インターネットとその可能性

The Internet and Its Related Issues

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The purpose of this essay is to browse through the issues that are tied to the Internet. I will mainly concern myself with the sources that are actually posted on the Internet. You may object to my methodology, claiming that limiting myself within the confines of the Internet, my view and insight will automatically be restricted by the boundaries that inevitably result from such narrow confinement of my view. That is a rather tautological criticism. However, I admit that at the same time that criticism is justified because my view and insight that will result from my excursion through the Internet will be in a way tautological because after all the conclusions I draw from the data I collect will be the kind that is based on the information that is contained within that limited domain. Just as the Shuttle has to shake off the strong pull of the gravity in order to fly out of the earth's atmosphere, no attempt to attain an objective that is based on the elements that constitute the final objective is going to be easy. The deliberate confinement of my view within the Internet in order to come up with some comprehensive and insightful view on it will likely be very difficult. But despite the limitations placed on my attempt, I will dare to delve into the world that is lately exploding with life and ideas born of restless brains who willingly throw themselves into the rarefied air of cyberspace. Indeed cyberspace is growing exponentially lately. Simply to gather one millionth of all the data that is contained in that invisible world will be a daunting task. Suffice it to say that even circumscribing my view within that cyber confines would be a fortuitous event that I thankfully accept as almost beyond my humble fortune. Had I been born in an age when even the word Internet had been unheard of, the luck of wallowing in the plethora of information, albeit some of it is admittedly worthless, would have been impossible. I would have been compelled to lock myself up among books in a conventional library trying to locate the books out of the dust heap of books arranged according to a classification system which often is not a system at all but a labyrinthine network of codes to get the readers lost in the nebula of arcane signposts. Before I myself get lost in the breathy harangue on the disadvantages of utilizing the conventional method to attain understanding on the Internet, let me visit an actual site to see what information I can cull and what

intellectual building blocks I can derive from the information contained on the site. That may be an appropriate beginning for an essay that is not teleologically dictated.

As a starter I visited a site sponsored by Harvard, http://cybercon98.harvard.edu/asp/splash.asp. (Although the URL of the site contains the name harvard, I may not be held accountable for misattributing the site sponsor.) The site contains some insightful discussion held at the university and simultaneously throws questions at the audience to more deeply consider the implications of the Internet. The first article I happened to click on was about the scale of change the development of the Internet technology is bringing about. One of the prominent speakers who were invited to the forum, America Online's Stephen Case, compares the significance of the Internet to that of, implicitly that is, the Industrial Revolution that took place in Europe and then swept across the globe in the ensuing years. Needless to say occurring in entirely different timeframes the two phenomena are essentially disparate and heterogeneous but in their implications and the entailing influences both of them had they may indeed be comparable. Although both Case and another keynote speaker Ira Magaziner limit the consequences of the Internet to North America, particularly the United States, they are merely limiting the scope of their topic to that particular geo-industrial area. That is by no means to be regarded as excluding the global communities, which are similarly affected by the Internet technology. In any case, the view of the two is focused on the problem of the sustainability of the autonomy the Internet has so far enjoyed but recently becoming more and more difficult to maintain. Case's speech is a response of an industrial who is in a position to defend the environment in which the Internet is guaranteed to grow at the rate it has been growing and hopefully even at an accelerated rate as the competitions grow to vie for inventing new technologies to make the Internet environment even more effective. But before such "healthy growth" is made possible for the Internet, Case points out, the issue involving the proper use of the Intent becomes moot. Without being able to arrive at a certain degree of consensus on the role and function of the new medium the healthy growth he and others in the industry envision would not be possible.

Then what constitutes the proper boundaries of the realm of the Internet in which in can exercise the maximum autonomy? That is a difficult question. That is why so many discussions are cropping up recently concerning the advantages and disadvantages of the computer age mode of distributing information. Especially concerning the Internet users' rights that tend to be affected by the contents that are put on the Internet. It is exactly in that kind of public sphere that Case and others see an opportunity to project their opinions to keep the dangerously restrictive view on the

use of the Internet from prevailing. The reason for their worries is not far to seek. If harmful materials can be so easily put on and be derived from the Internet for anyone who has a computer logged onto the Internet, then the opposition to the freewheeling circulation of information through the Internet could easily gather steam as days go by. That is why Case immediately plunges to engage the issue by stating, "How we choose to use it -- or not use it -- will make the difference." (http://www.news.harvard.edu/net_news/) Here Case is simply reiterating his fundamental premise of the computer age communication. The Internet is here to stay and is a force to be accounted for. No matter what the detractors of the new technology might say the president of AOL does not have the slightest doubt as to the role and the significance the Internet and its concomitant technologies possess for the present and future phases of human history. His and another key speaker's reference to the new technology's resemblance to the Industrial Revolution in its significance and extensiveness in their infiltration into people's lives, reflexively attests to the implicit fact that these speakers are there at the conference to advocate and advance the new technology despite its detractors who are growing in number as the technology becomes more entrenched. As an experienced business leader who has been on the cutting edge of technological development he does not simply foist his own ideas on others and have his own way one-sidedly. In fact he admits the responsibilities the new technology incurs on the people who present it to the public for use. Case remarks that "unlimited possibility brings with it a certain obligation." That is a rather humble admission coming from the all powerful executive of America Online. But his logic is that all the responsibilities result because the Internet is burdened with the role of playing leadership. Suddenly his premise is evident before the audience. He is there to reassert the influence it has and will have on the people's lives, regardless of their position in society. How can he be so arrogant? But seeing the ubiquity and commonality of the technology in question he is no doubt encouraged to take that stance. But he is prepared to offer the services that are deemed quite pro-social, pro-people, as it were. He mentions that the real potentials for the Internet, besides its value as a channel for entertainment lie in its power to disseminate maximum amount of information and thus somehow equalizing the opportunities the people of the global community have. Case in other words emphasizes the Internet's democratizing possibility as it draws more people into a sphere where all the useful data and information are merely a click away from any one, that is any one connected to the Internet. His allusion to the enfranchising of the so far disenfranchised, clearly exemplifies this democratizing aspiration Case holds for the new medium. Then

Magaziner takes the words out Case's mouth when he says that "The Internet has the potential to spread democracy and education." However, how about the issues concerning the negative effects of the Internet? As senior adviser to President Clinton Magaziner has to bring in the question of the regulatory oversight to prevent the harmful materials from invading average homes. He needless to say is expected to play a counterpoint to the industrialist's approach to the Internet that is represented by Case. But he is not merely a devil's advocate, opposing the libertarian, laissez-faire view expressed by Case and positing a government body which oversees the Internet. On the contrary, he admits the need for the new technology to grow without government interference. "Governments need to withdraw. In the digital economy, things move too fast, and are too flexible. Governments are, by their very nature, too slow and too inflexible." In so many few words Magaziner extracts the essence of the new technology. It is the flexibility and autonomy that constitutes the lifeblood of the new technology. As he admits the new medium is too flexible for a regulatory body to but in. It needs to have its own life unfettered by a dictating organ to check its course. The way to survive in the rapidly changing modern world is not trying to arbitrarily modify and dictate the democratic voices represented by the Internet but to reconcile with it and live with it harmoniously. Magaziner remarks that the success of modern society is likely to lie in the degree to which it culls useful information from the Internet rather than reject and circumscribe it. That in other words is to coexist with it and learn to make ourselves compatible with the new technology. Those who fail to adopt to the new technology will inevitably lose, Magaziner points out. Most evidently lose economically. "Those that understand the Internet -- and adjust their social and economic paradigms -- will benefit economically, while those that do not will be left behind economically." Then the question arises again concerning the potentially malign influences of the Internet. Although the Internet cannot brook the stifling regulation, it cannot exactly maintain a healthy environment if it is completely left to itself. There needs to be an entity that somehow guides the new technology through the treacherous cyberspace into the twenty-first century. Magaziner's hesitation to involve the government in this issue is understandable. Since she admittedly stated that the new technology preferably needs an environment in which it can evolve freely (probably with the exception of the market forces), she cannot easily propose an organ that satisfactorily solve the problems that arise when the two camps on the issue of the Internet confront and find the current state unsatisfactory. Then rather sounding paradoxical, Magaziner intones the needs for a private organ, not a government entity, that oversees the cyberspace in order to help maintain the healthy environment

everyone interested can come to agree upon. It is actually an offer to the industry, which stands to benefit enormously from the "healthy growth" of the Internet. At the moment when Magaziner broaches the subject of a privately funded and run organization which is to keep a watchful eye on the Internet, he essentially creates a space in which Case can project his and the Internet industry's interest into the discussion of the evolution and development of the Internet. In other words, the health of the Industry is instantaneously translated into an issue of coexistence between the industry and the government, or more properly the perfect infiltration of the industry into the population in the name of democratization. Of course the discussion remains on the level where they, the people participating in the conference, purportedly focus on the proper utilization of the technology and the ramification and propagation of the information through that medium. It is at that moment that the benefits and problems implicit in the technology most prominently surface. When the Internet is touted as the technology of the next century and the inevitable evolution of the modus operandi of human communication, that kind of speech concomitantly garbles the possibility and even the reality that information rendered through that medium is inextricably spliced into commercial messages so that the two become indistinguishable. The many of the sites on the Internet that put all kinds of contents are not merely there to charitably provide pure and unadulterated information that are intended to be auxiliary to someone's education. Not so, as any one who has surfed the web must know. Most of the sites are there because they want to convince people through insinuation and pseudo knowledge dangled before the visitors and disguised as genuine information that what is offered on the site is nothing but trustworthy. When products are presented before the visitors' eyes through the rhetoric of authentic communication, then the visitors all too readily lay down their defense which they usually put up under different circumstances such as when they are watching commercials on TV and reading ads on newspapers. That is why Case sounds a little ominous and at the same time suspicious when he proposes to leave the Internet governance essentially to the discretion of each providers. Since under such conditions big providers tend to assume more dominant roles in dictating the protocol of good conduct on the internet, the proposal of the CEO of America Online cannot be taken but ultimately self-serving. Under the discretionary enforcement of the Net moral, according to the AOL president, two camps confronting over the issue of the Internet could be brought harmoniously together. He cites that privacy on the Internet would be guaranteed and morality would also be safeguarded as each provider would be compelled to police the sites under its jurisdiction, for not abiding by the protocol agreed upon would be self-destructive.

