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## **Technological Rationality in Five Coastal Communities of Newfoundland: Historical and Contemporary Challenges to Lifelong Learning**

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**Abstract:** The introduction of information and communication technologies into five coastal sites in Newfoundland offers both promise and challenge to a people struggling in the wake of the collapse of their single resource, the cod fishery. Our study asks again Heidegger's question about technology: in what manner does it affect one's very way of Being?

The history of Newfoundland centres on the sea and its single resource – fish. Around this resource is woven a complex story of an invaluable knowledge of place and ecology coupled with limited ability by people to control their own future. The story involves an early migratory fishery, expansive coastal settlement, organic knowledge of the sea, and an innate ability to survive in hostile climates. It also tells of a paternalistic social order, educational inequity, and colonial governance. In the 20<sup>th</sup> century, the socio-economic story becomes one of government policies that ignore fishers' knowledge, extend privilege to large fish plants and trawlers over the inshore fishery and, with over-fishing and the eventual collapse of the cod fishery. The other push has been to encourage economic diversification, re-training and the use of technology, all of which have been difficult to achieve and communities continue to live under the threat of 're-location' to larger growth centres.

To enhance efforts of community resilience, the Burgeo Broadcasting System (BBS), a local non-profit television station, recently placed information and communication technologies (ICT), video-conferencing in particular, in five communities on the southwest coast of Newfoundland: Grand Bruit, Burgeo, Ramea, Grey River and Francois. It was hoped that this technology, along with digital cameras, printers, scanners, and broad-band internet services (all components of Community Access Programmes--or CAP sites) would enhance health care, stimulate business and employment, and create broader life-long learning opportunities. Our role is to examine the potential benefits and problems inherent in these technologies. Like Fleming (1989), we believe that we need to engage community members in a critical examination of technology as more than simply a tool. We also share Marcuse's (1968) view that technology comes with the potential to both strengthen and undermine society .

This paper examines ICT through the framework of technical rationality, as issues of implementation, uneasiness and resistance, indifference and neutrality, traditional and imposed knowledge(s), and the dialectic of training and pedagogy. We argue that, in spite of social and educational benefits of technology, long-established patterns of control and domination, endemic to colonization and technical rationalization, have re-emerged and can be challenged only through pedagogical spaces that enhance people's ability to plan and control their own futures.

### **Historical Context**

Newfoundland, unlike Canada's other nine provinces, emerged from official colonial status to join Canada only in 1949. As a colonial outpost, it experienced benevolent governance and the economic control of merchants who were, in turn, directed by the policies of the Mother country -- in this case, England. Since Confederation, a series of national and multi-national corporations have dictated, through the fishery, the socio/economic course of the province. The virtual collapse of the cod fishery in 1992, and the hasty exit of companies, created a massive destabilization in coastal towns and villages. A major out-migration of workers and youth has led

to declining services in transportation, education and health care. Nevertheless, among the remaining citizens, the last decade has seen some diversification of work including eco/tourism, a hydroponic vegetable plant, a kelp industry and, lately, signs of computer technology at work in schools and in small businesses.

### **Theoretical Framework: Technical Rationality**

Theorising technical rationality has been on-going for decades. Weber (1978) set the stage by distinguishing between substantive and formal thinking; the former, based on considerations of value and latter, calculations of efficiency and effectiveness. Building on this, Heidegger (1977) warns of the tendency for society to “enframe” all issues and questions in technological terms and, in so doing, miss essentially important features of three-dimensional existence. Marcuse (1968, p.19) addressed the simultaneous assertions of the benefits of technology, its neutrality and its bias toward domination, and attempted to formulate a response at the level of technological rationality itself:

Freedom indeed depends largely on technical progress...But this fact easily obscures the essential precondition: in order to become vehicles of freedom, science and technology would have to change their present direction and goals; they would have to be reconstructed in accord with a new sensibility of life instincts. Then one could speak of a technology of liberation...a product of the imagination free to project and design the forms of a human universe without exploitation.

Fleming (1989) takes-up Marcuse’ ideas and conceptualises a technological literacy within the framework of imagination. His approach is to create a critical and imaginative understanding of socio-technical systems, which includes an examination of costs and benefits as they accrue to citizens as ‘decision-makers.’ Transformation of the technical view cannot be acquired simply through grasping towards an assured rationality, Collins (1991) points out, but must be actualised instead through processes which have aspirations of justice, empowerment, equity and agency. Practices of teaching and learning, particularly within capitalistic societies, have been moving gradually but perceptibly from creating holistic understandings of the world to one-dimensional views (Franklin, 1999). Rather than learning for democratic civic participation, rather than drawing upon and building people’s knowledge bases – what Barr (2001) refers to as ‘really useful knowledge’ – we note a push towards technical training for acceptance of and adaptation to the new ‘knowledge economy.’ We need to examine questions about how people and processes are shaped by technology, as well as the more common questions about what changes take place through technological means. We also need to examine what has been omitted from consideration, what in Heidegger’s (1977) terms, continues to be “concealed.”

