover that their students who seemed to have done so well on the first experiment – who seemed to demonstrate a firm grasp of scientific reasoning – are shown to have done no such thing as they ineptly and mechanically attempt to impose features only accidental to the bread mold case onto the next experiment, say, studying the nature crystals.

Computers and Humans Behaving Mechanically

Distinguishing genuine comprehension from a mechanical simulation of it in the case of students (Roberts, 2002) bears relevant similarities to distinguishing genuine intelligence from good mimicry in the case of machines. And here it doesn't matter where you stand on the computational theory of mind. Routine, mechanistic responses to complex situations is rarely evidence of genuine understanding. That is why Alan Turing, in his famous “Turing Test” for machine intelligence (Turing, 1950; Anderson, 2004), sought a method for evaluating behavior that would ferret out mindless, mechanistic behavior and only judge as intelligent those performances by machines that were flexible and sensitive to nuance and subtlety.

Notoriously, though, computers do not yet come close to passing the Turing Test and their performance continues to be recognizably mechanistic. If we can't build an intelligent

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computer, if we can only program pre-determined outputs for narrowly prescribed inputs, it may be that educational software, no matter how fancied up with Technicolor and 3D animations, will be limited to a mechanical feed-back system which can only serve to encourage simple, mechanical behavior in students. In that case, computers would seem to be the wrong tool for helping students to achieve Level 3 reasoning and problem-solving skills – not to mention a rich, nuanced understanding of the scientific method. If that is the case, then leaving computers out of the classroom and having humans do 100% of the teaching may be the only reasonable course of action.

This assessment is, of course, overly simplistic. In the first place, our conception of the “mechanical” should not be so narrow as to apply only to machines. Long before the computer was a gleam in the eye of any human being, generations of teachers had settled on the mechanical recitation of what were presumably educationally beneficial algorithms as the preferred method of instruction. “Repeat after me,” was the mantra heard by many a student whose school days were filled with pedantic drills of alphabet recitations, arithmetical tables, and grammatical declensions all reinforced by an automatic feedback system (ruler-swats to the wrist) that rivals any contemporary computer system. Keeping machines out of the classroom is no guarantee of enlightened, non-mechanistic instruction.

Further, while narrowly mechanical behavior in human beings is inadequate for many intellectual challenges, mechanistic modes of instruction are not without their place. The deficiencies of U.S. students with respect to Level 3 problem-solving is not simply the result of too little exercise of the higher-order cognitive skills. It is also a result of too little rigor in mastering the “mechanical” dimensions of education. Reality has structure – mathematical structure, logical structure. Higher cognitive reasoning requires the ability to take these structures as objects and to manipulate

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them in thought. It requires the ability to compare, contrast, and integrate one abstract object with another; it requires the ability to discern when some particular piece of reality reflects a particular mathematical structure and when a particular line of reasoning is an instance of a particular logical structure.

Some might think that software that mechanically *drills* students to master certain content is pedagogically unenlightened and is the instructional equivalent of slaps to the wrist with a ruler. It need not be the case. Computers do implement algorithms; but so do flash cards. Mastering addition tables is inevitably a mechanical process. A computer is not an unreasonable tool to use to inculcate these skills. In fact, it can make the whole process more fun and engaging and make the entire enterprise more *humane*.

The Greater Danger of Computers in the Classroom

I am convinced that computers pose the greatest threat not when they are being obviously mechanical in their operation, but when the goal is for them to be anything but. One of the features of computers most prized as an information-delivery-system is its capacity to modify text-based information – which has, since the invention of writing, been a static method of conveying information – so that it becomes a dynamic, interactive system which can respond to a student’s curiosity. This would appear to be a natural support to the much praised inquiry-based instruction which focuses on the students’ responsibility to direct their own path of discovery and learning and eventually to apply that learning in new domains (Hudspeth, B. and Jenkins, H., 2001). As a student’s thoughtful inquiry causes her to question what lies beyond the content available in the primary text, all she need do is click on a hyperlink . . . or continue to follow the slides of a PowerPoint presentation . . . and she will go down the path of critical inquiry, just as serious researchers have always done. Or will she?

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The Mind Project employs a number of interactive web based tools to deliver learning materials in the field of cognitive science. Having committed considerable time and energy (not to mention tax dollars) to the creation of computer-based instructional materials for this project, I would like to believe that the incorporation of hyperlinks, videos, computer simulations, and the like would automatically produce the cognitive virtues and the mastery of content that is the goal of such instruction. I fear such may not be the case. I am convinced that one of the greatest threats to effective instruction today is the degree to which the content students receive is “pre-processed” and that the road of discovery which they travel varies between the equally unsavory destinations of “pre-packaged and pre-ordained results” and “unreliable Internet drive!”.

The very devices for packaging and manipulating digital content that seem most ideally suited to encouraging the exercise of critical skills can easily turn into a formidable obstacle to their acquisition. A student’s ability to analyze and digest content on her own can be all but derailed by the instructor’s willingness to reduce the content to a slide with four bullet points. While it is tempting to lay much of the blame on the medium (e.g., PowerPoint, html and hypertext), the same unhappy results can also be achieved with old-fashioned paper handouts. Anything that offers pre-digested, digital chunks of content that substitute for reading and struggling with primary sources can deprive the student of the opportunity to engage in the very cognitive processing that *ought to be* a central goal of education. While it can be done in any medium, the temptation to pre-process is especially difficult to resist when using digital, computer-based instructional tools. An instructor, who is excited about the journey she herself has taken down a particular road of inquiry, will want to recreate that journey for her students. But creating an interactive, digital re-construction of one’s own journey will not necessarily afford students an

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opportunity to exercise the same cognitive skills that the author exercised when she originally made the journey. An Easter egg hunt where students merely “find” bits of student-friendly, knowledge-mcnuggets may require little in the way of higher cognitive functioning.

The result of this instructional pre-packaging of content is that too many of our students – not only those with high school degrees, but increasingly even those with college diplomas – are capable of little more than re-arranging and re-packing content provided by others or stumbled upon via uncritical Internet searches. They lack the ability to understand content that is in the least complex in its articulation and they are unequipped to distinguish between those sources that are reliable with bone fide credentials and those which are merely convenient and/or visually arresting.

Our students are, indeed, becoming children of the digital age. They are capable of following mechanical operations that specify how certain information-processing activities are to be carried out by appeal to the *formal properties* of that information (“take all of the data in the file labeled ‘input.doc’ and paste it into the “D” cells in the file labeled “output.xls”). Unfortunately, this is no substitute for the critical ability to evaluate the *semantic content* of the information and judge of its reliability, significance, and potential for future benefit.¹ Sadly, the description of what some of our students *are* capable of doing is a description of what many existing (not very complicated) software programs do when they process information. Why are such students lacking in important workforce skills? Because they are capable of doing little more than what dumb, obviously unintelligent computers are

¹ John Searle makes hay out of the distinction between the formal (or syntactic) properties of sentences and the meaning (or semantic) properties of those sentences in his notorious Chinese Room Argument. I use that distinction here for different ends, but the distinction is a related one. See Anderson (2006).

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capable of doing. And since computers will always be a less expensive means for achieving that end, humans whose abilities have peaked with the performance of this kind of operation are obsolete in this economy and not candidates for lucrative careers and possibly not even for a living wage. Sadder still, they are wholly unequipped to live an “examined life,” enriched by critical reflection on one’s most deeply held convictions and one’s formative life choices.

Neal Stephenson’s Philosophy of Educational Technology

We have been asking how computers might be used in education in such a way that they do not promote *narrow, didactic, mechanical* thinking but rather foster *rich, imaginative, and nuanced* cognition. As I have struggled with these questions, there has been no one – no philosopher, no expert on pedagogy, no cognitive scientist – who has inspired me more than has Neal Stephenson, poster-child for the cyberpunk generation and science fiction novelist extraordinaire.

Stephenson’s remarkable novel (1995/96), *The Diamond Age: A Young Lady’s Illustrated Primer*, serves as an extended exploration of the questions raised in this paper. It is a thoughtful reflection on technology’s potential for influencing humanity. It tracks and comments on the possible impact of a nanotechnological revolution on humanity writ large (in the form of social units and cultural identity) and it does the same on the impact of a revolution in educational technology on one five year old girl. I will focus on the young girl.

The protagonist of the novel is Nell, a girl of five who is in a dysfunctional, physically abusive family situation. Nell has an older brother, Harv (Harvard), who never escapes this environment and comes to a sad end. Nell, on the other hand, happens upon a “book” that is actually a computer powerful enough to create virtual environments on the pages which not

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only teach Nell much academic knowledge, but also nurture her creativity, tutor her to be a brilliant strategist and problem-solver, and even teach her much wisdom about life drawn from many cultures.

For example, through the character of a mouse (“Dojo”) who is a martial arts master, she learns everything from humility, to self-defense, to proper nutrition. And this is just one tiny portion of the instruction she receives – beginning before she is old enough for primary school. When all is said and done, this “computer aided instructional device” is the most important teacher of this child from age five to seventeen. Nell starts out as a casualty and ultimately becomes a warrior, a brilliant programmer, a stateswoman, a general, and an inspirational leader. Like the nanotechnological machines that produce virtually all industrial and consumer products in his fictional world, Stephenson’s fertile mind produces so many compelling ideas about human learning that it would take a volume, not an article, to explore them. I will briefly discuss two *leitmotifs* that have been of most profit to me.

One of the novel’s most creative and successful characters is Lord Alexander Chung-Sik Finkle-McGraw who did poorly in traditional schools: “The coursework was so stunningly inane, the other children so dull, that Finkle-McGraw developed a poor attitude” (Stephenson, 1996, p. 20). Fortunately, Finkle-McGraw spent little time in school as his parents home-schooled him and exposed him to a wide range of fascinating experiences that nurtured his mind and spirit. He grew to have the kind of flexible, supple mind that Stephenson associates with genuine intelligence and the kind of daring attitude towards life that gave him the courage to take the risks necessary for greatness.

Stephenson identifies two primary ingredients necessary for producing a mind and outlook like Finkle-McGraw’s. The first is a property shared by one of the other main characters in the novel, John Hackworth. Like Finkle-McGraw, Hackworth

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is not just a competent programmer, he is a gifted hacker. When Finkle-McGraw and Hackworth are discussing what distinguishes the rare, gifted programmer from the merely competent engineer, they alight on the simple, even innocuous characteristic possessed by most of those who prove so gifted – they have all led “interesting lives.” Finkle-McGraw says:

This implies, does it not, that in order to raise a generation of children who can reach their full potential, we must find a way to make their lives interesting. And the question I have for you, Mr. Hackworth, is this: Do you think that our schools accomplish that? Or are they like the schools that Wordsworth complained of? (Stephenson, 1995/96, p. 24)

They conclude that schools in their time, as in Wordsworth’s, do *not* promote “interesting lives.”

Finkle-McGraw eventually commissions Hackworth to create an educational computer to provide the essential ingredients of a truly enriching education, so that he can give it as a present to his granddaughter so that she will not suffer through a dull and uninspired life which would otherwise be her fate if her education were the product of the schools of the day. So the first challenge confronting Hackworth is to create an instructional computer whose tutoring and virtual experiences will ensure that its user has an “interesting life.”

The second property that Finkle-McGraw identifies as essential for an enlightened education comes as a complete surprise to Hackworth. As soon as he hears it he recognizes that it is indeed the essential ingredient that was lacking in his own education. He believes that it is because he lacked this ingredient that he has remained a paid employee and has not built his own company (like Finkle-McGraw). The ingredient is *subversiveness*.

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Finkle-McGraw couldn't prevent his granddaughter Elizabeth's parents from sending her to the very schools for which he had lost all respect; he had no right to interfere. . . . But why not give her a gift that would supply the ingredient missing in those schools? That ingredient was subversiveness. Lord Alexander Chung-Sik Finkle-McGraw, the embodiment of the Victorian establishment, was a subversive. He was unhappy because his children were not subversives and was horrified at the thought of Elizabeth being raised in the stodgy tradition of her parents. So now he was trying to subvert his own granddaughter. . . . (Stephenson, 1995/96, pp. 81-82)

Subversiveness is the second *leitmotif* that we will explore. To help Hackworth to understand the role subversiveness might play in a child's education, Finkle-McGraw sends him Coleridge's poem, "The Raven," with a note that includes this comment:

Coleridge wrote it in reaction to the tone of contemporary children's literature, which was didactic, much like the stuff they feed to our children in the "best" schools. As you can see, his concept of a children's poem is refreshingly nihilistic. Perhaps this sort of material might help to inculcate the sought-after qualities. (Stephenson, 1996, p. 83)

It may be something of a dramatic flourish to call this sought after property, "subversiveness." If we aren't careful, it could easily be reduced to something no more substantive than a bumper sticker that reads "Question authority!" That Stephenson is thinking of something quite substantive that is relevant to our present concerns, is shown in his pre-occupation in the rest of the book with the importance of

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being able to handle subtlety and ambiguity. He has one important character say:

The difference between stupid and intelligent people – and this is true whether or not they are well-educated – is that intelligent people can handle subtlety. They are not baffled by ambiguous or even contradictory situations – in fact, they expect them and are apt to become suspicious when things seem overly straightforward. (p. 283)

Being able to handle subtlety and ambiguity takes intellectual maturity. To operate mechanically (or “stupidly”) is to assume that everything fits within neat, determinate boundaries – both in the sense that one countenances no “borderline cases” and in the sense that one assumes that reality inevitably conforms to whatever categories one is presently using to comprehend it. With this approach, one is simply insensitive to vagueness, fallibilism, and the prospects of a conceptual revolution that might subvert the assumptions one holds most dear. If one is sensitive to these possibilities, then one is open to subversion.

Stephenson exhibits this kind of subversion in a fairy tale that *The Primer* tells to Nell. Rather than finding a Disney-style happy ending in this tale, Nell finds that she does *not* escape the evil stranger who threatens her – she fails miserably in this task; and she is *not* rewarded for being smart and brave, regardless of what clever tricks she attempts. Nell made a mistake early on in the adventure by trusting this dangerous fellow, and now there is no happy ending. After hours of failure all she can do is cry.

Books for young children are not supposed to make them cry. But this interactive book is designed to make Nell wise and enriched in the long run, not merely happy in the short run. Complexity and ambiguity are not to be obscured by trying to fit them into neat, simple boxes; rather they are to be

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embraced and their nature plumbed, for as long as it takes to force them to reveal their secrets. Stephenson's approach to education is sometimes dark, but it is also effective. Not long after the distressing lesson from *The Primer*, Nell's life is saved as she refuses to fall for the seductive appeals of a real world stranger who intends to do her harm.

In the space remaining, I can't do justice to Stephenson's views on the role of "interesting lives" and "subversion" in education. Nonetheless, I will suggest that they address some of the challenges that we face when machines are allowed to teach our children. I continue to worry that the curriculum projects that currently occupy me inevitably suffer from many of the weaknesses that I have decried in this paper. Even as I will now describe some of the approaches that we are taking at *The Mind Project* to give students "more interesting lives" and that seek to "subvert" their expectations, I know that we will fall short of these ideals. To quote an earlier passage of this paper "creating an interactive, digital re-construction of one's own journey will not necessarily afford students an opportunity to exercise the same cognitive skills that the author exercised when [making] that journey." Yet in this business, if one never risked hypocrisy, one would not live a very interesting life. So risk hypocrisy I will.

Making Students' Lives Interesting and Subversive

Reading a great novel can transport one into exciting places and times; reading a great academic book can stretch one's mind in exhilarating ways. So it would be a stupendous mistake if we were to continue the trend of fostering educational practices that replace books with PowerPoint slides or any other computer-based activities. But even if we do succeed in keeping the reading of primary texts alive-and-well within our educational system, there remain many other things that make for an interesting life that cannot be done in the pages of a book. Here computers have the possibility of

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creating a world for students which allows them to *do things* in the classroom – fascinating, compelling things that most people would not otherwise do at any time in their life. For example, *The Mind Project* is currently developing virtual experiences which will enable middle school and high school students (as well as college students) to enter fascinating worlds and (for a moment) to “live” fascinating lives. Among the virtual experiences in development are three that transport students into the world of neuroscience research as they become:

- An endovascular neuroradiologist performing a coiling procedure on a patient who has an aneurysm in the brain
- A neurosurgeon implanting radio-controlled electrodes deep within the human brain to stimulate certain neurons which then eliminates symptoms of Parkinson’s disease and other neurological deficits.
- A neurobiologist performing experiments on rats that may help to solve some of the mysteries surrounding the role of the neurotransmitter, dopamine, in addiction, Parkinson’s disease, and other illnesses.

These modules will teach the students a great deal of “information” about what we currently understand about the workings of the brain. However, they are intended to do a great deal more. They are intended to inspire by putting student and teacher alike into the midst of current scientific debates. This is important because science teachers are leaving the profession after an average of about 5.5 years of service and too few students are entering careers in science, technology, engineering and math (STEM). One reason is that that neither students nor their teachers are being engaged in “real” science – they rarely (if ever) get to experience the excitement of battling over controversial theories and the drama when a groundbreaking experimental result “subverts”

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established conventions. Science is not a list of facts; it is a methodology, a process, a way of life. Too often students are being taught the history of science – packaged “facts” about what the discipline knew ten years ago, when the textbook was first being written – rather than being thrown into the midst of *current* science. Teachers and students will love what they are teaching and learning when they are not simply importers and exporters of information, but are scientists struggling to solve the mysteries of the universe. The virtual experiences offered by the Mind Project are designed to take teachers and students into the world of a research scientist and give them the opportunity to fall in love with that kind of a life. It is our hope that these experiences will go a little way towards making their lives more “interesting.”

It would certainly make one’s life interesting if one could become a brain surgeon. While few actually get the opportunity, it is a mind-expanding experience for those who do. In virtual labs currently in development by the Mind Project, students will become brain surgeons – at least for a few days. They will implant stimulating electrodes and chemical microsensors into a virtual rat’s brain and test theories about the nature and function of dopamine, a neurotransmitter that has a role to play in everything from the body’s “reward” system (such as pleasure) to the proper functioning of the motor systems (such as arm and leg movement). Students will perform experiments on the rats to learn about dopamine’s role in cocaine addiction and to explore recent controversies about the mechanisms that produce Parkinson’s symptoms.

It is one thing to make life “interesting” by means of such virtual labs. But what of *subversion*? How can subversion be integrated into a curriculum that is often regimented to produce high scores on high-stakes T/F and multiple choice tests? It may seem a meager step, at best, but *The Mind Project* is subverting convention (and some would say, common sense) by investing a great deal of time and

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resources to create a virtual version of experiments *that have not yet been conducted* in defense of a theory about dopamine *that might not even be true*.