There are enough groups who are on the watch to seize an opportunity to pounce on the practitioners of the new technology. So, what Case envisions is a voluntary system in which each provider is responsible for the preservation of a healthy cyber environment. But that in a way leaves the final say to the consumers to decide which site is worthy of visiting and which not. After all there are so many sites on the Internet and the number is virtually unfixable as sites imperceptibly appear and disappear without a moment's notice. Under such conditions who can seriously think of really enforcing the code of conduct, as it were, and expects the content creators to abide by it? That is a wishful thinking. That is why, Magaziner concedes, each consumer takes upon the responsibility to safeguard themselves, although he takes a different tack. He says the choice "empowers the consumer to protect themselves." That is a rather optimistic take on the issue. No doubt he expresses his doubt soon after, pointing out that "We don't know if it is going to work, but it is a first step." That is a modest proposition at most. But the issue involving the use of the Internet is rife with uncertainties and expectations. The fact that it has been developing without any government oversight has created a state in which all sorts of ideas crisscross. For the industry representatives the Internet age is indeed a great opportunity comparable to the time when TV was first introduced. Listen to Case's optimism.

> AOL's upcoming online town meetings . . .are some examples of the Internet's potential to re-engage people in the democratic process, much the way television did in the 60's.
>
> It gives a voice to individuals, and it's not just from the top down . . .. People can educate themselves and liberate each other. They say Nixon won on radio and Kennedy won on TV. I often wonder, who would have won on the Internet? (http://www.news.harvard.edu/net_news/)

As TV offered all sorts of possibilities and opportunities that had been unthinkable before its advent, then the Internet can create a new future by shaping it into a mold that suits the public most. That is essentially his argument. But the question still lingers as the interest of the industry flickers onto the foreground when the chairman of AOL pseudo-convincingly tries to spread the "good message."

Compared to Case's speech, the next observation coming out of the mouth of a lay person is refreshing in its purity and possibly lack of ulterior motives. Laura Ferguson reports the important function the Internet is already playing in the field of very practical knowledge and operations. (http://www.news.harvard.edu/net_news/) She is in other words focused on the areas the Internet is actually transformation the world and making a real difference in the people's lives. She mentions the patients

"who can use the Internet for researching health questions" and school children who can access the vast reservoir of information just at the click of a button, and villagers in the remote areas of Brazil who can browse through stacks of books in the virtual libraries which had been unimaginable heretofore. The panelists she follows are focused on the potential of the Internet that allows the people who can merely have the access to the vast sources of information laid out in cyberspace can now have the real opportunity to change the way they live their daily lives by improving themselves and learning the things they imagined would be impossible before. The point they make is that cyberspace is good not only for shopping but also learning: "Internet can evolve into a communal space and not merely a shopping mall." But in order to arrive at the solid ground on which to work out the realistic goals to lay out the optimistic possibilities envisioned by the gung-ho Internet proponents is to let opposing views to clash and opposing camps fight out until the bare minimum presumptions on which the workable ideas emerge. That is indeed the purpose of the moderator Charles Nesson, director, Berman Center for Internet and Society at Harvard Law School. He throws a dire image of the future when the spirit of the ardent Internet proponents has shriveled into a downcast despair and people deplore, "Where has the good spirit of the 1998 Internet gone?" But this terrifying supposition immediately draws a reflexive argument to the contrary from John Perry Barlow, co-founder and co-chair of the Electronic Frontier Education. Barlow simply excludes the possibility of the concept of the Internet failing so miserably a quarter century later. With its open architecture, which allows equal opportunities to anyone willing to access the information on the Internet, it must necessarily thrive. Barlow brings in the argument of democracy as the natural premise on which the Internet not only survives but becomes part and parcel of people's lives. After all, he goes, the Internet is constituted of "a democracy of ideas." Once you accept that all American concept the open architecture cannot not thrive, just as the United States cannot not dominate the world for years to come. However, Barbara Samson of Samson Lifeworks, an educational consulting company, counters Barlow's optimism with the ominous scenes that are developing in schools. it is true that the Internet is touted as a great educational tool and in fact has been introduced to the educational scene for some time now. But she notes that there is a force at work which keeps the full potential delineated by the industry people from being translated into actually improving the quality of public education. She cites apathy and inertia as the main culprit for the stagnant educational environment that dominates the public school system. People who are in a position to reform the system and make access to digital information more readily available are not ardent enough to push the move forward

until it is realized. If the politicians and administrators are stricken with such apathy, Samson notes, the teachers who are directly concerned with children's education do not feel any more motivated. Where there is no means to facilitate their work, motivation to improve the quality of education does not occur easily. Thus the phenomenon we are seeing where teachers are really tired and discouraged. As with the fall of communism and its aftermath, where there is not enough economic basis to support people's aspirations, any lofty ideals fail. That is a sad reality.

Then the panel goes on to the issue of building a community on the Internet. It is a somehow realized reality that people can buy and sell and shop in malls created on the Internet. As a matter of fact, the government officials of most industrialized countries have been engaged in a serious discussion of whether to regulate the flow of goods online for quite some time now. Just recently in the United States they just decided to let the Internet commerce go on at the current rate for the next few years without any government interference in the form of the taxes applicable to any goods traded through other conventional means. But the panelists wonder if commerce is the only major potential for the Internet. Or are there other possibilities that are evolving in cyberspace as more people traffic in it? Then the words come out from the people at the conference that should it not be more like communion of the participants that is to be developed in the new domain. In this context Larry Harvey, director of the Burning Man, an annual event during which hundreds of people build an entire community in the desert over the course of seven days, throws a comment tantamount to a contrite reflection on the way the Internet has been used. He points out that the mistake we have made is that "We mistook the tools for the task . . . . We didn't use [the Internet] to create community." He emphasizes that the task of the Internet should be rather creating "a community where people feel they are individuals but that they also belong to something greater than themselves." It is a rather lofty goal which at this stage is not quite certain if it will come true. But at least the manifesto-like remark by Harvey indicates one strand of possibility that the Internet can be directed to pick up and follow through. After the Internet was launched as a sphere where military information and research data could be freely exchanged, it grew more as a marketplace in which all sorts of enterprising commercial interests vie for establishing their names and attract potential customers. In light of that Harvey's call for back to communion rings more like a move to return to the original uses for which the Internet was initially developed. But while the initial stage of the Internet was conceived mostly as a buffer against the total collapse of the reservoir of crucial data essential for national security, the sense of communion as implied by Harvey was deficient at that initial phase. So, the call made

by him to establish a sphere in which people freely participate and create a community is an idea arrived at as a result of the preliminary stages of the evolution the Internet has gone through. Thus the tone that Harvey exudes is quite new and proactive. The call for creating community on the Internet by Harvey also provides other new insights into the potentials of cyberspace. He observes that rather than delivering on the promises he sees the Internet offered since its inception, it has not quite successful so far in attaining and shaping the site of interchanging ideas and information in the true sense of the word. The importance that concept holds for Harvey is mostly manifested in the manner in which the Internet lets each participant have this sense of belonging to a corpus that is much greater than each individual. Surprisingly, in a sudden reversal of perspective Harvey grabs the computer skeptics by the neck and delivers a convincing blow by overturning the argument the former have been using against the proponents like Harvey for as long as the computers have held its current status. What if Harvey's argument is really more winnable and convincing and computers do open up communities in which the users can develop sites of exchanging their views and most importantly develop sense of belong? What if the computers connected to the Internet could indeed open up doors to a world that has been undreamed of, at least by those skeptics, of creating a vaster community in which each participant really feels free to express their ideas because after all they can remain perfectly anonymous if they so choose? That kind of setup could bring back the days of direct democracy that had developed in ancient Greece. Of course the democracy that could potentially be enabled by computers is not a throwback to the system of the old days. After all not everyone had their own say in the old system, despite its English nomenclature "direct democracy." Those who had the right to participate and express their views were only a handful few of the cream of society. No such unfairness would exist in the democracy that occurs on the Internet, at least theoretically. Whoever has the means and knowledge to operate the computer and project their voice into cyberspace has the choice to form and partake of the communion envisioned by Harvey. In any case that is an admirable objective regardless of its viability. But we cannot simply concentrate on Internet's idealistic side if we want to delve into its ramifications and impacts on society.

