**Political Constraints on Visions of the Future:  Anticipation or Struggle?**
**(Commentary on "Anticipating Applications for Digital Video Communications:**
**Two Scenarios for Australia)**

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Portrayals of new computer and information technologies in the popular media show a profusion of new gadgets, each promising to transform the way we work or play. There are occasionally calls to "get on board", and practical suggestions for how, you, too, can begin to use, and perhaps, understand in a limited way, the new technology. Missing from these portrayals is any indication of how decisions were made to shape the technology in just this way, or of who makes those decisions.  It is self-evident, part of the doxa, as Bourdieu (1977) might say, that the employee or citizen who is most affected by the new technology cannot participate in that decision-making.

In this context, the article by Stevenson and Lennie is refreshing in that it assumes from the outset that directions for new technologies, in this case, digital video communications, are the product of human agency.  Moreover, they call for a more inclusive vision of who should participate in defining those directions.  They see the need for a greater involvement of women and others, who have often been excluded in the past from technological decision-making.  Their vision also seeks ways in which technology can be used to empower, rather than to control people.  To illustrate one way that the process of technological decision-making might proceed, the authors contrast two scenarios for DVC in Australia, one leading to the Conventional Age and one leading to the Communicative Age.  Their analysis is useful in asking us to engage in the process of choosing our future, rather than simply accepting one created to achieve the profit goals for a global corporation.  It supports the view that people can create new practices reflecting the complex accommodation of human needs to new technologies.

Unfortunately, all of this comes too easily.  The call for a coevolutionary future that accommodates social concerns and is ecologically sustainable is one that others have echoed.  In the area of education, for example, new technologies have often been linked to a "dream" (Lepper & Gurtner, 1989) characterized by meaningful dialogue, the restructuring of classrooms, student control of learning, greater engagement in learning, more challenging problems, the development of thinking skills, and deeper understanding of subject matter.  But all too often, the dream has become a nightmare in which the promised changes fail to occur or, worse, greater inequities and dehumanized learning result.

The most pernicious effects may occur when innovations are used well, for differential access may then exacerbate the inequities that already exist across lines of class, race, and gender.   This is evident with computer use in schools (Russell, Mokros,

& Foster, 1984).  Wealthier countries and wealthier schools within those countries have greater access to new technologies.  Moreover, students in wealthier schools more often use computers for open-ended learning activities, such as written compositions, Logo programming, science simulations, and the sorts of communicative age functions described by Stevenson and Lennie.  Meanwhile, when students in other settings, such as inner-city schools, do have access to these new tools, they may experience only drill-and-practice on basic skills (Boruta, Carpenter, Harvey, Keyser, LaBonte, Mehan, & Rodriguez, 1983; Shavelson, Winkler, Stasz, Feibel, Robyn, & Shaha, 1984).  Even within a single classroom there is evidence that the distribution of access and information "follows the well-trodden battle-lines of social-conflict" (Foucault, 1972, p. 227).  Students already marginalized in special programs become further so when they miss the introduction to the computer because of being pulled out of class (Michaels, Cazden, & Bruce, 1985).  Thus, technological innovations often do little to change underlying inequities, despite optimistic visions of change.

A similar situation is occurring in the United States with the "National Information Infrastructure."  Previous communicative age visions of the NII are regressing to the conventional "control-oriented, technology-driven" scenario.  If we are to understand why these dreams become nightmares, we need to grapple more directly with the underlying contexts in which decisions are being made.  The authors hint at this indirectly.  Their frequent use of terms such as "consumerism," "political process," "empowerment," "control," and "profit" point to the fact that it is often not in the short-term self-interest of the people who do make decisions about technology to adopt more egalitarian or environmentally friendly approaches.  As a result, decision-makers choose to continue practices and to promote technologies that do satisfy their immediate self-interests.