The only way to bring students into current debates that are raging within the sciences *right now!* is to create a version of the real world (*a la* Stephenson's "Primer") with all of its unpredictability and the drama of possible failure. Dr. Paul Garris has a theory ("the bucket theory") that challenges orthodox explanations of how it is that Parkinson's patients remain symptom free until 80% of the affected dopamine neurons have died (Bergstrom, et. al 2003 and Sandberg, et. al 2003). This battle is going on in the journals right now. Some people are persuaded by the data Garris has produced in his lab; but the jury is out and more experiments are being conducted on all sides.

We can't pretend to know whether five years from now "the bucket theory" will have become the consensus view, whether it will have been soundly refuted, or whether it will still be a matter of dispute. If the theory is refuted, won't that have made the entire investment a waste of time? We don't think so. Our job is not just to teach "the facts." Our job is to inspire students to dedicate their lives to seek revolutionary insights that might impact humanity in a significant way. Our job is to convince them that the genuine spirit of inquiry is not found in looking back at all of the "right answers" we have thus far accumulated but rather is found in looking forward to that next "inspired question" that might actually subvert the widely praised (and generously funded) status quo.

Students and teachers who become a part of *The Mind Project* learning community will not only learn about the "facts" that presently have earned a consensus in neuroscience; they will join a team of inquirers (from age eight to eighty) who are engaged in an ongoing debate about such topics as the role of dopamine in healthy human motor activity and its failure in Parkinson's patients. It is our goal to have a thriving learning community that provides the online

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resources and the human support to help people to remain a part of that search and that drama for years to come.

Conclusions

I believe that technology need not de-humanize the educational process. In my most sanguine moments I am optimistic about the possibility of creating interactive systems that, at the right pedagogical moment, can challenge and inspire students in ways that even the most gifted instructors will find difficult to duplicate. But self-deception is not easily avoided and surely the best way to resist the most seductive and destructive aspects of technology is to be always vigilant, scrupulously assessing one's enterprises, and ever ready to reform or abandon those that fail the test of fostering "interesting lives" and encouraging "subversive" engagement.

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Machine Bureaucracy and Planetary Humanity: A Dialogical Understanding of Personhood for the Development of Identities in the Electronic Age

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In this contribution it will first be explored what pressure a machine bureaucratic society puts on the development of personal identities. Related to this the meaning of a dialogical understanding of personhood will be explored. It will be shown, how dialogue understood as responsiveness towards others and as participating in the ongoing conversation of human history makes human beings more complete, whereas machine bureaucracies tend to reduce the full potential of human beings and being human. It will be shown how information technology is at the crossroads of both tendencies. In developing this dialogical understanding of personhood the focus will be on the philosophy of living speech of Rosenstock-Huessy since he gave the most articulate presentation of it. Finally some consequences of this approach for the design and moral evaluation of information systems will be proposed.

Key Words: Planetary humanity; Rosenstock-Huessy; electronic age, identity, dialogue, biography, personhood.

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Introduction: Computer Technology and Mass Society

The computer started as a device for mass storage and calculation. As a product of technology it is connected to the development of mass society both with respect to warfare and mass consumerism. As far as warfare is concerned, missile technology in particular required huge calculations and the processing of innumerable data. It also required the design of ever smaller computers in order to minimize the weight of the missiles. For civilian use the computer first was applied primarily to financial transactions and later it got applied to the whole chain of production and consumption, until in the end the small computers (chip technology) designed for the military ended up as PCs on the desk of ordinary civilians. Moreover the development of the computer is related to large-scale planning of social processes and to state regulation both of the economy and the military.

As such the computer is symbolic of the 20th century, in which mass production, mass consumerism and mass warfare are typical phenomena. It is symbolic of a machine bureaucratic society. It belongs, as a means of calculation and planning, to the state apparatus, the complex of science, military and industry and to big multinational companies, whose needs it was meant to serve. It is somewhat paradoxical that the computer also came to serve the needs of the individual who has to cope with these big apparatuses and that it thereby also came to serve the decentralization and democratization of society, depending on the cultural regime to which it was made subject. For this reason it is, as it were, at the crossroads of two tendencies, or better, at the dialectical turning point of the one tendency into the other. I'll come back to that.

Let me first establish that there is a huge difference between the bourgeois individualistic society of the 19th century and the machine bureaucratic society of the 20th century. As such the 20th century tends to reduce the human

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potential of its members. At the end of the 19th century free individuals could travel around the world without a passport. Contracts made up between individuals were legally viable without any state interference. Presently however there is state regulation as to when and under which conditions contracts are legally viable. Changes to the house - one's individual property - need approval from the authorities. The individual freedoms of bourgeois society in general have become subject to state regulation, if not control, and individual entrepreneurship has become replaced by large bureaucratic multinational companies. This development came about under the pressure of the wild capitalism of the 19th century and the emergence of industrial society and the accompanying proletarianization of labor. Socialism, the Russian Revolution, but also the two world wars changed the character of the state even in "liberal" countries. When it appeared, that the Russian state-controlled economy did not suffer from the depression of the 20s and 30s, Western Europe and even America (New Deal) accepted state-controlled economic planning instruments and the second world war too caused an enormous expansion of the state apparatus, giving rise to the existence of large-scale bureaucratic multinational companies, which heavily rely on the command chain and the division structure, both copied from the military (Berman, 1983; Rosenstock-Huussy, 1938; Hobsbawm, 1994).

These developments would hardly have been possible without the computer as an instrument of mass calculation and mass storage and processing of data. Whatever the benefits of these developments are in terms of living standard and individual well-being, there is a price to pay. This price is in general terms the shrinking of individuals to standardized dwarfs as employees, consumers and citizens. The individual feeling of responsibility and the time horizon is shrinking. In devolving traditional welfare state responsibilities to societal institutions, to civil society and to individuals the state is trying to counter the standardization of individuals by

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stimulating the feeling of personal responsibility. By a shrinking time horizon I mean the feeling of being part of something bigger, an evolving history, which inherits its qualities from the past and moves forward in the perspective of a larger human project, no matter in what terms this human project is further described. Such a project makes people bigger than they are and if such a project is lacking, people become smaller than they are entitled to be. Lacking orientation they also will lack trust and courage to make their beliefs come true. A person's biography will only be fully deployed within the perspective of a larger history, the perspective of what Taylor calls a "hypergood" (Taylor, 1989). But by this statement I already draw on the interpretation of personhood which I am about to put forward. There is something peculiar about human identity and computer technology which I want to explore first.

Information technology in general puts us in a paradoxical predicament. I have already stated the paradox between control and democratization. On the one hand the computer clearly is designed and developed for detailed control of large-scale processes in the hands of the state and the military, companies and banks. At the same time it turned into a means of democratization and individual initiative. The fact that the internet has originated from the military pushes this paradox to the extreme. The US military in order to prevent the possibility of destruction of all its computer devices in one place designed the first internet protocols, which made it possible to spread its computers over a number of centers (Misa, 2004). Of course, the fact itself, that this possibility was envisaged in the US and not in Russia is indicative of the basic values of the society in which this technology emerged. If those who are supposed to be most in need of hierarchical control (the army) still accept the spreading of the centers of control as a defense strategy, it appears that a top-down hierarchical machine bureaucracy is not the core value of the American society. The even more

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centralized Russian bureaucracy could not come up with that idea and if it would have, the idea probably would have been turned down, because hierarchy and control is much more a core value of the Russian political system. As far as the internet is concerned this supports the view, that what comes out of it somehow has first been put into it. To an extent democratic values are conditional to and inscribed in this technology itself.

Another paradox runs parallel to this one. The computer is designed - like the word itself says - for large-scale calculation processes, i.e. as an instrument of planning and control. The paradox is, that this same instrument has also become the primary means of communication and exchange of information. The same instrument, which subjects human beings to total calculation and planning from above, is also used as a means of creating mutual understanding and planetary wide responsibility of human beings who become subjects of their own destiny. Cooperation and coordination at the bottom of the pyramid compete with and sometimes even overrule planning and calculation from above. There are many other technologies which are at the same intersection between a calculated approach and the necessity for speech and dialogue. Infrastructure, mobility, military technology, and energy technology all put individual people and nations within the framework of a structural totality (Levinas, 1961). And as such they call for responsiveness, responsibility, communication. They make it imperative to talk to one another lest we perish by the conflicts over scarce resources on a small planet. Information technology - the computer - can be used both ways and in that sense it is symbolic of this intersection itself. It can also be considered as symbolic for the 20th century as such, which has put global humanity on the intersection of calculative totalitarianism and/or mutual responsibility and communication. The fact that technology puts people into each other's physical neighborhood calls for an intensification of "moral neighbourhood", i.e. the

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responsibility of people who respond to each other as if they were neighbors.

The Law of Technology and Responsiveness

Rosenstock-Huessy has put forward what he calls *the law of technology* in order to understand the predicament of the 20th century (Rosenstock-Huessy, 1988). This “law” means, that (1) technology in general enlarges space, (2) makes time move faster and thus (3) destroys existing communities. Technology enlarges space by means of infrastructure, both virtual and real; increased mobility; and global communication media. All of these features of new technologies make it possible for individuals to reach out farther. They make it possible to communicate faster so that the set of ideas, the spiritual outlook and mental framework of the individuals involved also changes faster. As a result traditional communities with a fixed pattern of relationships and a fixed mindset through time are disappearing. Everybody is more or less on the move both as monads and nomads. In such criticism Rosenstock-Huessy could be categorized as one of the many technology pessimistic philosophers of the 20th century, but he adds a fourth step: within the new context of rapidly changing technologies the capacity for creating responsible communities should from now on be trained consciously and deliberately. If being part of communities is not just natural anymore, human beings should develop a more acute awareness of and capacity for communication by which communities can be created and re-created (Rosenstock-Huessy, 1970).

Traditional communities repeat and participate in existing language patterns, existing discourses. These are reproduced more or less automatically through time and handed over from generation to generation. If the mental framework or discourse of the members of a society is not reproduced automatically anymore it tends to become fragmented. With

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the speeding up of information processing people only get pieces of what once was a coherent world view. People tend to reproduce fragments of a set of different discourses without internal logic and coherence, the more they are caught up in the opinions of the day. One issue movements, collectivist outbursts, arbitrary changes of opinion, and sensational news flows are indicative of this incoherence of speech. How can people act responsibly if there isn't any more a sustainable storyline or discourse, which provides orientation to and energizes such responsibility?

This tendency is reinforced by the large bureaucracies in which people generally work. If people are put to work under large systems of labor division and hierarchical control, if they are only told what to do, they lack the responsibility both for the initiative and the results of their actions. They become like cogs in the machine. Machine bureaucracies – especially if supported by IT – tend to turn persons into standardized dwarfs. They are involved only in labor (Achterhuis, 1984) and this doesn't require much personal commitment or long-term perspective. It is the power of speech which counterbalances this process. When people are under too much hierarchical control, they have nothing to say anymore, and the only remaining place where they have something to say is in their private lives, where their opinions do not have an impact on society. Even if it is to an extent unavoidable that people have to work in such a context, then their labor should only remain part of their lives. It should be compensated for by some larger perspective. Such a larger perspective may involve voluntary work, memberships in associations, the holding of public offices. In such cases people can have a say that matters. The real proletarianization of man does not consist so much in exploitation, but in making him morally and spiritually too small. If responsibility is not exercised, it is not developed and it becomes rudimentary.

What then does responsibility and responsiveness mean? Is the talk about responsibility and responsiveness merely an

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idealistic philosophy of dialogue, which “should” be “implemented” in reaction to the age of machine bureaucracy? Or does it provide us with a phenomenological and historical understanding of what is and has always been the core quality of being human anyway? Hasn't being human always somehow meant living in a larger perspective than the daily toil and moil, which makes the machinery function? Are we losing on our humanity not only in a normative but also in an empirical sense if mass society turns us into cogs in the machine? Is there something in our empirical core quality of being human, which simply doesn't stand it merely to function within the framework of mass society as standardized dwarfs?

Dialogue and Personhood

What makes humans specifically human is that they do not merely react, but respond. Life is and has always been a dialogue, in which time and again new situations call for a different response. People respond consciously to what old tradition tells them or to what people at the top command them or to what future challenges confront them with. This respons-ability (and not reason) is the core quality of humanity. Thinking is just another form of responding; it is talking in oneself. Every real response doesn't merely consist of repetition, but is a creative step into novelty. Every piece of information implicitly contains a challenge and an appeal. Responding is not just saying “I”, it is saying “but I”. By responding to information, to a situation, which appeals to me to take the process one step further, one makes a difference. A dialogue is evolving through time: every participant takes it a step further. And every new course of action runs into a deadlock if a new response doesn't give it a turn and a change of direction once more.

This is not merely an idealistic projection, but the very realistic way in which history has always proceeded. Wherever it did not proceed this way it did not proceed at all.

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It ran into a deadlock. It is true, that many societies did run into a deadlock. By not responding to a new challenge but sticking to old traditions they got lost. Individuals can also run into a deadlock. For a time you can be a mother's boy, but neither you nor your mother can stick to that code of behavior. For a time Great Britain could play the role of "good old England" and keep itself apart from "the continent" (England and Europe being considered as separate entities) but if Great Britain would not have changed its discourse and become part of the European Union, it would have run into a deadlock. And sometimes whole nations do.

If people live their lives intensely, i.e. if life proceeds and doesn't fall victim to mere repetition, it always consists of roughly three periods. In our youth we are primarily at the receiving end. We are taking in. Whatever is achieved before our time, we make it our own. This continues until the moment we discover that this heritage does not adequately respond to future needs. We discover that we can improve on it. We can make a difference. Unavoidably this phase involves loneliness, because whoever makes a creative step into novelty will have to suffer from the prejudices of those who hold on to the traditional view. It takes time before a new insight can be heard and received. Of course the new insight itself also needs to be deepened, corrected, elaborated, and tested. This also takes time. Only in a third stage can a person develop a peaceful relationship between the new insight and the (representatives of) of traditional views when the moment has come that society finally is ready to accept the new insight. This often happens at the moment creative minds too can accept a connection point between their creative insights and past achievements. This too is not so easy because it requires recognition that perhaps the new insight is not totally new, at least not so new, that it cannot be connected to an older framework. This threefold process of receiving, responding and connecting is not only part of a personal biography, but is also the rhythm of an evolving history. It

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takes respectively the energy of the youth, the responsibility of adults and the wisdom of old age to receive the past, respond to it creatively, and connect to it wisely. A complete human being really has something to say, because he really listened to the past - to what others have to say - and in his or her person (s)he has become a link in the chain between past and future, by which history is renewed and proceeds (Rosenstock-Huessy, 1956, 1958). Note, that this is not a dialectical view (Hegelian), but a dialogical view of history. It is not a logical process but a creative dialogue.

In order to move forward we need both to distinguish ourselves from the past and to connect ourselves to the past. We need room for ourselves (our own specific response) and we need to connect our own response to a time before ours. Conscious speech therefore results in two things, i.e. it results in dividing spaces and connecting times. Speech divides spaces. We need to differentiate and to live in different spaces. A baby doesn't yet have an individual life and from its perspective the universe appears as one undivided space. If the child grows up however it may soon get a room of its own. The older we get, the more individual we become and we learn how to move in different (social) spaces and change from one role to another. It is the freedom of a human being to move from one space to another, to exercise multiple memberships, exercise different roles and to be on speaking terms with different groups. We need such a differentiation and specialization, because otherwise we cannot differ from ourselves. And if we cannot differ from ourselves, we end up repeating past achievements. If everybody knows everything about us (or has access to that) we are nailed down to our past identities and we cannot change any more. That would take away the creativity of our responsiveness. It must be possible to start anew and afresh. We need to divide space and change roles and we need to move freely in order to respond creatively.

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However, we need not only to divide space, but also to connect times. We should not only live in our own time. The paradox of self-fulfilment consists in the fact that those who only live in their own time (fulfilling their individual “destinies”) do not develop to their full potential. Only a great challenge makes people bigger than they would have been otherwise. It is responsiveness which lifts us above ourselves and beyond our own daily life. It is the responsibility of a human being, which necessitates us to inherit the achievements of history, renew them by our personal commitment, and pass them on to the next generation. This means, that we have to live in at least three times. We need to reach out to a time before us in order to learn from it and to a time after us to teach the next generation what is indispensable for them in order to be responsible as well. It is the creative response every generation has to give between past and future, which renews the course of history and makes it possible to proceed. In this ongoing conversation (Postman, 1993) humanity can be understood as still being in the process of creation.

There is a strong collectivist and tradition oriented reaction to global information technology (Castells, 1997). The first almost pre-reflective reaction to solve the problem of fragmentation and uprootedness is to identify with some group with clear symbols and ideas. Such collectivism or neo-tribalism (Bauman, 1993) provides an escape for the difficult problem of identity, the acquisition of a personal storyline which allows for change, but still connects the times. In line with the dialogical understanding of being human however we can go beyond the collectivist solution. This is what Rosenstock-Huessy already was driving at: In an age of crumbling institutions, of the fragmentation of civil society and of traditional identities, the power of repeatedly creating short-lived but intense communities can and should be more consciously developed as a response to these processes (Kroesen, 2001). For that reason from 1918 till 1933

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Rosenstock-Huessy was involved in adult education in order to reinforce the communication between different groups within society and in order to reinforce the personal accountability and responsibility of the individuals involved. Adult education according to his conviction does not teach adults the same ideas or make them part of a collective horizon of understanding. Adult education challenges those involved in it to take a personal stance and to shape their biographies and choices in response to the different stories of which they have become a part. It is by means of this creative response that they determine the future. Adult education therefore is not only a matter of the head (knowledge) but also of the heart (orientation and commitment). The word *person* is derived from the Latin verb “personare” which refers to the masks (*persona*) through which the voices of the actors made themselves heard in the theaters. Our voices, by which we address the future, echo the voices of the past. And this is the process which turns human beings into real persons. In this threefold “personare” both personal and human history proceeds if it proceeds at all.

For this reason this empirical understanding of history and biography also becomes a normative imperative. Now we can understand in what sense the age of machine bureaucracy makes its members too small. They become too small if they become the prisoners of the daily cycle of production and consumption. If they no longer connect to a time before and after their day to day life, their biographies and their personhood do not grow to their full potential.