Before long the panelists are confronted with the reality that seeking the idealistic community through the Internet is indeed linked to another issue of how much commerce is contributive to the creation of the forum that is good for all the people concerned. It is in other words a realization that in order to arrive at the perfect state compromise is a norm expected of all the parties who have entrenched

interest in the development of the Internet. Representing the side of the business, John Hagel III, Principal with McKinsey & Co., pushes the agenda of the commercial sector in this confrontation over the question of the Internet. He maintains that the active commerce, rather than contaminating the cyber environment with the mean-spirited commercialism, will accelerate the development of the technology needed to advance the communications through the Internet. That may be true. Because part of the reason why so many software have been already in the market is that those company hurried to come up with the technology demanded by the market. Needless to say their objective is the bottom line. In return for the technology and the most advanced means to get each party to be engaged through the new channel of communication, they accumulated huge profits. It is the concept of synergy that has been at work. (In this light, the recent merger talk between Netscape and AOL is just another manifestation of this trend that has been prevalent for a long time in real and virtual worlds. After all the marketplace works in a manner in which all companies converge or diverge as the flow of cash dictates.) Both the companies and the technology developers who are in a position to gain from the opening up and development of the new venue of communication and businesses stimulated each other to realize the Internet age that we are seeing today. In fact the dominance of commercial interests on the Internet is so extensive that one panelist points out that "It is unrealistic and not helpful . . . to try to draw a line between corporations, education, and so on." Indeed the comment the panelist just made has such vast implications that anyone who attempts to cleanse the Internet environment of the commercial influence completely will have a difficult time accomplishing his objective. Most of the readers who are browsing though this essay may have visited the web sites at least once. If indeed I am not that widely off the mark, then you can easily imagine a situation in which you are eagerly after a piece of information you are sure you can find in the complex network of the Web. After the initial trial and error you have found the page that sounds exactly the kind you want to bury yourself in. Then you dig in deeper and deeper, feeling confident that what you are looking at is pure and unadulterated information. But before long you realize somehow each phrase and link often do not exist for their own sake but for something exterior to themselves. That is, more often than not, they urge the visitor to go on to the advertisement section of the site or to the sites that are sponsored by some corporations to sell their products and ideas. Before long the reader finds himself in the midst of a barrage of infomercials that cannot be easily separated from pure information. Then it dawns on you that even the supposedly pure information begin to look tainted by the business interest. You get confused and

do not know if what you have been reading is indeed nothing but advertisement. Well, that is a pure supposition but how familiar the whole thing sounds. You may agree with me without much encouragement. This muddled line between pure information and commercials create an undesirable environment for the Web surfers who, faced with such uncertain reality, may readily be tempted to consider cyberspace as a place filled with treacheries and hypes. No wonder so many people have given up on taking the Internet seriously. Even some content providers deem it merely as a place where what they offer on their site does not amount to much. Unfortunately, that kind of attitude is contagious. Even the supposedly serious sites maintained by universities and other public institutions become somehow devaluated simply because of their coexistence with other infomercial orientated sites in cyberspace. It is like the reputation of a person becoming tainted because he happens to live in the neighborhood where all sorts of disreputable houses are located.

Given the prevailing skepticism many people who reside in and outside cyberspace manifest, hopes manifested by a person like Dr. Warner Slack, of the Center for Clinical Computing, Beth Israel/New England Deaconess Medical Center, is definitely encouraging. He is hopeful that one day when the network has become better established and accessibility more easy, patients will be truly empowered to choose their own destiny by finding out what is really ailing them with the ready access they will have to the vast source of medical information on the Internet. That would solve many of the patient-doctor relations which is now often lopsided, with doctor playing a paternal role that sets off all kinds of undesirable reactions from his patient. Dr. Warner Slack thinks that people use computers in a way so that they are relegated to mere number crunching roles. Number crunching may be a honorable role since the computer has been invented to essentially keep track of the complicated data. But there should be other roles for the complicated machine like computers. Dr. slack would certainly like to see other potentials the computer holds to fully develop. He envisions the day when "The Internet can become a kind of interactive Benjamin Spock." When the flow of information is truly bi-directional (after all the patients have to feed the data needed to draw appropriate response from the computers), then they will easily assume, Dr. Slack hopes, "more responsibility for their medical care and decisions." That will be really a more desirable world than the one we currently live in. I for one wish to see it come true. But what will happen to the workers who are in a position to be threatened by such interactive computers? Dr. Slack answers that even under such optimal conditions computers will merely play an auxiliary role and will by no means threaten the positions currently held by medical employees. But if such

redundancies arose, he adds, that would not become much of an issue because those workers would be anyway forced out of the job market sooner or later. That is a rather pragmatic view, I would say. When such stage of interactive computers has been reached people in the managerial positions would have to confront much opposition from people whose lifeline is threatened to be severed. Despite the feasibility of networking the flow of information, I have to concede that the total vision expressed by Dr. Slack is an admirable one.

Then the panelists come to an interesting but also inevitable topic of whether the internet resources are truly equally distributed. Since the premise of most of the proponents of the Internet technology is that it gives access to anyone who has the means and wherewithal to log onto the Net, the issue redounds to the same question: Who has those means and wherewithal to purchase the hardware necessary to be engaged in cyber activity? Without that consideration the ideals expressed by Dr. Slack and Harvey will just remain as that. Weaving dreams in air and not preparing the infrastructure to realize them is not the way to utilize and develop the new technology. Appropriately a point is made by Max Gonçalves, CEO of the Brazil-based FENASOFT that those who are in an privileged environment like those advocates who maintain the supremacy and almightiness of the Internet may be hurrying things a little too much. In their haste to move onto the next phase of the digital communications evolution they may be smoothing over the complexities and conflicts that to the view of a person, who is versed in the conditions of the economically disadvantaged countries or even areas within a country, are such serious obstacles to even beginning to start comprehending the magnitude of change the Internet is creating. After all without economic means, people are more prone to confront the immediate concerns like food and, in most cases in the third world, bare survival. If you ask about the hopes the new technology holds for the people in developing countries, Gonçalves observes, they would rather talk about "food and survival," and if you insist, "they will roll [you] down the hill." The situation is that desperate in developing countries. If you want to establish what Gonçalves calls the commons (as in Boston commons), you need to involve the majority of the world population. If anyone indeed pursues the line adumbrated by all the lofty ideas to establish a community in cyberspace where all kinds of free exchange of opinions and ideas take place, then you cannot afford to leave out those people who are currently isolated from the rest of the more technologically advanced communities. But when Gonçalves ponders the problem of infrastructure and lack of the hardware to allow those people access to the Internet, he cannot help but cast doubt on the wisdom of discussing the development of the Internet that is confined

only to the industrialized and relatively well-off countries like the US. He insists that the talk of the digital age should include the population who are really suffering in the third world countries and who have barely enough money to survive. The approach, which he calls broadening the availability of the advanced communications technology as opposed to accelerating and intensifying the concentration of the use of the advanced means of distributing information, has to be taken more seriously, he maintains if the Internet is to become truly global. If the industry interests do not cooperate and try hard to bring those left out populations of the world, then the development of the sort hoped by some of the panelists will not materialize. After all, Gonçalves repeats himself, "They are the greatest majority in the world."

But what about the situation on the home front? asks another panelist. Especially in schools where the Internet is supposed to play a major role in improving students' learning environment and uplifting their achievement. What bothers educators like Caroline Hunter, teacher at the Cambridge Rindge and Latin School and advocate for public education reforms, is that while the huge investments the governments, both local and federal, are making on creating the digitized environment the impact it is presumed to have on the students is still uncertain. A recent study conducted by a high school teacher who has been engaged in computer learning suggests that utilizing the Internet to help students learn new subjects is not necessarily conducive to better achievement. On the contrary, she suggests, in some cases the students tend to become more passive as they begin to expect the computers do most of the chores and even thinking for them, which in a conventional learning environment they had no had no way of circumventing. There are in fact many studies that indicates the effect of the Internet on the students contrary to what most people are informed to believe by the media. It is certainly to the lopsided benefit of the large corporations that have vested interest in keeping the people's expectations about the Internet high to tone down the opposite observations to those expressed and represented by the business interest. Needless to say their bottom line is inflow of cash in their way. When the skeptics of the Internet assume ascendancy then the new technology touted to be the thing to believe in for the next millenium begins to lose the edge it now has with many people, including those in the government. The last thing the industry people want now is to dampen the gung-ho spirit it has long labored to create among the policy makers. The government is pouring millions of dollars in revamping the computer networks where it has already existed and introducing the hardware infrastructure where it has not. The rate of investment in the telecommunications sector is so rapid and large that the murmurings of the doubters

are quietly gathering to the point that even the majorities on this issue had to lend their ears even just to assuage their concerns. One of the panelist's opinion ties to this tide of public discussion as she expresses the problem the networking of schools is creating in American. She mentions that even though the introduction and renovation of the computer equipment in schools is supposed to benefit the students in many ways, the reality is that many of them feel just left out. It is a phenomenon that duplicates the problems we are seeing in real life. Instead of gathering all the students into a wonderful opportunity the Internet promises, it is developing this nasty tendency to exclude many of them. It is the exact copy of the dichotomy between the haves and have-nots. That may reflect simply the degree by which each student feels comfortable with the new technology, thus inducing those who are more versed in, or rather familiar with the Internet, with more psychological advantage to utilize the sources only mouse clicks' away. But the fact is that what an educator like Hunter is seeing in real educational scenes is that many students are simply being alienated from the educational opportunities all the more as the government dumps more computer equipment with the sole purpose, reputedly, of bringing the students, especially those who are economically and socially disadvantaged, into the magical world called cyberspace. Unfortunately, what Hunter points out is all too familiar. Even many students, I would say a majority of them, cannot take advantage of the new technology which the Ministry of Education valiantly forked over to us. The result of just keeping the expensive hardware lined up in crowded computer labs is that the equipment stands underutilized and quite often out of order because of the random tampering the students leave on the machines as a gratuitous record of their having touched the computer. Regrettably many of them are reduced to useless wrecks even before they have performed any real work, which they could have as a very crucial link to the world full of informational treasure. That is another lesson voiced by Hunter. The students needs to get in touch with the new technology not only in school but at home if they really want to take advantage of the Internet technology. Unfortunately, the whole thing is a vicious circle that is hard to break. The students cannot own a computer because they do not have enough economic means. Because they do not own a computer they cannot utilize the equipment the school gets as a grant from the government. Because they cannot, they feel alienated from the great opportunities that are available only if they could knock and open the door to the wonderful cyberspace. Because the reality is as such the new type of education that takes advantage of the new technology seems to be futile and even less promising than the conventional ones which do not depend so much on the new technology. In that kind of

educational environment, at least the line separating the haves and have-nots does not manifest so glaringly. At least so maintains Hunter and many of her ilk. This is an argument that could go on forever. It is so complicated that I think I had better leave the panelists to fight it out until they come to some point of agreement, if that is possible. But in the meantime, let me go on to other pages to see what kind of topics and issues are addressed by those who are concerned with the development of the Internet.

