THE GLOBAL CHALLENGE OF TECHNOLOGICAL DEISENFRANCHISEMENT

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Abstract

As computer graphics educators we are able to collect and manipulate data in ways that only a few years ago would have been considered science fiction. With the dawn of every day there appears new programs and strategies for retrieving, storing, and editing our precious data in new and exciting ways. However, this world of information abundance is not available to all that might wish to tap the resources that are just suspended in cyberspace waiting to be harvested. As strange as it may seem to those who thrive on the acquisition of information, there exist "technologically immature" nations and societies that still long to be ushered into the ranks of technological adulthood. Many seem destined to remain in a sort of perpetual simplistic childhood of technological innocence not knowing how to find their way among their more technologically sophisticated neighbours. What is causing these groups to postpone their entrance into "technological adulthood"? This presentation will examine the causes for technological disenfranchisement, and explain why there are members within every community - even within the "technologically progressive nations" - who seem destined to remain in a world that is passing them by.

Introduction

As computer graphics educators in what we might be pleased to call the "technologically progressive nations", we have access to data systems and networks that are able to both manage and provide bits and bytes in quantities that just a few years ago were considered a dream of things to come. With the dawn of every day there appears new programs and strategies for retrieving, storing, and editing our precious data in novel and exciting ways. Indeed, there are many among us who would doubtless consider their days a waste of waking hours if they weren't able to receive a daily dose of e-mail, or surf the Net. This daily acquisition, this barrage of information, has become a staple of our careers. It is the very breath that supports the biosphere of our professional and personal lives. To fail in the quest to obtain information, or to lag behind in the pursuit of more and more information, causes some among us to be ranked by our colleagues as being "illiterate" should we be unable to perform this daily acquisition in an efficient and timely manner. This vast amount of accessible information, and the interaction it allows us with of our fellow man, in only moments of time and space, are mere key-stokes away from us in our offices, our homes, and even as we travel.

And what of the data that is only waiting to be harvested? The field of information available covers such a breadth of knowledge, in such diverse levels of interest, that at times the deluge of facts presented for our consumption seems more of a “a solution in search of a problem” rather than the means of bringing any inquiry to a successful conclusion.

However, this world of abundance is not available to all that might wish to tap the resources that are just suspended in cyberspace waiting to be gathered. As strange as it may seem to those who thrive on the collection and manipulation of information, there exists, for lack of a better term, "emerging" nations, societies, and even neighborhoods which have not found the road that will allow them to enter the world of the technologically mature. They somehow seem destined to remain in a sort of perpetual simplistic childhood of technological innocence. Who are these groups, and what is causing them to postpone their entrance into “technological adulthood”?

Who Are the Disenfranchised?

The question of technological inequity is not an easy one to address or solve. If a society lacks the technology to retrieve and process information, “Why don’t people without computers just buy them?” In reality, problems created by a lack of technology are most often not solved simply by throwing money at them - by supplying a “technological band-aid”.
It is also a common misconception that only those citizens in third world nations face the deprivation of technological access that we have at our fingertips. Some may believe that only nations, which have enormous populations or crumbling economies, are those without access to technology. The fact is that the technologically disenfranchised exist in all nations, and all cultures, including the more prosperous western industrialized nations. The disenfranchised are those individuals that have little to no access to the type of education and training, due to economics or social condition, re-quired in order to function at any meaningful employment in the future; employment that increasingly requires employees to have technical skills and computer literacy.

The disenfranchised are all about us and yet we often fail to recognize them because of the isolation that seems to separate the technology “haves” from the “have-nots.” There are those within the system that are sophisticated technocrats, those who are moderately computer literate, and those who wander helplessly through a world of bits and bytes knowing not which way to turn.

The disenfranchised may be those members of society, in all cultures, that had circum-stances in their lives that either kept them from school, convinced them that they were not smart enough to learn or they belonged to that strata of society who just didn’t need technology. Without encouragement and support from some source, many see no reason to try.