An Update on the Understanding of Identity: Planetary Man

The word “identity” itself is indicative of an old-fashioned narrow enlightenment-like understanding of what it is to be human. It unavoidably has the connotation of something fixed and immovable, something outside of history

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like the “res cogitans” (“thinking thing”) of Descartes or the “transcendental subject” of Kant. Compared to our time in the past indeed identities could be considered as fixed, while people were on the move enlarging space, first by means of tribes, later by means of empires, still later by the system of nation states and finally by means of the emerging global society. In each of these phases the personal identities of the members of the social body became less fixed and more open to change. The word “identity” itself therefore is symbolic of a time which lies definitely behind us. We cannot afford to have a fixed identity anymore. That would make us too inflexible. But we do need a storyline in which the unavoidable and necessary changes and ruptures are also understood as connection points between the different phases of a personal narrative. The large systems we live in may tend to turn us into standardized dwarfs, but at the same time they make it imperative to counterbalance this tendency by means of an understanding of identity as an evolving process through time. With Rosenstock-Huessy I propose the metaphor of “planetary man” as symbolic of this change. Among the fixed stars the planets were always unpredictable and on the move. The word planet itself means: what moves. The people used to live on a fixed earth (fundament) under the fixed stars (firmament) and there were only a few of these stars, called planets, which were moving around and didn't fit into this eternal order. Presently the earth is not a fundament anymore, but itself a planet, made of stardust, and within the universe nothing is firm anymore. Everything is on the move. Everyone has to seek his or her way. Life is trial and error. Again with Rosenstock-Huessy we could also use the concept of piracy (derived from “peirazo” - which means to try) to describe this modern life experience. We cannot avoid and should not avoid life to be a process of trial and error. But such a life should also not be lived arbitrarily. Even the ruptures and breaking point in our life make sense (or can make sense). Otherwise we lose our bearings. The process of

speech, dialogue, responsibility, and responsiveness is the means of not losing our bearings while accepting a nomadic life. It makes us nomads (to an extent), but not monads, because the power of speech and responsiveness is the power to create intense communities although they may be transitory. To be part of transitory but intense communities counterbalances the law of technology.

The beautiful thing about computer technology is that the same device which makes us smaller than we can be also is the means to become bigger than we are. As a calculation device it makes us smaller. As a communication medium it makes us bigger. In a sense it is both the problem and the solution. We can reduce each other by means of it to production and consumption units and to standardized clients within the state apparatus, but we can also take notice of each other, turn each other's traditions into an open source and enter into face to face relationships all over the globe. The internet may have originated from the military, but it got its real impetus when people all over the world (universities in the beginning) opened their resources for each other for free. Here a calculation device turns into a medium of shared responsibility; a medium of control and possession turns into a means of giving for free.

Consequences for the Design and Evaluation of Information Technology

Although in this contribution there is no room to elaborate the details and intricacies of the philosophy of dialogue any further, some consequences may still be drawn for the understanding and the design of information systems.

1. A deepened understanding of *privacy*: the need for freedom understood as dividing spaces and as multiple memberships allows a better understanding of privacy. The right of privacy should not be understood as the right to be left

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alone, but rather as the right to be different in different contexts, different to different persons. This may explain why most people don't care about the possibility of being traced on the internet, don't care about camera surveillance and data storage by companies and government institutions. They do not care as long as it does not affect their right and opportunity to be different to different persons even though it may affect their right to be left alone. At the same time however this makes accessibility of this information a morally sensitive issue. Information technology can make this information accessible, but it can also be designed in such a way that rules of accessibility for different parties are integrated into the software. In doing this it creates more "spaces", i.e. opportunities to be different to different persons and also to differ from ourselves.

2. Consumer *profiling* may help companies to sell better, but even if they have selected the neighborhood in which I live for advertising their products it doesn't affect my freedom, if such freedom is not understood in terms of "my home, my castle," but as my freedom to relate differently to different people. In as much as consumer profiling, however, reinforces my living in my already too small world, it may put this freedom at risk.

3. *Regimes and imaginaries*: the design of information technology is dependent on the particular regime and imaginary of a specific period of time. Such a regime is sort of a social pattern of encoded behavior, which constitutes the interface between the technological hardware and human agency ("imaginary structurations of lived experience" Sassen, 2006, p. 344). Within the framework of the philosophy of dialogue these are called the established "ways of speech" (Rosenstock-Huessy: "Sprechweisen"). The way we deal with information systems does not just depend on the design of the hardware and the subjective choices of

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individual human agents but much more on the social pattern of values and discourses, which feed the use of them. This culturally informed interface of social interaction is path dependent, i.e. constituted by the development and renewal of our social interactions between past and future. As such it is part of the ongoing dialogue of being human. Such a sociocultural interface can create surprises. Sending small so-called sms-messages for instance by mobile phone, which initially was designed only as a marginal additional option in its use, suddenly appeared to have opened a new space for communication. Was this new social space produced by the technology or did a marginal option of the manual turn out to become more dominant thanks to some hidden value inscribed in it (such as the value of creative and quasi-secret communication which derives its power of expression exactly from its limitations and off the record character, which made sms-ing attractive)? In any case this example shows that the technology receives its meaning within the field of interactions of its environment, the dominant (or first not dominant but innovative) social discourses.

The ways we want to behave and the people we want to be (or whom we believe we should be) push technology forward in directions which surprise us although they are nevertheless the product of our own basic values, choices and *imaginaries*. I already mentioned another example: the internet originated from the necessity for the military not to have all the computers only in one place, but to spread them. Only an open society can come up with such a solution. The internet also surprisingly intensified the openness of this open society. Is this merely coincidence? Or did we somehow “choose” this destiny ourselves? The technology appears to intensify the social values which contributed to its creation. That is proof that the technology answers to the urgent imperatives of each time and not the other way around. For that very reason the computer, designed for calculation, could

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become a means of communication. The technology is re-created by human responsibility and responsiveness.

4. Enlarging the *space-time axis* by personal growth: We need to deal with information systems in a more sophisticated and adult way. The medium offers us the excitement and sensation we are not looking for as grown-up persons or which we should not be confronted with as young people. Confronted with so many impulses, stimuli and sensations we ought to (be able to) sort out what we really want and really need. Confronted with so much speed in calculation and information we should become more sensitive to what really matters. We have to develop internal empowerment and orientation in order to cope with external speed. We need to learn how to distinguish between things that can be done quickly and things that require time in order to be done whatsoever. Via the Internet we can easily make contact with people in other parts of the world. But to really communicate and hear and listen to what people have to say takes a much more conscious and time-consuming effort. Often human persons act like the central processors in a computer, which deal very quickly with a lot of information. All the ones and zeros go through it but once turned off nothing has changed. In the same way people process much information very quickly, but nothing has an impact on their hearts, their ways of life, their horizon. Information systems should be designed and used in such a way as not to mix up these different rhythms. Information systems can be designed in such a way as to create opportunities for personhood, but as mere devices they cannot guarantee it. It is the need for communication which turned the computer from a calculation device into a communication medium. That means that a felt social need gave an unexpected meaning to a device which was meant primarily for calculation. For that reason the quality of being a strong and fully developed person should be developed consciously in order to counterbalance the high speed and

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standardized procedures of computer technology and make it subject to its own priorities. The power of control initially inherent in the computer made the power of communication imperative, which from then on gave information technology its new meaning and direction. That means this imperative did not arise from the technology as such, but from its interaction with its socio-cultural environment. We get out of IT what we put into it. In the process IT reinforces and amplifies the values we have put into it. If we want it to be a communication medium, it will be a communication medium. If we want it to be open source, it will be open source. If we want it to be a medium of control, we can realize that as well. But what we should, can and desire to realize is to be decided by the long-term perspective of the ongoing conversation of humanity through history. This dialogue time and again re-creates the technology.

Conclusion

Information technology puts us at the crossroads. Information technology either subjects us to its rules and procedures, or rather, to the values of control and calculation we have put into it, turning us into standardized mass consumers and production units. Or it is an occasion to grow as human subjects and to cope with what Günther Anders called our moral backwardness (“Antiquiertheit”) in comparison to the fast development of technology (Van Dijk, 1998). The technology of control and calculation has turned all the people of our planet into our neighbors. This makes it imperative to create neighborhood also in a moral sense. We will have to turn our different discourses and narratives into shares of a common destiny. We need to talk to each other. This has its impact on information technology; a device which was designed for computing and counting more or less “forces” us to take the otherness of the other into account in a

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way as never before. By human creativity and responsibility it became the means of communication it presently is.

We have become hostage to each other (Levinas, 1973) in the sense that we cannot survive if the other human being is not allowed to be part of our universe. We can only survive if we turn hostility into hospitality. Information systems provide us with the infrastructure for turning the different traditions of humanity into a common stock. Planetary individuals can draw on this common stock for the empowerment of personhood, moving through space and connecting times and taking the next step in the creation of humanity according to the motto: only those who have really listened to the past also have something to say for the future.

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Internet, Public Sphere and Political Marketing: Between the Promotion of Communication and Moralist Solipsism¹

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The empirical basis of this article is taken from material that circulated on the Internet during the campaign for the referendum on whether to ban the sale of firearms and ammunition to civilians, which took place in Brazil on the 23rd of October, 2005, and resulted in a landslide NO vote against arms trade prohibition. The aim of the paper is to use the experience of the aforementioned referendum to analyze the impact exerted by the Internet on political dynamics and the public sphere. The paper begins with a short discussion of existing views on the impact of the Internet on politics and it is followed by an introduction to political marketing and the Internet. In the third section I analyze the official websites, followed by a fourth section on the use of SPAMS in the campaign. In the conclusions I argue that the over-optimistic forecasts maintaining that new communication technologies would enhance democracy, as is widely claimed in the literature on this issue, have been to some extent wishful thinking and should be contrasted against the backdrop of historical experience. The political uses of the Internet in the referendum show a far more complex reality. Alongside the Internet's positive aspects are also negative ones, such as its potential to harm the public sphere.

Key Words: Internet, Public Sphere, Political Communication, Democracy

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Introduction

Second only to Venezuela, Brazil has one of the highest number of gun-related deaths in the world per capita, outstripping many war zones (Dreyfus and Fernandes, 2007). More than half a million people were killed by guns in Brazil between 1979 and 2003, mostly male youth. In October 2005 Brazilians held a referendum on whether to ban the sale of firearms and ammunition to civilians. The referendum was related to article 35 of the Law 10826 of December 2003, which implemented the “Statue of Disarmament” and its approval was dependent on a national referendum.

Despite the fact that most of the Brazilian people do not possess firearms and have no intention of acquiring them, which in principle should favor the vote for disarming the population, the proposal to impose a ban on arms trade was rejected by a huge two-thirds of the vote. The decisive factor for such a result was probably the government’s unsatisfactory public security policies and the consequent sensation of insecurity and helplessness felt by the population. Although campaign arguments probably had an impact, the people’s disposition to cast a protest vote was central in making them ignore the YES campaign arguments.

Systemic political factors were fundamental, as they undermined the YES vote against the prohibition of arms trade; but undoubtedly media campaigns, in particular on TV, exerted a relevant impact, although their relative weight is hard to assess. Still the importance of the internet in the referendum campaign was relevant due to various factors. Firstly, around 20% of the Brazilian population had access to the Internet in the period of the referendum (considering access both from home and work, the latter being difficult to quantify (Sorj and Guedes, 2005). This percentage increases if one considers communication among those who have access to the web and those who do not. Secondly, a large part of the population had not assumed any definite stance until the very

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date of the referendum. People took a long time to take notice of what the vote was actually about. However, during the few official campaign weeks, awareness of the ongoing debate was remarkable and the internet played an important role in mobilizing the voters. Thirdly, the referendum was not at all related to public personalities or parties towards which the people had established any previous loyalty or rejection. The capacity to advance arguments on the Internet for and against the ban played a more important role than in normal party oriented elections.

Although the available empirical material does not allow us to evaluate the specific impact of the internet in the referendum campaign, the results of the research we did with the focus groups shows that many of the arguments of voters' in support of the NO vote did not originate in the official campaign, but were inspired by the standpoints that circulated on the web (Vital da Cunha, 2006). Also people who actively participated in the Yes campaign shared the sensation that the exchange and circulation of "non official" information via the internet played an important role in the defeat of the YES vote (Sorj, October 2005). However this paper doesn't claim to explain the defeat of the supporters of the ban. At the most it contributes to understanding the failure of those supporting the ban in one specific realm, that of the Internet. The aim of our research was to use the experience of the aforementioned referendum to analyze the uses and impact exerted by the Internet on political communication and the public sphere.

The paper is based on research using three main instruments: the analysis of the official websites, the collection of SPAMS related to the referendum and organized according to the number of times they were received by the researchers, and meetings with focus groups to discuss the impact of the e-mails' content on their perception of the referendum.

The collection of SPAMS was conducted by a group of twelve researchers, mainly students, who also collected

SPAMS from friends and family members. At the time we didn't have a methodology to access SPAMS circulating in the Internet in a way that we could claim to be representative of the total universe of users.³ Therefore the SPAMS we compiled were influenced by the social profiles of the researchers. Focus groups however were representative of the various social segments in terms of income and gender in Brazil's four major cities. A total of thirty-nine focus group meetings took place, to discuss different aspects of the referendum, including e-mail content and the impact of TV publicity (Vital da Cunha, 2006).

Internet and Democracy

The Internet was welcomed by the vast majority of social scientists and policy makers as if it offered a unique opportunity to renew democracy in general, and in particular, enabled extensive participation of people in politics. The www and e-mail would allow for the emergence of new interrelating mechanisms between public institutions and citizens, favoring the transparency of public budgets now accessible on-line, facilitating comments and claims regarding services, enabling new forms of organization as regards public services, and making information available to the general public.

Moreover, new communication technologies would ensure new forms of horizontal civilian participation, which are not dependent on traditional means of mass communication, or communication through major political organizations. Eventually, each individual could actively participate in the construction of a truly democratic public opinion sphere (Castells, 2002).

The Internet would be particularly relevant for the development of civil society, as it would permit the creation of

³ We have now developed a methodology to collect SPAMS in a way that reflects the universe of users. We are testing this methodology in Brazil's presidential campaigns.

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flexible networks, fast mobilization for ad-hoc campaigns, and dissemination of alternative information. Furthermore, it would facilitate the formation of national and international networks of activists not associated with traditional political structures (Warkentin, 2001).

Negri and Hardt (2002) advanced a revolutionary interpretation on the role of the Internet, which they saw as a new alternative realm of the crowd (broad conception referring to every potential questioning of imperialistic power). According to Negri and Hardt, the Internet

... is the prime example of a democratic network structure. An indefinite and potentially unlimited number of people like us, interconnected and communicating without any central control whatsoever.... Such a democratic model is what Deleuze and Guattari call rizoma, neither a hierarchic nor a centralized network structure. (Hardt and Negri, 2001, p. 320)

The potentially negative effects of the Internet were generally associated with the use of the web by organized crime or terrorists. Also, there has been growing concern over authoritarian states attempting to control Internet content, even counting on the support of major system providers and search engines, such as Cisco and Google. China, Cuba and some Muslim states are among the countries posing such a threat. In addition, the so-called “war on terrorism” has recently led democratic governments to clampdown on control over certain types of content circulating on the web.

Some scholars began to question the role played by this new means of communication in bringing new life to politics. The first generation of such works was, implicit or explicitly, based on the “traditional” concept of social linkage. According to this view, effective social relations depend on face-to-face personal contact among the people. According to

Bauman (1999), this new means of virtual communication severely reduces face-to-face interaction, breaking down the formation of the agora, impairing the foundations of the public sphere and increasing the possibility of state control over the population. Other authors emphasized the capacity of private interests and big corporations to appropriate the new technologies, transforming information into commodities.⁴

Republic.com, a book by Cass R. Sunstein (2009), stands out among the new generation of studies analyzing social processes in progress; however, it lacks systematic data. The author argues that the Internet may generate a republic of solipists, people who only access information that they are interested in, thus avoiding debate, when debate is a fundamental factor in the public sphere. The Internet would favor their tendency to surf websites where information and issues could be selected a priori according to their individual interests only, thus radicalizing their standpoints due to lack of knowledge of, or interaction with, conflicting information and stances.

Peter Levine (2002) refers to five potential risks posed by the Internet:

- less access, limited use and content production by the poverty stricken;
- a severe drop in the number of face-to-face social relationships, thus undermining the construction of solid social links;
- a tendency towards group self-isolation, and a lack of attention to diverse standpoints and public debate;

4 The book edited by Henry Jenkins and David Thorburn, (2003). *Democracy and New Media*, Cambridge: The MIT Press, is representative of this transition period, in which most of the articles are based on guessing the future, a strong normative orientation and limited empirical bases.

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- internet users becoming mere consumers of products which include both information and beliefs;
- destruction of individual and group privacy, as well as internet users being turned into mere e-mail addressees, that is to say, address lists organized according to the interests of service providing/sales organizations.

Further analyses stress the impact of the Internet on “old fashioned” communication means: newspapers and television. Whereas television seems to be undergoing a digital revolution, which endlessly multiplies the number of channels available and becomes ever more interactive, newspapers are suffering a significant decrease in the number of readers (who consist mostly of older age-groups) and issues. Information is sought more and more on the Internet, not only through the newspapers’ websites themselves, but also on blogs, of which millions are now available. Even television, which during its heyday threatened newspapers, is now losing ground as the main news source.

If this whole process has had any beneficial impact - resulting in the breaking down of the old mass media monopoly - it has also tended to marginalize a central player in the democratic system, that is, newspapers which in spite of their ideological bias became journalistic benchmarks as regards trustworthy information to which the public could refer. Still, many believe that in time, the growing number of blogs could possibly undergo a screening process, resulting in some of them emerging as real sources of serious and reliable information. The final outcome will be the result of the interplay of economic power co-opting the most successful blogs and the public search for variety and original views.

A Brief Digression into the Literature on e-political Marketing

Besides websites and blogs there is another realm in which the Internet plays a major role in disseminating information, the e-mails sent to a large number of persons. Massive sending of e-mail plays a major role internet communication and it's known as viral marketing. Although it presents itself as private communication it should be considered as part of the public space.

Viral marketing (where the concept "viral" has no negative connotations) can be defined as a marketing technique in which e-mails are sent massively, generally using e-mails lists of unknown persons, expecting that the recipients will send them to other persons.

Although it is considered illegal and companies and institutions do not acknowledge it, SPAM (non-requested e-mails) has become an important tool for political communication. In fact, viral marketing and SPAMS are now widely used as a commercial and political marketing tool.

It is possible to consider SPAM and Hoaxes as contemporary forms of traditional rumor. They are different from the latter due to the way and speed in which they can be disseminated. A rumor is a short and simple message conveyed by word of mouth, whereas SPAMS and Hoaxes can contain a lot more information and even images. They can be more effective, but also more easily neutralized by means of counter SPAMS and Hoaxes transmitted almost simultaneously.

Studies on the use of the Internet in political processes are still scarce, although news and short analyses on new communication technologies regarding elections particularly emphasize the role played by cell phones in message sending, as occurred in recent elections in Spain (Castells et. al., 2006), Hungary (Mink, 2002) and India (Srivastava, 2007).