Since I have been more or less concerned with the issues and implications of the Internet which have relevance on its applicability in the educational scenes, I browsed through the list of links that appeared in the portal to see what sort of questions are moot lately. Then I came upon a forum that was held in Geneva Switzerland in July, 1998 (http://www.isoc.org/inet98/reports.shtml). Although the dates indicated o the site may be not quite up to date in this age of the daily upgraded information in cyberspace, I nonetheless decided to grapple with some of the topics expressed there. First, in the section entitled "Teaching and Learning" I found four presentations transcribed by the local volunteers to summarize the gist of the speeches made during the four day conference. The first person listed, a Swedish educational administrator, addresses or rather explains the situation involving the use of the Internet in that country. Johan Groith <johan.groth@gogab.se> (http://www.pi.se/gogab/index-eng.html) from the National Agency for Education and ISOC-SE describes the degree of the flow of information that is available through he digitized media. Initially, he reports, "material approach" and the "content driven approach" have been weighted each for its own merit to maximize the service provided through that means. But whatever that means, it sounds like the initial stage of the Swedish educational system is embroiled in the issue of determining what aspect of the provision of information, or rather presentation of data via the Internet to emphasize. That is not unusual for a fledgling service to consider. As I take it, the issue seems to focus on the efficiency with which the users actually absorb and utilize the information that resides in cyberspace. If the contents are to be emphasized some amount of vehicular aspect through which the contents are wrapped up and transferred to the end users will have to be sacrificed. After all not all the package and contents will be carried through the Internet without impacting the manner in which the end users actually avail of the information that reaches them. Seeing that the site maintained by the Swedish Schoolnet gets 6000 hits a day, the project initiated by the original planners is apparently a success as the site arouses enough interest and activities by engaging the teachers in the questions and topics posted on the site.

The second entry is a report by J. Mark Pullen <mpullen@gmu.edu> from the George Mason University (USA). He essentially focuses on the question of distance learning that takes into consideration the distinct possibilities of the synchronous and asynchronous study media. He defines the synchronous media as text, audio, graphics, various files, video that can be distributed at the same time. (By at the same time, I understand simultaneous to all the people targeted by those media.) Opposed to this concept is asynchronous. By this he means email, web and ftp. That is all the media and their contents that can be accessed at different times by the targeted population whenever that is convenient for them. Pullen's point is that by combining these two opposite approaches the teachers can create an ideal environment in which he students can learn and enhancing their understanding of the subject being discussed. If students can simultaneously watch and hear the material as other students who are not physically together with him, then that is like bring the conventional class together by the modern telecommunications technology. But Pullen does not stop there. He presumes there is more to the modern technology than merely recreating the traditional learning environment. In order to fully achieve that potential he sees the modern age can utilize, he introduces the concept of the asynchronous learning material that can be accessed by the students any time and any day. The combination of the two, he thinks offers the ideal opportunity both for the teachers and students to come to develop the deeper understandings of the topics in question. The approach proposed by Pullen in this sense not only imitates the traditional learning process by also even potentially surpasses it in scope and depth. Through distance learning, then, students will have the initiative which no one ever dreamed of possessing in traditional environment. The whole process is a process of empowerment and initiation into true learning, which by traditional definition has to arise from within, that is from the voluntary desire of the students themselves. The distance learning could truly transcend the traditional learning if the concept expressed by Pullen were translated into practice. That is indeed an exciting possibility.

The next person who reports the developments in her institution is Keiko Okawa of Keio University (http://www.isoc.org/inet98/thur-t4-1.shtml). According to her Keio university started tackling the question of distant learning by actually implementing a curriculum that incorporates the advantages of networking the study environment. For one thing, she reports, they established the department called School on the Internet, in which the requirements are assignments we usually associate with the traditional classroom teaching formula as well as active learning utilizing video and other contents offered through the Internet. They posited good teaching

staff, multidisciplinary curriculum and lifelong learning as some of the elements necessary to bring the concept to a successful fruition. Overall the volition and willingness on the part of the learners is essential for this type of learning. That is why the list for necessary ingredients for this attempt includes as a corollary the voluntary engagement with the study on the learners part. Some of the noteworthy pedagogical attempts that are incorporated into the system includes lectures that are given on demand, assignments that are catered to and leaned towards collaborative learning and ongoing check using the Internet how the students are progressing in their study. (That is, if I am not mistaken in my reading of the report. The wording is vague here.) Since students may founder in their pursuit of the goals without supervisory oversight, the regular checkup even in such a freewheeling environment may not be just a gratuitous interference with students' voluntary activities. As an endnote, the transcribers add that the system developed in Keio has been a great success, as the students participated in the project expressed overall satisfaction with the new system of learning. That proves the feasibility of this kind of distance learning which takes advantage of audio, visual materials combined with the contents offered through the Internet.

The next speakers present caveat against the complacent acceptance of the Internet as an almighty tool to be worth superseding the traditional teaching altogether. Barton D. Thurber and Jack W. Pope of the University of San Diego warns against the danger of being dazzled with the technological legerdemain the Internet is wont to bring into classrooms and other learning environment. They maintain that there are aspects that cannot be covered by the new media (http://www.isoc.org/inet98/fri-t4-1.shtml). The case is particular pronounced in the field of humanities. Since the intangible, emotional dimension is so large in that field human interactions are an essential part of bringing the students into the real spirit of the creative work, for instance. They counter that the Internet may be a useful tool to quickly communicate with the parties on the other end of the line, it will never accomplish the objective of conveying the totality of the humanistic essence, which the traditional learning emphasized as integral in forming the complete man. They may sound a little puristic. But their point seems to be well taken when they maintain that some leaning should take place in traditional learning environment. In the fast milieu of the Internet where countless number of contents pop up daily and disappear without a trace the next moment, the contents no longer assume the value the traditional media, such as books and paintings, that is all those which are not digitized and those which exist in the tangible realm, have endowed them. When contents do not have a chance of winning for themselves

the sempiternal status, then it is understandable that the creators and authors of those contents do not work hard to place excess values which in traditional environment would give them the edge and the special status. Not so in cyberspace. The life span of contents there is so short that their value is subsumed under the means by which they are conveyed. That is why so many computer programmers spend thousands of hours to develop clever sites to snag the surfers. But going back to the argument made by Barton D. Thurber and Jack W. Pope, I have to concede that the Internet is not a competing alternative to the traditional method of delivering knowledge. It is rather to be taken as a complementing tool to enrich the learning experience anyone willing to take advantage of modern technology. That is indeed the issue tackled by Eszter Hargittai of Princeton University. Hargitai maintains that one of the disadvantages of the Internet is that it "does not contribute to the social behaviour of students." But she modifies her observation by adding that "Internet does however affect the social behaviour and the nature of the interrelationships." I do not know how to reconcile the two comments properly. But if she means that the Internet cannot really formulate their entire behavioral response patterns to cope with social issues but nevertheless it may have some influence on the way the individual form those response patterns, the point Hargitai is taking seems to make sense. The Internet, because of the limited degree of involvement with the individual user as he accesses the Internet, cannot, strictly speaking, impose the set of values the individual incorporates as his own and premises on to cope with social situations. That is quite true. But if the individual happens to be the type who responds to the Internet in a manner that exceeds the limit of the influence the Internet is supposed to have on the users, then those individuals may easily behave in a way that directly translates the information they gather from the Internet into real life action. That is why the Internet as a tool needs an oversight even more than in traditional learning environment. Since the incorporation of the Internet in the learning activity assumes the importance of the initiative students take upon themselves, misguided use of the tools could bring on disaster that manifests in aberrant socialization. That is where the function of the instructor becomes meaningful. Such a role is by no means intended to interfere with the creative activity of the students. Rather to channel the unconstrained energy through proper paths until the participants who are engaged in the project reach their individual goals. The whole concept, in other words, runs around the voluntary learning initiatives on the part of the students.

I have focused on the general issues involving the Internet so far. but now let us turn to the real actions that are seen taking place in educational scenes. According

to Barbara Spitz of Madison, Wisconsin, Metropolitan School District and Susan Calcari of the University of Wisconsin-Madison, there is an ongoing project that is initiated through the cooperation between the several schools in the United States. what is interesting about I is that the actual school children, K-12 students to be more exact, are directly generating the site to introduce and help others in their age group help find useful sites on the Internet. Since the effort is a synergistic result of three schools scattered throughout a large geographical area in the United States, one in Wisconsin, one in Colorado and the third one in Alabama, the students are exposed to an ideal setting in which to experience the wonder of networking their resources. Besides they have an opportunity to provide truly useful information for their peers. Starting with searching the data on the internet and editing and interfacing the information sent to each other, the networked team of the project can generate and, in fact is actually generating, the ideal learning environment through the media modern technology had made available to them. Of course their opportunity has arisen only because there was financial backup to support the installation of infrastructure and operate the project they are carrying on. But even if such hardware environment is already in existence, the initiatives that will launch the kind of networked effort seen in these three schools does not easily come about. What takes to keep such project going may be the good advisory body like the NSF Internet Scout Project in this case that paves the way to networked cooperation.