Many have ended up unemployed, on public support, or in some cases wind in prison and find that this is their last hope for any hope of receiving education or participating in the chance to learn more about the technological world in which they exist. They are among us and more often than not without face a life that offers few opportunities to learn how to survive in their world. Indeed, many will remain throughout their life disenfran-chised and lost within their own society.

Most problems associated with a society that may suffer from diminished, outdated, or

simply no technology, are not due to a lack of systems, or equipment, or a desire to have these things. Most technological problems are rooted in social and cultural fields of interest. As Volti explained:

> The list of technologies that have been or could be applied to the alleviation of social problems is an extensive one, and examples could be supplied almost indefinitely. What they have in common is that they are 'technological fixes', for they seek to use the power of technology in order to solve problems that are non-technical in nature. [Volti92a]

Even though money alone cannot solve problems associated with technology we would be in error if we did not grant that the lack of financial resources (particularly in poorer nations) to secure the hardware and software is not a contributing part of this problem. However, in every society there are those who have spent the majority of their lives in a technologically unsophisticated world and care nothing about joining the ranks of those who they perceive tap endlessly on keyboards. While we may suppose that this lack of interest in technology may be based on a fear of the unknown (and that reason certainly exists), we would have to also agree that any such disinterest shown may also be centered on more immediate needs, due to age, or cultural responsibilities, or simply a lack of time.

Regardless of the reasons a society may or may not accept technology there is one fact that we cannot dispute: The world changes within a society whenever it accepts or rejects technology. Perhaps the biggest change concerns the "sense" which the community has about itself. Before exploring this idea some given facts need to be considered. It is not difficult to look around various communities in any nation and quickly spot their distinct cultures by the icons associated with them. For example, turbans atop people's heads can be seen everywhere in India, but they are not so evident in Hawaii; most people who speak English as a second language retain aspects of the accent or intonation of their native language which often allow others to identify their country of origin; immigrants to all nations do not suddenly loose their native customs upon arrival in their adopted homeland, but usually continue to celebrate holidays and family occasions as they learned to do as a child. All of these contextual clues suggest something to us about the feeling a person has about the community in which they live. Whenever a new technology arrives within a community it cannot but influence the way in which the established customs of that community are practiced from that point on. Referring to technology's impact on community identification, Foster expressed the opinion that:

> Community, then, is built by a sufficient flow of 'we-relevant' information. The 'we' or the collective identity that results is structured around others who are seen as similar to the 'me'. In this sense, community, like any form of communication, is not fully realized without the conception of self. Essentially, this entails that "...what goes to make up the organized self is the organization of the attitudes which are common to the group. A person is a personality because he belongs to a community" [Mead93a]. [Foste97a]

Do some societies or individuals view self-disenfranchisement as preferable to the loss of their identity? The fact remains that many

choose to be disenfranchised when their position which can be altered for the better choose not to act due to the fear of what demands technology may make on their lives. Methods must be addressed on establishing strategies for meeting the needs of such populations. Educators must provide students everywhere with the skills that will allow them to become contributing members of society, able to meet the demands of the technological future without fear of loosing their personal identity. Purchasing computer technology is not the sole answer; people must know how to use them, possess the ability to read, write, and solve problems, and understand that the world about them is changing and they can adapt to the needs of the future without fearing who they will become. We as educators, along with business and industry, must provide resources and activities that will facilitate this learning process.

People within a given society do become disenfranchised due to the fact that they shun technology because it changes them. Marshall McLuhan promoted the notion that information (specifically printed words) would cause the breakdown of national boundaries, the blurring of cultural identities, the "detribalization" of society, and unite people into one central community [Mcluh62a]. Perhaps that is the basis of the question before us - the lose of identity. What may be even more to the point was McLuhan's statement that, "The medium is the message". The medium sets the standard by which the cultural foundation of those who will and will not be players in the "global village". As in any social setting, there are members of the society that are seen as belonging to different strata within a community. There are those who are considered to be socially unacceptable, physically or intellectually unfit, or economically deprived. Those who are unable to participate in the technological exchange due to a poverty of means or skill will be disenfranchised from a world that will never pause long enough to allow them to catch-up.