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In an article about the use of SPAMS by the extreme right wing in the political campaign in Germany, Alan Connor (2005), remarks that many SPAMS are methodically elaborated, despite their apparent simplicity. They are made up in such a way, that when they reach an addressee they seem to have already passed through many users; they are always written in informal language (“my friend”, “colleague”, “dear...”) to show that they are not related to an official source. They even include common spelling mistakes, as if they had been written by “someone like us.” Such SPAMS usually call the readers’ attention to some important “fact” that they should know about, (pretending to help readers so that “they do not get fooled”) and many times these messages are linked to sites where the piece of news “can be corroborated” (usually they hold links to big magazines or newspapers that have no relation whatsoever with the content of the message). Many readers, impressed with the content, forward such e-mails to friends and acquaintances, which makes the information seem to be even more legitimate for those who receive it.

One of the more successful SPAMS, which has circulated on the Internet for several years now, “informs” that school books in the USA do not regard the Amazon region as being part of the Brazilian map anymore and shows “photos” and texts (with several English spelling errors) supposedly extracted from such school books. I have received this SPAM periodically, sent to me by university colleagues. This makes me worry about the fact that some people tend to candidly rely on messages that confirm their prejudices, regarding them as trustworthy. They are then led to validate and disseminate such information, without making any efforts to verify the contents. And this has implications for use of the internet in politics.

Critical social analysis on the use of Internet in politics in elections is still scattered. The book by Joe Trippi (2004) on the Howard Dean primary campaign for Democratic Party

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candidate for the presidency of the USA is one of the very first attempts to analyze the impact of the Internet on an election process. Trippi states that besides playing a traditional role, such as raising funds and distributing campaign material, Dean's campaign on the internet was revolutionary as blogs and communities spontaneously organized themselves on the Internet to support the "Dean for America" campaign, which greatly improved the candidate's position in the polls. Trippi argues that the internet, despite the unequal access due to income, will enable the breaking down of control by big donors' and economic lobbies' over political campaigns.

Internet use was of great importance in the 2004 U.S. presidential campaign, particularly due to banners placed in widely visited sites, which were useful both for fund-raising and also to undermine rival campaigns. According to Michel Bassik (2005) the banners that produced the best results were those placed on websites where users usually spend a longer time looking for banal information, like sports and weather sites. The author concludes that political marketing specialists still have not discovered the Internet's potential, nor have they realized the need to review their use of traditional media. The campaigns waged in Brazil over the gun and ammunition ban referendum offer an opportunity to explore this potential.

The Campaign and the Websites

Both the opinions expressed in the interviews I did with those who worked for the YES campaign, and of the persons who participated in the focus groups point out that the NO campaign via e-mails was more successful than the Yes campaign' use of the internet (Sorj, 2005). Why?

The campaign contents on both official websites presented arguments very similar to those broadcast on radio and TV programs. Both were used to offer their activists arguments and materials that might be reproduced as propaganda booklets or signs. The publicity of the mainstream

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NO campaign stressed the right of the people to acquire arms vis-à-vis a State unable to ensure public security, and the YES campaign's main argument was that guns are inefficient when confronting potential aggressors, as well as highly destructive in terms of the loss of human lives (Bassik, 2005).

The NO website (<http://www.votona.com.br/>) was particularly simple; it even reproduced the basic structure of the YES website. The website consisted of the following sections:

1. "Why vote NO," with a list of seven different arguments;
2. "News," which contained news-items or articles previously published in newspapers;
3. "Statistics," where only a table with data from other countries was shown. It was briefly stated that there is no correlation whatsoever between the number of murders in those countries and the number of households with guns;
4. "Articles," generally extracted from newspapers, some of which were written by intellectuals, well known journalists or politicians (who were not household names);
5. "Popular Opinion," with texts supposedly written by "the people";
6. "True Stories," with texts about parents whose children had been murdered by robbers, who, despite the fact that they did not own guns and did not intend to own them, defended the right of the people to obtain arms;
7. links to other websites, most of them from the USA;
8. "Do your own campaign," with guidelines on how to collaborate with the campaign;
9. "Cards and wall papers," showing illustrations favoring the NO vote, consisting of variations of

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the Brazilian flag as a backdrop and links links to the official TV and radio programs.

Another semi-official website (<http://www.armaria.com.br/>) was sponsored by the Rede da Cidadania da Associação Nacional dos Proprietários e Comerciantes de Armas (ANPCA), - People's Network of the National Arms Owners and Traders Association, the main supporter and financier of the NO campaign. This website was a lot more aggressive, and on its first pages showed the following editorials:

- A Vile Law. The Fascist Nature of the Disarmament Statute.
- Every Man for Himself! – Why Do Disarmament Supporters Only Talk about Murders?
- Jews and Disarmament. A Warning for the Israeli Minority in Brazil.
- The Myth of a Disarmed Society, or the Primer on Utopia ·Supporter of Freeing Drugs and Prohibiting Weapons Always Walk Hand in Hand.
- Another Childish Prank by Garotinho (Governor of Rio de Janeiro State, whose name means “little kid” in Portuguese). An Example of Public Security Policy.
- Brain-Washing. A Message to the Young.
- Who is interested in Disarmament? A Brief Explanation for the Unwary.
- Ask the People. Certain Opinion Polls do matter.
- Back to Dictatorship. A Further Step towards Totalitarianism.
- Get Ready for Confiscation! The Next Campaign.
- Missing Aurora! Was the "Wild West" Actually Wild?
- Gloomy Horizon. Prophetic Editorial from ARMARIA, Oct/94.
- The Return of the National Guard. –Why such an Effort in Disarming the People?

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- The Damn Gun! Is the AR-15 Actually So Terrible?

The YES campaign website (www.referendosim.com.br) was disseminated through other websites, generally belonging to NGOs which publicly declared their support for the prohibition of arms trade in Brazil. However the legislation prohibited the participation in the referendum of organizations which receive foreign support (the case of most NGOs). This inhibited their participation and led to the judicial order temporarily closing one of the sites of a leading NGO. Besides featuring sections similar to those of the NO website, the YES website also featured thorough information on violence and the use of guns in Brazil and lists of names of companies, religious institutions and women's organizations that supported the ban on the guns trade. If one compared both websites, one would think that the YES vote was bound for victory. It counted on the support of most of non-governmental organizations and of many business people and it featured arguments solidly supported by facts; whereas the NO campaign only represented a few specific groups – the arms manufacturers, traders and owners, featuring arguments that lacked relevant factual support.

According to the YES campaign coordinators, the Yes campaign's website was constantly attacked by hackers, who often succeeded in blocking it. This obliged the people responsible for the website to transfer it to a more secure server based in the USA; nevertheless, the site continued to be attacked, which at its peak reached 9,000 attacks per hour. On the last week of the campaign the YES website received over 30 thousand visits a day, reaching 36,341 hits on October 19th, 2005 (unfortunately, such information regarding the NO website is not available). This is undoubtedly a low number of visits, considering that twenty four million of adult Brazilian Internet users were going to vote on the referendum.

The Campaign: e-mails and SPAMS

Both campaigns were supported by Internet users who sent e-mails to their own e-mail address lists. It is difficult to evaluate and follow up “private” campaigns and their impacts. So, we will focus on the larger scale SPAM campaigns and consequently on e-mails that can be easily tracked.

The YES campaign was carried out by the same group of people that organized the YES website. It consisted of a daily e-mail (YES-Express), whose basic language coincided with the one used on the website. Given its institutional format, the YES-Express reproduced the YES website’s basic format and arguments; it lacked the “something new” kind of appeal that SPAMS from no obvious senders featured. According to the campaign coordinators, the YES-Express mailing list consisted of 15,000 e-mail addresses at the beginning of the campaign, and reached 30,000 e-mail addresses by the end of the campaign. It was made up of e-mail addresses of people who were close to the NGO Viva Rio, one of the main organizations behind the ban campaign. The number of e-mail addresses was extremely low and somehow redundant: it represented the universe of people who already supported the cause.

The same source did inform us that the number of e-mails received by the YES website, about 200 to 300 a day, was indeed far too low, which possibly reflected the lack of enthusiasm and activism on the part of those who supported the ban on arms trade. A few internet users supporting the YES vote carried out their own private campaigns with their own texts or texts extracted from the press, but this only involved a very limited number of people.

During the campaign, some private-owned firms decided to send an e-mail to their mailing lists repeating the central arguments put forward by the official YES campaign. Other NGOs also transmitted e-mails supporting the YES Campaign. The case of Greenpeace stands out, whose cyber-

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bulletin supporting the YES campaign reached over seven hundred thousand individuals, which shows an organization that certainly has command over the use of certain web based communication tools.

Gun owners and traders were a committed group of activists as compared to the people who do not own guns. Although they are a minority of the population (less than 10%), gun owners made a strenuous effort during the referendum campaign via the Internet, spreading SPAMs elaborated by the headquarters of the NO campaign.

The NO campaign was mainly carried out through SPAMs sent to mailing lists that consisted of hundreds of thousands, or even millions of internet users. We cannot prove that these SPAMs were elaborated by the NO campaign committee, but the quantity and quality of such SPAMs strongly suggest that they were financed by the NO campaign committee or persons who supported the committee's goals. There may also have been some foreign influence on the NO campaign. Many of these SPAMs were translated from materials originally written in English, which follow the same argument line globally inspired by the National Rifle Association (NRA) of the United States (Morton, 2006, pp. 58-67). The Brazilian referendum on the arms trade was regarded as a very significant episode by the NRA. As their spokesman, Andrew Arulanandam, put it: "We view Brazil as the opening salvo for the global gun control movement. If gun control proponents succeed in Brazil, America will be next" (Morton, 2006, p. 63).

The NO vote SPAM campaign started in September, and it reproduced the characteristics of the German campaign, that is, personal e-mails ("Let's reflect on this together," "I changed my mind"), which gave the impression of having already circulated among many users who thought the messages were relevant and consequently decided to forward them. As mentioned above, this type of SPAM, because it is apparently non-institutional, appeared very convincing,

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according to the focus groups. It looks to be sincere and legitimate given the personal tone of righteous indignation, although they often contain information which is hard to verify. When I did verify it, in most cases they contained false information. This strongly suggests that the apparently non-institutional nature of these SPAMs makes them exert a stronger impact than explicitly institutional propaganda. At least in Brazil most institutions don't command much respect from the public (ECOSOCIAL, 2007). Besides, only the latter appears as propaganda, which makes the reader suspicious about it.

Some of the NO campaign SPAMs, maintained that in the eventuality that the ban on the arms trade were passed, Brazil would not be able to export weapons anymore, because there is a law in force stating that products whose trade is forbidden within the country cannot be exported. This is obviously mis-information, because even if the ban on arms trade were sanctioned, weapons would still be sold to the Armed Forces and public security forces. Even so, I was impressed by the number of participants in the focus groups and of "well-informed" middle class people I talked to who thought this piece of information was trustworthy. In some of its versions, this SPAM "informed" that the principal interested party in the arms trade ban was Globo Networks, as they would be about to close a deal with a German gun manufacturer, through which Globo would become their exclusive importer in Brazil. Since Globo is a powerful economic group, anything suspicious about it looks credible. The SPAM works on people prejudices, producing information that seems to be correct, as their fit take for granted believes. As the popular saying teaches us, "if it is not true, it could well have been."

A typical SPAM example featured a revolver and a condom, along with the following question: "What do you prefer to use in case of rape?" Another SPAM from the NO campaign, which was extremely influential, showed images of

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the Nazi concentration camps as a back drop, with texts that held no relation to the images whatsoever, presenting distorted “facts,” where disarmament was related to a series of different massacres and genocides, regardless of any logic or chronology; political facts that took place in the 1920s were related to facts that took place decades later. The ANPCA (Associação Nacional de Proprietários e Comerciantes de Armas - National Association of Arm Owners and Traders) also used the image of Hitler, which appeared in a poster where the dictator is performing the Nazi salute, with a text demonizing the YES vote. Some other SPAMs tried to defame personalities who supported the YES vote featuring photos that distorted their images, associating them to historical personalities, such as Hitler and Stalin. In general, the NO vote SPAMs related those who supported the YES vote to old Fascists, Communists or else to those who had defended the Brazilian military dictatorship.

In sum, NO vote SPAMs promoted conspiratorial theories, defaming and misinforming, as well as using personal offenses and fear tactics. The use of such language, as aforementioned, was facilitated by the mass communication tools available on the internet: those messages appeared as being “personal,” thus the style was one of strong “indignation” and “denunciation.”

Conclusions: Internet, Democracy and Political Marketing

The internet Yes campaign was particularly weak. It lacked strategic coordination with the YES TV and radio campaigns; it simply reproduced the messages broadcast by these two media. Moreover, it did not capture the potential and strategic advantages of communicating through the new medium. The YES campaign was undermined by the NO activists’ efficient use of the internet.

The campaign also made evident certain weaknesses on the part of the NGOs. They are very fragmented, and despite

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the fact that most of them have been using the internet for years now, they do not possess large mailing lists. Neither do they cooperate effectively with each other in a network fashion, so as to reach a wider public. As aforementioned, the only exception was Greenpeace, which managed a far more advanced communication technology campaign as compared to local NGOs.⁵

Accustomed to working with people that sympathize with their campaigns, NGOs use a self-satisfied, or rather self-referential language directed toward people who already lean towards their position, discourse and/or intellectual style. Brazilian NGOs are absolutely unprepared to carry out political campaigns where their opponent resorts to all possible schemes in order to undermine them. Meanwhile, the NO campaign activists were united and knew how to exploit the different potentials of each means of communication. The YES campaign just reproduced the “controlled” language of traditional media.

Possibly, a good deal of the spurious messages used by the NO campaign played only a secondary role in this general context. The intelligent mobilization of the people’s feelings - confirmed by the focus groups and the general result of the referendum - of insecurity and fear, given the faulty and unsatisfactory public security policies, was enough to trigger the NO vote. However, the referendum experience points to a broader issue, which is the Internet as part of the public sphere and its impact on the dynamics of democracy, and more specifically the question of how to confront an aggressive SPAM campaign without leaving our ethical posture behind.

⁵ Even Viva Rio and Sou da Paz, leading Brazilian NGOS in the search of alternative solutions to confront violence, had a very limited e-mail outreach capacity. Although Viva Rio had a long experience in using Internet as a communication tool during the campaign it became clear that its know how was restricted to outreach to a small world of sympathizers.

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The libertarian expectations raised by the Internet resemble those of the neoclassical economics view on the market: the freer people are to act without any external interference or regulations, the better the results. Our conclusions are critical of such a viewpoint, and are geared to a different perspective: both the public sphere and the market demand an effort by the public to construct a collective realm with minimum regulations, possibly established by the users themselves, so that it may operate responsibly and be kept free from control by individuals or groups often related to economic power and political marketing, who manipulate the Internet language and use it anonymously, with no commitment to civic values or democratic fair play.

The emergence of a new means of communication, in this case the World Wide Web and its communication tools, demands a strenuous effort to reflect upon the role it plays within the public sphere. The public sphere has never been a homogeneous realm. On the contrary, it has always been multi-faceted and formed by various layers of different groups and organizations, most of these being rather self-centered, such as trade unions or religious, political, and cultural organizations. The new public sphere found on the Internet tends to jeopardize the relatively “reserved” character of the aforesaid organizations, retracing the borders between the public and the private. For instance, what are the virtual social network communities? Are they private spaces for exchanges among individuals with common interests, or are they rather public information banks, even used by companies to find out about the individual profiles of prospect employees?

The transformation of the public sphere caused by the Internet is a process under way, which will surely demand further and ongoing research. In another book (Sorj, 2000) we maintained that the end of communism and of politics centered on class conflict, combined with the trend towards individualization and social fragmentation, and that these trends have brought to an end the polarization of ideologies.

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Politics is no longer represented as political confrontation among opposing social interests. In this new scenario, political parties tend to lean towards the center, and new utopias are constructed by NGOs, whose discursive axis is the defense of human rights. Such a discourse, however is mainly based on demands to the state and do not relate to the conflict of interests within society.

Chantal Mouffe (2000), in a parallel argument, writes about the end of politics, because politics can only take place if we acknowledge that the construction of collective identities is built on conflict and opposition, which are the foundation of political life. In such a scenario, the Internet could have an important role to play in revitalizing political life. Nevertheless, such a conclusion seems far-fetched.

Instead of promoting the return to politics based on wide social participation, the Internet seems to be the other side of the coin of official politics. This medium (the Internet) maintains the same moralizing discourse found in political parties and civil society. Only that instead of bringing people together, it often polarizes the public through defaming the other and through character assassination. Polarization does not take place centered on affirmative proposals or bringing together similar interests or projects, but rather by defamation and the promotion of a paranoid, moralistic and distorted vision of opponents. Moreover, e-mails are often anonymous, apocryphal and hard to respond to because the addressees have no access to the mailing lists and addresses from which those e-mails were sent.

If we complement this sort of “moralist agonism” with Cass Sunstein’s arguments of people closed into their own tailor-made world, the result is what we can call “moral solipsism”. Such a solipsist trend is favored by the new advertising techniques (commercial and political) geared to specific a target public (defined by age group, social status, race, and religious beliefs). In political campaigns this tendency leads to thematic fragmentation, thus dissolving

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political discourses that view society as a whole. Furthermore, such solipsism is not alien to the moralist discourse of many NGOs, which deceived by their self-perception as “pure” agents of the good, overlook rich and complex social issues, as well as common people’s sensitivity.

The potential “solipsist moralist agonism” represented by the Internet does not prevent us from acknowledging the positive aspects of this new communication tool. However, such potential must be taken into consideration in order not to profess an ingenuous view of the Internet, disregarding trends that permeate contemporary society. These trends include self-centered individualism and tendencies towards fragmented association based on groups brought together only because of personal affinities. Although political campaigns on the Internet may increase the active participation of the people, the moralist-solipsist trend fostered by the new medium could lead to viewing political institutions as being ever more illegitimate, and to lowering the quality of the democratic debate.

The Internet and its wireless adjuncts are indeed becoming the main medium of communication within the public sphere. The challenge we face now is how to prevent this tool from being colonized by antidemocratic groups. There are good reasons to be suspicious about States trying to control the contents and messages that circulate on the Internet. Notwithstanding, given the fact that the Internet is becoming the privileged medium for public debate, it is now necessary to ponder about the specific characteristics of communication via the Internet, so as to create regulating mechanisms, which as far as possible do not depend on State interventionism.

As final remarks I will just mention three issues that, I believe, are fundamental to reducing the moralist-solipsist trend, which could take hold of the virtual public sphere:

- 1) In order for the internet to work effectively as the main tool within the public sphere, it is fundamental that

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participants are confronted with the contents they transmit and be held responsible for them. In the near future, it may be possible to universalize a certification system which ensures that message senders are actually identified, and that SPAMs sent by non certified users are automatically eliminated.