I chanced to find a report presented by Okhwa Lee of Chungbuk National University, Korea (http://www.isoc.org/inet98/track4abs.shtml#231). Since the report is rather extensive, I will turn may attention to it now. She focuses on the development of the web-based contents that can be offered to students. She points out that the Internet ahs been a popular channel to distribute educational contents because of five reasons. First, the web architecture allows multimedia presentation. Second, the web is an ideal site to maintain and store data and instructional materials. Third, the web enables efficient communication between parties in distant places. Fourth, the web is a cost effective means to deliver and exchange information. Fifth, because the web is suited to storing and distributing information, it facilitates cooperation between parties participating in the project. In order to offer the contents developed for the project to disseminate through the Internet, Lee and others first had to consider the target the materials being developed were suite for. That is not of course a separate process as the team initially set out to get the entire project off the ground. But they needed to refocus their target group once more as the Internet project advanced in stage and all the ideals started to take shape. Lee in the report restates

the audience as those in the sixth and seventh grades who are competent in reading and writing. In other words those who are capable of communicating with each other in physical propinquity as well as, by implication, those who are not physically close by but connected by the Internet. Rather abruptly, at lest for me, lee at this point narrows her subject down to the issue of the renewable energy sources in Korea. So, the project at this point assumes a ore defined shape as it directs the students' attention only to one field. But still the question of dissemination the maximum information through the new technology holds good. That aspect could remain quite a valid as Lee reiterates the process and stage of actually producing the materials that will be transmitted and absorbed by the students who are positioned at the other end of the telecommunication via the Internet. In fact Lee's emphasis on personally tailored learning contents at a pace that is again individually suited generalizes the point Lee makes in the report rather than particularizes it despite the fact that the stated objective of the whole project the team, of which Lee is a part of, is concerned is to teach and involve the students in the renewable energy issue in Korea. The next point Lee mentions is not unexpected at all. When web contents are being developed these days they almost always include those grow out of the Java environment and those which somehow utilizes the advantages of all kind of other multimedia products. Since all these contents I just mentioned need to be digitized in order to be filed and stored on the computer hard drive, the issue of digitalization Lee refers to does not seem to break any new ground. I take Lee's reference to the process their project led them to is merely a way to refocus not only their attention on the fundamentals of the project but also the audience's in order to make them aware what preparations went into bringing the attempt to a successful end. The next comments Lee makes gives an impression that the project accompanied the feedback from the students. Because the project, Lee implies, incorporated the constant feedback, the interaction between the developers and the students contributed to the ultimate success the team achieved. But aside from the success Lee constantly implies the team has enjoyed executing the project, the questions they used to collect data as to the effectiveness of their methodology indicates some useful ideas that could be reapplied under different circumstances. The questions include such suggestive points as the way they pursue the topic on the web site (the paths to trace the subjects to their conclusive ends) and whether there is any difference in the manner each sex utilizes the contents on the site (more specifically, each gender's amenability to the frame and non-frame versions in which contents are presented). In the conclusive section, Lee seems to contradicts what has been already discussed. Lee mentions that developing the Internet based database is relatively time

consuming and capital intensive. But I give it the benefit of a doubt here. Lee probably means that creating the contents that are truly interactive and high in educational value and most importantly effective in achieving the desired objective is indeed time consuming and in most cases expensive. As Lee points out in the end, those who are involved in such project should strive to draw out all the resources all the specialists in every corner of the earth can contribute. After all the most salient advantage of the web-based database creation is that it allows everyone to participate in the learning environment and let his special knowledge and skills interface with the needs and desires of the students who are intent on selectively trace the paths to the goal he had set out for himself. Of course the goal may not be there as the learner starts out on a journey in cyberspace. It may easily adumbrate itself as the students click his way forwards, backwards, and sideways in his voluntary search for the information he thinks he needs. Therefore, browsing through the database is inevitably an evolving process. But that is not one way process. As the database is constantly shifts in size and contents with the interactive contributions of all the people interested in the project, it ceaselessly requires the student to adapt his strategy to maximally utilize the pooled information that is only a click away from him. That is why the functions of both the contributors and the students who access the data become so synergistically intertwined in order for the project of the sort outlined here to enjoy success. The Internet is a living organic space, albeit virtual. What makes the most difference is the voluntary effort of all the people concerned. That is why the last comment by Lee sounds so prophetically rife with significance: "Educational Web sites should be designed and developed based on instructional strategies." Without good strategies all the organizers could agree on, there would be no apt utilization of the web facilitate students learning. As some have already suggested, the new communications technology would lose its raison d'être. No wonder there mushroomed so many controversies over the introduction of the Internet to schools and other institutions. As any new architecture needs good deliberation on the part of the architect before it is being translated into a tangible form, any new pedagogical strategy needs good amount of discussion before it is actually deployed.

The issue of seamlessly integrating the Internet oriented learning environment into the conventional K-12 education is also addressed by Mary Fran Yafchak of NYSERNet, Inc. USA (http://www.isoc.org/inet98/track4abs.shtml#231). The report reflects the situation in ordinary US schools where the modern technology has at lest established a certain degree of presence. The smooth and seamless interface between the Internet and the learning environment, Yafchak indicates, is not as simple as the

initial planners had thought before they launched onto the project to network US schools. As in Korea the effective offering of the web based data to students necessitates the deliberation on such issues as cost efficiency and learning efficiency. What sort of contents are to be offered and through what paths and at what stage, and many more questions just keep welling out as the planners embark on networking the schools and try to integrate the conventional learning into the high tech based one. The program to test the integrability of the two strains of learning method was conducted over a wide area of the United States during the 1996-97 school year, which includes districts and schools in Central New York (USA): Binghamton City School District, Binghamton; Ithaca City School District, Ithaca; Liverpool City School District, Liverpool; Syracuse City School District, Liverpool; Ed Smith Elementary School, Syracuse; Rome Free Academy, Rome; and Whitesboro Middle School, Whitesboro. To make the study more effective, the program organizers selected schools which are at their varying degrees of Internet connectivity. That is a good idea because the organizers were enabled to grasp the effectiveness of the Internet integrated learning method almost synchronously by comparing the schools that were included in the program from the start of the project. To make the program more insightful, the organizers chose schools with teachers who were also at varying degrees of Internet training. These two environmental and personnel parameters offered the researchers an ideal condition under which to see how the Internet integration should proceed and/or if the integration is indeed effective, and if it is, then what are the variable factors that influence the degree of efficiency with which the students adopt to the new learning environment. And needless to say, along with the effect on the students who are exposed to the new environment, the function of the teachers with varying Internet competence will come to the fore as the overall evaluation of the whole project is conducted to see the viability of connecting and networking schools. Although two sides of learning (here in the conventional sense) are both important, the role of teachers were particularly emphasized. They were given three-day hands-on training and even distance training if there was any need as they began applying the skills in real classroom situations in their respective schools. Although the materials were readily available the teachers were left on their own to adapt them to the real ongoing situations to generate the optimum result in their interactions with the students.

The result of the pilot program Yafchak and others conducted was summarized in the report posted on the site. As the project proceeded the teachers, as expected, molded the materials that were available through the Internet according to the needs of their respective teaching environment. But the researchers found there were certain

trends emerging from the trial and errors as the teachers got deeply involved in the new project. Although they were varied and difficult to clearly define, all of them have to do with the way in which the teachers tried to "design a more flexible and useful program" finely tuned to the specific situations. After all there were so many variables that the success of the Internet related education largely depends on the flexible response teachers show to ever shifting learning conditions. But most of all they have to take the living subjects, who are the target of their pedagogical attempt, into consideration. When there is a multiple number of targeted subjects in a given teaching environment, the teachers must necessarily process and adapt the given contents gathered from the Internet so that the students optimally digest them to finally attain their objectives. On the more concrete side, the most teachers found the time allocated for the experimental Internet teaching not enough to interface the students with the teaching materials. The situation is also true for the teachers as well. Although the time calculated to convey the entire contents to the subjects was 21 hours the targeted teachers had barely enough time due to all kinds of conflicting schedules of their own. So, the question comes to how to compress the materials into a more manageable scale so that the learners have a chance to truly become attuned to the contents that are brought through the Internet and will eventually be able to use the new medium of communication and distribution of information as a tool to their goal? the issue of implementalization of the Internet is indeed the lynchpin of the new digital age education. In that sense, the teacher training to prepare the instructors to become the ancillary intermediaries in the teaching environment truly reflects the real-life situation in which those instructors try to initiate their students into the new learning environment utilizing the Internet. The two situations mirror each other because the process they go through to reach their objectives is to implementalize all the factors that come between them, the initiators of action, and their objectives. In the end what the project organizers found out was that utilizing the Internet for facilitating the conventional education requires finely tuning the contents so that the things offered for intellectual food for the students would meet the need and demand of the particular locality they happen to reside. In other words, one of the keys to success in this kind of long distance education lies in the relevance of the materials being used to smooth over the interfacing process as the students digest the contents to reach their respective goals. This point simply brings to the fore the flexibility that is required both on the part of the content providers and instructors cum intermediaries.

Now that is enough coverage of the conference in Switzerland. I shift my attention to more concrete use of the Internet. That is, the Internet actually being

dovetailed with the real learning process in actual schools. I chose a site maintained by Glendale Community College at http://www.gc.maricopa.edu/2dts000/cis133/genhome.htm. I clicked on the Syllabus link to see the overview of the policies and modus by which such courses are conducted. Interesting enough, the courses sound much like conventional ones offered elsewhere. But since the classes are particularly catered to those who are focused on the new means of accessing information there are things that distinguish them from the conventional studies. But before going into the nitty-gritty of the fundamental philosophy that underlies Internet-based coursed, I would like to backpedal a little and look at the means that are stated on the page to search and access the Internet. According to the syllabus, the students learn to retrieve information operating IBM compatible computers. But in order even to accomplish goal they need to connect the remote computer. Although these two processes are divided for convenience's sake, they are in fact one series of operations students need to learn in order to download data from the Internet. In that sense the course described here is structures to facilitate the students' comprehension of the Internet research. They are, however not to remain merely passive recipient of Internet sources. The syllabus also states that students are to acquires skills necessary for transferring files and distributing their own ideas through the Internet. For that purpose they learn HTML and web page production. All these activities will be intercalated with occasional tests and, in order to accelerate students' learning, various assignments. Since the course is intended to incorporate the actual use of computers, demonstrations utilizing either conventional teaching tools or computers or both will be frequently given. Not surprisingly, the textbooks used for the course are directly related to programs that are essential to gather data through the Internet. And a noteworthy difference that manifests at this stage from the conventional course environment is the floppy disks as a requirement on a par with the reading materials. Of course, in a course of this kind the digital storage medium is not unexpected. There are eight regular project assignments and one major assignment. All these assignments have their due dates just like any other conventional assignments. Attendance also counts as in regular courses. Examinations of various kind will be administered throughout the term. The student's accomplishments are evaluated at the end of the term. So, the course is essentially founded on conventional curriculum modus operandi. One item that brands the course as an unmistakable offspring of the computer age is the software restriction line. It states that any unauthorized duplication of the software products used in school is prohibited. In an age when new files and ideas are disseminated and transferred on a second's notice,

that binding clause may not be so effective. But at least that warning is necessary in order to keep the wild freewheeling attitude from infecting the learning environment. But let us go on to see what kind of projects are envisioned by the course creators. They may be more relevant to my essay than dwelling too long on the legal issues involved in the Internet. That may come later.