McLuhan was only partially correct in his assumption that the flow of information would support his claim that the world will be detribalized. Technology has done something that we believe McLuhan never expected to happen: It didn't make our world larger, or bond communities closer together - it made the world a smaller, more select, place in which to live. It has created a world of the technological "haves" and "have-nots".

Such a technological society picks and chooses which citizens will be accepted and will be shunned. The medium automatically creates niches of select members that have traits that parallel each other - who have the expertise and resources to continue to support the other community members in cyberspace. Those who live in cyberspace communicate primarily with those within that community. The on-line communicator has become less flesh and blood and more bits and bytes. Such a society exists only for those who have access to information. It spurns those who are without the literacy or ability to become members. The rules of who will be accepted into this new society come not from a sense of communal good, but rather from the technological demands of the medium itself. Those outside the community are disenfranchised simply because they cannot effectively communicate with the members within that society. The voice of the outsider is not listened to simply because it cannot be heard. Addressing precisely how the acceptance of technology can change the society in which we live, Alcorn wrote:

> One no longer knew everyone in the neighborhood or in the community.

> People came and went more frequently. Mobility increased for some and not for others...Dispersion, particularly among generations, tended to decrease the level of interaction among members of the extended family and to increasingly isolate the primary family unit. [Alcor97a]

Cultural Issues of the Disenfranchisement

If we agree that the problem of technological disenfranchisement is based on social and cultural values then we must look to society's view of itself in an effort to resolve this question. As Nowotny noted:

> If we look for the power of ideas and their cultural influence in changing the general outlook of a society, then we have to take into account much wider flowing currents in the cultural sea. The decisive turn is from a modern society…that believes itself to have moved beyond this programme and its so called postmodernity....Post-modernism is built upon decon-struction of any central authority, it entails fragmentation and the loss of any central perspective. [Nowot93a]

Attempts to alter the culture of a society will result in a variety of outcomes. While the Luddites tried to destroy technology, other nations have limited those who are allowed to participate in technologies by assigning them to guilds, trade unions, or nomination by age and gender. Today, universities the world over select who will, and who will not, be admitted to their hallowed halls. This too is a form of disenfranchisement directed at those deemed worthy enough to be allowed to participate in technology and the global community.

While the introduction of new technologies have often had diverse consequences, history has shown some predictable outcomes among all societies. Initially, new technology is more often than not seen as a threat and resisted:

> Resistance to change can be viewed as an adjustment process, by which the frustration and anxiety caused by the technological change are denied. People may feel helpless in the face of technology. It is new and undefined, an anxiety causing condition that at first spurs them on to seek out knowledge that will alleviate their initial fears of the unknown…The countercultures of the twentieth century used withdrawal...to deal with the changing environment within which they were living. They chose to withdraw not only from the technology but also from the changing culture that the technology was creating. They "dropped out" and "turned on" as a means of escape from the realities of changes that were occurring. [Alcorn97b]

In many regards technology is like a newborn baby - we are never sure at the beginning who it will grow up to be, or what its future place in the world will mean. As Callon reminded us, "Technology both creates systems which close off other options and generates novel, unpredictable and indeed previously unthinkable, options" [Callo91a].

Conclusion

Then where are we in this global community? What can be done to alleviate the vast numbers of the technologically disenfran-chised and make the community a more equitable society in which to live? How are we to pursue a course of action that will correct the social and cultural misgivings that create the monster before us? Technology to many is a monster for it feeds on the "techno-poor". Instead of lifting them to a level of confidence and intellect, it devours them.

Disenfranchisement has the ability to reproduce itself in greater numbers with every generation - not the generation of people, but the technological offspring's which have arrived, and continue to arrive in leaps and bounds on a daily basis. No sooner does a new version of a program arrive than a newer release, or improved format replaces it.