2) The school system has a central role to play in the education of Internet users, regarding the potential risks involved in the use of the Internet. Learning how to read critically contents circulating in the Internet is a basic factor in the education of future citizens, thus it should be part of the basic school curriculum. The ultimate issue regarding digital exclusion is not merely technological. On the contrary, it is rather the capacity to critically interpret the information found on the web.

3) Groups and particularly NGOs that support democratic values should revise their communication strategies, generating websites and messages that extend beyond the borders that encircle their own ghettos, promoting a true debate of ideas, presenting the whole range of arguments involved, so as to first and foremost educate citizens capable of critically analyzing the standpoints in question. Democratic forces have never succeeded in a terrain where the other is demonized; their only chance of success is to set barriers against anti-democratic groups by means of different and convincing discourses, which reach individuals by enhancing and valuing their capacity of discernment.

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Don Ihde and the Challenge of Technology Transfer

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This paper investigates an example of cross-cultural technology transfer as conceived by Don Ihde, a widely esteemed philosopher of technology. Ihde presents a definition of technology and an example of inter-cultural technology transfer. Ihde's example concerns technology transfer from Western culture to the New Guinea Highlanders. White colonists left behind used sardine can lids. The lids were then discovered and used as a form of headdress ornamentation by the native Highlanders. Ihde claims that this example constitutes a transfer of technology. Ihde's example does not support his theory. The claim of this paper is that, while Ihde's sardine can lid example fails, according to his definition of technology, it is still useful in adjudicating technology transfer generally. To help illuminate Ihde's theory of technology transfer, a contemporary example of alleged "misuse" of transferred technology, regarding Zimbabweans and female condoms, is examined.

Key words: New Guinea, Highlanders, Don Ihde, phenomenology, postphenomenology, technology transfer, Larry Hickman, Peter-Paul Verbeek, George R. Stewart

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Introduction

Don Ihde is one of the foremost representatives of philosophy of technology. This paper analyzes one of Ihde's examples of cross cultural technology transfer. Ihde defines technology transfer and then offers an example of cross-cultural transfer of technology (Ihde, 1993). Ihde's sardine can lid example fails to support his definition of technology transfer. To further illuminate the application of Ihde's definition of technology the alleged transfer of disease prevention technology in Zimbabwe is analyzed. While Ihde's own example of technology transfer in the case of the sardine can lids fails, his definition of technology is still useful when applied to technology transfer generally.

Ihde's Definition of Technology

Ihde defines technology as "...some artifact or set of artifacts – material culture – related to a context of human action or praxes (which include techniques of use)" (1993, p. 32).

Put succinctly, Ihde's formula for what constitutes technology is: *Technology = Artifact + Use Context*.

In addition to the above definition, Ihde organizes his thoughts concerning technology transfer around the following three theses:

Thesis One: "There are no neutral technologies, or positively put, all technologies are *non-neutral*.... They are transformational in that they change the quality, field and possibility range of human experience, thus they are non-neutral."

Thesis Two: "...There is no unitary, determined single destiny to technological development."

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Thesis Three: “The dimensions of technology transfers are never simply economic or productive, but multi-dimensional and involve basic cultural existential interchange” (Ihde, 1993, p. 33-34).¹

Ihde seems to equivocate concerning the meaning of the term “technology” between thesis one and thesis two. Thesis one concerns the non-neutrality of any individual technologies. What Ihde means by “non-neutral” is that a given technology changes the world of human experience into which it is introduced. Thesis two concerns the lack of a unitary goal for technological progress and development in general. Technology does not develop of its own accord toward some destiny. In thesis three, Ihde mentions that technology transfer is not simply an economic or productive concern. While Ihde is correct in thesis three that technology transfers are not simply economic or productive, it is also the case that instances of technology transfer are not simply *non-economic* or *non-productive*. Now that Ihde’s definition of technology and his three guiding theses have been introduced, it is time to examine Ihde’s sardine can lid example of cross cultural technology transfer.

Sardine Can Lid Example

Ihde relates how the discarded sardine can lids, used by white colonists in New Guinea, were appropriated as headdress ornaments by the New Guinean Highlanders (1993, p. 36). In Ihde’s example of technology transfer the technological artifact at issue is the sardine can lid. Does a sardine can lid qualify as technology given Ihde’s definition of technology as consisting of an artifact plus a use context?

¹ The theses are only partially provided here. I have selected out the most salient claim in each thesis. Ihde’s slightly longer account of the theses does not add any additional information relevant to the topic of the sardine can lids.

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Two criteria must be met. First, one must ascertain whether the sardine can lid is an artifact. Clearly the sardine can lids, in their original context of the white colonists, qualify as artifacts. One does not find sardine can lids growing on trees or buried in geological strata as raw material. The sardine can lids are artifacts because they have been created for a purpose – to seal and thereby preserve sardines as a food source in a can. Second, in order to count as technology by Ihde's definition, one must ascertain whether or not the sardine can lids are involved in a use context. At the very least, the lids exhibit a handy way to peel open a sardine can. They are used in the storage of food. In this way one can say that the sardine can lids have a use context. Given that a sardine can lid is both an artifact and is involved in a specific use context, it qualifies as technology according to Ihde's definition of technology.

Technology Transfer?

Now that the question as to whether or not the sardine can lids qualify as artifacts has been answered in the affirmative, there still remains the question of whether or not the sardine can lids qualify as an example of technology transfer when appropriated by the New Guinean Highlanders. Transference is not transformation. Typically, the word transfer is not used to call attention to two different phenomena, but to highlight the movement of a single technology from one culture to another. For a technology to be transferred it must remain identifiably the *same* technology. For something to qualify as technology, according to Ihde, it must be an artifact with a specific use context.

The lids as metallic artifacts are *spatially* transferred from the camp of the white colonists to the headdresses of the Highlanders. There is also an economic transference of *ownership* of the sardine can lids as they pass from the colonists' waste area to the highlanders' headdresses. It is

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interesting to note that Ihde left the ownership transference implicit. Ownership transference, if made explicit, could serve as an additional criterion of technology transfer. Why then does Ihde leave the economic aspect of ownership unaddressed? Perhaps Ihde is trying to leave out the personal aspects of the technology transfer in an attempt to produce a subjective free theory? If this is the case, Ihde has not made explicit any desire he might have regarding a subjective-free theory. It would seem to be counter-productive to include in one's theory of technology transfer a use context without acknowledging the feelings associated with the use. Spatial transference and transference of ownership both meet Ihde's first criterion of technology, i.e., for transference to occur at all there must first be something, i.e., an artifact, that is transferred.

What about Ihde's second criterion - use context? Does the use context get transferred from the colonists to the highlanders? Clearly there is not a transfer of use context. The lids are employed by the first group as food storage and then employed by the second group as headdress ornamentation. An identical use context does not transfer from the colonists to the highlanders. The specific use of the shiny metal to seal and then open sardine cans is *not* transferred to the highlanders. It seems, therefore, that Ihde's use of the sardine can lid example fails to indicate technology transfer.

Does it matter that Ihde adds a stipulation to his criteria for technology transfer? He states that technology can be used in different ways and remain the same technology. This move seems to erode his stipulation of use context in his definition of technology. If use context is taken to mean *just any old use*, then inclusion of use context in a definition of technology transfer would be superfluous. Ihde could have defined technology as *merely* an artifact and left it at that, but he did not stop there. Ihde explicitly includes the aspect of a specific use context in his definition of technology. Contradicting his

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own definition, Ihde writes, "...any technology can be used in a multiplicity of ways, limited only by the individual and cultural imaginations of the people or user" (1993, p. 37). Remember that for Ihde there is a difference between a bare artifact and an artifact involved in a use context. Only the latter constitutes technology.

Two Hammers

In defense of his position that a technology can be used in many different ways, Ihde uses the example of a hammer. The hammer "could be used as a paperweight, an objet d'art, a murder weapon, a pendulum weight, a door handle, etc" (1993, p. 37). If Ihde is to take the use context part of his definition seriously, then he equivocates when he claims that the hammer as paper weight is the same technology and therefore has the same use context as the hammer as nail driver. The hammer example does not support Ihde's theory of technology transfer, but only repeats the same problem in another form.

George R. Stewart, in his classic post-apocalyptic novel, *Earth Abides*, also uses an example of a hammer to reach a different conclusion (Stewart, 2006, p. 220). MacArthur fellow, Mike Davis, writes of Stewart, "Indeed, in the pantheon of modern American environmental writers—Leopold, Stegner, Worster, Abbey, McPhee, and so on—Stewart is perhaps the most unfairly neglected major figure" (2002, p. 375). In Stewart's novel the protagonist, Ish, survives a world-wide epidemic. Following the loss of civilization, Ish habitually carries around his hammer. Ish eventually finds a female survivor and they have children. These children are born into a post-civilized world without much social organization. The family eventually finds a few other survivors from which a loose-knit, small community is formed. One day Ish finds that his grandchildren will not touch the hammer, because it has taken on a completely

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different use context for them. In the novel, the younger generations come to imbue the hammer with such importance that it no longer has any legitimate use as a mundane striking implement. The hammer becomes a tool of ceremony. Stewart describes the scene in *Earth Abides* when it dawns on Ish that his grandchildren accord the hammer a completely different use context than that formerly accorded to it by civilization:

‘Go get the hammer for me, Chris!’ he said, pointing, to the little boy who was nearest it. Usually Chris was only too glad to spring up from his seat, and do something active. But now a strange thing occurred. Chris glanced this way and that, at Walt and at Weston, who were next to him. He looked embarrassed, or alarmed. ‘Go get the hammer, Chris!’ I repeated, thinking that possibly Chris had been daydreaming, and had merely heard his name without noting the words that went before. ‘I – I don’t want to!’ said Chris, hesitantly. Chris was eight years old, and not given to being a crybaby, and yet Ish could see that Chris was, for some reason, close to tears. He dropped the matter with Chris. ‘Bring me the hammer, one of you others,’ he said. Weston looked at Walt, and Barbara and Betty, the sisters, looked at each other, too. Those four were the oldest. All four of them looked back and forth, and did not make a move to rise. Naturally, the little ones did nothing. But Ish could see all the children glancing furtively at each other. (2006, p. 220)

Eventually, Ish, though not superstitious, also came to see the hammer symbolically. In the absence of a continuous use context, the technology of the hammer changed from a striking implement to a sacred symbolic object. Stewart recognized implicitly that the use context determined the technology as much as the material determined the artifact.

The technology of the hammer did not transfer to the younger generation of survivors, because the use context did not transfer to them.

According to Ihde, the same use context must transfer if transfer of a single technology is to take place. The use context must remain identically the same before the transfer has taken place and after the transfer has taken place. Otherwise one is describing two different technologies altogether. Where there are two different technologies involved, i.e., two different use contexts, there is no *transfer* of a single, identical technology.

Technology Minus Use Context = Bare Artifact.

Ihde omits an important element of technology transfer which could help his theory. Given his definition of technology, technology must always be identified as something participating in a use context. This continual state of being in a use context seems to be contradicted by the history of the sardine can lids *as bare artifacts*. The lids start out with a certain use as a handy means to open a sardine can. The lids end up with a specific use as headdress ornamentation. What Ihde leaves out is a middle stage in which the sardine can lids are without a use context. The lids are, at least for a while, considered useless junk, or litter, after being used by the colonists and before coming into a different use context among the highlanders. Unless the first time the lids were noticed by the highlanders they were immediately identified as, and employed as, headdress ornamentation, then the lids, *as bare artifacts of litter*, existed in a non-technological state for a while. The lids were, for a while, unemployed shiny objects before they were ever reemployed as headdress ornaments. This is a middle chapter in the story of technology transfer that is left unexamined by Ihde.

Pointing out the intervening period of the lids, and their time as "litter," is not to imply that the lids were effectually

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neutral. As bare artifacts of litter they no doubt played a role to some degree in the environment. Playing a role, or having an environmental effect is however different from being consciously employed and used by colonists and highlanders. Ihde is therefore correct to the extent that he points out the non-neutrality of technology in his aforementioned thesis number one. Even temporarily useless artifacts have effects.

Ihde likely does not feel a need to address the passing out of and back into technology of an artifact. He is concerned primarily with *transfer* of technology and not *transformation* of bare artifacts into technological artifacts. When a technology becomes useless it falls outside a use context, and is no longer technology. To meet Ihde's definition of technology *an artifact must have a use context*. Not all artifacts are by this definition technological. The history of the sardine can lid reveals a gap in Ihde's theory. The sardine can lid begins as a single artifact which passes into a use context, and hence into technology, when it is used to seal the sardine can lids. Next the lid passes from meeting the criteria for being technology to passing out of all anthropological use contexts when it is tossed into the tropical underbrush by the colonists. In this discarded state the lid no longer meets the definition of technology, because it is lacking a use context. It is no longer used by the colonists and not yet used by the highlanders. It does not seem to matter how much time passes between the artifact's original use and the artifact's subsequent use. Whether an hour passes, or a decade, the point is the same. The artifact undergoes a period in which it is not technology. Finally, the useless artifact eventually passes from being a discarded object with no use context into a technology with a new and different use context. As far as technology transfer is concerned, Ihde leaves out the middle portion of the artifact's history because he is only concerned with the transfer of *technology* and not with the *transformation* of non-technological bare artifacts into technological artifacts. The use context that is present with

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the colonists is not the same use context that is present with the highlanders. So, while a *bare artifact* is indeed transferred when discovered by the highlanders, a *technology* is not transferred.

A Contemporary Example

Because Ihde's example of the sardine can lids depicts a purported example of technology transfer from the early twentieth century, one might wonder how Ihde's theory would apply regarding a purported contemporary example of technology transfer. In a BBC online news article, Steve Vickers relates the story of female condoms used as ornamental bangles. The sensationalistic headline reads, "Zimbabweans Make Condom Bangles" (Vickers, 2005, headline). The article features a photograph of a young woman displaying the "bangles" on her arm. Beneath the photograph a caption reads, "Donors are upset at the misuse of the condoms" (2005, to the right of the third paragraph). The implication is that a technology has been transferred and is being misused and that, in a land riddled with HIV, the population cannot make good use of inexpensive disease control technology. Ihde's theory can clarify alleged examples inter-cultural technology transfer. According to Ihde's theory two things are necessary for technology transfer: an artifact and a use context. In the case of the Zimbabwean condom-bangle wearers, the use context has obviously not been transferred. But even the artifact itself has not entirely been transferred. Only the sturdy ring part of the female condom artifact is kept and used as a bangle. The condoms are distributed freely to the Zimbabweans at clinics. In addition, the ring part of the condoms is sometimes painted and sold in the marketplace, which would constitute two additional alterations of the unpainted and freely distributed technology of birth control and disease prevention into a painted and ornamental technology that also functions as a

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commodity.² As long as the artifact is altered and the use context is altered, then technology transfer has not, by Ihde's definition, taken place.

Ihde's theory of technology transfer can help the manufacturers and distributors of the condoms to overcome their common-sense bias that arises from habitually seeing "technology" as merely a bare material artifact devoid of a use context. This bias would typically incline one to an unflattering view of the Zimbabweans, who happen to use *part* of a condom for ornamentation instead of birth control and disease prevention. If one sees the use of the "bangles" as merely a "misuse" of disease prevention technology, then one is likely to view the Zimbabwean bangle wearers in an unflattering light. Seeing the Zimbabwean bangle wearers in an unflattering light is to place blame on persons alleged to be in need of help – especially if the one placing the blame is the same one distributing free female condoms in HIV stricken areas of the world. This reductive reification of technology into a mere physical material object only impedes one's service to a population suffering from an HIV epidemic. The assertion is that a certain technology is being misused and that it is the same technology that is being transferred. Ihde's theory of technology transfer indicates that no transfer of a technology has occurred in the case of the Zimbabwean condom-bangle wearers. Where there is no transfer of a particular technology, there is no abuse of that particular technology. This consequence of Ihde's theory should in no way make light of public health problems in Zimbabwe, or anywhere else, but it might help public health professionals

² This does bring up a question left unexplored in Ihde's theory of technology transfer. *How much* of a use context, and how much of an artifact, must be transferred in order for technology transfer to take place? To answer this question fully would take another paper, because it demands copious explication involving the philosophical problem of vagueness.

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find better ways to transfer the use context of the condom as disease prevention technology. The goal of the health professionals is to achieve a transfer of condom technology and not merely a transfer of a bare artifact. Peter-Paul Verbeek, commenting on the postphenomenological approach associated with Ihde writes, “In general, technological design processes would do well to try explicitly to anticipate the future mediating roles that products will play.” (Verbeek, 2007, p. 234). Certainly one cannot know completely in advance how one’s product will be received, especially in cross-cultural technology transfer. However, Verbeek is correct in that Ihde’s postphenomenological theory of technology transfer does help, to some degree, to “anticipate future mediating roles.” It aids in this endeavor by highlighting the use context side of technology.

The Artifact and Pragmatism

Ihde makes much of his openness to the philosophical school of pragmatism. It is therefore instructive to compare Ihde’s definition of technology with that of Larry Hickman. Ihde writes, “...the pragmatist program succeeded in avoiding precisely the “subjectivist” cast which Husserl’s too-close use of subjectivity, philosophy of consciousness, and subject/object language could not avoid” (Ihde, 2008, p. 4). One who reifies a given technology by reductively confusing it with its constituent artifact commits what Dewey calls the philosopher’s fallacy. Larry Hickman, Director of the Center for Dewey Studies, succinctly describes Dewey’s notion of the philosopher’s fallacy as, “...the taking of something that is the *result* of inquiry as if it had existed in its own right *prior* to inquiry” (Hickman, 2007, p. 73). Reification of a process of inquiry into a bare artifact is one way to commit the philosopher’s fallacy. Ihde’s construal of technology transfer inclines one to avoid reification by acknowledging the human participant role via a use context in the constitution of

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technological objects. One who forgets the use context dimension of Ihde's theory of technology transfer is more likely to commit the philosopher's fallacy by reifying a technology into a bare artifact. One who reifies a technology into one of its constituents, i.e., an artifact *ipso facto* declassifies it as technology and thereby makes it irrelevant to the topic of technology transfer.