The page lists eight projects connected to the course. I click on the link entitled "Browsing and searching on the Web." I find a page grayed out in the background. The page obviously is intended to be treated as a sheet of paper, as it were, the kind the students might find in any conventional textbooks. That is a minute point but I surmise that the web designer seems to be intending to bridge the gap between the conventional learning environment and the new one involving the Internet by removing all the signs that distinguish the conventional learning environment and the cyber environment. The instructions directly points to the minute details by which the students are expected to fulfil the task thought out by the course developer. The directions are orderly and quite well structured. The first stage involves the students to find out the sites (URLs) randomly selected by the assignment creator. The task is not simply track down the site. That would be too simple and likely not lead to the acquisition of any practical skills for the students. Rather, the project forces these students to engage in actively cope with the information they find at the indicated URLs. That way, they are ineluctably led to recognize the work they had set out on as something tied to the object oriented process they are not deeply in. needless to say, they are not asked to perform a complex set of operations. Not yet. Their task simply is to print out the page they have reached. But considering the bridging effect the actual printing out of the object that exists in cyber space, printing is an operation enough to give the students a handle and feedback to tread the uncharted territory by. Appropriately, this part totals twenty in the points they can accumulate in this two part project. After all the initial stage is crucial to build students' competency in computer research and whatever comes after that. The second part of the project consists of actually working with the pages the students find on the web. They are required to create bookmarks and open the bookmark window. They are further instructed to create new folders and add separators to make subcategories under the same directory. The whole operations seems rather complex. But if the students follow line by line and apply whatever they have learned in their short experience in using the browser, they are calculated to finish the task without a major hitch. The project then asks the students to make a hard copy, as well as soft copy on floppy disk, of the image that appears on the page they are working on. The

operation is excellent in that it again creates the much needed link between digital world and conventional environment, which is particularly needed for people who have just started exploring the still murky cyber world. Then students are asked to change the default setting to which the browser responds when it opens up. That should be a rather formidable step for beginners because any slight change in setup could trigger violently unexpected response from either the computer or that particular application. This is a stage where they may need some hands-on help, if things went haywire. For those who have come to a successful completion in entering the correct characters in the box indicated by the instructor, the final task is to once again copy the window and paste it to Wordpad. The pasted image would be again saved to floppy disk and turned in to the instructor as evidence of their accomplishment. The project is extremely streamlined and calculated to give the students the maximum knowledge and savoir fair to utilize the computer as a tool for their future research and database creation. Asking them to save and making hard copies of the data they have collected efficiently and seamlessly transitions the students into the new learning environment while allowing them to visibly confirm what they have accomplished. Needless to say, production of hard copies also gives instructors a chance to check the progress of students' work, thus providing both parties with the feedback necessary to guide the project to a successful conclusion.

The next agenda the students have to act upon is to practice emailing. The process starts with preparing text file that contains the students signature information. That is intended to teach the students the know-how to incorporate a file that has been pre-created into the document they will send to their prospective recipients. So, in this simple operation the practical side is seamlessly dovetailed with the theoretical side in order to achieve the optimal result. After all any skills that are not closely tied to the reality impacted operations are not likely to reside in the students' memory very long. To make the now familiar link between the digital and the tangible worlds, the instructors asks students to make a hard copy of the files they keep stored on their floppy disks. Then the moment of actual application of the emailing skill they have learned in class arrives. Students have to fulfil an assignment in which they have to send email to the instructor. What makes the assignment doubly effective is that they have to write, rather summarize the things they have learned in class. That is, the assignment again links the students' work to realty-impacted operation, which necessarily encourages the students to put the assignment and all the work involved in it in a context that is quite heterogeneous to the traditional instruction (which very often is clearly circumscribed by both physical and psychological barriers from reality.

And again students are asked to print out the message they have sent. Another step to bridge the gap between the virtual and real words. Reality intrudes in another sense too. Students have to send the email in time for the session during which the instructor plans to discuss exactly the operations the students have performed by sending in their email. In many ways all the practices students are engaged in are integrated to achieve the maximum pedagogical effect. Obviously the best education is the kind that happens unconsciously on the part of the learners. Unconscious, that is, in a sense that students acquire the Klondike and skills before they are aware of what they are accomplishing. After this practice, students have to go to a web site where they need to fill out registration form of a sort to become part of the cyber community. This process is significant in that they are again unconsciously made to establish a foothold on a new terrain while seemingly they are only performing a task compelled by their instructor. Of course, they are not required to submit the form. Compelling that far would be violating students' right to remain anonymous. By that concession, however, the instructor paradoxically is etching the burning impression on students' consciousness how far-reaching and powerful the Internet is. Implicitly the instructor also gives the students an inkling what ramifications would the act of submitting their information to a public domain have. After all the mere operation of filling out the form and clicking a button could entail consequences that might be far greater than students were capable of envisioning. But the warning, or rather the conditional clause supplied by the instructor, is again a verbal bridge to help students gauge the scope of the domain they are stepping into. But the instructor has more practices in store for the students than merely submitting their registration forms. They have to then search for the name they can recognize, either their own or for those who did not submit their form, the teacher's. So, the feedback is again seamlessly incorporated in the act of filling out and submitting their forms. Nothing ends abruptly. In fact all practices students are involved in describe a loop within a loop, which again is contained in another larger loop and so on. That is almost a mirror image one finds in the web. One link leads to another site/page and it in its turn leads to another and so on. The instructor deftly copies the metaphysical world of cyberspace in students' practice. I have to admire him.

The next stage of this operation requires the students to create a folder linked to the mailing program and store the email and messages they have created in it. The practice not only builds up confidence in the students by way of familiarizing themselves with the program, that is all the executions necessary to send email, but also introduces them to the means to communicating through the new digital medium.

To fortify their newly learned skills, the students are to send mail to their friends. That exercise completely puts them in a real circumstance that is only distantly related to the class they are taking. That may be only an illusion but it may not be so difficult for them to mentally obliterate the academic framework in which they are actually set up to work by their instructors. And once again students are asked to make print screens of the messages and addresses they have sent and collected. The ontological cross trafficking ceaselessly continues in the whole set of exercises within this program. Students indeed have a hard time escaping from the knowledge that inundates the learning environment. To give the final touches to the series of exercises students engage, they are asked to send email to the president of the United States. That seems like a rather audacious project. But the intent of the instructor is not difficult to surmise. He wants his students to have a understanding that the power and reach of the Internet is far greater than possibly any one of them have imagined. And now they have the know-how to execute the operation to establish the link with the most powerful man in the nation, they are to sense implications of the digital telecommunications technology that are holding ascendancy towards the end of the millenium.

The next project involves the students in file transfer operations. At this stage students are actually compelled to prepare files to send out or transfer using FTP. The exercise is purely intended to let the students the skills required to execute file transfer. In fact all this exercise entails is that students connect to any FTP site and download files they see interesting. At that point they are to make, as usual, print screens and save them to floppy disk for future reference. Once the copies are made, they are asked to expeditiously delete the files they have downloaded and saved to the local computer. Leaving the files that may or may not be used by the students could be a waste of the hard drive space. Besides this final execution teaches the students another important maneuver to delete what they have saved to the local directory. So, as in other exercises this one too is intended to instruct the students to learn a set of operations that result from one particular maneuver specifically initiated by the instructor. As an added bonus to this series of executions, students are asked to download a computer game program from an FTP site. This instruction not only give students time to breathe a sigh of relief from the academic exercise they have been engaged in but also it seamlessly directs their attention to the practical side of the operation they are now involved in. The instructor again merits much praise as he materializes a learning environment in which students are unconsciously led to acquire the necessary skills to apply the new technology to real-world situations. Then comes the unzipping exercise. They are to download zipped files and open them. Since

zipped files need to be opened with the help of a special application, this operation entails a series of operations that are a step advanced than the one the students had already engaged in. Once this stage is brought to a successful end, they are again asked to make a print screen so that the instructor can confirm the students' progress. To finish up the project students are asked to send out their own files through FTP to the designated site.

Next the students are asked to visit a number of reselected sites. Then they are asked to save the pages they visit in text format. That is intended to be used as web page templates. (Although it is not specifically mentioned, these web pages are to be used as templates in students' HTML production.) The next stage involves the students to write text in HTML. That is needless to say the first step toward creating a web page. But students are not asked to produce any complicated pages like one ordinarily view on the web. Rather this operation requires them to enter simple headings and incorporate a few graphic images and write a story about themselves. The last instruction, to write their personal history, is again intended to close the gap that the students might feel at this stage when they are about to plunge into the new world of HTML. Indeed at any stage of this whole project the instructor tries hard to connect reality, that is where students stand, to the technological frontier they have reached. This maneuver on the part of the instructor constantly solidifies the ground students are now treading. After completing all the operations they were asked to perform, students are then to test the HTML text in a browser to see if it works as it was intended. If it did, then they added tags correctly. If not, then they are required to make appropriate corrections until the text is transformed into an intended image in the browser. This HTML project is not meant to be an in-depth experiment that involves students in an extensive scripting work. But rather just a survey to acquaint the students with the marvelous possibilities the Internet holds in this digital age. Just at the lick of a button, they have learned, students can communicate with the people all around the world. That might have been a vague understanding they had held vaguely, but with their hands-on involvement with the project of this kind they should by now feel the shrinking of the world something tangibly real. Then to give the project the final touch and give the instructor the latest report on their progress, students make a print screen of their work appearing in a browser.