### **Methodology**

In this qualitative study we use a critical/feminist lens, informed by participatory methods. This means that we are conscious of gender relations and inequities, we intend our research to be of direct benefit to the communities, and our process is carried out within a framework of praxis and educational opportunity (Gormley, 2001; Lather 1991). Our data is drawn from individual interviews, observations and, most importantly, from community workshops with teachers, principals, students, health care workers, CAP site coordinators/librarians, community leaders and other concerned individuals. Together, we reflect, debate, and share ideas and knowledge around the adequacy, design, and use of new technologies.

### **Top-Down Implementation**

Fleming (1998) argues that the vast majority of technological interventions flow in a downward movement, driven by politicians and/or corporate élites whose aim is to serve specific economic and ideological interests which may not correspond to what communities either want or need. In the case of the five coastal communities, however, we note that the implementation of technology was done with the best intentions. Those involved with the BBS are members of the communities and believe these technologies are a last chance for survival. Nevertheless, many community people view the decision around ICT as top-down. They argue that there was limited discussion, and all discussions avoided any critical analysis of technology or any chance to reject it. One person who attended one of our workshops explained it like this:

Well [the trainer] came and he said there was this new technology and that it would be good, and that we could use it for education and health. He was here for about an hour and then he left. Next thing I knew, we had this machine [video-conferencing].

Winner (2001, p.7) argues, like Weber and Marcuse, that the fascination with technological means begins to eliminate any care about ends, or about purposes within broad social, economic and cultural contexts. What people need or want in terms of seeking knowledge, creating meaning, building community, takes a backseat to 'having' the technological device. This is like entering into a social contract whose terms are revealed only after the signing.

### **Planned Obsolescence**

Planned obsolescence presents another major problem with technical rationality. A Community Development Officer explains how this is manifested in the five communities:

ICT put more demands on the system and it's going to be an issue of trying to keep up in terms of the infrastructure that's already in place.... What we put in two years ago into the system was considered to be pretty high tech at the time, [but now it's] at the bottom of the ladder.... The technology has just advanced that much more. So it's going to mean a process of having to keep current.

Planned obsolescence has both economic and sustainability implications. In the first place, money for new programmes is continually required and this means an ultimately non-sustainable reliance on government subsidies and supports. Secondly, time and attention are taken from people who are supposed to be training others to use the technologies, and placed on upgrading and repairs. In addition, the hostile climate of southern Newfoundland wreaks havoc with equipment which is perched atop high, windy cliffs.

### **Uneasiness and Resistance**

In 1959, sociologist Mills argued that a single feature of our period was the condition of "uneasiness and indifference" (p. 12), a state we find that is perpetuated by technology. People in our study are uneasy about technology for three key reasons. As mentioned, they find the speed of change and capacity unsettling. Then, they often feel, rightly or wrongly, that technological advances - and in the case of these communities it is around technologies of fishing (e.g., trawlers and sonar) - are responsible for job losses and the collapse of the fishery. Also, they are uneasy because recently installing technologies have not been part of their experience. As the Development Officer recalls:

When we first went into the communities to talk about this [technology] the response was few and tentative, because once you talk information technology you frighten people...It just goes beyond their realm...their comprehension is low. Communication is part of their existence...but it's like they don't have anything they can take a hold of.

Technology both challenges and destabilises the knowledge base that has been the source of survival for centuries. In the first series of workshops held we drew upon people's experiential knowledge of the structures and politics of the community, the history, the land and sea. However, in the second series of workshops we emphasized the need for communities to take control of the new ICT and construct plans for their future usage. When asked to envision future uses for the ICT in terms of education and community development, both young and old were totally silent. We realised there were three main reasons for this. Firstly, people were unaccustomed to being asked and we had turned the 'power' back to them. It takes time for people who have not held the power to see themselves as power-holders, and to begin believing that their ideas matter. Secondly, we were moving beyond the concept of ICT as hardware, software and training - the main areas they had been preoccupied with - towards a deeper appreciation of the need for strategising, critical thinking, envisioning, taking control and ownership. That is, we wished to develop a culture of technological literacy. Finally, a knowledge of what ICT could do, what they could be used for, what they could learn through them, was outside the people's experience and they had nothing to draw upon. Although they have extraordinary stores of traditional and local knowledge when they search their own histories through a super-imposed knowledge framework, they do not yet include new communications technology within their power purview (Clover & Harris, 2003).