Does Ihde commit the philosopher's fallacy in his definition of technology? As discussed above, Ihde defines a technology as something consisting of an artifact and a use context. Does Ihde reify the artifact in the manner he accuses others of reifying technology? Ihde refers to his own brand of philosophy of technology as, "Postphenomenology." Ihde understands his Postphenomenology to differ from traditional phenomenology *inter alia* in so far as Postphenomenology is highly influenced by pragmatism, notably that of John Dewey. Hickman, a Dewey scholar and philosopher of technology in his own right, understands technology as follows: "Technology in its most robust sense, then, involves the *invention, development, and cognitive deployment of tools and other artifacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolution of perceived problems*" (Hickman, 2001 p. 12). Hickman, following Dewey, understands "artifacts" in Ihde's definition of technology as being themselves *products* of human inquiry. Unlike Ihde, the pragmatist approach ignores the realism/idealism debate. Whether or not artifacts are instantiated in a physical or mental substrate or something else entirely, is, at least for the pragmatists, indeterminate and therefore not the salient point at issue. In other words, Ihde's definition of technology might, from Hickman's pragmatist point of view, be better construed as, technology = a product of inquiry (artifact) plus a use context. Since Ihde is influenced by pragmatism to include a use context in his definition of technology, thereby making technology a product of inquiry, ought he not go one step further in the direction of

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pragmatism and consider artifacts too as a products of inquiry rather than “material?” From the Dewey and Hickman perspectives, logic, philosophical language, and geometry are all products of human inquiry. They are all artifacts with use contexts. They are all examples of technology. It seems that Ihde’s engagement with pragmatism has its limits. Perhaps Ihde’s early work in phenomenology inclines him to think in terms of a subject over against a finished, invariant structure, i.e., his “material artifact.”

Some Influences on Use Context

Although Ihde does not include the topic of influences on use context in his sardine can lid example, the influences on use contexts are important, because they help determine the uses in their fullness. Metaphysical presuppositions influence classificatory schemes such as a particular technology’s use context. The “materiality” of the sardine can lid can itself be questioned. For the colonists it is “metal.” It is difficult to say whether the object referred to by the colonists as “metal,” is the same object in the minds of the highlanders, since the highlanders likely lived in a metal free culture.

Imagine what it would be like to discover some completely new “material” – something unclassifiable by our table of elements. Imagine a scenario in which aliens from another part of the universe brought a new artifact to earth and discarded it as trash. Suppose further that the aliens referred to the artifact according to its location in a classification schema based on materiality/physicality. Suppose they judged the usefulness of an artifact by its materiality, but not by the qualities typically registered by our senses. Suppose, like holy water, the artifact’s usefulness was determined performatively, in a ceremony only allowed to take place on their home world. Humans on Earth would not likely think of artifacts, acquired from alien trash, in the same use context as the aliens would. The history and manufacture of an artifact

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inform its use context. There is a lack of a common basic conceptual vocabulary between the colonists and the highlanders. If the words used to conceptualize the sardine can lids have a completely different *meaning context* for the colonists than for the highlanders, and if the meaning context informs the use context of the artifact, then there are two different use contexts and once more two different technologies.

While Ihde, regarding the sardine can lid example, does not mention aesthetics explicitly, the highlanders likely intended the headdress ornaments to enhance their appearance, beauty, esteem, or social standing. What was an aesthetically unpleasant item of litter to the colonists was a beautiful ornament to the highlanders. Aesthetic value plays a role in the meaning of an artifact. Different aesthetic values attached to an artifact might cause the artifact to be classified under different use contexts. There are use contexts for beautiful things that differ from the use contexts of ugly things. Typically one does not use something very ugly as a gift to a lover or friend. In addition, the technology in question may itself be aesthetically unpleasant and yet be employed in such a way as to enhance beauty. If the aesthetic context contributes to the total use context, then a partial “transference” of context without the aesthetic qualities would not constitute a transference of use context. It is not clear just what would be transferred between cultures with opposing aesthetics or differing use contexts.

Ihde’s example of the sardine can lids is supposed to represent an unpredictable aspect of the transfer of technology, but it only casts doubt on whether, in such a case, transference of technology takes place at all. However, should the context of sardine can lids *as lids* ever be shared, then technology transfer might occur. Should a fully stocked, big box, supermarket come to be built in the New Guinea highlands, and the lids become as cheap and readily available for the highlanders as the lids are for the colonists, then a

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shared use context *might* also emerge and one could then speak of a transfer of technology. Such an event would alter the cultural background of the Highlands. If culture must transfer in order for the use context to transfer, then can one really speak of transfer of technology, outside of a simple exchange of spatial coordinates, in any meaningful sense? Where cultures are different enough *not* to share use contexts, inter-cultural transfer of technology is possible, provided the use context actually transfers from one culture to the next. Where two different locales have the same culture, only spatial, intra-cultural *artifact transference* is possible, because the use context element of technology *transfer* does not take place. One cannot meaningfully transfer a use context “X” to a place that is already saturated with a use context “X.” In the present culture of the Midwest, a hammer in Indianapolis transported to Chicago does not consist in technology transfer, because the use contexts are already shared.

Ihde has presented a clear definition of technology by which to adjudicate instances of technology transfer. That Ihde’s own sardine can lid example, contemporary Zimbabwean condom bangles, alien artifacts, and Ish’s hammer all fail to meet Ihde’s criteria for technology transfer, is not due to any lack of specificity or rigor in Ihde’s definition of technology. Ihde’s stress on the importance of the use context element of technology is evidence of a middle position between phenomenology as traditionally construed and pragmatism in Ihde’s *Postphenomenology*. The definition of technology presented by Hickman indicates, by comparison with Ihde’s own definition, that Ihde has not moved completely into pragmatism. Because Ihde has only minimally described the artifact pole of his definition of technology (as material), it begs further description. Pragmatism’s stress on artifacts as products of ongoing inquiry is one way to answer the question begged by Ihde’s minimal description of an artifact without reifying the artifact and committing the philosopher’s fallacy.

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If it is the case that metaphysical presuppositions and aesthetic predilections do in fact play a role in the meaning of the use context, as is asserted in this paper, then metaphysics and aesthetics play a role in whether or not a given technology is ever actually transferred. If the transference depends on the use context and the use context depends, in various cases and to various degrees, on culture, metaphysical presuppositions, performative ceremonies, and aesthetic preferences, then these areas need to be explored further. Ihde's theory of technology provides a useful theoretical tool with which to approach the challenge of technology transfer.

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Green Technology and the Design of a Green Lifestyle

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Ecovillages are illustrative of a growing social and environmental trend. They bolster the view that adopting green technology is a promising and realistic resource on the road to sustainable living. These ecological cohousing neighborhoods and communities are being designed as places where residents can live in harmony with nature and with each other. Using green technology in the various forms it holds, these new communities are raising important questions about the role and importance of green technology in the local and global efforts to respond to an environmental crisis. Using anthropological methods to analyze the ways in which some residents of Ecovillage at Ithaca use green technology to create a green lifestyle, this paper describes the challenges and opportunities residents negotiate as they struggle to create a social and environmentally sustainable way to live.

Key words: green lifestyle, ecovillage, cohousing, consumption

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Introduction

Global climate change and the social, environmental, and political impacts of these changes have finally become a generally accepted reality. Many countries, cities, and individuals are increasingly looking for ways to adapt to the expected changes and, at the same time, identify new technologies and design new commodities that will slow environmental degradation. Of these efforts, technology--and specifically green technology--is often suggested as a key ingredient in any solution to our current environmental crisis. Proponents of green technology often argue that capitalism and environmentalism are compatible, and that production and consumption of green technology is the most promising way to address global climate change and the ensuing environmental problems related to it (Brown, 2001). At the same time, some scholars and social activists are arguing that the current environmental crisis was caused by an economic model that has led to out-of-control consumption with little or no incentive to conserve (Foster, 2002; O'Connor, 1994; Smith, 1998). Central questions of the compatibility between environmentalism and capitalism have continued to be raised against an avalanche of economists who are convinced that such a marriage is viable and go so far as to suggest that it is, in fact, the best and most desirable way to respond to the environmental crisis (Brown, 2001; Hawken, Lovins and Lovins, 1999).

The current environmental crisis has spurred a plethora of innovative responses from individuals, nonprofit organizations, and entire cities. Going and being green has not only become a trend, it has become essential for creating a competitive marketing edge (Shrivastava, 1995). A basic keyword search on Google in July 2008 for "being green" presents over two million links to various newspaper articles, stores and advertisements, Kermit-the-Frog quotes, organizations, and academic papers that discuss whether it is

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or isn't easy being green. With the overwhelming number of messages from various trusted and not-so-trusted sources on how to behave, think, and shop to save the planet, it is difficult to know which advice is useful and which a product of greenwashing. Like the plethora of environmental studies programs that emerged in universities during the 1970s and 1980s, green business programs are offered at almost every major business school in the United States, advocating a business model that considers the interests of the people, the planet, and profits (Ellin, 2006; Hawken, 1993; Jamison, 2001; Rowell, 1996).

How have consumers generally responded to the environmental crisis and the messages they receive from public and private sources? What are some of the ways people have chosen to respond to the urgent need to alter the way we engage with the natural environment? Responding to environmental degradation in the United States means engaging in both social and environmental solutions, that is, addressing both how people live everyday and the impact that lifestyle has on the environment. The issue of consumption has come to play a major role in U.S. environmentalism because we consume a disproportionate amount of the world's resources; whether it is through land acquisition or consumer goods, U.S. Americans are mired in a culture of consumption (Guha, 2006). This national emphasis on consumption is itself becoming green (Jamison, 2001; Smith, 1998). Increasingly, some communities in the U.S. and around the world are working hard to respond to the environmental crisis by designing living spaces that include adapting and applying innovative technology to their homes and neighborhoods, and engaging in a green lifestyle that attempts to reduce individual consumption needs. Ecovillages are emerging as a powerful force in the search for a way to balance social and ecological sustainability. EcoVillage at Ithaca (EVI) is an example of a community on the cusp of such an experiment.

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Designed as an ecological cohousing community or ecovillage, EVI is, according to the project director, attempting to pioneer a sustainable culture (L. Walker, 2005). In doing so, residents of the “green” community attempt to balance living in harmony with each other and living with nature, as a way to model sustainability. This model is not new. It does reflect, however, the ideas and efforts that some city planners and architects have been advocating for generations. Moreover, ecovillages take some of their inspiration from poor rural villages in nonwestern countries that often lack the advanced technology of the west and require a high degree of cooperation. What is new, however, is the adoption of this lifestyle by people who fall into what I call the *green class*. Specifically, the green class attempts to live sustainably by consuming green commodities and by engaging in activities and events that are explicitly and implicitly identified as being good for the environment. An example of this green class and the green lifestyle can be seen in a variety of aspects of the ecological cohousing movement in general and specifically in the EVI project.

In this paper I describe some of the green technology that EVI, as a model of an emerging green lifestyle, exhibits. I focus on the physical design of the homes and shared community spaces in the first EVI cohousing neighborhood that was completed in 1996. Although more than ten years have passed since the First Resident Group (FRoG as they prefer to be called) was designed and built, and a second neighborhood has been well established, I focus the analysis of this paper on FRoG because at the time that it was built, the green lifestyle was just beginning to emerge. I argue that the FRoG symbolizes the effort to be green by living green with the help of innovative green technology. Yet, this paper is not solely about green technology in an ecovillage. It is also, as the FRoG project demonstrates, about the ways communities can become effective locations for reducing our need for

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commodities in general, and that by reducing our consumption of commodities we can, in fact, be green.

Anthropology is well suited as a discipline to explore green lifestyles and the use of technology to address environmental changes. Investigating, through ethnographic research, the role of technology in influencing culture and the impact of culture on the adoption of technology is critical if we are to understand the challenges and opportunities offered by green lifestyles (Pfaffenberger, 1992). Jamison's view that "cultural critique and critical movements have often inspired a broad reexamination, or assessment, process that has...contributed to the formulation of new criteria for knowledge-making and new forms of scientific and technological practice" (Jamison, 2001, p. 8) suggests that an analysis of the green lifestyle trend might present the opportunity for local and global communities to shift the way we design not only our physical spaces but also our social infrastructure. Ethnographic research by the author conducted in EVI over fifteen months beginning in 2000 and ending in 2001 included in-depth, semi-formal interviews with 60 adults from both the FRoG, the first neighborhood group, and SoNG, the second neighborhood group. Because the SoNG was in the early stages of development, most of the interviews were conducted with FRoG residents. During the research period I attended planning meetings, weekly and biweekly community and committee meetings, various annual rituals and community celebrations, as well as a variety of social events including meals and dances. An important requirement for each adult member in both the FRoG and SoNG neighborhoods is to serve on a work-team and volunteer approximately three to four hours a week completing various community tasks. During the period of field research, from 2000-2001, there was a cook team, outdoor team, geek team, maintenance team, and a dish team. (I was an active member of the dish team.) This paper describes the efforts of an ecological cohousing community, a community made up of

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individuals and families who are striving to create a living environment that marries both social and environmental sustainability. This effort is not simply motivated by convenience but represents a new way of addressing environmental sustainability specifically; ecological cohousing communities or ecovillages suggest that it is through creating a strong sense of community that we can affect environmental change. While residents value creating community, they stress and rely--perhaps too heavily--on innovative green technology as the major factor in modeling a social and environmentally sustainable community.

The Community

According to the Global Ecovillage Network, “ecovillages are urban or rural communities of people, who strive to integrate a supportive social environment with a low-impact way of life. To achieve this, they integrate various aspects of ecological design, permaculture, ecological building, green production, alternative energy, community building practices...” (Global Ecovillage Network, 2008, para 1). Ecovillage at Ithaca is one such project as one of a growing number of communities that are attempting to balance living a social and environmentally sustainable lifestyle.

EcoVillage at Ithaca is a semi-rural cohousing neighborhood project located approximately two miles outside of the city of Ithaca, New York. Nestled in the heart of the Finger Lakes, the nonprofit EVI project is unique in the ecovillage movement because it attempts to build a village of five neighborhoods, create ample opportunity for residents to live and work in the village, and offer resources to make the community as self sufficient as possible.

The physical location of EVI outside the city of Ithaca is not coincidental but was chosen as the best location to create the experiment in alternative living, precisely because of the

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social, political, and environmental leaning in the larger Ithaca community (Chitewere, 2006). In his recent book *The Country in the City: the Greening of the San Francisco Bay Area*, Walker reminds us of the importance of geography to environmental history (R. A. Walker, 2007). Like the San Francisco Bay Area, Ithaca has had its share of progressive green politics, including the establishment of a local currency designed to keep economic resources within the city (Herrmann, 2006). EVI is another chapter in the environmental history of a politically left and environmentally conscious Ithaca.

The EVI project is both a consortium of two cohousing neighborhoods as well as a nonprofit environmental education organization whose mission includes serving as a living laboratory for social and environmental sustainable living. EVI combines suburban living with access to urban amenities, embracing both a connection with the natural environment through preserving surrounding land in a land trust, and modeling urban density by clustering homes close together. There are 60 households living in the two completed neighborhoods; while only two neighborhoods are completed, a third is in the early planning and development stages.

In addition to the two completed neighborhoods, the project currently has an active education component. One of the arms of the EVI project is the nonprofit EcoVillage/CRESP (Center for Religion Education, and Social Policy) which created an educational partnership with Cornell University. The EcoVillage/CRESP relationship is “responsible for education, outreach and promotion of the EcoVillage concept through educational programs, partnerships, hosting visitors, and work with the media” (L. Walker, 2007, p. 8). Another feature of the EVI project is the organic community supported agriculture farm (CSA), an organic CSA berry farm that include a U-pick option (a program where farm visitors pick their own berries and pay for whatever they take home), and over fifty-five acres of land

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that is held by the Finger Lakes Land Trust in a permanent conservation easement .

Ecological cohousing communities are modeled after the Danish *bofællesskaber*, a concept that was introduced to the United States in the mid 1980s by Katharine McCamant and Charles Durrett. The architect team coined the term “cohousing” after observing these new communities in Denmark and recognizing the benefits of engaging residents in the planning, design, and management of their neighborhood. Other principles that define cohousing include a common house (or space) that serves as an extension of the individual homes and a physical design of the neighborhood that is aimed to create a sense of community amongst the residents (McCamant, 1994).

The ecological cohousing community in Ithaca emphasizes the effort to create an environmentally sustainable community by explicitly incorporating green design features, such as passive solar heating and solar panels. Other energy-saving technology has been planned but is not yet in use, such as a gray-water-recycling infrastructure. The community uses the physical design to help enforce its commitment to green living and establishes social guidelines to promote social harmony and cooperation. As such, ecovillages present an opportunity to consider ways of balancing social and ecological sustainability. While at once designed to bring individuals socially together by including self governance and a physical space that results in frequent random encounters, they are also designed with environmental sustainability in mind. Creating a strong sense of community is equally important to adopting innovative green technology. As I will argue at the end of this paper, it is through the cooperative nature of the community that residents are able to reduce their need to consume green commodities, including new green technology.

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Green Neighborhood Designs

How can technology be incorporated into the design and functioning of a green community? There are two ways in which I will address this question, beginning first with a description of the various technology features of the EVI neighborhoods, with a focus on the green technology that helps to define EVI as an ecovillage. These details were often described to me when I asked resident what made their village “eco”. Second, the Ecovillage is green because of the technology--green and otherwise--that is lacking. That is, I will make the argument that sometimes being green can be best achieved by reducing what we consume.

The green technology features of EVI combine old and new ideas. Let us first recall the old ideas that influenced generations of city planners who try to combine the built and natural environments. City planners of the early twentieth century, like Ebenezer Howard, Lewis Mumford, and Patrick Geddes emphasized the importance of putting nature in cities and building the “garden city” (Howard, 1902; Mumford, 1946). Their work provides much of the inspiration for the importance of nature in the social well-being of people living in urban spaces. Building neighborhoods that are surrounded by trees, grass, meadows, and nature were seen as essential while modernization, and specifically the industrial revolution, was seen as facilitating the destruction of nature. As urbanization expanded, efforts were made to preserve natural green spaces. The results of their work are evident in places like New York City’s Central Park. As more cities attempt to respond to the environmental crisis, several are in many ways rebuilding the garden city, putting trees along urban streets, turning vacant lots into community gardens, and restoring urban creeks. Focusing on greening the urban space, early city planners were highly conscious of the impact of technology on the landscape. Mumford was critical of technology, “megatechnics”, and cautioned that the over-

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reliance on technology helps to diminish our connections to each other and nature (Mumford, 1967).

Green Technology in the Community

In this section I focus on how ecovillages, and in particular EVI, are attempting to use technology as a means of creating stronger connections with nature and with other residents. I will first address how, in the ecological cohousing community, being green can be identified by the physical design of the neighborhood.

The founding residents of the FRoG designed and built their homes with the help of architects Jerry and Claudia Wiesburd of Housecraft Builders, Inc. Built with a uniform and coordinated design, the homes range in size from 900 square feet for a one-bedroom to 1650 square feet for the four-bedroom homes. To limit the ecological footprint, the homes are built vertically and include three or four levels of living space. All the homes in the first neighborhood of EVI are built as duplexes which hug a pedestrian-only walkway which meanders through the middle of the neighborhood. The duplexes, which allow walls to be shared and energy to be saved, also make it possible for thirty houses to sit on only 2.5 acres. The fifteen neighborhood duplexes are divided into clusters of eight households that share an energy center with a common hot-water heater and are fitted for future energy saving technologies.