The next project involves the students in searching the pages that are related to their selected topic using search engines on the web. This exercise may be more difficult than it initially appears. Especially for students who are just initiated into this filed. First, the instructor asks them to find sites related to he topic students will

be taking up in their own web production. The search should be conducted suing a number of search engines. And it is initiated by simple words. Since executing this operation usually entails a lengthy list of sites that may or may not be related to the topic students had in mind, the work is expected to necessitate a rather lengthy selection process. With search engines, coming up with the possibly related sites is not difficult at all. What is time-consuming and tiring is winnowing and sifting through a mountain of irrelevant pages that disguise themselves as exactly the sites to gather the kind of information the visitor is looking for. After successful location and gathering of information, students make again a print screen, fortifying their confidence in Internet data collection. The next step asks them to enter a compound word, instead of a single word, to search the sites that offer the information they need. Although this operation narrows down the sites that deal with the specific topic students are concerned with, stringing words does not necessarily guarantee a well defined search. Rather it may complicate the maneuver all the more and result in a list that is far less focused. That means, the students have to think carefully before they enter compound words in the search engine text box. Appropriately the instructor asks them to input different strings of words to see what response each execution triggers. They are likely to be surprised by the subtle maneuvers involved in the employment of the search engine. After the stringed word search students are asked to enter in key words and arrive at these sites they want based on the category of the topic those key words fall under. This search may result in a different list of entries. But the purpose of the practice is to give students an opportunity to approach an issue from multiple perspectives. At the same time, this activity drives home the democratic nature of the web as a whole. That is, there is not only a seamless network of sites on the web that are linked to each other without any particular direction but also there are a plethora of perspectives that are concomitant in the use of the web. Students' involvement in the search engines is intended to fortify the concept that the existence of multi-layered and –strained views is not an exception but rather a norm. As if to repeat this point, the instructor asks them to make a print screen of the result of their search and save it to a floppy disk. Once again, this operation will bridge the gap between the cyber world and the real. But there may be something else taking place at the same time. Something more philosophical and ethico-pedagogically important. While students are convinced of the naturalness, or at least existence, of multiple approaches to any one subject, they are encouraged to carry that understanding over to the real, everyday world by the bridge the act of copying and printing out the result of the search engine establishes. The newly awakened understanding now transposed to the reality-impacted ontologically

dimension could help students' eyes to open up to a more tolerant take on the issues engaging them than they used to. That possible transformation itself is a worthy aim in involving the students in the exercise delineated here. If the practice, purportedly set up to inculcate the students in acquiring skills in navigating cyberspace, entails such windfall profit, then the project enunciated here has much vaster consequences than anyone may have initially imagined. But I have a strong feeling that al those possible ramifications may after all have been calculated from the start. That is quite a compliment. The project is that well integrated. Each component stage not only fits into other stages that precede and proceed but also all the stages that constitute the project synergistically contribute to students' learning in multiple ways.

The next project involves the students in actual interactions with other parties online. First they are to send out a message to be post on a particular site dedicated to collecting comments and opinions from the viewers. The purpose of the exercise is to make their own voices reflect on the cyber community. Of course there is no guarantee that everyone surfing the Internet will take a peek at the bulletin boards that show the students' opinions. But there is neither a guarantee that their views remain completely unread. So in a way students get the sense of interacting with others by posting their messages in cyberspace. The next exercise requires them to send a message to a certain site for help information. This is indeed a first step in hands-on interaction with some other party they have not yet physically met. This open-ended encounter with others in cyberspace is surely to enhance students' awareness of stepping into a wide new world filled with all kinds of possibilities. The next step engages the students to use a listserve to find lists that are pertinent to their upcoming major project. This may be a handy tool to come up with the resources that will be utilized in the next step. Each of the steps I enumerated are to be either printscreened or printed out so that the instructor can evaluate the students' progress. To give students' search a more democratic slant, the instructor asks them to use another operator to come up with lists that will be used in their future project. This exercise not only involves the students in using the listserve but also actually interacting with it by asking them to subscribe to it. What the instructor mainly focuses on, not surprisingly, is the active role students take in executing each move as they proceed in the new terrain. This exercise does not end in asking students to subscribe to the listserve. They have to learn the undo move to reverse what they have initiated. That is a reflection of common computer operations. They need to know how to go forward and backpedal at the same time. That is, they have to recognize the line that separates the real and virtual worlds. While in the former you cannot reverse the

physical process you have initiated unless you leave a visible mark on whatever you are backtracking on, in virtual world you can undo, most of the time that is, a maneuver and go back to the state that has existed before that execution was effected. This will tell students one advantage of working in cyberspace. As a starter they reverse the process they have entered into by unsubscribing what they have subscribed to. As an obligatory move students make a printscreen or a hard copy to be presented to the instructor.

The next project involves the students to download zipped files and unzip them to see the contents. Because the instructor asks students to download executable files, the students have to go through maneuvers that result in creating actual directory being created. At the same time, this execution produces image files, which they can either use or discard depending on their needs. But what the instructor is concerned with is involving students in an actual operational move that affects the way the operating system responds to the users, that is themselves. By exposing students to this inscrutable operation, in which zipped files spring open by themselves by a mere click of a button as they are filtered through unzipping program, the instructor convinces students of the wonderful yet inscrutable power the computer network holds. But the good news for them is that they are stepping into the new terrain and has executed an operation that certainly entitles them to be participants in the brave new cyber world. The next step requires students to connect to the predetermined account using Telnet. What makes this exercise exciting is that students are to input a code word to make the connection. This use of the code word is enough to accentuate their sense that they are entering into a new sphere in which only they are in on some arcane knowledge. Needless to say, that may be a bit claustrophobic conception of the operation they are involved in. But what counts most, for better or worse, is the promise of power this exercise makes to the students. That is, the power students feel they hold while they are staring at the monitor with their fingers at the ready to click or punch in some words. At stage of students' understanding of the network, they are not instructed to go any further with their exploration. What they are told to do is to make a print screen and log out. In their excitement with the newly acquired power they can all too easily forget the dangers implicit in stepping into the new world. The instructor, being such a competent planner, asks students to retreat before they get burned. They need to learn more before they can proceed any further with this operation. The next exercise asks students to go to a UNIX search engine and enter a certain information so that they will come up with a result, which the instructor asks them to printscreen. Although the maneuver required is innocuous enough, this exercise allows them an

opportunity to come in contact with the UNIX based search engine. Since UNIX plays such an important role in computer networking, or the Internet, students' initiation into the brave new world engined by power machine will certainly give them a mild shock. The bland pages that greet students will leave indelible images on students' mind all the more because of their contrast with the graphically rich pages students are accustomed to viewing in their browsers. Other exercises on this project engage students to gather more information using Telnet. Rather, since gathering information is not the ultimate objective at this stage, students are directed to search and arrive at the sites that offer promises of the information the instructor has instructed them to gather, while the real purpose of the whole process from the perspective of the instructor resides in involving students in the process of utilizing the network and giving them the inkling of what the Internet is capable of delivering.

The next project requires students to create web pages on a specific topic the instructor has prepared for them. On this occasion, the latter asks them to advertise their business. Needless to say, the contents are not as important as the process of incorporating them according to the instructor's directions. First, students have to inscribe their names on the page. A move obviously intended to add personal touch to the exercise that can so easily become perfunctory. Besides incorporating the personal signature in the pages students are creating will heighten the sense that they are finally entering the stage where they can somehow make a difference in the world, let it be real or virtual, by producing the electronic document that can actively interface with potential readers. After the students have entered their personal mark on their pages, they are asked to actually start working with the material construction of their web pages. First, they need to either produce their own background file or choose form existing files to enhance their pages. The background selection has to be done in a way that the images or characters that appear in the foreground stand out rather than being obliterated. That may sound an easy process, but it is not. Students will soon learn the labor and time that is expended on web page creation. The next step requires them to input the title of the company they are presumably representing. Here begins the reality-impacted project that truly tires to drag the students into the pretend world of business. That might sounds rather contradictory but what this project attempts to accomplish is to splice practice into reality. Students after this do not need much encouragement to see how the entire project can relate to the future that is opening up for them. The future in which they will be engaged in the computing work (or at least the kind that requires some sort of computer knowledge) with the skills that they hopefully acquire through the exercises they are going through now. But after all this

pretend engagement with reality must remain within the boundaries of practice at the moment. Students are required to fulfill certain requirements as they design their web page. After the title comes a proper background. Because too bright background colors tend to distract the viewers from the real content that is in the foreground, the proper selection of the background design and color is a skill that is truly paramount in establishing the right communication between the content, or the purveyor of the content, and the viewer. In that sense, this is a requirement students must fulfill to the instructor's satisfaction if they are to become a competent deliverer of information via the Internet in the future. After the background selection comes the text, which touts their product or advertises the company itself students are supposedly representing. The text they create has to be the kind that incorporates some textual effects, such as bold face, Italics etc. After all the purpose of engaging the students into this activity is to introducing them to many possibilities that the Internet-based communication via the web holds and train them in the implementation the optimal communication through it. The other requirements students have to fulfill include incorporation of a numbered list, unnumbered list, table and at least one link to their other projects. To top it off, they add a mailto line to solicit the prospective customers to contact them and an inner link to help the viewers navigate within the site (in this exercise to the top of the current page). There are some other elements students must incorporate in their pages to fulfill the requirements for this project. But all are essential ingredients to produce well-designed web pages that truly interact with the viewers.