### **Indifference and Neutrality**

Paralleling uneasiness and resistance is indifference, as illustrated by this conversation between a librarian/CAP co-ordinator and one of our researchers:

Researcher (R): Do you ever do any surveying [around the CAP site]? Do you send out a questionnaire asking people if they are happy with the services?; Participant (P): No, we've never done that.

R: Do you have - what's that called - a suggestion box? P: Not really, no.

R: Any other mechanism for getting feedback from the community? P: No.

R: Does the Library Board ever put out any questions, things like, how are we doing? P: No.

R: Does the school? P: No.

R: Can you tell me anything about the demographics - say gender or ages - of people who use the site? P: No.

R: How do you know if you're doing a good job? P: I guess we don't (laughs).

While in some cases records of usage are kept, this indifference is not uncommon. It arises when people feel neither ownership nor control. It can also be attributed to the belief that technologies are neutral and are simply 'tools' (Moll, 2001). But technology, Winner (2003) argues does in fact transform. It transforms, restructures and redefines education, meaning, personal identity, family and social life, and well-being. It is not neutral.

### **Training and Pedagogy**

People in all five communities spoke of the lack of time spent on technical training -- the how-to of the equipment -- and the frustration this brought. One teacher recalled that "there were days that, when I would finish that class I was just, you know, worn... It came to the point where I used to dread when I had to use the thing [video-conferencing]." Also, technical training quickly becomes a process of 'through the technology' and the human inter-actions around learning give way to cyber instruction a point made clear by this quote from one of the trainers:

One of the things I always do [to new trainees] is to right away take them to websites where they can continue on with their learning. It's so that they gain their independence and they can get on learning.

The problem goes beyond simply technical ability and rational training into the complexities of pedagogy representing an encroachment of the premises of the technical paradigm into the more interpretive (or meaning-based) orientation of education:

Yes, we learned how to operate the system, we learned how to log on. We learned how to pan the camera round the room. But you don't get the little things that you need in a situation. I mean, you're actually teaching these kids so there are all these other little things that you need to be aware of. I mean, hats off to Burgeo Broadcasting, but they're not thinking about the teaching concerns in terms of reaching your class, and hands-on work...and being able to walk down and look at your student's work (teacher)

This is about ethics, the essence of learning and teacher-student inter-actions.

### **Positives of Technology**

In spite of the problems, there are many positive aspects of the technology and we feel that through our research, we can help people conceptualise and gain greater control over their futures. Technology has opened doors to the outside world of information. In general, the capacity of communities to engage in research has grown. Not surprisingly, schools students lead the way, accessing courses on-line and through video conferences, and surfing the web. Students in one community have used the new technologies to create historical pictographic vignettes about their communities. This has meant speaking with older people about their history, and exploring graveyards for family histories - a technology/human interaction of learning.

The adults, who realize the full limitations of health care provision, now have become through the internet extremely knowledgeable in a number of health-related areas. Many people, also, have enhanced their personal communication skills through the digital camera equipment and computers. They take photos and send these along with messages to family and friends across Canada. Thus the technology allows outport people to maintain closer contact with those who have left. Women have assumed leadership at the technology access sites, gathering new knowledge about health care, accessing funding opportunities, and helping one another and the men to prepare job applications.

Through our workshops and interviews, we are able to draw attention to emerging ideas and areas where growth can happen. One example is that many young people want to stay in these communities. This means they will need to 'create' employment. Already, there are a few people who use the internet to sell their crafts or work as consultants. So the question becomes - What kinds of work can young people create so they can live in their community? What are the implications of this for career counselling, for future educational directions?

### **Conclusion**

Through our workshops we ask the normative question: Ought we to embrace new technologies, and if so, on whose/what terms? We have created spaces for what Freire (1976, p.64) refers to as the "pedagogy of question". We have provided a space for people to challenge technical rationality and reflect as a group on the contradictions, problems and possibilities of technology and encouraged to envision their future. Nevertheless, we see a pattern of resistance emerging from both youth and women. This resistance comes from the lack of power and control over the placement and implementation of technologies. In addition, there are few opportunities for them to envision the kinds of educational opportunities these technologies could provide. In particular, little discussion has focussed on using video conferencing to enhance adult learning and community development. To date, technology is presented to the people solely in its technological dimensions. We argue that this narrow training -- directed to the transmission of information and skills -- undermines the creation of pedagogies of agency and critical civic

participation. This paper contributes to the discourse on life-long learning by challenging the assumption of the neutrality and over-riding benefits of technology. We expose its colonizing tendencies as well as the power of people to resist its top-down application.

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