The homes in the first neighborhood are not only designed with triple-paned windows and energy-star appliances, but they also incorporate stylish features like living curtains that grow on the outside awning. Connecting the outside space to the inside living and dining room are four tall, south facing double-pane windows. In the warm summer months, wooden trellises are covered with grape and kiwi vines or various crawling flowers. The lush green leaves provide a natural curtain against the hot summer sun, keeping

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the home cool and offering a light snack when the fruits ripen. In the winter, the foliage dies back and opens the window to intense winter sunlight that is low in the south sky. Passive solar heat from these windows can bring the inside temperatures to the mid 70s or higher. Such simple, beautiful, and useful designs do not necessarily require expensive green technology but rather make use of resources readily available, like orienting windows to maximize passive solar heat. Low-energy appliances were chosen by almost all residents and include small refrigerators and convention ovens. Overall, the relatively small size of the homes in the FRoG helps to minimize the space needed to heat and cool the home. This small individual footprint is balanced by a large community space that serves as an extension of the individual home.

Homes in the neighborhood of the FRoG were designed to maximize energy-efficiency and minimize social isolation. Large inward-facing windows allow residents to see who is home and survey the activities in the neighborhood. Although some neighbors use curtains to increase their sense of privacy, many families welcome the opportunity to informally connect with neighbors through open windows. A common house, one of the key features of a cohousing community, also serves as a way to incorporate green technology in the everyday life of residents as well as offers the opportunity for individuals to connect with each other.

The common house in the FRoG is designed to be an extension of one's personal living space and a gathering point for the neighborhood. Similar to a town hall, the common house is the heart of the neighborhood, hosting a variety of community needs and social events. For example, there are office spaces which are rented by residents, a yoga/recreation room, children's play room and teen room, guestroom, and sitting room with a small library. The heart of the common house is the dining space, which makes up the largest space in the common house and hosts weekly common meals where residents, and their guests, can choose to participate in a

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community dinner prepared by the neighborhood cook team. The common house hosts different meetings and special events. The large kitchen with two large gas cook ranges and an industrial dishwasher is in contrast to the small kitchens of the individual homes, which often have smaller and simpler technology. The common-house laundry facility functions like a Laundromat would for a city neighborhood. Instead of owning thirty washing machines and dryers, the neighbors collectively own three energy-efficient machines, thus reducing their need to consume appliances that are not needed daily. Instead of using the available dryers, residents can use a clothesline if they want to save energy. Other energy-saving features include plenty of windows to allow for maximum natural lighting, and providing a space to purchase bulk items that avoid multiple trips to the store, thus saving fuel.

The common house in EVI represents a positive way that technology can be used to reduce our consumption. Designing spaces to save energy and adopting practices that reduce our need to travel is a positive step toward sustainability. Some residents in FRoG felt the green technology in the common house and in the community in general was nothing special; others focused on technology that would be included at an unknown future date. For example, although the neighborhood homes and the common house were designed to accommodate solar panels, no solar panels were installed in the first neighborhood, because the panels were too expensive. In the second neighborhood, residents designed their homes based on individual resources and as such were not limited by the financial constraints of the group. Several households, who could afford it, installed solar panels and incorporated more green technology such as straw bale insulation and a community water cistern. Yet, for a participating observer in the EVI project for fifteen months, what was most noticeable about the community and its efforts to be green was not the use of innovative green technology but EVI's ability to create a community that required less

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technology. Instead of buying material goods, the common house can model a way to live simply by sharing resources. This, I suggest, is perhaps one of the biggest contributions of the ecological cohousing community.

Being Green Without Technology

The use of technology and the absence of technology can be an important distinction in creating a green lifestyle. Specifically, Ecovillage offers a model of sustainability because it suggests a way to live that can reduce our overall consumption, including the need to buy innovative green technology. For example, features that make ecovillages green include the ability to live close to your neighbors and to get to know them well; this allows residents to borrow last-minute supplies rather than driving to the market. A community where homes are built close together means social interaction is accessible from your front door. The preservation of green spaces such as meadows, forests, and views enable families to connect with nature without driving to a national park or commuting to the local park. Growing food near the neighborhoods provides healthy organic food that is both local and accessible to families who live nearby. While solar panels offer a means to harness the sun's free energy, the simplicity of orienting homes southward provides a cheap and sensible way to use the resources that already exist (the window) to capture the sun's rays to heat the home.

Ecovillage helps to create a sustainable culture by establishing a supportive community where neighbors help each other reduce their energy consumption, but also their consumption of everyday commodities like clothing and plastic toys. Carpooling and informal car-sharing is one way to save on resources. It is not unusual for neighbors to remind each other to turn off lights and to share meals. In the FROG common house residents can leave unwanted clothes and pick up clothing items in an informal exchange. Exercise is easy to

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accomplish without traveling to a fitness center: walks in the woods, volunteering on the farm, or just picking up your mail a quarter mile from the homes provide wonderful ways to stay in shape, meditate, or connect with friends.

Technology of the Green Lifestyle

Ideal Bite offers bite-sized ideas for light green living.

We know that you would just love to ‘do the right thing’ for yourself and the planet if it were convenient, fun, inexpensive, and made you feel good. But until now you have lacked a good source of advice for real people leading busy lives.

Congrats. Now you have a **free** one. Easy eco-living tips are delivered in a short, sassy email each weekday. (*Ideal Bite*, 2008, bold is in the original)

Green living has become a popular trend that focuses more on the kinds of trendy green commodity one owns and less on ways to reduce our impact on the environment. In addition, it increasingly offers easy, convenient, and fun ways of responding to the environmental crisis. At the same time, a recent article in the *New York Times* suggests that the average consumer is suffering from “green noise” and that environmental groups are worried about a green backlash, where consumers simply stop listening to the ways they themselves can help to save the planet (Williams, 2008). A likely source of this confusion and frustration can be attributed to information overload and misinformation created through the many mixed messages from environmental groups and corporations, where the latter have historically been responsible for the worst ecological tragedies (Rowell, 1996). Lack of leadership and direction in the environmental

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movement has resulted in a multitude of ways people are responding to the crisis. Often, the response has been the path of least resistance—consumption of commodities that are familiar, only greener. This simple process of replacing incandescence light bulbs with fluorescent ones is a good thing, but turning off lights that are not necessary is even better. In the mid 1990s some scholars were warning of greenwashing, as companies rushed to offer consumers ways to continue their acquisition of commodities that protect the environment and at the same time, continued to market in ways that increased their financial profits (Athanasidou, 1996). New forms of technology focused on green features; whether those commodities were, in our culture of over-consumption, necessary was rarely discussed even amongst environmental groups, who themselves rushed to suggest green consumption as the best way to confront environmental degradation. Al Gore's *An Inconvenient Truth* ended with a litany of ways to do something about global warming which included adopting green technology (Gore, 2006). Although reducing our consumption and decreasing the number of miles traveled by car are included in his book, the role of technology in supporting the green lifestyle is central.

A plethora of companies, books and magazines, and service providers are claiming to either use green technology to power their electricity or offer promises to help you become green by simply utilizing their products. It is therefore not surprising that EVI also identifies its use of green technology as part of the overall effort to be sustainable. As discussed in this paper, the applications of green technology in the design of the homes and the presence of green technology in the everyday lives of residents help them to identify with a sustainable way of living. Evidence of the importance of green technology for the green lifestyle was demonstrated when I asked residents what they felt was the “eco” component in ecovillage. The responses often include the prominence of hybrid vehicles and the solar panel capacity.

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The green features of the homes offered some residents an immediate, visual response to energy-inefficient commodities. One resident admitted that she was able to reduce her energy consumption without doing anything special. Simply living in the community, in a home that was designed to be well insulated and take advantage of passive solar heat, made this informant feel that her life--and lifestyle--was more sustainable in EVI than in any other place she had previously lived.

Green technology in this ecovillage has thus come to represent both a simple way individuals and the community can reduce their environmental impact while continuing to engage in the same social and cultural practices that are comfortable and familiar to them. However, the emphasis on the technology of energy-efficient home designs, solar panels, and hybrid cars was over-rated and often overshadowed one of the primary contributions ecovillage made to the green lifestyle—the opportunity to reduce the overall technology that residents need to consume, because of the design of their community.

In conclusion, while the green lifestyle focuses on the acquisition of green technology to support the desires of individuals to live more sustainably, the green lifestyle can also be a vehicle to effect real social and ecological change. Instead of a focus on green commodities, ecovillages can demonstrate the value of community in facilitating the reduction of commodities. Again, it is not principally the use of new green technologies that is contributing to the green lifestyle, but the cooperation and sharing of communal resources.

A green lifestyle, as modeled in the ecological cohousing movement, is faced with a challenge to become more inclusive and look beyond the simple consumption of commodities and expand to include the reduction of consumption. The sharing of resources, cars, laundry facilities, meal preparation, childcare, and books are just a few

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of the ways that the green lifestyle can be defined and duplicated. Instead of being a marker of class distinction, the green lifestyle can become a model that denotes our collective shift away from consumption as a means to affect environmental change. If the environmental crisis has been created in part by the over-consumption of commodities in the West, a model that offers a shift away from consumption would be a first step in reversing the current crisis. Ecovillages have the potential to be models for this cultural shift if they focus more on the things they do not consume and widen their social circle to become more inclusive.

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Sustainability and Ethics

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For the past several decades there has been a growing scientific consensus on the causes and effects of climate change. As time passes, and the already solid information mounts, a shift towards sustainability has emerged as the most sensible strategy to address the mounting climate crisis. But with two crucial questions confidently tackled (the veracity of climate change and the best strategy to address it) one last crucial question has yet to be answered – how should sustainable practices be implemented and who should be the implementers? Using a mix of Mill's and Bentham's utilitarianism, Rawls' Theory of Justice and both consequentialist and deontological ethics, this paper comes to the conclusion that the Northern industrial nations have ethical, legal and practical obligations to assist Southern developing nations build sustainable models of existence.

Keywords: Sustainability, Ethics, Utilitarianism, Environment, Politics

What is Sustainability?

Despite its wide use in academia and contemporary popular culture, there is still no consensus on the definition of *sustainability*. Peculiarly, it is simultaneously a precisely niche and ambiguously loaded term. In the western tradition,

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one of its earliest representations was in Thomas Malthus' 1798 work, *An Essay on the Principle of Population*. In it he explored the relationship between population and food production, ultimately warning that if trends in population growth continued, food production would not be adequate to meet sustenance needs - eventually leading to mass starvation and poverty. Although Malthus' fears did not come to fruition, he was one of the first to successfully provoke critical inquiry regarding the consequences of an unsustainable system.

Almost two centuries later the Brundtland Commission, formally known as the World Commission on Environment and Development (WCED), was created by the United Nations to explore ways to address growing concern regarding the environment, natural resources use and world economic and social development. Four years later the commission released their findings in a report titled *Our Common Future*, and because of this report the term 'sustainability' entered the academic and popular lexicon.

Defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43), *sustainability* automatically encompasses many areas of human affairs. For example, when discussing the sustainable development of a system, one could be addressing the problems of monocultural agriculture ("Monocultures Towards Sustainability," 2000), urban sprawl in city development (Diamantini and Zanon, 2000; Muñiz and Galindo, 2004), or increasing petroleum use in the face of peak oil (Hubbert, 1981). Since 'sustainable development' can speak to such a wide array of issues, it is prudent that any work proposing to deal with aspects of the term unequivocally define the areas of sustainability that it will address.

For our purposes, the governing rule of sustainability is as follows: perpetual economic growth is limited by two factors - the finite nature of natural resources and the depletion of 'non-marketed' environmental resources (Pezzy

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and Toman, 2005, p. 122), that is, resources that are not accounted for in the current economic system, such as biodiversity, water purity or air quality. The inclusion of these and other resources presently unaccounted for in standard economics is vital, as without them, the calculable worth of a biosphere is reduced to its 'market value' – a view that often leads to the degradation of our living environment, and could potentially compromise the survivability of life itself.

Adhering to this rule, if a growing economy is to ensure sustainably in regards to natural resource use, it has a number of options available. These include, but are not limited to, the building of, or conversion to renewable energy systems, utilization of raw materials at a rate that allows the original source sufficient time to replenish, reuse of previously harvested raw materials, and substituting less abundant manufacturing goods with those of greater abundance.

Turning to the sustainable use of non-marketed resources, from simple efficiency improvements to carbon sequestration, society has a range of technological solutions that can prevent and reverse damage. Technical solutions can also be supplemented by nontechnical offsetting methods such as carbon use taxes.

As in many aspects of life, finding balance is of utmost importance. This view is also applicable to national entities. For a country must be both materially and spiritually successful, as its citizenry will equally curse life whether they are monetarily impoverished in a pristine pastoral setting, or are wealthy, but plagued by a polluted environment. Therefore, in the interest of this paper, achieving equilibrium in both traditional (marketed) and non-marketed resource use will mean the subject under consideration can be viewed as meeting their present development needs without compromising the survivability of their future generations, or existing sustainably.

The Trend: GDP and Energy

Before we concern ourselves with proposed courses of action, and any ethical considerations regarding those actions, we must scout the landscape of our situation. Since the Industrial Revolution (IR), man has drastically increased consumption of natural resources and continues this trend in spite of the fundamental problem of economics: the unlimited nature of human wants is acting upon a finite source of natural resources (Cowie, 1998, p. 4). At the beginning of this period, GDP per capita exploded worldwide, introducing the means to act on the unlimited nature of human wants. Economists such as Salman Saif Ghouri (2006) have shown there are strong correlations between GDP and energy use, illustrating how that period significantly raised anthropogenic resource use worldwide.

Since that period, GDP and resource use have grown tremendously – notably within the developed nations. In 2006 the GDP of the United States was valued at 13,392.3 billion dollars (Bureau of Economic Analysis [BEA], 2007) and the next top industrial nations had GDPs ranging from 900 to 4,420 billion dollars (International Monetary Fund, 2006). It is true that there are numerous criticisms to the GDP as an indicator (Summers and Heston, 1995; Lequiller, 2005), but these rebuttals mainly focus on the GDPs failure to account for distribution of wealth within a country. Regardless of these criticisms, the correlation of GDP with resource use demonstrates a large increase in the capability of nations to convert energy into wealth.

The Trend: Mineral Use

Though it is quite apparent that industrialized societies require large amounts of energy to sustain living standards and economic health, little thought is paid to the necessity of

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“nonfuel minerals” which are also being utilized at unsustainable rates. Platinum, for example, is used in numerous industries and once its natural stores run out, there will be no way to replenish it (Cohen, 2007). Within the automotive industry one of the major uses of platinum is as an essential material for building catalytic converters which keep vehicle exhaust pollutants down to acceptable levels. It is detrimental that these converters be installed in all automotive vehicles, and with over 240 million registered vehicles in the United States alone (Federal Highway Administration [FHWA], 2006), it is easy to see how platinum has become an integral element in modern society.

Despite this importance, platinum is not recycled at a level that adequately meets the needs of demand (Cohen, 2007; Sibley et al., 2005) and numerous other elements of vital importance are showing signs of dwindling stores and unsustainable use. Some of these include indium (used for LCD displays), lead (used for pipes and batteries), and tantalum (used for cellular telephones and camera lenses). Because consumer economies produce vast quantities of goods, and most developed nations run consumer economies, each of the aforementioned resources are being used at an alarming rate. The end result of this hyper-use of these non-fuel materials is a steady march towards resource scarcity and increased cost of goods.

The Trend: Enough to Go Around?

As the industrialized nations continue to consume these dwindling stores of material, nations around the globe continue to increase their use of marketed and non-marketed resources. These trends can be seen in a number of post-communist “transition nations” such as the Ukraine (Vovk, 2003), but are most visible in Asia where several countries are quickly raising their standard of living. China’s unprecedented growth in infrastructure, economy and population (Menzie et

al. 2005, p. 35) is heavily reliant on highly polluting coal-fired power plants (Zhang and Wen, 2007) and is increasingly seen as heading down the same unsustainable path as the other industrial nations (Fang, et al., 2006). South Korea's newfound economic growth has increased their demand for raw materials (Menzie, et al., 2005, pp. 44-45), and India's "increasing incomes and rapid growth in population have led to much higher consumption of goods [resulting] in the generation of unmanageable quantities of solid waste," air pollution, soil erosion and energy insecurity (Pachauri, 2004, p. 706).

The Trend: Effects of Resource Use

Unequal distribution and accelerating resource scarcity are not the only issues concerning increasing worldwide resource use. The coal, oil, and natural gas that have been burned since the IR presently provide eighty percent of all energy used by humans in industry, agriculture, transportation, and residential and commercial buildings ("Scientific Expert Group (SEG)," 2007, p. 4). As a result of all of this anthropogenic fuel combustion more than ten percent of the amount of CO₂ that was in the atmosphere at the start of the IR is added into the current atmospheric system each year (SEG, 2007, p. 4).

Adding to this large influx of CO₂ are a host of additional greenhouse gasses (GHG) induced by human activities. Some of these substances include Methane (CH₄), Nitrous Oxide (N₂O) and Black Soot, each arguably negatively affecting the climate system (SEG, 2007, p. 17). And more importantly, because many of these GHGs have atmospheric lifetimes measured in decades (SEG, 2007, pp. 6-7), emissions of these substances have time to thoroughly mix in the atmosphere, ultimately creating *global* warming influences from *local* emissions (SEG, 2007, p. 9).

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Moreover, there is a growing consensus that the effects that these changes have enacted on the climate system hint at greater worldwide instabilities in the future (SEG, 2007, p. 12). Some of these observations include mountain glaciers retreating at an unprecedented extent, rises in oceanic and lower atmosphere temperatures, the shrinking of arctic sea ice in the summer, and an expansion in the area of summer melting on the Greenland Ice Sheet. Without some sort of action, the impending situation will be a formidable challenge for industrial and developing nations alike.

Ethical Theories and Considerations

Now that it is quite clear that continued unsustainable use of marketed and non-marketed resources will have daunting results, what actions should be taken to avert them, and who should be acting? In order to explore the ethical dimension of the sustainability challenge, I will begin by employing two competing theories of moral philosophy: deontological ethics (focused on the justness of action) and consequentialist ethics (focused on the justness of goals) (Dasgupta, 1990; MacDonald and Beck-Dudley, 1994). Of these two theories, the versions we will be concerned with are Kant's deontology and the pluralist view of consequentialism. Kant's deontological theory of ethics suggests that any action taken should "act only on that maxim which you can at the same time will to be a universal law" (Kant, 1948). And, the pluralistic view of consequentialism adheres to multiple concerns by taking into account the maximization of cumulative welfare in conjunction with the equal distribution of welfare (Barry, 1965). By combining certain features of these approaches to moral problems, we consider both the cumulative effects and the universalizability of policies that address sustainability issues. For example, moves to halt climate change and unsustainable resource use can be seen as satisfying both ethical theories. This is so because their

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intended end results are equitable and the means to achieve them can be universalizable.