For example, it is true that the one-to-many format of current television is disempowering of diverse groups and individuals.  Having DVC technologies that supported many-to-many formats could facilitate collaboration for social change and powerful new forms of education.  But it is the one-to-many format that appears to fit corporate goals.  Unless the public assumes  greater control of the production of new technologies, alternative visions will remain daydreams, rather than blueprints for change.  Because of this, Stevenson and Lennie neatly avoid some of the most perplexing issues about technological change in this area.  They appear to gloss over the reasons why one scenario may predominate, even if it is patently unimaginative, inequitable, and inefficient.  Outlining an alternate vision is not sufficient if it is not seen by those who have the power to realize it.

When people adopt a new technology, they find that some aspects of it are worthwhile, some are not, and others need to be changed.  When they have the power to modify it they do so.  This process of evaluation, selection, and modification is effectively a re-creation of the technology by the users (Bruce, Peyton, & Batson, 1993).  Whether the users do in fact re-create an innovation depends in part on their technical skills, but more importantly, on their having the power to do so.  There is of course great variation in the degree to which users are allowed to shape the technology they use (Bjerknes, Ehn, & Kyng, 1987; Papanek, 1973; Suchman, 1988).

This can be seen in earlier studies of automation, which, like DVC, appears to embody contradictory future scenarios.  But in most cases, the overall impact has been to reproduce existing power relations.  As Scott (1982) points out, there has been little change in the work women do since before the Industrial Revolution::

A decade of historical investigation has led to a major revision of the notion that technology is inherently revolutionary, at least as the notion applies to women.  The available evidence suggests that on the contrary mechanization has served to reinforce the traditional position of women both in the labor market and in the home. (p. 167)

As Stevenson and Lennie are right when they ask us to consider the variety of possible futures for DVC and to suggest that these futures are not effects of the technology per se, but also of our visions for its use.  Moreover, the very boundaries and character of the innovation must be seen as a process shaped by users and developers.  Viewed in this way, a new technology is the manifestation of a set of beliefs and values about change.  Rather than thinking of interactions between a fixed technology and a static social context, we should view the process of technology-influenced change as a transaction (Dewey & Bentley, 1949).  In this transaction among ideas, cultural values, sentiments, institutional structures, social practices, and the features of the technology, new meanings are created.  An appreciation of the nature of this process leads to new perspectives on innovation and social change and to new questions to ask about the effects of new technologies:  Under what circumstances will a social system change, resist change, or change in unexpected ways?  What is the role of the technology in producing change?  What institutional factors promote or inhibit change?  How can we best analyze the process of change when it does occur?  What are the implications of these issues for the evaluation of innovations?

Stevenson and Lennie make two important contributions toward questions such as these.  One is that they explicitly call for a new communication research methodologies.  They identify  several specific issues concerning DVC applications and their effects on users.  The second is that they call for renewed dialogue about the creation of futures for DVC use.  This is presented in terms of recommendations to managers and decision-makers.  My only quibble there is that I would like to see comparable recommendations addressed to all the parties who might be involved.  That is, it should not be left to the good will of managers to include women or end-users, or to consider alternative futures.

I would add that, as we consider the variety of possible uses and the different scenarios, we must remember that under current systems, not all parties to these scenarios have equal voice in determining their likelihood of realization.  Stevenson and Lennie's concern for turning a Utopian vision into a possible or probable scenario, their account seems to leave out issues of ideology and power, which may rule out some scenarios, even, or especially, ones that speak of empowerment and new social relations.

As Suchman (1988) points out, "we are taught to view the political and the technological as separate spheres, the former having to do with values, ideology, power, and the like, the latter having to do with physical artifacts exempt from such vagaries of social life" (p. 174).  The maintenance of these separate spheres makes it difficult to see

how changes to a social system occur through other than simple, one-directional causation. This impedes both the development of successful innovations and the understanding of social change.

In one sense, Stevenson and Lennie do present an integrated analysis; their scenarios are defined in terms of political and social relations. But their article leaves us with a puzzle: If one scenario is linear, mechanistic, inefficient, more of the same, ecologically damaging, and so on, why does it also seem so likely? Is it simply that we haven't imagined an alternative? Or, is it that in addition to having the alternative vision, we need to have the political power to realize it? I welcome their contribution to these issues and the many insights their article provides.

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