The technical community in which many of us live parallels the civic townships in which we reside. There are about us technocrats of every level and social standing. Those of us who lived through the days of DOS (and the struggle to be technologically proficient as we then supposed!) really share no technical bond with students who have never worked on a computer outside the Windows environment. A few weeks ago, while working in DOS, a student approached and said, "Is that DOS? Wow! I've never seen it before." I suddenly felt not unlike a dinosaur whose extinction was imminent. However, while we may not share a technological heritage with our students, we will share the future. Despite these historical differences, when it comes to manipulating data, extracting power from software, and thinking of the next new challenge in technology, many of our students, we must concede, are technologically our superiors.

If we wish to redress the issue of disenfranchisement, we must labour to correct the social imbalances that have created it. Cantley suggested, "If there is...control without understanding, there is danger not only to science and technology, but ultimately to the society itself" [Cantl87a]. How much truer are those words a decade later? Paralleling these views Diettrich wrote that the solution to technological inequity may be found in a complex interplay of several factors:

> One possible interplay is the exchange of scientific, technological, economic and other factual data, information and arguments with a view to the elimination of misunderstandings and the possible rationalization of conflicts...This is the very root of the idea of public information: the more people are informed the more successful will be their decisions. [Diett93a]

At the beginning of this argument we began by suggesting that money alone cannot solve the problems of being disenfranchised, but neither can we exclude its need. Undoubtedly, as people in poor nations are able to raise their standard of living, personal means could be dedicated that will allow them to more easily become a part of the technological community. Then their lives will change and perhaps they will find themselves again on the bottom rung of the ladder, albeit a technological one.

The road to technological stability and access will be a long one for many. Indeed, some will never arrive at the destination they desire. In an effort to ensure that as many as may wish to join the society of the informed we must ensure that the path is clearly laid out for them

to follow. In fact, the road to technological equity is not unmarked, but is well worn and easy to traverse. All we must do is assist those trying to find it and once there point them in the direction that leads forward. As Tehranian wrote: The hardware and software technological requirements...are thus already for us. The challenge is to create the cognitive technologies by generating the appropriate values and norms…To insure citizen partici-pation, however, at least two conditions must be met. The services must be made universally available and the price must be affordable...But the seeds of a powerful idea have already been planted in the minds of the citizens... [Tehra90a]

There is no need to look further for the path to follow for it is before us.

References

[Alcor97a] Alcorn, P. A.: Social issues in technology: A format for investigation (2nd. ed.). Upper Saddle River, NJ: Prentice Hall, p. 186. 1997.

[Alcor97b] Alcorn, P. A.: Social issues in technology: A format for investigation (2nd. ed.). Upper Saddle River, NJ: Prentice Hall, p. 24, 1997.

[Callo91a] Callon, M.: Techno-economic networks and irreversibility. In John Law (Ed.), ASociology of Monsters: Essays on Power, technology and Domination. New York, NY: Routledge. P. 132, 1991.

[Cantl87a] Cantley, M.: Democracy and biotechnology. Swiss Biotech, Vol. 5, No. 5, p. 5, 1987.

[Diett93a] Diettrich, O.: Biotechnology and social perception. In Rene von Schomberg (Ed.), Science, Politics and Morality: Scientific Uncertainty and Decisions Making. Boston, MA: Kluwer Academic Publishers, p. 209, 1993.

[Foste97a] Foster, D.: Community and identity in the electronic village. In David Porter (Ed.), Internet Culture. New York, NY: Routledge, p. 25, 1997.

[McLuh62a] McLuhan, H. M.: The Gutenberg galaxy: The Making of typographic man. Toronto, Ont: University of Toronto Press. p. 111, 1962.

[Mead93a] Mead, H.: The emergent self. In James Farganis (Ed.), Readings in Social Theory. New York, NY: McGraw-Hill, p. 159, 1993.

[Nowot93a] Nowotny, H.: A new branch of science, inc. In Rene von Schomberg (Ed.), Science, Politics and Morality: Scientific Uncertainty and Decisions Making. Boston, MA: Kluwer Academic Publishers, p. 81, 1993.

[Tehra90a] Tehranian, M.: Technologies of power: Information machines and democratic prospects. Norwood, NJ: Ablex Publishing Company, pp. 90-91, 1990.

[Volti92a] Volti, R.: Society and technological change. New York, NY: St. Martin's Press, p. 24, 1992.