In addition to Kant and the consequence-based views, Jeremy Bentham, John Stuart Mill, G. E. Moore and John Rawls' work on ethics are also quite useful. Firstly, Bentham and Mill's Utilitarian ethics provide a pragmatic framework for addressing the multitude of issues surrounding the sustainability problem. As their Principle of Utility states, the approval or disapproval of actions should be based on its ability to augment or diminish total happiness (Bentham, 1987, p. 65). By employing the Principle of Utility, we will have a touchstone to use when deciding what actions are favorable. Turning to G. E. Moore, in addition to determining whether an action and its outcome(s) can be seen as 'good', we must also determine whether an action can be seen as one's duty.

Reminiscent of the Utilitarian view, Moore states that a 'good' action is one that "will produce the greatest possible amount of good in the Universe" (Moore, 2004, p. 147) and goes on to say that the analysis of a reasonable amount of probable alternatives to an action is sufficient to determine whether it is good. As such, every action considered will focus on producing the greatest possible good for the greatest number of people, and all conclusions will have been weighed against all alternative scenarios deemed probable. Lastly, as the Rawls' thought experiment shows, behind a veil of ignorance, rational self-interested parties choose conditions of fair equality of opportunity over exclusivity and systems that benefit the least advantaged members of society over those that favor arbitrary segments. Highly integrated with his principles of redress (which states that breeches of the above outlined concept of Justice as Fairness), Rawls' Justice as Fairness will also be used to assess actions leading to sustainable practices.

Unfortunately, without employing the theories stated above, when considering who should be acting to mitigate the

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challenges caused by unsustainable practices, the simplest answer would be the developed *and* developing nations. But, as we will see, for practical, moral and legal reasons, the bulk of the action required will ultimately fall on the wealthy industrialized nations, that is, the countries of the North.

Capability

In addition to ethics, practicality should be considered when asking the question “who should act.” Do the developing nations (the Countries of the South) have the capability to act? Generally, these nations are not in a position to significantly address the issues of climate change and sustainable development because, in the Maslowian sense, their condition requires greater focus on basic needs. Typically, the South is “characterized by low average per capita income, low rates of literacy, low health status, low life expectancies, limited infrastructure, fragility of economic progress, high vulnerability to economic setbacks, lack of capital, large agricultural sectors and reliance on export of primary products” (Lancaster, 2001, p. 654).

In addition to these burdens, many developing countries also have to deal with the debilitating effects of disease, notably, massive AIDS infection rates (WHO, 2006). In 2006, the number of adults and children living with HIV in Sub-Saharan Africa was estimated at 24.7 million. In that same year, the Caribbean had 250 thousand cases, while Eastern Europe and Asia combined had 10.25 million cases (UNAIDS, 2006). Such high infection rates affect society in numerous ways, and in terms of resource allocation and productivity, is especially detrimental to a nation’s ability to address sustainability and climate change.

Pollution Source Distribution

Pollution source distribution is an important ethical factor to consider when determining who should act (worldwide CO₂ pollution from 1950 to 2003 is heavily concentrated in the developed nations and has increasingly grown since then). A notable aspect of this CO₂ pollution is its distribution, even within the north. In terms of the ratio of pollution to percentage of world's population, the United States emits over twenty two percent of greenhouse gasses, but only has five percent of the world's population (Brown, 2002, pp. 68). These and other studies (Miguez, 2002, p. 19) illustrate the unbalanced nature of pollution sources evoke Rawls' Justice as Fairness – and call for action through his Principle of Redress which states “undeserved inequalities call for redress; and since inequalities of birth and natural endowment are undeserved, these inequalities are to be somehow compensated for” (Rawls, 1999, p. 86).

Another contentious ethical issue is hazardous waste. Defined as “substances of objects which are disposed of or are intended to be disposed of or are required to be disposed of” by the provisions of national law (Basel Convention, Article 2 (1)), hazardous waste has increasingly been exported to developing countries due to the growing scarcity of disposal sites within the industrial North (Critharis, 1990, pp. 314; Anand, 2004, p. 63), and the comparatively low financial cost of dumping. From the United States, toxic waste totaling over 274 million tons have been found in Brazil, Haiti, Nigeria, South Africa and Zimbabwe and more US dumpsites have been planned across the developing South (Williams, 1991, p. 279; Anand, 2004, p. 63). Because of this continuous exporting of wastes that may be “explosive, flammable, poisonous, infectious, corrosive, or toxic (Anand, 2004, p. 61; see also Krueger, 1999), the developed nations have in effect, made the developing South the ‘industrial world’s trash bin’” (Williams, 1991, p. 280).

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This dumping of harmful waste in the developing nations solely to avoid the financial costs of properly dealing with the material is highly unethical. In addition to disregarding the Principle of Redress, it violates the Kantian universalizability criteria. Moreover, this dumping trend coupled with the lopsided nature of GHG pollution source distribution adds weight to the view that the North bears a great ethical responsibility to combat climate change and take a leadership role in correcting the problems for which it is the major cause.

Damage Source Distribution

Although the damages caused by climate change will be global, the distribution of this damage will not be even. A recent United Nations Environment Program Report stated that “the predicted impacts of climate change would probably exacerbate hunger and poverty around the world... people who are highly dependent on farming, fishing or forestry will well see their livelihoods destroyed... The poor would suffer the most because they have fewer options for responding to climate change” (Anand, 2004, p. 55; see also SEG, 2007, pp. 88-90).

There are numerous reasons why poor countries will be the most affected by climate change. As previously stated, the global South is heavily reliant on agriculture. Because of the changing climate conditions, their agricultural industries stand to be detrimentally affected (Cline, 2007) – in turn, adversely affecting their economies. The developing nations also “have the least resources to adapt and adjust” and, it is important to note that “poorer sections of any society have fewer resources to relocate if they are affected, to rebuild property if touched by the impact of climate change, to find new jobs, or to get health protection” (Anand, 2004, p. 55) . Conversely, The North can better deal with these changes because “the more affluent a person, community or country, the less likely it is that they would have to struggle for a fair share of resources

and protections” (Anand, 2004, p. 129; see also López, 2005, p. 264).

Looking at this set of data from a utilitarian standpoint, it is always wrong if one group, say, Group A, is put in a position where it finds itself paying for the actions of another - Group B. Even if the actions taken by Group A were not intended to harm Group B. Once again, Rawls’ Principle of Redress (Rawls, 1999, p. 86) demands that when the realities of the situation are learned, Group B is ethically compelled to assist Group A. In short, the realities of damage distribution demand justice for the South.

Legal Obligations

There are conventions, some legally binding, that support this ethical perspective. In 1974 the Organization for Economic Cooperation and Development (OECD), a group devoted to bring together the governments of countries “committed to democracy and the market economy” adopted the “polluter pays” principle. This principle states that polluters are responsible for bearing the subsequent costs incurred from the actions of their pollution. Though this guide was non-binding, it was intended to inform further environmental policies, which it ultimately did.

Under the United Nations Framework Convention on Climate Change (UNFCCC), the Northern signatories explicitly agreed that “the Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”

Because of rules laid out in the UNFCCC, the developed countries who signed the document actually have legal obligations to act against climate change, and by extension,

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for sustainability. These rules also adhere to the ideas of equity and the utilitarian maximization of good, and because of this, breaking these rules can not only be seen as illegal, but also as unethical.

What Ought We To Do?

What then should the nations of the North -the nations with the wealth and means to combat these problems- do? In the first section we addressed what sustainability is and attempted to impress its importance when addressing the current trends in development now playing out worldwide. Additionally, as shown above, the North enjoys the largest per capita GPD ratio, has access to most of the world's materials and is disproportionately responsible for the bulk of the world's pollution. Because of these facts, it is clear that the North has practical, ethical and in at least one case, legal responsibility to address sustainability and climate change. This assessment, coupled with the fact that, in general, the South does not have the economic, political or material force to adequately address this issue, bring us to the following conclusion: *In order to curb further greenhouse gas emissions, reverse the trend of hazardous waste generation (and export), curb further environmental damage, and ensure the survivability of the species, the industrialized North will need to convert to sustainable systems of marketed and non-marketed resource use. In conjunction with this act, the creation of sustainable infrastructures within the developing South should be fostered, as this will prevent conventional unsustainable infrastructures from being built there in the future.*

Indebted Responsibility

Because the terms North and South inherently lump together large groups of diverse nations (Anand, 2004, p. 1),

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pegging “The North” or “Industrial Nations” as *the* entity slated to carry out the specific actions that will be explored in this section becomes somewhat impractical. Rather than pursuing this course, we have identified the United States as the most practical choice for the initialization of these actions due to, what we will call its indebted responsibility – its inherited responsibility created by its accumulated debt from legal, practical and ethical obligations. This choice was made for a number of reasons. As explored in previous sections, the United States repeatedly held a disproportional responsibility in relation to the climate crisis: out of the North, the U.S. is the largest contributor of GHG per capita, and (via multinational corporations) is also responsible for notable amounts of hazardous waste generation and dumping. The U.S. is also an ideal choice as it commands vast amounts of resources and is currently the world’s only superpower.

Although the U.S. seems to be one of the best choices (in terms of indebted responsibility) to spearhead a sustainable movement, this does not mean that the task should be the sole responsibility of that nation, or a purely top-down venture. A great number of nations, many of them of the North, committed to the same ideals when they signed documents such as the UNFCCC and Rio Declarations, and as such, the global effort of sustainability should be addressed by the full force of these Northern nations. Furthermore, by expressing the will of local groups and enacting change from the inside out, grass-roots and community organizations will undoubtedly play a significant role in reversing unsustainable practices.

Addressing the Issue: A Moral Foreign Policy

Roles of individual groups aside, once the United States does decide to act, a formal address to the Developing South and the rest of the Industrial North outlining plans to convert to sustainable practices at home and assist abroad could go a

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long way towards jumpstarting worldwide sustainable development. Acknowledgement and accountability of past mistakes and a sincere conviction to equitably address sustainability and climate change should be key factors in an address of this nature.

Traditionally, the main business of foreign policy establishments is the protection of national interests and the avoidance of questions relating to global equity, yet the only sustainability and climate change solutions that can gather global support are those that are viewed as equitable (Brown, 2002 pp. 67 – 68; Anand, 2004, p. 55). An important case illustrating traditional foreign policy at work in the U.S. is the way the Kyoto protocol was handled in 1998. When the seven percent reduction in emissions was negotiated, the focus was on what was affordable to the United States rather than what the obligations of the U.S. were in relation to the developing world (Brown, 2002, p. 153). Because of such incidents the developing world has come to view the U.S. as a nation willing to utilize its political, economic and military power to avoid inherent obligations regarding its position as the world's largest GHG emitter. As a result, in order to achieve success in future negotiations, the United States will have to overcome this lack of trust (Brown, 2002, p. 71).

By piecing together a nation's current and past policy decisions, observers can arguably interpret their intentions and motivations (Cingranelli, 1993, p. 69). Because of this, clear shifts towards a transparent, moral environmental policy utilizing U.S. political and economic power, could begin to alleviate and ultimately reverse the current view of the United States. This "moral foreign policy" focused on environmental integrity and sustainability can be defined as "one in which the motives, intentions, dispositions, or traits of national character manifested in that policy are virtuous, right, and consistent with the responsibilities of leaders to their peoples and with one nation's responsibility to others" (Cingranelli, 1993, p. 3).

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An example of a policy shift with the power to change perceptions of the U.S. would be a U.S. lead push for a “comprehensive and enforceable multilateral treaty” aimed at “compel[ling] its domestically owned [and] controlled businesses to comply with U.S. environmental protection and resource conservation laws wherever they operate” (Neff, 1990, p. 174). By adopting this stance, U.S. businesses would no longer be able to dump toxic waste materials in foreign countries.

Another positive move the U.S. could make would be the calling for true democratic practices within the United Nations. Currently the U.N. Security Council and its five permanent members (The United States, China, France, the United Kingdom and the Russian Federation) are allowed to make the final decision on all important issues coming before the United Nations. “Decisions on substantive matters require nine votes, including the concurring votes of all five permanent members” (U.N.) and each permanent member has the power of a binding veto. Not only is this power distribution undemocratic, it negates the effectiveness of the body in matters regarding the global environment, world peace, the promotion of human rights, and the promotion of world economic development (Cingranelli, 1993, p. 12). Even if this action were unsuccessful, just making the attempt could help reverse negative perceptions of the U.S. and help promote a new policy framework based on sustainability and climate change mitigation.

Addressing the Issue: Acknowledgement as Accountability

Although the *act* of shifting from traditional foreign policies solely concerned with national interests to moral foreign policies concerned with equity has a high probability of assisting the U.S. with the remaking of its image (in turn, substantiating a campaign to globalize sustainability), without

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an *acknowledgement* of past trends the power of these acts may not be as potent.

In his book *Bloody Revenge*, Thomas Scheff views acknowledgement as a form of apology, and suggests that greater acknowledgement of human interdependence and less denial could have positive effects on some of the world's conflicts (Scheff, 1994; Govier, 2003, p. 65). As we have seen, through the eyes of many in the South, the prospects of accelerating climate change and the ongoing dumping of toxic materials by Northern industry has long term environmental and health implications and could therefore legitimately be seen as a continually developing conflict.

The philosopher Trudy Govier also examines what acknowledgement is and what role it plays in reconciliation. Defining acknowledgement as "a necessary condition of willingness to make restitution and commit to change," she shows how this tool has played a vital role in two nontraditional approaches to conflict resolution: South Africa's Truth and Reconciliation Commission and Canada's Royal Commission on Aboriginal Peoples. By acknowledging wrongdoing was done, these commissions publicly stated that their findings were factual, implying that some action must be taken in light of those facts (Govier, 2003, p. 65). These commissions also legitimized the suffering of the victims, restoring their dignity and giving them hope for a new future (Govier, 2003, pp. 65-69). In addition to being a necessary condition for change, Govier also shows how acknowledgement is a "fundamental stage in moral progress," and that through the act, the acknowledger is explicitly attaching the contents of the acknowledgement to themselves, as part of themselves, and as part of who they are (Govier, 2003, p. 71). A public acknowledgement by the U.S. of the harm that climate change has done, and the role that the U.S. has played in global warming would be a significant step towards legitimizing a new pro-sustainability leadership role for the U.S.

Keeping Promises

Building sustainable systems in developing nations would adhere to agreements made by the industrial nations at the United Nations Conference on Environment and Development in 1992 (United Nations Environment Programme), and the United Nations Framework Convention on Climate Change (UNFCCC). For example, the signers of the UNFCCC agreed to the notion that “developed country Parties should take the lead in combating climate change and the adverse effects thereof” (UNFCCC). In the case of the Rio Declarations, Northern signatories agreed that in order “to achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies” (Brown, 2002, p. 80, see also *United Nations Environment Programme: Rio Declarations* Principle 8).

Principle 7 of the *Rio Declaration* points out the special ethical duties that States have in promoting a sustainable agenda. This section makes it clear that “states shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit to sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command” (Brown, 2002, p. 80; see also *Rio United Nations Environment Programme: Rio Declarations* Principle 8)

Together, the bulk of commitments that the Industrial North has agreed to have, on paper, expressed a commitment to international environmental justice and sustainability. In reality, a number of these nations have positioned themselves

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against sustainability and *for* short-term profit via business-as-usual policies. By reversing this trend, the North would be addressing the moral question of broken promises and committing themselves to actions that would benefit the industrial and developing nations alike.

Simultaneously Attacking Climate Changing Practices Worldwide

In the Industrialized North, inaction against climate change has been the norm for the United States - the most influential power in regards to climate policy (Brown, 2002, p. 69). Because of their aforementioned inaction and influence, substantial progress in realizing an equitable, meaningful solution to sustainable development and climate change has been severely hampered.

The U.S.'s inaction rests on the argument that the developing world must make commitments to reduce GHG emissions before U.S. commitments can be made. For reasons previously stated, this is simply not feasible. Moreover, forcing developing nations into a situation where traditional forms of marketed and non-marketed resources are suddenly unusable (because of new climate change mitigation policies), and the creation of sustainable infrastructures is not practicable (because of the South's lack of expertise in the area and lack of capital), is tantamount to halting all possibility of their development.

The U.S. is the North's largest contributor to climate changing GHG and biggest exporter of toxic waste. By its inactivity, the U.S. has allowed catastrophic environmental changes to go unchecked, compromising the future wellbeing of the global community. Rather than stalling action, a North American attempt to address climate and sustainability issues could trigger collaborative action which would address climate change worldwide via sustainable development.

Conclusion

In order to promote sustainability worldwide and curb the trends outlined above, the North, preferably led by the United States, has a number of tasks to accomplish. And, at the heart of these tasks – from acknowledgement to the promotion of sustainable practices – there exists a fundamental ethical framework. Based on a mix of ethics from the Utilitarians and John Rawls, this ethical framework not only acknowledges the need to maximize happiness in human beings, but brings something more to the table.

Firstly, it drops the *rationale* which ultimately created the tarnished image that the North so desperately needs to discard the view of “nature as capital”, anthropocentrism, and the “imperial cosmologies” (Lenten, 2006). Secondly, through the intersection of the Utilitarian maximization of good, Moore’s emphasis on the calculation of not just one, but a number of probable scenarios, and Rawl’s obligation to future generations, this new framework ultimately embraces the idea that solely concerning ourselves with sentient beings will not ensure an optimization of good in the future. By incorporating the well being of non-sentient objects, such as oceans, rivers, and forests, we, by extension, incorporate the well being of not only human beings, but all other non-human animals that rely on these interacting systems of inanimate matter.

Though in order for these ethical views to take root, they require a determined shift in perception on the part of the North, it is important to remember that “morality and ethics have to do with the tension between the way the world is and the way it ought to be” (Brown, 2006). When business ethics began its rise in 1974 (Bowie, 1986), many viewed it as a fad or an oxymoron (De George, 2007), but the field persisted, making it clear that self-interest should not be the sole factor for motivation (Pava, 1998). Since then views have steadily shifted, and it has even been stated that “rational agents approach being psychopathic when their interests are solely in

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benefits to themselves” (Rawls, 1993, p. 51). Essentially, we have the right and obligation to tease out the scenarios that *should* be – especially since these may act as guides to proper future action.

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