I have spent enough space on a sampler project that has been pursued at a higher institution in the US. Now let us turn our attention to the interface issue surrounding the web-mediated communication. I know it is a sudden transition, considering that I have focused on students' project to create first web pages. But no communication can be properly and fully established unless all the ingredients that go into it are first studied. There happens to be a good site that addresses the same question from various perspectives by people who have an extensive experience in web-based information delivery. The first article appears at http://www.december.com/cmc/mag/1999/jan/rakros.html. In it Rakhi Rajani and Duska Rosenberg discuss the factors affecting the usability of web sites. The common assumption about the role of the web pages, they point out, is its multi-dimensional user-provider (as in information provider) interactions. More specifically, web sites offer their contents through texts, graphics, sounds, etc. But what restricts the presentation of all these contents in their fullest potential is the narrowness of the

bandwidth the Internet can use to convey information. For that reason, Rajani and Rosenberg write, the modus operandi of the web pages are narrowed down to those which, unfortunately and quite paradoxically enough, do not so extensively use materials that tend to clog up the channel through which digital information is transmitted. After all, the primal objective of the web based information delivery, according to them, should be allowing the visitors "instant retrieval" of information. Crowding too many heavy files, such as sounds and images, into a narrow bandwidth considerably slows down the download time so that the instant access which anyone dreams of when they use the Internet for the purpose of collecting information becomes impossible. For that reason, the functions of the sound, text, images need to be defined in a manner that puts the usability at the center of the entire enterprise when web designers incorporate all the contents that are to be uploaded. Although the two authors admit the various purposes to which web pages could be utilized, the point they make about the usability of (or accessibility to) the web sites needs to be carefully considered by anyone who desires to make online contact with prospective viewers. It is at this point that all the exercises that accompanied the college projects I mentioned above become relevant. Web designers, including those who just started creating pages, need to pay careful attention to the textual effects, background colors, layout, incorporation of sound and graphic files in their pages, etc. All these are the ingredients the instructor in the preceding section emphasized, as he guided the students through the fundamental skills in developing web pages. Rajani and Rosenberg simply summarize the importance of these skills on a much more advanced level. Their conclusion from their argument on the user-friendly web interface is that "design of web based media must include psychological considerations alongside computer design aspects."

Their assumption is based on the fact that the web is primarily a visual interface. From that follows that the primary objective of a web designers is to address how visual information is "processed, manipulated and interpreted." That may sound rather banal after going through the trajectory of the college projects in the previous section. But it may be worth heeding the present authors' argument because they are laying out their points after their long involvement with web based communication while the previous projects were specifically designed for the uninitiated. As expected, they reiterate the roles graphic, audio, textual elements play in the total designing of web pages. But what is most interesting is that they mention the individual variables as each viewer digests the information appearing on the pages. Under this category they include reading speed of the viewer, "text size and colour, cognitive memory aspects,

knowledge issues surrounding 'pre-programmed' states and the everyday navigational issues that user grow so accustomed to." In other words, the aspects that subtly (or not so subtly depending on the individuals who are interacting with the pages) affect the viewers' absorption of information. Since the potential viewers who visit a particular site are infinitely variegated in age, area, tastes etc., the human factors become one parameter no computational method could adequately address. At least for the moment. But, the two claim, it remains the category that is most prone to be left unaddressed. In a rush to provide more dazzling contents that heavily depend on novel technology, the web page developers tend to bypass the complex issues that partly arise from human factors and partly from the physical limitations of the Internet, specifically the narrow bandwidth. To bring the usability issue to the foreground, the two authors introduce the results of Nielson's study on the most user-friendly web sites. Quoting from the survey, they conclude:

> Users were more comfortable with pages that had fewer colours, greater means of communicating with the web master, more pictures of real people and appropriate metaphors. On the whole, less complex interfaces were preferred. (http://www.december.com/cmc/mag/1999/jan/rakros.html)

The result of Nielson's study is not a vagary of the moment and circumstances that happened to have turned out the way it did. The result is repeated by other survey carried out at the Centre for Information Environments Research at Brunel University. The majority of the people sampled responded that they had rather spend the shortest time possible time at any site on their way to gather the relevant information they are after. As soon as the task is done they would leave the site and go on to another in their search. What that means is that most visitors of the web site prefer the pages that download fast rather than rich in all kinds of files but that take minutes to become available for the visitors' of the sites to play with. The survey also points out that the presence of too many clattered files put the users off the scent of the information they are really after. In that sense, such sites could just increase complexity and keep the users from locating the data even though they might lie just before their eyes. The survey provides an interesting insight into the psychology of the surfers. As they frantically try to locate the information they are looking without initial success, they tend to broaden their search to include all the elements that are on the page. But as their search proves even more futile, they become all the more frustrated and likely to miss the right link or target sentence that should provide them the answer. So, the priority of web designers, the two deduct from the survey, resurfaces as laying out the elements that help the visitors navigate the site effectively in a manner that meets the

needs of the users. The lesson that emerges from the survey simply reiterates the theory that underlay the college exercises I introduced above. Making the paths to other segments of the pages maximally accessible and clear to the visitors indeed becomes the essential designing strategy when we think that, according to the survey, most surfers live in the moment. They do not remember what pages they visited a few seconds ago. They are not only forgetful of the immediate past but also not much concerned with the immediate future. That is, as they immerse themselves in the information that is before their eyes, they are just following the lines and images that stare at them from the monitor. With that mindset, visitors of webs site may easily become detracted from their objective once their initial attempt to retrieve the relevant information proves unsuccessful. Therefore, providing the proper signposts for the surfers to view the pages quickly becomes essential just as tidying up the pages in a reader-friendly way. Actually the two are one and the same thing. If the purpose of uploading information to the web is to distribute information to the maximum number of viewers, the simple and clear design will certainly increase the traffic to your site. Because, once again according to the survey, the shorter time it take for the surfers to locate the needed information, the better they will be concentrated. That means they will more likely be more absorbing the overall content of the site. When this relationship is established between the distributor of information and the recipient of it, then the designer has succeeded in his ultimate objective. The important lesson one can learn from the survey the two authors report is that despite the common assumption about the importance of multi-modal means to interact with the viewers of the web sites, the survey proves that what most people want is the simplicity of design and color schemes that enable them to retrieve the relevant information the quickest way. The surprise elements, including the entertainment content, may be effective under some circumstances. But if the surfers are only after a certain target information, they may not brook with extraneous embellishment, which merely slows down the download time and detract them from the scent. So, the survey brings to the fore the importance of clearly defining the purpose to which web pages are developed. If viewers are travelling through the web of pages just to be entertained and dazzled, then all kinds of new technology may be quite welcome. In that case, if the pages are all to functional with only text and meager amount of graphics and animation and sound, the surfer may as well skip and go on to the next site. But on the other hand, if they are only after the nitty-gritty, then simplicity in design becomes the most important feature when the users interact with the page. But overall, the survey does not give the definitive answer to the question, what gives the surfers the optimal

viewing experience? That is understandable because there are so many variables involved as already implied by the preceding argument. What the least the web producers have to keep in mind, however, is the purpose for which they are using their pages and for whom they are intended. Becoming oblivious to that very important precept will entail serous consequences. One them the most obvious of them would be to lose all the potential visitors. If the designers are nonchalant about that, then they might as well change their profession.

Murphy, a second contributor to the January issue of the CMC Magazine, gives an interesting insight into the origin of HTML. Since the initial stage of the Internet based communication and distribution of information was mainly conducted among people who knew how to operate complex hardware and also who had a fixed specialized topic to discuss with others in the same field as himself, the need to address the issues in the shortest amount of time was essential and even desired. In such circumstances, use of graphical embellishment or audio entertainment did not dovetail well with the demands of the people who were denizens of what we might now call cyberspace. The name HTML itself is an indication of how the text based communication was mainly considered when the new means of gathering and distributing information was invented a couple of decades ago. This historical bit of information gives an insight into the fundamental protocol that underlies the even present Internet-based communication. If the assumption of the creators of the web pages is that they want to establish interface with the potential viewers (the more the better), then crowding the pages with too many graphics and sound files may be contradictory to the objective they are supposed to started the project with in the first place. This important caveat brings us back to the exercises assigned to the students at the college I mentioned abode. The instructors' main focus was to emphasize the usefulness of the Internet and through the various exercises he had set up for his students he taught them the fundamental ideas on which any web page development should be based on. Simplicity of design, clarity of color scheme are only two of a myriad of elements students were supposed to have taken their cues from the lessons they learned through the class sessions. But what complicates the real world is complexity and multiplicity. Even though the initial web pages are intended only for special group of educated people who did not expect to be entertained while they went through the pages, the present day web surfers, at least most of them, demand much more than simple text based pages. The fact thrusts itself in the face of the on-hand web designers that the audience has uncontrollably diversified. That is an incontrovertible reality. So, the question comes back with a vengeance. What kinds of pages are most attractive? At this stage, that question

itself sounds a little naïve. By now it should be obviously that there is no one and only standardized design scheme that appeals to all the audience. That is simply not true and is going to be rejected outright in action as the surfers perpetually moves back and forth online in search of the sites they fancy most. In a sense, the study to define the nature of the web and essence of the surfing experience drags on without reaching any conclusion. That is for the better because the unfixability of the purpose and audience of the web proves the dynamic nature of the new means of communication. The web is, in other words, perpetually in motion and transmogrifying in many senses.

I have been addressing the issues involving the Internet, particularly as they pertain to how the web sites interface with the viewers and how they can be utilized to enhance educational opportunities. As I went from site to site, looking for information to cultivate my understanding of those issues, I was unknowingly pulled into the network of difficult factors that defied easy categorization and facile solutions. It turned out that there were too many variables to consider before one can come up with adequate answers to meet the questions and challenges such parameters as geographical divergence, educational level of the viewer, the age of the person interacting with the site, etc. posed. As the two authors' I quote above indicated, these questions perhaps will never be fully answered as the Internet grows restlessly. When one has arrived at one satisfactory answer to one particular facet of the whole range of questions at any given time, that answer and even the questions that had elicited the answer in the first place would have become irrelevant. That is indeed mind-boggling. If the cyberworld is so fluid and restlessly transforming itself, then how is one supposed to find a solid ground from which one can place everything in perspective and based on that certainty to initiate an action? Unfortunately, there is no solid ground when it comes to the communication of the new age. What is required is to become used to living in a tentative world amid uncertainties. That may be a dangerous, tiring place if you are rooted in traditional ideology and methodology. But if you cast your eyes well into the future and consider what potential the new technology holds, then you will be convinced of a better, more flexible society that is evolving right at this moment. After all, no static complacency gives a better society unless some jolting catastrophe shakes it hard enough to brutally wake people out of their somnolence. The uncertainties that are concomitant in the world defined by the Internet are in that sense integral to the next phase of civilization. That is why all the issues related to the use and purpose of the Internet are so relevant at this juncture in human history.

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